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**Airport management and the importance of non-aeronautical revenues,
A case study on the Lisbon airport**

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Master's in business administration

Supervisor:
Prof. Sofia Kalakou, Assistant professor, ISCTE Business School, Department of Marketing, Operations and General Management

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BUSINESS SCHOOL

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ABSTRACT

The business of an airport aims to serve passenger and aircraft movements and ensuring profit creation as well through aeronautical and non-aeronautical revenues. This study has the objective of understanding the non-aeronautical revenue sources of an airport and what influences passengers to use them. The information gathered in this study provided the identification of the types of non-aeronautical revenues that exist in the airport business and also provided insights on those that are the most profitable, such as food & beverage, commercial and parking.

Based on these three means of non-aeronautical revenue and previous studies a survey was created and distributed online to anonymous users of the Lisbon airport, to understand what factors influence passengers to participate in these commercial activities. After collecting 235 responses, twelve logistic regression analyses were performed, the relationship between variables was studied with the association Chi-square test and the differences between groups with the t-test, in the case of numerical variables.

The findings show that, age, currency, destination, having local products, good exchange rates, having time and being relaxed, can positively impact consumption. Trip purpose, the number of days at the destination and being stressed with flying can influence positively purchasing. Finally, the city of residence, currency, having luggage to check in, having to pay for transport and finding the stores' position in the terminal very comfortable can positively impact parking.

RESUMO

O negócio de um aeroporto é feito para obter lucros, para obter lucros o aeroporto deve criar meios para obter receitas. Um aeroporto tem vários meios de obter receitas, sendo os dois mais rentáveis as receitas aeronáuticas e as receitas não aeronáuticas. Este estudo tem como objetivo compreender as receitas não aeronáuticas de um aeroporto e o que influencia os passageiros para as utilizar. A informação recolhida neste estudo permitiu clarificar os tipos de receitas não aeronáuticas que existem no negócio aeroportuário e também esclarecer as que são mais rentáveis, alimentos e bebidas, comerciais e estacionamento.

Com base nestes três meios de criar receitas não aeronáuticas e em literatura de estudos anteriores, foi criado e distribuído online um questionário a utilizadores anónimos do aeroporto de Lisboa, para compreender que fatores influenciam os passageiros a participar nestas atividades comerciais. Após a recolha de 235 respostas ao questionário, foram realizadas doze análises de regressão logística, foi estudada a relação entre as variáveis com o teste de associação Qui-quadrado e as diferenças entre grupos com o teste T, no caso das variáveis numéricas.

Os resultados mostraram que, idade, moeda, destino, ter produtos locais, boas taxas de câmbio, ter tempo e estar relaxado, podem impactar positivamente o consumo, propósito da viagem, dias no destino e estar stressado com o voo, pode influenciar positivamente as compras, cidade de residência, moeda, ter bagagem para fazer o check-in, ter de pagar o transporte e encontrar a posição das lojas no terminal muito confortável pode impactar positivamente o estacionamento.

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1. INTRODUCTION

1.1. THE BUSINESS OF THE AIRPORT

Airport management deals with the business of an airport, the streams through which airports make money and the drivers that create revenue resulting into a thriving business. The ACI (Airports Council International) categorizes airport revenue in three sections, aeronautical revenue, non-aeronautical revenues and non-operating revenue. In Europe 58.9% out of these revenues correspond to aeronautical activities, 38.3% to non-aeronautical or commercial activities and 2.8% to non-operating revenue. ACI has clearly documented the airport industry revenue growth since 2011 and the results state a constant growth of total industry revenue, however this is not reflected as more money spent by each passenger; the aeronautical revenue per passenger since 2011 has been steady, around 10$ (USD) every year, this is reflected by the passenger traffic constant growth (Gittens, 2019).

The airport has two main revenue streams, aviation revenues and the non-aviation revenues. Aviation revenue is the main business of the airport related to passenger and aircraft movements, but in order to make that experience as comfortable as possible, there is an array of other activities provided by the airport, those are the non-aviation revenues.

There is an opportunity to explore the airport business on non-aviation revenues by analysing how a passenger perceives them and what motivates a passenger to use that part of the airport business. Improvements on non-aviation revenues can be made based on this study and its results, not only will assist the airport have better results on non-aviation revenues, but also it is possible that, because of the improved airport, passengers will be more inclined to use the aviation services of the Lisbon airport, therefore improving the two main streams of revenue of the airport.

1.2. OBJECTIVES AND RESEARCH QUESTIONS

The main objective of this dissertation is to understand the passengers´ use of the Lisbon airport non-aeronautical services, their purchase patterns and what motivates them to make purchases. To achieve this objective, this dissertation has set four research questions (RQ) that could help the airport better understand passenger behaviour and get insights on how to increase its revenue.

1. RQ1 What socio-economic factors impact the consumption, purchase patterns and the parking usage on the Lisbon airport terminal?
2. RQ2 What travelling features affect the consumption, purchasing patterns and the parking usage at the Lisbon airport?
3. RQ3 How does the perception of the Lisbon airport terminal effect the consumption, purchase patterns and the parking usage at the airport?

4. RQ4 What are the passenger motivations to consume, make a purchase and use parking at the Lisbon airport?

For these questions, four main topics were chosen based on other studies detailed in the literature review. The four topics are related to socio-economic factors, travelling features, perception of the terminal/structures and motivations. These topics were analysed through data collected on the survey with multiple questions. The survey concerned the last time the passenger was at the Lisbon airport.

The Lisbon airport has two terminals, terminal 2 has a smaller commercial area and only Low-Cost Carriers (LCC) depart from there and terminal 1 that has a bigger commercial area. This study will detail the results for the two terminals. Conclusions were drawn from the results of the administered survey and presented in this thesis, in the chapter named conclusions.

1.3. THESIS STRUCTURE

This thesis is distributed in different chapters, chapter 2 is the literature review, this will expose a detailed review of other studies developed of these topics and the business of the airport, in 3 different topics, types of non-aeronautical or commercial revenues and their contribution to airport revenues, determinants and impacts of non-aeronautical revenues and variables applied in different airport studies. These studies will also support the methodologies for data analysis and the variables used to develop the survey. Chapter 3 is the methodology it will be explained the variables selection, survey design and the selected methodology for data analysis. In Chapter 4 the results will be presented and an analysis of the sample under study, from those results, a based discussion and lastly a conclusion will be presented in chapter 5.

2. LITERATURE REVIEW

In this thesis introduction these is a small exploration of the business of the airport. In this part of the literature previous studies are explored based on the business of the airport.

2.1. The airport business and its revenues

The classification between aeronautical and non-aeronautical revenues has been a recurring topic covered by many authors. Yokomi, Wheat, & Mizutani, (2017) that applied the data analysed by Graham, (2009) and used his findings to develop their study. The classification of airport activities by revenue source on this article are sort by aeronautical revenues that are landing fees, aircraft parking fees, handing fees, terminal rental fees and other aeronautical fees and non-aeronautical revenues, that are retail, food and beverage, car hire, advertising, car park, recharges and other non-aeronautical revenue.

The Current Situation and Change in Airport Revenues: Research on The Europe's Five Busiest Airports (Heathrow, Charles de Gaulle, Frankfurt, İstanbul Atatürk and Schiphol) was a study made by Bsttal & Bakir, (2017) where they detail the evolution and transformation of the airport business, describing that aeronautical activities are activities that take place in areas where airlines operate and non-aeronautical activities are activities that take place in airport terminals or land.

Figure 2.1 - Transformation of the airport business
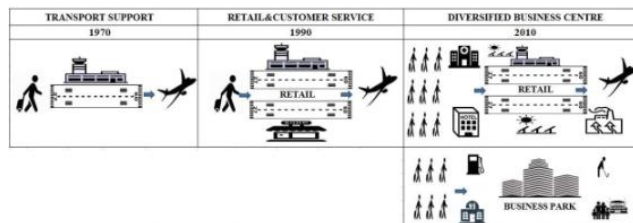
Source: (Bsttal & Bakir, 2017)

All their sources regarding revenue stream were obtained from annual reports and activity reports from the airports in study which led them to undertake on a vertical percentage analysis of each airport in study and then a trend analysis which led them to conclude that the airports have undergone a structural transformation, both the revenue sources and revenue types of the airports have increased and the revenue they have earned has increased. In the period studied, they concluded that there has been a serious development in the increase of non-aeronautical revenues.

Kratzsch & Sieg, (2011) wrote a study on the implication of airport regulation on revenues and the effects of different types of regulations. The raises in charges related to aeronautical activities must be approved by regulatorily authorities. In contrast charges for commercial services are usually not subject to any direct form of regulation. Airports with market power in providing aeronautical services have an incentive to restrain aeronautical charges when they generate additional non-aeronautical

revenues. They were also able to conclude that regulation of landing fees (part of aeronautical revenue) will become unnecessary because profit maximizing at airport will voluntarily abstain from taking advantage of its market power in the aviation business.

An airport must study their aviation business and the non-aviation business in order to run an efficient business, airport retailing (e.g. size of non-aeronautical space, branch revenues), aviation data (e.g. number of passengers, passenger structure) and macroeconomic indicators are really important for a correct study of airport business, Fuerst, Gross, & Klose, (2011) created a cross-sectional analysis of large European airports in order to analyse what influences the different types of revenues in an airport. From space to traffic movements, types of passengers (business travellers, leisure travellers, domestic travellers and international travellers), number of destinations and punctuality, they included most of the things that can influence any type of revenue. With this study they were able to conclude that the size of an airport is a major driver of both commercial and aviation revenues, national income per capita of the country in which the airport is located is also a positive and significant determinant. The share of business travellers exerts a negative influence on commercial revenues per passenger, but the share of domestic passengers and not international passengers tends to increase commercial revenues. They also state that the most important drivers of commercial revenue are beyond the control of airport management, as for example the general level of economic development and the factors relating to the size and volume of airports.

The airport business is not only studied by airports but also by companies that use the airport business as a source of revenue. Knowing and understanding the airport business can be important when trying to create business opportunities as a player on the airport industry. Dixit (2017) developed a study for EY on the airport management services. He divided the airport business in three main services, essential services, traffic handling services and commercial activities and the major market segments are airlines, retailers and parking lot operators and other. The retail market segment contributes by 26.6% to total revenue, the parking lot and other contribute with 18,5% for the total revenue. Besides analysing the airport business, he also analysed the key trends being pursued, one of them is the revenue generation from other services like revenues from retail, advertising and vehicle parking.

The conclusions gathered for this part of the literature are that in the revenues of an airport fall in three categories, aeronautical revenues (aviation revenues), non-aeronautical revenues (commercial revenues or non-aviation revenues) and other revenues, with the aeronautical revenues being the one with the highest percentage and the non-aeronautical revenues being always less than 50% but not far behind that percentage.

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In 2009 the importance of commercial revenues was already a great part of the airport business around the world, about half to the airport revenues were of commercial revenues. The overall importance of commercial revenues varies by global region, the highest percentage was in Africa/Middle East and the lowest percentage was in Latin America/Caribbean, however the highest value for commercial revenues was in Europe rating at 16.61 ($billion). The importance of commercial revenue at airports is not as straight forward has this number indicate. The study of commercial revenues must detail from types of airports and passenger traffic there is not a direct indicator to commercial revenue. The sources of commercial revenue also vary from region and from airport depending on multiple factors like volume and nature of passengers and other customers, commercial concessionaires' locations, and the revenue allocation approach to the airport finances. The overall sources of commercial revenues are retail, car parking, car rental, property, advertising and other, Graham, (2009).

The ACI distributes non-aeronautical revenue in ten different categories', according to Gittens(2019), the distribution of non-aeronautical revenues by region (% of total non/aeronautical revenue, 2017) comes from retail concessions, food and beverage, car parking, rental car concessions, advertising, fuel and oil, aviation catering service, utility recharges, property and real estate revenue or rent and other non-aeronautical revenue.

Bsttal & Bakir, (2017) detail the types of non-aeronautical revenues in terminal area concessions that are related to product consumption, travel services, personal service areas, office rental and advertisements. Car parking areas that relate to parking and car rental fees, also, airline leased areas, that include the spaces rented to the different operating airlines, and finally, the other leased facilities that can relate to industrial sites or fuel and service facilities.

European airports are starting to use commercial income to improve their competitiveness in the business, through different strategies airports are using their resources to create an environment of expenditure to their passengers. To understand the elements of a successful sales strategies, Pulsa & Lentzb, (2018) conducted a study in the airports of Zurich and Basel to understand their strategies to improve non-aeronautical revenue from leisure travellers. The topics applied were the competitive forces between airports, the financial and operational implications of performance management, the key elements of service quality, the behavioural factors of consumption, and the influence of strategic planning on product, service, and consumer portfolios. The conclusion was that the commercial revenue from leisure travellers results from different strategies than for revenue from business travellers or other traveller types. Furthermore, non-aeronautical revenue from passengers represents

a critical component of income for an airport. The profitability of an airport requires concessionaires to generate sales to all customer groups and defining retail strategies with a distinct customer focus.

One of the largest airports in Europe is Heathrow and in 2017 they conducted a study based on the historical levels of performance of commercial revenues at Heathrow to make initial judgements about priority areas and to supplement the process of constructive engagement between Heathrow airport holdings and airlines in the summer of 2017. Initially they introduced the commercial revenues of the airport which follow the pattern of the other commercial revenues named in this literature review, but they were sectioned with more detail. They are retail, car parking and property, however, the retail revenue is divided in duty & tax free, airside specialist shops, bureau de change, catering and other retail income (includes bookshops, car rental, advertising, other retail activities). Retail revenue occupies more than three quarters of the total of commercial revenue. Furthermore, they did a comparative study between their commercial revenues and those from other UK airports and international airports, which got them to conclude that from all the airports in study, they were the ones that created the largest amount of commercial revenue. In the three sections, retail, parking and property they gained the most of any other airport in retail but in property and parking they didn't have as much success as other airports, Cresswell, (2017)

On an article intended to review of airport retail literature, Chen, Wu, Koo, & Douglas, (2020) said that because airlines are looking to reduce costs on landing fees, airports have to search for new means of revenue, non-aeronautical revenue is the main driver for new revenue on airports. Based on an 2016 study, they broke down the income of non-aeronautical revenue in nine sources, retail (including F&B) 32.6%, car parking 22.9%, rental car concessions 7.6%, advertising 3.1%, fuel and oil 2.2%, utility recharges 2.7%, property and real estate revenue or rent 14.4%, aviation catering service 0.4% and other 14.2%. The main sources of non-aeronautical revenue are retail (including F&B) and car parking.

For the closure of this part of the literature, it can be said that there are a lot of activities that influence de non-aeronautical revenues of an airport. However, the typical three main sources of non-aeronautical revenue for an airport are food & beverages, retail purchases and parking usage.

2.3.   DETERMINANTS AND IMPACTS OF NON-AERONAUTICAL REVENUES

The study for improvement in commercial revenues was made in other airports as airports have become more dependent on this revenue to survive, Fasone, Kofler, & Scuderi, (2016) accomplished a study for a dataset of German airports on the improvement of commercial revenues by exploring its determinants. From the number of passengers to the type of traveller, the number of airlines, the number of stores, restaurants and the overall surface of the airport. All of these can affect the commercial revenues of an airport. One of the main concerns is the potential conflict between the

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need to increase the number of passengers to improve non-aeronautical revenue, and the obstacles of consumers to find adequate and comfortable places to shop. From this study they arrived at the conclusion that there are many aspects that managers can act on in order to improve profit, and not only in aeronautical revenues but also in non-aeronautical revenues.

More recently other studies were created regarding what impacts non-aeronautical revenues, Yokomi, Wheat, & Mizutani, (2017) studied the impact of low-cost carriers (LCCs) on these revenues for the UK airports. The attraction of LCCs enhances the traffic volume of airports this results in an increase of passenger volume which can enhance non-aeronautical revenues. This means that pricing competitively and more actively seeking new air services and consequently greater passenger throughput can increase your non-aeronautical revenues. They also conclude that there is a clear relationship between consumption in the commercial area of the airport and the length of stay prior to boarding.

Lei & Papatheodorou, (2010) made a study created a study on the impact of LCCs on the British regional airport's commercial revenue. A study into the impact of LCCs on regional airports financial performance is important to understand the LCC airport relationships. The airports financial performance is complicated, as it involves various variables, which may be difficult to collect. So, the primary focus is on measuring whether LCC passengers can generate higher commercial revenues. The passengers that travel in LCCs tend to spend more money on food because that service is not offered on their flights, consequently the loss from a regional airport in aeronautical revenue could be compensated by the increase in commercial revenue. Commercial revenue reflects only part of LCCs financial impact on the airport business. Nonetheless, the impact of LCCs on commercial revenues is lower than the impact of other carriers because commercial revenue is not only reflected by catering and food services.

Other things can impact non-aeronautical revenues, for example waiting time in an airport Torres, Domı́nguez, Valdés, & Aza, (2005) conducted a study at the Asturias airport showing that the more time spent at the airport, the grater consumption by passengers. They also stated that the relationship between the quality of the commercial services offered, the nature of the services, and the time that the customer must consume the products offered influences the level of commercial activities. They analysed the passenger's flows, the commercial services, the main characteristic of travellers and the relationship between the expenditure on commercial services and the waiting time in the airport. In this case, they were able to conclude that the purpose of the trip influences expenditure in the commercial area passengers on vacation spend more than business travellers. A clear relationship also exists between consumption in the commercial area and he length of stay prior to boarding. The also arrived at the conclusion that the level of consumption, however, is independent

of the waiting time. If the boarding time is less than 45 min, business travellers tend to consume more than do passengers on vacation.

With the increase of commercial revenues, airports and airlines started to cooperate to increase their revenues. Saraswati & Hanaoka, (2014) conducted a study on commercial revenue sharing agreement between airports and airlines that is based on commercial revenue share in exchange for payment, airlines that participate in this agreement are measured by the flow of passengers that they bring to the airport. The conclusion from this study was that commercial revenue sharing may increase airport and airline profit. Commercial revenue sharing increases an airline's marginal revenue and, therefore, encourages the airline to bring more passengers to the airport. They found that an airport prefers to share revenue with the dominant airline in order to gain benefit. Passengers also benefit from commercial revenue sharing as it triggers a reduction of airfares.

From the understanding of the airport business there is a clear indication that commercial revenues are an important part of improving profit at the airport. One of the main resources of commercial revenues is retail, as it makes for more than fifty percent of the commercial revenues at an airport. The process of improving this type of revenue has been studied by many authors with the purpose of finding what motivates passengers to buy at the airport and what can impact non-aeronautical revenues. Graham, (2009) separated retail revenue in duty free, F&B (food & beverage), bureau of change, landside and another airside. A high percentage of purchases are made on impulse. One of the main questions of the airport business when it comes to retail is that retail does not interfere with the normal flow of passengers at the airport and it is important that retail does not negatively affect airport profits. When studying retail at an airport it is important to understand what influences it, like the mix of consumers and understand their retail needs and preferences, also, the type of passengers that use the airport for example intercontinental passengers tend to spend more on duty free and passengers using low cost carriers tend to buy more F&B.

Retail was specifically studied for Heathrow, Cresswell, (2017), retail is divided in activities such as duty and tax free, airside specialist shops, bureau de change, catering and other retail income. The largest category was duty and tax free 29,2%. Retail revenues have been growing strongly since 2012. The drivers for retail performance are traffic volume and mix (nationality mix), also, if the passenger is flying for business or pleasure, high UK street trends, commercial space and layout, pricing policy, impacts on exchange rates, airlines types and e-commerce.

Passengers consumer behaviours could be explained by several different variables that range from waiting time, passenger characteristics (income level, age, gender), trip characteristics (motive to fly, business or leisure, domestic or international) and type of airline. Castillo-Manzano, López-Valpuesta, & Sánchez-Braza, (2018) tried to evaluate whether the fact that a terminal provides a varied commercial and F&B offer has any effect on passengers spending, the role of certain terminals as

generator of non-aeronautical revenue and airport shopping malls and the space requirements and passenger volume. The commercial offer at an airport was also used in this study, form the total number of stores to the total number of restaurants and the space occupied by these. The conclusion arrived is that the greater the commercial offer at an airport mall increases the likelihood that a passenger will make a purchase, supporting the strategy that larger hubs with larger offer accumulates higher volumes of potential customers. The success of these malls represents a significant source of non-aeronautical revenue for airports.

There aren't many studies made on what impacts car parking revenues. For the car parking revenues and factors affecting parking at an airport the Heathrow airport conducted a study Cresswell, (2017), based on data shared by the airport operator. From that data, they arrived at the conclusion that car parking revenue has been increasing since 2012. Furthermore, they analysed the different means to arrive to the airport by the non-connecting passengers. These were private car, rental car, public bus, charter coach, hotel shuttle, taxi, rail, underground and other. From these, the ones in more use are taxi 28,1% and private car 27,6%. However, this private car percentage does not mean that they will park at the airport, some use just the private car for being dropped off. There less people using their private car, and more are taking advantage of public transportation. Also, Heathrow is one of the UK airports with the least space available for parking, so the airport capacity also plays a part on this revenue. The products provided for car parking are also an important part of this study. There are many ways to park at this airport depending on the time stayed, short stay, long stay or business, there is valet parking, meet and greet, Heathrow pod parking, Heathrow hotel and parking, drop and ride and motorcycle parking. The tariff is also a factor affecting the revenue, this changes in every airport and depends on the parking time.

In another article for the study of the impacts of non-aeronautical revenues, Orth, Frei, & Weidmann, (2015) made a study of the Zurich airport regarding the effects of non-aeronautical activities at airports on the public transport access system, in this they used air passengers and employee's data to determine the distribution of passengers using public transport services. This is not specific for car parking, however, studying the public transport access to an airport can be helpful to understand the behaviour of passengers regarding the available means to arrive to the airport. They also state that private car is still the most use means to get to the airport. The increase of quality in the public transport system in larger airports has influenced the flow of passengers using this service. The location of the airport in the city can also influence the choice between private car and public transport usage. They separate public transport between rail 67% of total public transport usage and bus 33% of total public transport usage. Most rail passengers arrive in the morning and leave in the evening, most of these must work in the airport area. They also noticed a peak on the use of public

transport services.

In 2018 the Economist, Economist, (2018) wrote an article regarding the impact of the usage of services like Uber or Lyft on the revenues from car parking and car rental. Car parking makes for two-fifths of the non-aeronautical revenues across north America and car rental makes for one-fifth of that revenue. They believe that car parking revenue will fall 10% each year and that many airports tried to ban these services, but drivers found other ways to keep the business at the airports, now airports have to find a way to minimize the impact of these services at airport revenues. These services are particularly used more frequently at metropolitan areas, this also decreased the use of taxis. The only way airports must counter act these services are to be creative when finding ways to decrease the revenue loss that these services bring.

Chen, Wu, Koo, & Douglas, (2020) identified the areas of possible future research for the improvement of non-aeronautical revenue, such as the impact of terminal design, retail spending and consumer behaviour. On terminal design they exposed fiver different terminal shapes and for each the selected advantages and disadvantages. Those shapes were finger pier shape that has the advantage of concentration on passengers in single space and the disadvantage of the longer walking distance, midfield concourse shape has the advantage of shorter walking distance for transfer passengers and the disadvantage of split passenger flow, linear shape has the advantage of shorter walking distance and clear orientation and the disadvantage of duplication of shops and facilities, transporter shape has the advantage of shorter walking distance and the disadvantage of longer waiting time for passengers and lastly satellite shape has the advantage of centralized shopping area and the disadvantage of less dwell time for transfer passengers.

Wadud, (2020) did a study on the effects of ride-hailing services (Uber, lyft, etc.…) on parking revenue for three airports in the US. From previous literature it is possible to understand that parking is one of the most important streams of non-aeronautical revenue. By using a time series of the monthly parking data from the three airports, controlling for passenger numbers, the author was able to conclude that there was a statistically significant reduction in the number of cars parking at the airports since the introduction of these services. The author also stated that this has a significant implication for the airport business.

Non-aeronautical revenues are important for an airport. There has been an increase in the concern off adjusting the logistics and operations of an airports to improve these types of revenue or to bring more passengers and airlines to an airport, consequently improving revenue. As it is explored in this section of the literature review.

2.4. VARIABLES APPLIED IN DIFFERENT AIRPORT STUDIES

For the variables to be used in the study, there is a need for a previous analysis of the variables

used in other studies in order to have the best knowledge of the variables used when studying non-aviation revenues at an airport.

On a study about how airports perform depending on the type of passenger they have, Fasone, Kofler, & Scuderi, (2016), they use as the dependent variables the "non-aviation revenue per passenger" and the "non -aviation revenue per square meter. As independent variables this study uses statistical data collected from the a data set of German airports, such as "number of total passengers million, passengers of domestic routes, percentage of passengers of European routes, percentage of passengers of other international routes, percentage of LCC passengers, percentage of passengers other than LCC, number of passengers of domestic routes million, number of passengers to European routes million, number of passengers to other international routes, million, number of low-cost carriers passengers, million, number of passengers other than LCC, million, number of movements (departing and landing), number of airlines operating in the airport, overall surface of commercial activities, square meters, surface of non-aviation activities for hundreds of square meters, number of retail shops, excluding food and beverage, number of restaurants and food and beverage shops and yearly time dummies. For this study they used a regression analysis to study the data from these variables.

In a study regarding the commercial performance of global airports by Fuerst & Gross, The commercial performance of global airports, (2018) they used a data set of 75 airports in 30 countries in order to study how airports can enhance their profitability based on their non-aviation revenue by identifying the main drivers for financial performance. For this study the variables used were commercial revenues income from retail and commercial activities (duty free, news and gifts, specialty retailing, food and beverage and currency exchange), commercial yield (percentage of airport commercial revenue divided by gross commercial sales made by the concessions, it shows the percentage of total sales that is retained by the airport/airport operator), GDP per capita Gross (domestic product per capita of the country where the respected airport is located), commercial area (measured in square meters, devoted to commercial activities), number of outlets airside (part of the terminal building after check-in, security, customs and passport control), number of outlets for food & beverage, number of passengers, number of international travellers and partially privatized or state run (the airport is partially privatized or owned by the government). The analysis of the data extracted from these variables was intended to analyse how the factors can impact commercial revenues.

The implications of passenger consumer behaviour at the Spanish regional airports is a similar study focuses on the likelihood of a passenger making a purchase, Castillo-Manzano J. I., (2010) crated this study and for data collection undertook the process of making interviews and surveys with three dependent variables and twenty-nine explanatory variables. The three dependent variables were the

consume, purchase and expenditure, depending on the explanatory variables which were divided in six groups. The first group, group (A) was composed by the variables pretending to the Socio-economic factors of the passengers, sex, age, nationality, European, flying frequency. For the second group, group (B) the variables were about education and employment status, they were, education and employment status. For group (C), trip category, the variables were, LCC, connecting flight, destination, purpose of trip and waiting time before embarking. The fourth group was group (D) that was pretending to social interaction, and the variables were group size, children and seen off. For group (E) the variables were regarding the accessibility to the airport, taxi, hotel bus, rent-a-car, private car. And the last group, (F), was regarding the airport commercial offer, the variables were, if the survey was taken on a weekend, prior availability, catering offer, catering points of sale offer, store offer and duty-free offer.

Also, all the variables were accounted on a binary (0 OR 1) or numerical level (from 0 to 3 or 0 to 4) except some variables from group F that were a number from the variable divided by the total number of passengers. With this large number of variables, the study got to a broad conclusion of what implicates more consumption, purchase and expenditure.

Other important paper made by the same author and others, Castillo-Manzano, López-Valpuesta, & Sánchez-Braza, (2018) regarding the effect of the terminal on the consumer behaviour in the Spanish airports used interviews and questionnaires. For the airports in the study the data collected about the commercial offer of the airports had as variables, the total number of stores, the total number of restaurants, the total square meters of stores and the total square meters of restaurants. The response variables are expenditure at airport, consumes food/drinks at the airport and purchases ate the airport. The explanatory variables are divided in three groups, the first group is regarding the socio-demographic characteristics and is represented by gender, age nationality, education, employed, taxi and frequent passenger. The second group is about the travel features, vacation, duration of trip, LCC, Non-Eurozone international destination, connecting flight and waiting time prior to boarding. For the last group, the variables are concerning the social interaction of the passenger, if he is accompanied, has children and seen off. The conclusion from this study was able to determine the consumer behaviour on the Spanish airports.

On the study made by Lin & Chen, (2013) was directed on the shopping motivations and commercial activities based on time pressure and impulse buying on the Taiwan international airport. The shopping motivations found were environment and communication, culture and atmosphere and favourable price and quality based on a factor analysis. For the data collection, the methodology used was a questionnaire from the passengers at the airport. The variables regarding the demographic profile were, gender, age, purpose of the trip, type of travel, annual flight trip frequency, monthly income and nationality. The independent variables were environment and communication motivation,

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favourable price and quality motivation, culture and atmosphere motivation and time pressure. The conclusion of the study establishes that both time pressure and the impulse buying tendency are for understanding passengers shopping behaviours within an airport.

When it comes to what can affect the commercial revenue from an airport the impact of LCC has been a topic covered by some authors. Zheng Lei, Andreas Papatheodorou (2010) reached the conclusion that the LCC have a significant impact on airports commercial revenue. They reached this conclusion using panel data analysis from statistical variables provided from the British regional airports. For this study the dependent variable was the real commercial revenue and the independent variables were the number of LCC passengers, the number of other passengers, the location of the airport (if is in the greater London area or not) and duty-free (unity), furthermore, they considered that there is no time lag between the air transportation and its transformation in commercial revenue.

In the previous exposed study, the factor impacting the commercial revenue was travelling by LCC. There were other studies made that have other factors studied to consider their effect on expenditure at the airport. In one case Torres, Domı´nguez, Valde´s, & Aza, (2005) made a study that considered the relationship between passenger waiting time and the expenditure made at the Asturias airport in Spain, also they ended up adding the purpose of the trip as vacation or business to the conclusions. The methodology was based in four stages, the first was the analysis of the monthly passenger flows at the airport, the second was the analysis of the commercial services provided at the airport, the third was the characteristics of the passengers and the last was the relationship between the commercial expenditure and the waiting time in the airport. The analysis was made by the creation of graphs based on regression analysis.

To determine the commercial revenue at the European airports, Fuerst, Gross, & Klose, The sky is the limit? The determinants and constraints of European airports, (2011) determined that the national income per capita has a positive impact on revenue, the business travellers have a negative impact on revenues and domestic passengers spend more than international travellers. In order to arrive to this conclusion by making a regression analysis on commercial revenue per passenger, the commercial revenue per square meter of retail space and the real estate revenues per passengers. The variables collected were statistical variables from different airports databases. These variables were, revenue, aviation/aeronautical revenue, non-aviation/non-aeronautical revenues, other revenues, commercial revenues, real estate revenues, GDP per capita, traffic movements, retail space, business travellers, leisure travellers, domestic travellers, international travellers, origin of destination passengers, numbers of destination, punctuality of arrivals, punctuality of departures, passengers, ratio commercial to total revenue and delayed flights.

Chen, Wu, Koo, & Douglas, (2020) identified the factors of airport retail revenue. They wrote a

summary of influencing factors divided in, airport/operator related, passengers' demographics related, passengers' travel related, passengers' psychological related, passengers' resources related. All these influencing factors were studied using an array of variables for each factor. The airport/operator related variables were the allocation of airport space, the airport environment, offered product's brand image, passenger number, shop location, offered product's quality, airport's service, segmenting customer group, hub airport, product differentiation and offered product's price level. The passengers' demographics related variables were age, gender and nationality. Passengers' travel related variables such as passenger type (international vs. domestic, etc.), travel purpose, travel companion and travel frequency were also identified. In addition, passengers' psychological variables were impulsive shopping, satisfaction, normative evaluation and perceived disadvantage of airport shopping. Lastly, passengers' resources variables were dwell time, income and GDP/capita. These factors and variables will assist in the development of the questionnaire in the chapter three of this thesis.

On a case study regarding the effects the servicescape on the behavioural intentions of transfer passengers Park & Park, (2018) used four main topics of perception, those were emotional response, customer satisfaction, airport image and behavioural intentions. To reach a conclusion, they used as series of measurement items such as, convenience, cleanliness, attractiveness, amusement, pleasantness, functionality, perceived servicescape, emotional response, satisfaction, airport image and behavioural intentions. Each measure had a set of variables that were distributed as a survey. They then presented table of sample characteristics that had the demographic variables of age, marital status, age, academic background, nationality, purpose of airport use and number of transfers.

Kalakou & Moura, (2015) made a study in the Lisbon airport with the objective of explaining predicting passenger activity choices (using aeronautical and non-aeronautical areas) at the airport before the security control. For that, they developed a survey where they collected data on the passenger's time of arrival to the airport, time spent at the airport, time of departure and others. They also asked passengers personal information, air trip information, the activities they performed at the airport and wayfinding, which is if a passenger finds easy to move around the airport, if they used the signs, maps and if they got lost or not. This study reached the conclusion that travel frequency, travelling for business, performing the checking online, having planned the activities before arriving at the airport, traveling internationally and arriving at the airport accompanied by people who do not travel, can influence the activities performed by passengers before security.

A study was made on the role of demographic variables on customer expectations on the retail patronage intentions of passengers at an airport. Kosiba, Acheampong, Adeola, & Hinson, (2020) used demographic factors for their moderator variables, these were gender. Age, education, monthly income, origin of flight and travel type. For their construct measure of the hypothesis testing they used four topics, product-relevant factors (price, quality and selection), market relevant factors (location,

opening hours, people, fast checkout, store atmosphere and image), overall service quality and lastly airport retail patronage intentions. They reached the conclusion that product-relevant factors, market-relevant factors and overall service quality influence airport retail patronage intention. The demographic variables that have more impact are older and higher income consumers.

The passengers parking behaviour is also an important topic to cover when studding non-aeronautical revenues Qin, Gao, Zhang, Chen, & Wu, (2017) developed a study where they formalized a model to analyse airport parking behaviour. The conclusion was that passengers prefer to choose off-site parking when travelling long term. To reach this conclusion, the authors did a survey with their scenarios based on what would passengers do for parking regarding parking fees, distance to the terminal and if they use the parking structure or not. For the discrete variables, they used the travel purpose, destination, origin, payment mode for parking fees and gender. These factors for parking will help the development of the questionnaire.

For this part of the literature review, the objective was to collect the most different types of variables from different studies, in order to have a great number of variables to be used in this thesis to better answer the research questions.

2.5. METHODOLOGIES IN DATA ANALYSIS

The literature review developed these topics, the airport business and its revenues, types of non-aeronautical or commercial revenues and their contribution to airport revenues, determinants and impacts of non-aeronautical revenues, variables applied in different airport studies and methodologies in data analysis, all of each are relevant topics to understand what is relevant to develop the methodology of this thesis in order to answer the research questions presented in the introduction chapter. A summary is provided in the following table.

Table 2.1 - Studies analysing commercial revenue at airports

Study	Study Objectives	Conclusion	Methodology applied
(Fasone, Kofler, & Scuderi, 2016)	Exploring the determinants of commercial revenue to improve airport profitability.	Results suggest the potential conflict between the commercial revenues per passenger and per square meter with the need to expand the number of passengers	Ridge and partial least squares regression (airport data)
(Fuerst & Gross, The commercial performance of global airports, 2018)	Study of how to increase the commercial performance at airports	The share of international passengers, the size of the commercial area, airport size and retail space are found to be significant determinants to commercial performance.	Pooled OLS, random effects and 3SLS estimation frameworks (airport data)
(Castillo-Manzano J. I., 2010)	Understanding consumption behaviours	The study manages to build upon the many different factors that influence a passenger's decision to make a purchase at an airport store or to consume food/beverages at a catering facility	Bivariate probit model (20383 interviews)
(Castillo-Manzano, López-Valpuesta, & Sánchez-Braza, 2018)	Having a shopping mall	Passengers´ consumption behaviour differs in airport malls compared to how they behave at regional airports with a smaller commercial offer.	Statistical causal inference with Kernel and Radial matching (37226 interviews)

Study	Factors	Conclusion	Methodology applied
(Lin & Chen, 2013)	Motivations found were, favourable price and quality, environment and communication and culture and Atmosphere also time pressure and impulse buying tendencies	Passenger shopping motivations have a positive impact on commercial revenues at the airport, and both time pressure and impulse buying tendency impact commercial activities	Exploratory factor analyses (EFA) and one-way analysis of variance (ANOVA) (600 surveys)
(Lei & Papatheodorou, 2010)	Travelling by LCC	Although travelling by LCC has a significant positive impact on commercial revenues, the contribution is smaller compared to other carriers.	Regression Analysis based on panel data (airport data)
(Torres, Domı́nguez, Valde´s, & Aza, 2005)	Waiting Time and purpose of the trip	The level of consumption is independent to the time spent at the airport. The vacationer spends more than business traveller.	Parametric Regression methods (997 interviews)
(Fuerst, Gross, & Klose, The sky is the limit? The determinants and constraints of European airports, 2011)	National income per capita, Purpose of trip and passenger origin	The national income per capita has a positive impact on revenue, the business travellers have a negative impact on revenues and domestic passengers spend more than international travellers.	Explanatory data analysis and regression analysis. (airport data)

Study	Factors	Conclusion	Methodology applied
(Park & Park, 2018)	The effects of the servicescape on airport transfer passengers' behavioural intentions	The servicescape attributes, cleanliness, amusement and functionality have the positive effects on perceived servicescape. Perceived servicescape had a positive impact on emotional response, consumer satisfaction, airport image and behavioural intentions.	Structural equation model based on six attributes (305 passengers surveyed)
(Kalakou & Moura, 2015)	Explain and predict passenger activity choices at the airport before the security control, for the Lisbon airport.	When increasing the proportion of the passengers who perform the check-in online, the share of the passengers who perform only aeronautical activities before security will also increase.	Multinomial Logit model (500 passengers surveyed)

3. METHODOLOGY

3.1. INTRODUCTION

For the methodology of this thesis, the main objective is to answer the four research questions presented in the introduction chapter. The four questions are:

RQ1 What socio-economic factors impact the consumption, purchase patterns and the parking usage on the Lisbon airport terminal?

RQ2 What travelling features affect the consumption, purchasing patterns and the parking usage on the Lisbon airport?

RQ3 How does the perception of the Lisbon airport terminal effect the consumption, purchase patterns and the parking usage at the airport?

RQ4 What are the passenger motivations to consume, make a purchase and use parking at the Lisbon airport?

The explored literature mainly has three ways of reaching the intended results for each study, those are airport data, this is data from airport management, passengers' interviews, these are interviews made to passengers at the terminal and surveys/questionnaires, these are surveys distributed at the terminal or online. In this thesis, to answer the research questions a survey was developed and distributed online through an online form's platform (Google Forms). No airport data was used, or interviews made. The survey was available in two languages, Portuguese, and English, and was shared on social media, through friends and family. The data was collected from 2020/06/18 to 2020/10/15 in total 235 completed and valid anonymous responses were obtained, all of which were used in the statistical analysis. In addition, the passengers that answered the survey were asked to answer the questions taking into consideration the last time they used the Lisbon airport before the Covid-19 pandemic.

3.2. VARIABLES SELECTION AND SURVEY DESIGN

The survey was divided in three parts, the first part related to questions of the perception of the Lisbon's airport commercial area, the second part were questions related the purchasing patterns at the Lisbon airport, sub divided in consumption, purchase and parking usage of the last time the passenger used the airport and the third part was related to trip and passenger information where the questions were about the travelling features and the socio-economic factors from the passengers from the last time they used the airport.

The greater portion of the questions presented in the survey were related to variables or questions from the studies in the literature, however, other variables or questions were introduced with the intention to have a greater pool of options and a more complete understanding of the usage

of non-aeronautical activities.

All the questions were divided into five groups scattered across the three parts of the survey. The first group are the control questions. The answers of the control questions will be used to help answer all the research questions (Annex A. Control questions from the questionnaire). This first group of questions are the questions that can be used as dependent variables to answer the research questions. The type of questions in this group are:

- if the passenger consumed, made a purchase our used parking, these are categorical dichotomous variables,
- how much did a passenger spent on each of these activities, these are numerical variables,
- what type of airline did the passenger used, this is a categorical variable and determines if the passenger used Terminal 1 or Terminal 2.

The second group of questions relate to the socio-economic factors of the passenger, these will help reach the answer of the first research question (Annex B. Questions for RQ1 from the questionnaire). The variables related to socio-economic factors in this second group are Gender, Nationality, Age, Main Currency, City of residence, Education, Employment Status, Times of travel per year, Times per year using the Lisbon airport and monthly income, all categorical variables.

The third group of questions relate to the travelling features of the trip where the passenger based his answers, these will help reach the answer of the second research question (Annex C Questions for RQ2 from the questionnaire). The questions in this group are what type of airline used, destination of the trip, purpose of trip, starting the trip or going back home, days at the destination, who paid for the ticket, how many people and how many children did the passenger travel with, if the passenger had fast track, if the passenger had luggage to check in, what time the flight was, if the passenger has access to a lounge at the terminal, means of transport to the airport and if he paid for the transport to the airport.

The fourth group of questions relate to the passenger's perception the Lisbon airport, these will help reach the answer of the third research question (Annex D. Questions for RQ3 from the questionnaire). The data collected in this group has categorical ordinal variables and categorical dichotomous variables. The questions in this group are if is the first time the passenger travels from the Lisbon airport, satisfaction with the quality of the commercial area for food & beverages, for other products and for the parking, the elements that better describe the environment and communication of the commercial area, the culture and atmosphere of the commercial area, favourable price and quality of the commercial area, the Lisbon airport terminal and how much satisfied is the passenger with his consumption, purchase or use of parking.

Lastly, the fifth and last group of questions relate to the passenger's motivation to use the non-aeronautical activities of the Lisbon airport the last time they used it; these will help reach the

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answer of the forth research question (Annex E. Questions for RQ4 from the questionnaire). The data collected in this group has categorical ordinal variables, categorical dichotomous variables and categorical non dichotomous variables. The questions in this group are regarding the feelings of the passenger before departure, the reasons that best describe why the passenger consumed or not consumed, made a purchase or not made a purchase, used parking or not used parking, if the passenger had planned to consume, make a purchase or use parking before arriving to the airport, If the passenger is likely to consume again, make a purchase again or use parking again, how much time before departure did the passenger arrive at the airport, how much time did the passenger spent in security and how much time did the passenger had available after passing security control and before boarding.

3.3. METHOD FOR DATA ANALYSIS

For the analysis of the answers for each research question, there will be twelve models.

Table 3.1 - Models for analysis

	RQ1 – Socio-economic factors	RQ2 – Travelling features	RQ3 – Perception of the airport	RQ4 – Motivation to use
Consume	Model 1	Model 4	Model 7	Model 10
Purchase	Model 2	Model 5	Model 8	Model 11
Parking	Model 3	Model 6	Model 9	Model 12

Taking into consideration Model 1 for example, this model will conclude what socio-economic factors have a significant impact on consumption at the airport. The other models will follow this pattern for consumption, purchasing and parking for all the research questions.

To answer the first, the third and the fourth research questions, nine logistic regression analyses (logit models) were performed and the relationship between variables was studied with the association Chi-square test. To answer the second research question, three logistic regression analyses (logit models) were performed and the relations between categorical variables was studied with the Chi-square association test and the differences between groups with the Student's T test for two independent samples, in the case of numerical variables.

Logistic regression was used in this thesis because it is the appropriate regression analysis to perform when the dependent variables are dichotomous, in this case, the dependent variables are intended to predict if the independent variables influence a passenger to consume or not consume, make a purchase or not make a purchase and use parking or not use parking. Even if the independent variables were not predictors of the dependent variables, there could still exist a statistically significant

relationship between the variables in this study, in order to find this relationship, the Chi-square association test was used because it studies the relationship of categorical variables, when the variables were not categorical, the Student's T test was used to study this relationship.

The variables used for the data analysis of the 12 models, were 3 categorical dichotomous dependent variables: Consume, Make a purchase and Use parking. The independent variables were numerical, categorical dichotomous and categorical not dichotomous. The independent numerical variables were days at destination before returning home and number of children when traveling. The independent categorical dichotomous were, if it was the first time departing from the Lisbon airport, satisfaction of the quality of the commercial area for Food & Beverage at the Lisbon airport, the description of the environment and communication of the commercial area of the Lisbon airport, if there is good access to the shops, if it is comfortable, if the staff was nice, if the staff speaks the language and if it is easy to move around; the description of the culture and atmosphere of the commercial area of the Lisbon airport, if there were local products, if there were souvenirs, if the products were like in foreign countries, if the atmosphere is pleasant and if there were newly released products; Describing favourable price and quality of the commercial area of the Lisbon airport, if there are significant discounts on prices, if there are good exchange rates, if there are many duty-free products, if the products are of high quality; and the description of the Lisbon airport terminal, if the rest area was comfortable and sufficient, if the way to access to the terminal was easy and understandable, if the stores' position in the terminal was comfortable, if the gates were close to the commercial area; If the passenger resides in the city of Lisbon; If he has any type of fast track service to pass through security, If he has to check-in luggage at the counter; If he had access to any lounge at the terminal and if he paid for the transport to the airport.

And lastly the independent categorical not dichotomous variables were, gender, age, nationality, main currency, days per year traveling by plane, times per year using the Lisbon airport, degree of education, employment status, monthly income, destination, purpose of trip, starting the trip or going back home, who paid for the ticket, number of people travel traveling, time of flight, time of arrival before departure, time spent in security and time available after passing security control and before boarding.

To use this model, some required assumptions were met to assure that the analysed data is appropriate for this kind of model. These assumptions were that the dependent variables were dichotomous, the 3 dependent variables (Consume, Make a purchase and Use parking) are measured in yes or no. Another assumption was that for each model there were at least 2 or more independent variables. The third assumption was that all the observations are independent from each other and that the dependent variable has mutually exclusive and exhaustive categories, this means that no observation falls into more than one category, only yes or no answers are allowed, and that the

categories are exhaustive, so every observation falls into some category.

For the next chapter of this dissertation, results will be presented taking into consideration the methodology presented in this chapter.

4. RESULTS

4.1. INTRODUCTION

This study produced a statistical analysis, to a sample of 235 participants under the premise of obtaining answers to the following questions "What are the socio-economic factors influencing consumption, purchasing patterns and parking use at Lisbon airport? "; "How does the perception of the Lisbon airport terminal influence consumption, shopping patterns and parking use at the Lisbon airport?"; "What are the motivations of passengers to consume, purchase products and use Lisbon airport parking?

The data was collected during the year 2020 and processed in order to maintain confidentiality, being identified only by gender, age, nationality, city, education level, employment situation, monthly income.

The data treatment was done with the SPSS (Statistical Package for Social Sciences) software focusing on the description of the sample through descriptive statistics, with the respective calculation of absolute and relative frequency, to determine the behaviour and characteristics of the sample.

4.2. SAMPLE UNDER STUDY

A sample of 235 observations was used for the analysis of the research objectives (134 women and 100 men). Before distribution the survey was pre-tested by 10 participants and their observations were considered before the release of the survey. Their observations assured that the survey had no critical errors, was well structured and that all the questions were understandable.

From Table 4.1 57.3% of the participants in this study are female, i.e. the female category is represented mostly in the sample.   Regarding the age group, there is a balanced distribution between 18 to 24 years (19.1%), 45 to 54 years (18.3%), 55 to 64 years (17.4%), highlighting a prevalence of participants in the age group 25 to 34 years, i.e., the sample is mostly young/adult. This sample is more represented by participants of Portuguese nationality (94.9%), and who mostly reside in the city of Lisbon (74.9%). The sample shows that there is a higher prevalence of participants with the academic degree: Superior Course (42.6%) and Master (44.3%). It was also confirmed in this sample that the majority is employed full-time in a company (58.7%). As for the approximate value of their monthly salary, it was identified in this sample that most of them earn <1000 euros (27.7%) or 1001 euros in 2001 (37.4%).

Table 4.1 demonstrates the sample characteristics presented.

Table 4.1 – Sample characteristics

		N	%
Gender	Male	100	42.70%
	Female	134	57.30%

Age	18 – 24 years old	45	19.10%
	15 – 34 years old	74	31.50%
	35 – 44 years old	29	12.30%
	45 – 54 years old	43	18.30%
	55 -64 years old	41	17.40%
	+ 65 years old	3	1.30%
Nationality	Other	12	5.10%
	Portuguese	223	94.90%
Reside in Lisbon	Yes	176	74.90%
	No	59	25.10%
Education	High school	25	10.60%
	University Degree	100	42.60%
	Masters' Degree	104	44.30%
	PHD	6	2.60%
	None of the above	0	0.00%
Employment status	Full time in a company	138	58.70%
	Self employed	29	12.30%
	Retired	3	1.30%
	Student	45	19.10%
	Unemployed	7	3.00%
	Other	13	5.50%
Monthly salary	<1000	65	27.70%
	1001 – 2000	88	37.40%
	2001 – 3000	33	14.00%
	3001 – 4000	27	11.50%
	> 4001	22	9.40%

4.3. RESULTS AND ANALYSIS FOR EACH RESEARCH QUESTION

Following table. 3.1, the results will be presented in the order of models.

4.3.1. Model 1;

Model 1 was built with the dependent variable Consume (1 yes; 0 no) and the independent variables gender, age, nationality, main currency, residency in Lisbon, times per year traveling, times per year using the Lisbon airport, the degree of education, employment status and monthly income (€, Gross), all categorical variables.

Table 4.2 - Results of the Omnibus tests of Model Coefficients for model 1

	Chi-square	df	Sig.
Step	65.713	35	.001
Block	65.713	35	.001
Model	65.713	35	.001

The model results in annex F. (Test of significance for each of the coefficients in the logistic regression model of model 1) do not indicate that the assumed variables can be good predictors of Consume as all the variables have a statistical significance higher than 0.05 (p > .05), although the data are suitable for the analysis carried out with χ^2 (35) = 65.713; p = .001.

A statistically significant association was found between Consume and Age with $\chi2$ (5) = 11.498; p = .042 and with Main currency with $\chi2$ (3) = 12.234; p =.004. The results show that it is more likely that participants under 34 years of age do not consume compare to participants between 35 and 64 years old. The results also show that although almost all participants use European euro, their percentage is higher in those who consumed.

The table 4.3 presents the results regarding the association between variables.

Table 4.3 - Association between Consume and other variables of RQ1.

	χ^2	p
Gender	2.471	.291
Nationality	.013	.908
Age	11.498	.042
City of residence	.003	.958
Education	1.569	.666
Employment status	8.330	.139
Monthly income	3.724	.445
Main currency	12.234	.004
Travel per year	1.030	.598
Use airport	.036	.982

4.3.2. Model 2;

Model 2 was built with the dependent variable Purchase (1 yes; 0 no) and the independent variables gender, age, nationality, main currency, residency in Lisbon, times per year traveling, times per year using the Lisbon airport, the degree of education, employment status and monthly income (€, Gross), all categorical variables.

Table 4.4 - Results of the Omnibus tests of Model Coefficients for model 2

	Chi-square	df	Sig.
Step	52.849	35	.027
Block	52.849	35	.027

Model	52.849	35	.027

The model in annex G. (Test of significance for each of the coefficients in the logistic regression model of model 2) the overall model did not show itself to be a predictor of the Purchase variable having all the variables p > .05, although the data are suitable for the analysis performed with χ^2 (35) = 52.849; p = .027.

The table 4.5 presents the results regarding the association between variables. No statistically significant associations were found between Purchase and the remaining variables of RQ1.

Table 4.5 - Association between Purchase and other variables of RQ1.

	χ^2	p
Gender	.513	.774
Nationality	.021	.886
Age	9.018	.108
City of residence	1.592	.207
Education	6.038	.110
Employment status	10.681	.058
Monthly income	3.472	.482
Main currency	2.045	.563
Travel per year	1.877	.391
Use airport	2.525	.283

4.3.3. Model 3;

Model 3 was built with the dependent variable Parking (1 yes; 0 no) and the independent variables, gender, age, nationality, main currency, residency in Lisbon, times per year traveling, times per year using the Lisbon airport, the degree of education, employment status and monthly income (€, Gross), all categorical variables.

Table 4.6 - Results of the Omnibus tests of Model Coefficients for model 3

	Chi-square	df	Sig.
Step	63.702	35	.002
Block	63.702	35	.002
Model	63.702	35	.002

The data proved adequate to perform the analysis with χ^2 (35) = 63.702; p = .002. In the model in annex H. (Test of significance for each of the coefficients in the logistic regression model of model

3). Only the variable residency in Lisbon was a predictor of the variable Parking with p = .007.

A statistically significant association was found between Parking and City of residence with χ2 (1) = 13.794; p < .001 and with Main currency with χ2 (3) = 27.139; p <.001. The results show that participants living in Lisbon made less use of the parking. The results also show that although almost all participants use European euro, their percentage is higher in those who did not use the park.

The Table 4.7 presents the results regarding the association between variables.

Table 4.7 - Association between Parking and other variables of RQ1.

	χ^2	p
Gender	.168	.920
Nationality	.083	.773
Age	7.429	.191
City of residence	13.794	<.001
Education	5.970	.113
Employment status	7.209	.206
Monthly income	4.678	.322
Main currency	27.139	<.001
Travel per year	.572	.751
Use airport	.738	.691

4.3.4. Model 4;

Model 4 was built with the dependent variable Consume (1 yes; 0 no) and the independent variables, the destination, the purpose of the trip, starting the trip or going back home, who paid for the ticket, number of people travel traveling, if the passenger has any type of fast track service to pass through security, if he has to check-in luggage at the counter, time of flight, if he had access to any lounge at the terminal and if he paid for the transport to the airport (categorical variables) and days at destination before returning home and number of children when traveling (numeric variables).

Table 4.8 - Results of the Omnibus tests of Model Coefficients for model 4

	Chi-square	df	Sig.
Step	47.882	24	.003
Block	47.882	24	.003
Model	47.882	24	.003

The data proved adequate to perform the analysis with χ^2 (24) = 47.882; p = .003. In the model

in annex I. (Test of significance for each of the coefficients in the logistic regression model of model 4), the variables that statistically influence the variable Consume are destination (p = .025), days at the destination (p = .020), having to check-in luggage at the counter (p = .023) and having access to any lounge at the terminal (p = .001).

A statistically significant association was found between Consume and Destination with χ2 (3) = 12.179; p = .007. The results show that most of the participants are destined to In Europe, in the Schengen zone, and within these they are more the ones who do not consume.

The table 4.9 presents the results obtained from the Chi-square and T test.

Table 4.9 - Association between Consume and other variables of RQ2.

	χ^2	p
Destination	12.179	.007
Purpose of trip	3.314	.191
Starting trip or going back	.761	.383
Who paid the ticket	.740	.691
How many people did you travel with	6.268	.281
Fast track service to pass through security	1.559	.212
Checked luggage at the counter	3.367	.067
Time of flight	2.831	.726
The last time you departed from the Lisbon airport, did you have access to any lounge at the terminal	3.296	.069
Payed for the transport to the airport	.000	.983
	t	p
How many days did you stay at your destination	1.965	.051
How many children did you travel with	-1.068	.287

4.3.5.   Model 5;

Model 5 was built with the dependent variable Purchase (1 yes; 0 no) and the independent variables, the destination, the purpose of the trip, starting the trip or going back home, who paid for the ticket, number of people travel traveling, if the passenger has any type of fast track service to pass through security, if he has to check-in luggage at the counter, time of flight, if he had access to any lounge at the terminal and if he paid for the transport to the airport (categorical variables) and days at destination before returning home and number of children when traveling (numeric variables).

Table 4.10 - Results of the Omnibus tests of Model Coefficients for model 5

Chi-square	df	Sig.

Step	24.101	24	.456
Block	24.101	24	.456
Model	24.101	24	.456

The overall model did not prove to be statistically significant with χ^2 (24) = 24.101; p = .456.

A statistically significant association was found between Purchase and Purpose of trip with χ2 (2) = 6.512; p = .039. The results show that participants with Business and Vacation purpose do not buy and with Personal purpose buy. A statistically significant difference was found between groups for How many days you stay at your destination with t (187) = -2.207; p = .029, the highest average being for those who buy.

The Table 4.11 presents the results obtained from the Chi-square and T test.

Table 4.11 - Association between Purchase and other variables of RQ2.

	χ^2	p
Destination	3.773	.287
Purpose of trip	6.512	.039
Starting trip or going back	.048	.826
Who paid the ticket	.312	.855
How many people did you travel with	2.929	.711
Fast track service to pass through security	.000	1.000
Checked luggage at the counter	.643	.423
Time of flight	5.433	.365
The last time you departed from the Lisbon airport, did you have access to any lounge at the terminal	2.372	.124
Payed for the transport to the airport	.253	.615
	t	p
How many days did you stay at your destination	-2.207	.029
How many children did you travel with	-.239	.811

4.3.6. Model 6;

Model 6 was built with the dependent variable Parking (1 yes; 0 no) and the independent variables, the destination, the purpose of the trip, starting the trip or going back home, who paid for the ticket, number of people travel traveling, if the passenger has any type of fast track service to pass through security, if he has to check-in luggage at the counter, time of flight and if he paid for the transport to the airport (categorical variables) and days at destination before returning home and

number of children when traveling (numeric variables).

Table 4.12 - Results of the Omnibus tests of Model Coefficients for model 6

	Chi-square	df	Sig.
Step	50.621	23	.001
Block	50.621	23	.001
Model	50.621	23	.001

The data proved adequate to perform the analysis with χ^2 (23) = 50.621; p = .001. In the model in annex K. (Test of significance for each of the coefficients in the logistic regression model of model 6), the variables that statistically significant influence the Parking variable are starting the trip or going back home (p = .002), having to check-in luggage at the counter (p = .040) and paying for the transport to the airport (p < .001).

A statistically significant association was found between Parking and Checked luggage at the counter with $\chi2$ (1) = 4.919; p = .027 and with Payed for the transport to the airport with $\chi2$ (1) = 8.853; p = .003. The results show that it is most common for people who answered yes to Checked luggage at the counter to use the park and that it is most common for people who answered yes to Payed for the transport to the airport not to use the park.

The table 4.13 presents the results obtained from the Chi-square and T test.

Table 4.13 - Association between Parking and other variables of RQ2.

	χ^2	p
Destination	.110	.991
Purpose of trip	1.606	.448
Starting trip or going back	.433	.510
Who paid the ticket	2.359	.307
How many people did you travel with	2.557	.768
Fast track service to pass through security	2.149	.143
Checked luggage at the counter	4.919	.027
Time of flight	6.719	.242
Payed for the transport to the airport	8.853	.003
	t	p
How many days did you stay at your destination	-.311	.741
How many children did you travel with	.177	.860

4.3.7.   Model 7;

Model 7 was built with the dependent variable Consume (1 yes; 0 no) and the independent variables, if it was the first time departing from the Lisbon airport, satisfaction of the quality of the commercial area for Food & Beverage at the Lisbon airport, the description of the environment and communication of the commercial area of the Lisbon airport, if there is good access to the shops, if it is comfortable, if the staff was nice, if the staff speaks the language and if it is easy to move around; the description of the culture and atmosphere of the commercial area of the Lisbon airport, if there were local products, if there were souvenirs, if the products were like in foreign countries, if the atmosphere is pleasant and if there were newly released products; Describing favourable price and quality of the commercial area of the Lisbon airport, if there are significant discounts on prices, if there are good exchange rates, if there are many duty-free products, if the products are of high quality; and the description of the Lisbon airport terminal, if the rest area was comfortable and sufficient, if the way to access to the terminal was easy and understandable, if the stores' position in the terminal was comfortable, if the gates were close to the commercial area (all categorical variables).

Table 4.14 - Results of the Omnibus tests of Model Coefficients for model 7

	Chi-square	df	Sig.
Step	40.250	22	.010
Block	40.250	22	.010
Model	40.250	22	.010

The data proved adequate to perform the analysis with χ^2 (22) = 40.250; p = .010. In the model in annex L. (Test of significance for each of the coefficients in the logistic regression model of model 7), the variables that statistically significantly influence the consumption variable are Describe the culture and atmosphere of the Lisbon airport commercial area - There were local products (p = .022), Describe favourable price and quality of the Lisbon airport commercial area - Good exchange rates (p = .017) and Describe the Lisbon airport terminal - The way to access the terminal was easy and understandable (p = .016).

A statistically significant association was found between Consume and Culture atmosphere - local products with χ^2 (1) = 6.790; p = .009, with Price quality - exchange with χ^2 (1) = 5.039; p = .025 and with Terminal - access with χ^2 (1) = 5.578; p = .018. The results show that it is more frequent in people who answered yes to Culture atmosphere - local products and Price quality - exchange to consume and that it is more frequent in people who answered yes to Terminal - access not to consume.

The table 4.15 presents the results obtained from the Chi-square.

Table 4.15 - Association between Consume and other variables of RQ3.

	χ^2	p
First time departing from Lisbon airport	.487	.485
Satisfaction with the commercial area for food & beverage	5.852	.211
Environment – access	.033	.856
Environment – comfortable	1.208	.272
Environment – nice	.011	.915
Environment – language	.937	.333
Environment – moving	.654	.419
Culture atmosphere – local products	6.790	.009
Culture atmosphere – souvenirs	.020	.886
Culture atmosphere – foreign products	.028	.868
Culture atmosphere – new products	1.733	.188
Price quality – discounts	3.498	.061
Price quality – exchange	5.039	.025
Price quality – dutty free	.001	.979
Price quality – high quality	.814	.367
Terminal – comfortable	.120	.729
Terminal – access	5.578	.018
Terminal – stores position	.391	.532
Terminal – close gates	.459	.498

4.3.8. Model 8;

Model 8 was built with the dependent variable Purchase (1 yes; 0 no) and the independent variables, if it was the first time departing from the Lisbon airport, satisfaction of the quality of the commercial area for Food & Beverage at the Lisbon airport, the description of the environment and communication of the commercial area of the Lisbon airport, if there is good access to the shops, if it is comfortable, if the staff was nice, if the staff speaks the language and if it is easy to move around; the description of the culture and atmosphere of the commercial area of the Lisbon airport, if there were local products, if there were souvenirs, if the products were like in foreign countries, if the atmosphere is pleasant and if there were newly released products; Describing favourable price and quality of the commercial area of the Lisbon airport, if there are significant discounts on prices, if there are good exchange rates, if there are many duty-free products, if the products are of high quality; and the description of the Lisbon airport terminal, if the rest area was comfortable and sufficient, if the way to access to the terminal was easy and understandable, if the stores' position in the terminal was comfortable, if the gates were close to the commercial area (all categorical variables).

Table 4.16 - Results of the Omnibus tests of Model Coefficients for model 8

	Chi-square	df	Sig.
Step	21.542	22	.488
Block	21.542	22	.488
Model	21.542	22	.488

The overall model did not prove to be statistically significant with χ^2 (22) = 21.542; p = .488.

A statistically significant association was found between Purchase and Environment - language with χ^2 (1) = 4.031; p = .045. The results show that people who answered yes to Environment -language are less likely to buy.

The table 4.17 presents the results obtained from the Chi-square.

Table 4.17 - Association between Purchase and other variables of RQ3.

	χ^2	p
First time departing from Lisbon airport	.705	.401
Satisfaction with the commercial area for food & beverage	4.638	.327
Environment – access	.920	.338
Environment – comfortable	.740	.390
Environment – nice	.106	.745
Environment – language	4.031	.045
Environment – moving	.012	.913
Culture atmosphere – local products	3.567	.059
Culture atmosphere – souvenirs	.670	.413
Culture atmosphere – foreign products	1.363	.243
Culture atmosphere – new products	.004	.950
Price quality – discounts	.612	.434
Price quality – exchange	.006	.938
Price quality – dutty free	.420	.517
Price quality – high quality	1.651	.199
Terminal – comfortable	.000	1.000
Terminal – access	.451	.502
Terminal – stores position	3.595	.058
Terminal – close gates	.382	.536

4.3.9.   Model 9;

Model 9 was built with the dependent variable Parking (1 yes; 0 no) and the independent variables if it was the first time departing from the Lisbon airport , the description of the environment and communication of the commercial area of the Lisbon airport, if there is good access to the shops, if it is comfortable, if the staff was nice, if the staff speaks the language and if it is easy to move around; the description of the culture and atmosphere of the commercial area of the Lisbon airport, if there were local products, if there were souvenirs, if the products were like in foreign countries, if the atmosphere is pleasant and if there were newly released products; Describing favourable price and quality of the commercial area of the Lisbon airport, if there are significant discounts on prices, if there are good exchange rates, if there are many duty-free products, if the products are of high quality; and the description of the Lisbon airport terminal, if the rest area was comfortable and sufficient, if the way to access to the terminal was easy and understandable, if the stores' position in the terminal was comfortable, if the gates were close to the commercial area (all categorical variables).

Table 4.18 - Results of the Omnibus tests of Model Coefficients for model 9

	Chi-square	df	Sig.
Step	32.122	18	.021
Block	32.122	18	.021
Model	32.122	18	.021

The data were adequate to perform the analysis with χ^2 (18) = 32.122; p = .021, but no variable in the model in annex N. (Test of significance for each of the coefficients in the logistic regression model of model 1) showed statistically significant influence on the Parking variable (p > .05).

A statistically significant association was found between Parking and Terminal - access with χ^2 (1) = 5.802; p = .016 and Terminal - stores position with χ^2 (1) = 10.146; p = .001. The results show that it is more common for people who answered yes to Terminal - stores position to use the park and that it is more common for people who answered yes to Terminal - access not to use the park.

The table 4.19 presents the results obtained from the Chi-square.

Table 4.19 - Association between Parking and other variables of RQ3.

	χ^2	p
First time departing from Lisbon airport	1.932	.165
Environment – access	2.109	.146
Environment – comfortable	.618	.432
Environment – nice	1.297	.255
Environment – language	1.949	.163

Environment – moving	.346	.556
Culture atmosphere – local products	1.125	.289
Culture atmosphere – souvenirs	.111	.739
Culture atmosphere – foreign products	.486	.486
Culture atmosphere – new products	1.727	.189
Price quality – discounts	3.023	.082
Price quality – exchange	.868	.352
Price quality – dutty free	2.874	.090
Price quality – high quality	.079	.778
Terminal – comfortable	2.417	.120
Terminal – access	5.802	.016
Terminal – stores position	10.146	.001
Terminal – close gates	.846	.358

4.3.10. Model 10;

Model 10 was built with the dependent variable Consume (1 yes; 0 no) and the independent variables time of arrival before departure, time spent in security and time available after passing security control and before boarding (all categorical variables).

Table 4.20 - Results of the Omnibus tests of Model Coefficients for model 10

	Chi-square	df	Sig.
Step	7.794	9	.555
Block	7.794	9	.555
Model	7.794	9	.555

The overall model did not prove to be statistically significant with χ^2 (9) = 7.794; p = .555.

A statistically significant association was found between Consume and Feelings - arrive late stressed with $\chi2$ (1) = 10.750; p = .001 and with Feelings - team relaxed with $\chi2$ (1) = 5.719; p = .017. The results show that most people who answered yes to Feelings - time relaxed consume and most people who answered yes to Feelings - arrive late stressed do not consume.

The table 4.21. presents the results obtained from the Chi-square.

Table 4.21 - Association between Consume and other variables of RQ4.

	χ^2	p
Feelings – late processes stressed	1.289	.256

Feelings – arrive late stressed	10.750	.001
Feelings – stressed flying	.003	.957
Feelings – relaxed	.624	.429
Feelings – time relaxed	5.719	.017
How much time before the flight departure did you arrive	3.199	.362
Time spent in security	1.445	.486
Time available after passing security control until boarding	4.520	.340

4.3.11. Model 11;

Model 11 was built with the dependent variable Purchase (1 yes; 0 no) and the independent variables time of arrival before departure, time spent in security and time available after passing security control and before boarding (all categorical variables).

Table 4.22 - Results of the Omnibus tests of Model Coefficients for model 11

	Chi-square	df	Sig.
Step	5.590	9	.780
Block	5.590	9	.780
Model	5.590	9	.780

The overall model did not prove to be statistically significant with χ^2 (9) = 5.590; p = .780.

A statistically significant association was found between Purchase and Feelings - stressed flying with $\chi2$ (1) = 5.923; p = .015. The results show that most people who answered yes to Feelings - stressed flying buy.

The table 4.23 presents the results obtained from the Chi-square.

Table 4.23 - Association between Purchase and other variables of RQ4.

	χ^2	p
Feelings – late processes stressed	.000	1.000
Feelings – arrive late stressed	.013	.911
Feelings – stressed flying	5.923	.015
Feelings – relaxed	.699	.403
Feelings – time relaxed	1.661	.198
How much time before the flight departure did you arrive	1.590	.662
Time spent in security	2.592	.274
Time available after passing security control until boarding	.366	.985

4.3.12. Model 12;

Model 12 was built with the dependent variable Parking (1 yes; 0 no) and the independent variables time of arrival before departure, time spent in security and time available after passing security control and before boarding (all categorical variables).

Table 4.24 - Results of the Omnibus tests of Model Coefficients for model 12

	Chi-square	df	Sig.
Step	15.633	9	.075
Block	15.633	9	.075
Model	15.633	9	.075

The overall model did not prove to be statistically significant with χ2 (9) = 15.633; p = .075.

No statistically significant association was found between Parking and the remaining variables (p > .05).

The table 4.25 presents the results obtained from the Chi-square.

Table 4.25 - Association between Parking and other variables of RQ4.

	χ^2	p
Feelings – late processes stressed	.074	.785
Feelings – arrive late stressed	1.600	.206
Feelings – stressed flying	.671	.413
Feelings – relaxed	.398	.528
Feelings – time relaxed	.111	.739
How much time before the flight departure did you arrive	5.101	.165
Time spent in security	4.280	.118
Time available after passing security control until boarding	5.275	.260

4.4.   RESULTS FOR DIFFERENCES BETWEEN TERMINAL 1 AND TERMINAL 2

The Lisbon airport has two terminals. In the introduction chapter of this dissertation it is stated that the results of the difference between terminals would be detailed because terminal 2 has a smaller commercial area and only Low-Cost Carriers (LCC) depart from there and terminal 1 that has a bigger commercial area. The following results will help determine if the differences between terminals is significant for the non-aeronautical revenues.

Table 4.26 - Results for terminal 1 and terminal 2.

	Terminal 1				Terminal 2			
	Yes		No		Yes		No	
	N	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Consume	91	57.2	40	52.6	68	42.8	36	47.4
Purchase	46	63	85	52.5	27	37	77	47.5
Parking	18	56.3	89	56.3	14	43.8	69	43.7

These results confirm that the distribution between those who consumed and those who did not is similar between the participants and the type of departure terminal or airline the last time they used the airport. Thus, it was found that most participants who consumed (57.2%) boarded at Terminal 1. Participants who did not consume were also found to have boarded at Terminal 1 (52.6%). On the other hand, it is possible to observe that participants who least consumed (42.8%) boarded at Terminal 2. Participants who least did not consume were also found to have boarded at Terminal 2 (47.4%).

These results also confirm that the distribution between those who purchase and those who did not is similar between the participants and the type of departure terminal or airline the last time they used the airport. Thus, it was found that most participants who made a purchase (63%) boarded at Terminal 1. Participants who did not make a purchase were also found to have boarded at Terminal 1 (52.5%). On the other hand, it is possible to observe that participants who least purchased (37.0%) boarded at Terminal 2. Participants who least did not purchase were also found to have boarded at Terminal 2 (47.5%). Lastly, these results also confirm that the distribution between those who used parking and those who did not is similar between the participants and the type of departure terminal or airline the last time they used the airport. Thus, it was observed that most of the participants who used parking (56.3%) embarked at Terminal 1. It is also observed that most participants who did not use the parking lot embarked at Terminal 1 (56.3%). On the other hand, it is possible to observe that participants who least used parking (43.8%) boarded at Terminal 2. The minority of participants who did not use the parking lot embarked at Terminal 2 (43.7%).

The next chapter of this dissertation will present the discussion and conclusion of the statistical results presented in this chapter, the practical implications of this study, limitations and possible future research.

5. DISCUSSION AND CONCLUSION

The business of the airport is an area where strategy can be studied in order to improve revenue. Based on the literature review authors, Chen, Wu, Koo, & Douglas, (2020), they said that because airlines are looking to reduce costs on landing fees, airports have to search for new means of revenue, non-aeronautical revenue is the main driver for new revenue on airports. This thesis intended to improve our understanding of the passengers use of the Lisbon's airport non-aeronautical revenues, at the same time understand the business of an airport and improve on those revenues by using the learnings from this thesis. By understanding what drives the users of the airport to use commercial activities, changes and improvements can be made on those drivers in order to improve the airport revenue on non-aeronautical revenues.

In order to understand the passenger's usage of the non-aeronautical revenues of the Lisbon airport, relevant literature was explored. The literature review was made from several different articles on airport management, airport revenues, airport commercial, retail, non-aviation and non-aeronautical revenues, airport purchasing patterns, perceptions and motivations, consumer behaviour at airports and parking options and parking behaviour at an airport. Furthermore, from these articles, there is an array of different variables and statistical analysis methodologies applied that helped the development of this thesis on the methodology used to reach the results and arrive to interesting conclusions.

To reach the results, a survey was presented to possible users of the Lisbon airport. The survey was conducted online. This questionnaire was based on variables from the papers explored in the literature review and other variables that were considered relevant to answer the research questions presented on point 3 of this introduction. All the answers of the questionnaire were analysed through statistical models

For this chapter, the objective is to reach conclusions based on the results from chapter four and discuss the practical implications that this study can have in the Lisbon airport and others that could use the study to improve their own revenues. Furthermore, there will be a look at the limitations stumble upon during the development of this dissertation.

5.1. GENERAL DISCUSSION AND CONCLUSION

The four research questions were intended to be a steppingstone on the different approaches that an airport can take to improve its non-aeronautical revenues. They develop on what impacts the consumer in the use of non-aeronautical activities in the Lisbon airport, the following paragraphs will expose the results arrived to each of the questions.

The objective of the first research question is to figure out if and what socioeconomic factors

impact the consumption, purchasing and parking patterns in the Lisbon airport. For consumption, in model one, the results conclude that age and main currency can be a factor impacting consumption at the airport. Euro users consume more and people from the age group of 35 to 64 consume more when comparing to the percentage of people that decided to consume, from the age group of 18 to 34. For purchase, in model two there were no statistically significant associations found in the collected data. For parking, in model three, the results found that people who reside in Lisbon use less parking. In addition, currency, is also a statistically significant variable to parking as the percentage of people that use Euro have a highest percentage for not using the parking structures.

Research question 2, what travelling features affect the consumption, purchasing patterns and the parking usage on the Lisbon airport?

The results pretending to this research question, correspond to the models four, five and six of chapter four of this dissertation. The objective of this question is to figure out if and what travelling features impact the consumption, purchasing and parking patterns in the Lisbon airport. For consumption, in model four, the results conclude that the destination of the trip has a statistically significant impact in consumption, the passengers that travel for Europe inside the Schengen zone, tend to consume more. For purchase, in model five, the results found two statistically significant variables that impact purchase, purpose of trip and the days at the destination, passengers that travel for personal reasons and passengers that spend more days at the destination, are the ones that purchase more. For parking, in model six, the results found that there is a statistical association between having to check in luggage at the counter and parking, showing that the people who have luggage to check in, use more parking, moreover, there is also a statistical association between the passengers who paid for their transport to the airport to the ones that did not use parking.

Research question 3, how does the perception of the Lisbon airport terminal effect the consumption, purchase patterns and the parking usage at the airport?

The results pretending to this research question, correspond to the models seven, eight and nine of chapter four of this dissertation. The objective of this question is to figure out if the passenger's perception of the airport can affect the consumption, purchasing and parking patterns in the Lisbon airport. For consumption, in model seven, the results indicate that in the culture and atmosphere aspect, having local products and, in the price and quality aspect, having good exchange rates, positively impact consumption moreover, the passengers that find the way to access to the terminal easy and understandable consume less. For purchase, in model eight, the passengers that answered that the staff speaks their language purchased less. For parking, in model nine, the results found that the passengers that find the stores' position in the terminal was very comfortable use more parking and the passengers that find the way to access to the terminal was easy and understandable use less parking.

Research question 4, what are the passenger motivations to consume, make a purchase and use parking at the Lisbon airport?

The results pretending to this research question, correspond to the models ten, eleven and twelve of chapter four of this dissertation. The objective of this question is to figure out what the passengers' motivations that can impact the consumption, purchasing and parking patterns in the Lisbon airport are. For consumption, in model ten, the results conclude that the passengers consumed more when they had time and were relaxed and the passengers that arrived late to the airport and were stressed consumed less. For purchase, in model eleven, there is a statically significant association between the passengers that were stressed with flying by plane and purchase, meaning that people that were stressed with flying by plain purchased more. For parking, in model twelve, the results found that there were no statically significant association between the variables in research question 4 and parking.

In short, age, currency, destination, having local products and good exchange rates, having time being relaxed, positively impacts consumption, also, the passengers that find the way to access to the terminal easy and understandable and that arrived late to the airport and were stressed consume less. The purpose of trip, the number of days at the destination and being stressed with flying, influenced positively purchasing, the staff speaking the passengers language influenced negatively purchasing, and the factors that influence parking are city of residence, currency, having luggage to check in, having to pay for transport, passengers that find the stores' position in the terminal very comfortable use more parking and the passengers that find the way to access to the terminal easy and understandable use less parking.

5.2. PRACTICAL IMPLICATIONS

The main objective of a business is to make profit to remain active. The main source of profit in a business is revenues and the sources of revenues in an airport are aeronautical revenues, non-aeronautical revenues and other revenues. As demonstrated in the literature review, the second highest revenue stream of an airport are the non-aeronautical revenues. This study was built with the intention of understanding what affects the users of non-aeronautical activities use the three main revenue sources of non-aeronautical activities, food & beverages, retail and parking. Understanding what makes consumers practice these activities can help the airport make improvements in order to boost their revenue in non-aeronautical activities.

By the means of this study, not only the Lisbon airport, but other airports, that are looking to improve their revenues, can use the premise of this dissertation in order to build a their own study on how they can improve their airport so the consumer feels more inclined to indulge in the use of non-

aeronautical activities.

The Lisbon airport can use this study to explore means of improving their non-aeronautical revenues based on the answers of the research questions, or even use the questionnaire and distribute it in the terminals.

5.3. LIMITATIONS AND FUTURE RESEARCH

During the development of this study, several limitations were found, limitations that can be overridden in any future research developed based in this study. This study has a sample size of 235 and unfortunately the advent of the pandemic has not allowed the collection of more information that would enrich the statistical significance of the results. For future research, the sample size will be enlarged to run more analysis.

It is important to notice that, at a first glance, the objective was to develop different results for terminal 1 and terminal 2 of the airport seeing that the terminals have different commercial areas and are in different zones of the airport, however, because of the sample size it was not possible to have statistical significant results doing separate studies. In future research it is recommended to differentiate the terminals results. In chapter four, a section was created with the different results, yet, it was not detailed to the different research questions.

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7. ANNEXES

Annex A. Control questions from the questionnaire

Research question application	Purpose of question	Question	Options
Control question RQ2 Consume or not consume Purchase or not purchase Park or not park	The Lisbon airport has two terminals (1 and 2), the listed airlines are the only ones that depart from terminal 2. The listed airlines are all LCC (Low Cost Carriers), these can influence the purchase patterns of the passengers.	Considering the last time, you flew from the Lisbon airport before March 2020, which airline did you travel with? If your answer is different, please write the name of the airline.	BlueAir EasyJet Norwegian Ryanair Transavia WizzAir Other
Control question Consume or not consume	Did the passenger consume F&B or not? This question is a dependent variable for all the research questions.	The last time you departed from the Lisbon airport before March 2020 did you consume any Food & beverage (F&B)?	Yes No
Control question Consume	How much a passenger consumed is appropriate for all the research questions.	The last time you departed from the Lisbon airport before March 2020 how much did you, approximately, spend (in €) on Food & beverages?	Number in €
Control question Purchase or not purchase	Did the passenger make a purchase or not? This question is a dependent variable for all the research questions.	The last time you departed from the Lisbon airport did you make any purchase of products from the commercial area that were not F&B?	Yes No
Control question Purchase or not purchase	The type of stores used by passengers can help the airport renew its structure.	At what type of store did you make that purchase?	Duty-free Other Both
Control question Purchase	How much a passenger spent is appropriate for all the research questions.	The last time you departed from Lisbon airport how much did you, approximately, spend (in €) on the purchases of products from the commercial area that were not F&B?	Number in €
Control question Park or not park	Having a car and using or not using it is an important topic so the airport can make changes in order to	Do you have a car available to get to the airport?	Yes No

	influence passenger to use their parking structures.		
Control question Park or not park	Did the passenger use car parking or not? This question is a dependent variable for all the research questions.	The last time you departed from the Lisbon airport did you use the car parking area?	Yes No
Control question Park	How much a passenger spent on parking is appropriate for all the research questions.	The last time you departed from the Lisbon airport how much did you, approximately, spend (in €) on parking?	Number in €

Annex B. Questions for RQ1 from the questionnaire

Research question application	Purpose of question	Question	Options
RQ1 Consume or not consume Purchase or not purchase Park or not park	Socio-economic factor.	Gender	Female Male Prefer not to say
RQ1 Consume or not consume Purchase or not purchase Park or not park	Socio-economic factor.	Age	18 - 24 25 - 34 35 – 44 45 – 54 55 – 64 + 65
RQ1 Consume or not consume Purchase or not purchase Park or not park	Socio-economic factor.	Nationality	Input nationality
RQ1 Consume or not consume Purchase or not purchase Park or not park	Socio-economic factor.	Main Currency	U.S. Dollar (USD); European Euro (EUR); Japanese Yen (JPY); British Pound (GBP); Swiss Franc (CHF); Canadian Dollar (CAD); Australian/New Zealand Dollar; South African Rand (ZAR) Other

RQ1 Consume or not consume Purchase or not purchase Park or not park	Socio-economic factor.	Do you reside in the city of Lisbon?	Yes No
RQ1 Consume or not consume Purchase or not purchase Park or not park	Socio-economic factor.	How many times per year did you approximately travel by plane? Please answer this question regarding the time before the COVID-19 pandemic.	1–3 times 4–12 times More than 12 times;
RQ1 Consume or not consume Purchase or not purchase Park or not park	Socio-economic factor.	How many times per year did you approximately use the Lisbon airport? Please answer this question regarding the time before the COVID-19 pandemic and consider that one trip covers the go and return flight.	1–3 times 4–12 times More than 12 times;
RQ1 Consume or not consume Purchase or not purchase Park or not park	Socio-economic factor.	What is the highest Education degree you have received?	High school Bachelor Master PhD None of the above
RQ1 Consume or not consume Purchase or not purchase Park or not park	Socio-economic factor.	What was your employment status the period you last used Lisbon airport?	Full time Employed in a company Self-employed Retired Student Unemployed Other
RQ1 Consume or not consume Purchase or not purchase Park or not park	Socio-economic factor.	What is your approximate monthly income (€, Gross)?	<1000 1001 – 2000 2001 – 3000 3001 – 4000 > 4001

Annex C. Questions for RQ2 from the questionnaire

Research question application	Purpose of question	Question	Options
Control question RQ2 Consume or not consume Purchase or not purchase Park or not park	The Lisbon airport has two terminals (1 and 2), the listed airlines are the only ones that depart from terminal 2. The listed airlines are all LCC (Low Cost Carriers), these can	Considering the last time, you flew from the Lisbon airport before March 2020, which airline did you travel with? If your answer is different, please write the name of the airline.	Blue Air EasyJet Norwegian Ryanair Transavia WizzAir Other

	influence the commercial activity of the passengers.		
RQ2 Consume or not consume Purchase or not purchase Park or not park	The destination can influence commercial activity, because, for example, product restrictions on the destination.	What was your destination?	in Europe, in the Schengen zone in Europe, outside the Schengen zone outside Europe in Portugal (domestic)
RQ2 Consume or not consume Purchase or not purchase Park or not park	Purpose of the trip can influence commercial activity.	What was the purpose of your trip?	Business Vacation Personal
RQ2 Consume or not consume Purchase or not purchase Park or not park	When starting there are products intended to improve the travellers experience.	Were you starting your trip or were you going back home?	Starting the trip Going back home
RQ2 Consume or not consume Purchase or not purchase Park or not park	The number of days on the destination can influence the purchase of products a passenger can only get in Portugal, or the use of the parking structures.	How many days did you stay at your destination before returning home?	Input number of days
RQ2 Consume or not consume Purchase or not purchase Park or not park	Spending money on a ticket can influence the passengers use of commercial activities at the airport.	Who paid for your ticket?	Myself My company did Other
RQ2 Consume or not consume Purchase or not purchase Park or not park	The size of the group can influence the use of commercial activities.	How many people did you travel with?	0 1 2 3 4 More than 4
RQ2 Consume or not consume Purchase or not purchase Park or not park	Having children when travelling can influence commercial activity.	How many children did you travel with?	0 1 2 3 4 More than 4

RQ2 Consume or not consume Purchase or not purchase Park or not park	Having more time to explore the commercial area can influence commercial activity. Also, not being stressed to catch a flight can influence consumption.	Did you have any type of fast track service to pass through security?	Yes No
RQ2 Consume or not consume Purchase or not purchase Park or not park	Having to spend time on the counter to check-in your luggage can influence commercial activity.	Did you have to check-in luggage at the counter?	Yes No
RQ2 Consume or not consume Purchase or not purchase Park or not park	The time of the flight can influence commercial activity.	At what time approximately was your flight?	Input the time (Early morning (<9) morning (9:30 a 12:00) lunch time (12:30 a 15:00) teatime (15:30 a 18:00) Dinner (18:30 a 21:00) Night (21:30 >)
RQ2 Consume or not consume Purchase or not purchase	Access to a lounge at the terminal can influence commercial activity.	The last time you departed from the Lisbon airport, did you have access to any lounge at the terminal?	Yes No
RQ2 Park or not park	Knowing the main means of transportation used by passengers is important to improve the airport structures.	Which of the following means of transport did you use to arrive to the airport?	Taxi Aero Bus Uber, or other similar service Metro Hotel transfer Rental car Private car Other
RQ2 Consume or not consume Purchase or not purchase Park or not park	Having to pay for transport to the airport can influence consumption, purchase and the use of parking.	Did you pay for the transport to the airport?	Yes No

Research question application	Purpose of question	Question	Options
RQ3 Consume or not consume Purchase or not purchase Park or not park	Knowing the terminal layout, can influence if you make a purchase or not.	Was this the first time you departed from the Lisbon airport?	Yes No
RQ3 Consume or not consume	Being satisfied with the commercial area for Food & Beverages can influence consumption.	In general, how much satisfied are you with the quality of: (1-not satisfied at all, 5-completely satisfied) [The commercial area for Food & Beverage at the Lisbon airport?]	1 2 3 4 5
RQ3 Purchase or not purchase	Being satisfied with the commercial area not for Food & Beverages can influence purchasing.	In general, how much satisfied are you with the quality of: (1-not satisfied at all, 5-completely satisfied) [The commercial area for anything but Food & Beverage at the Lisbon airport?]	1 2 3 4 5
RQ3 Park or not park	Being satisfied with the parking area can influence the usage of it.	In general, how much satisfied are you with the quality of: (1-not satisfied at all, 5-completely satisfied) [The parking area at the Lisbon Airport?]	1 2 3 4 5
RQ3 Consume or not consume Purchase or not purchase Park or not park	Environment and communication can influence the use of commercial activities.	From the options below which ones do you think that best describe the environment and communication of the commercial area of the Lisbon airport? (Please select up to 2 options)	There is good access to the shops It is comfortable The staff was nice The staff speaks my language It is easy to move around
RQ3 Consume or not consume Purchase or not purchase Park or not park	Culture and atmosphere can influence the use of commercial activities.	From the options below which ones do you think that best describe the culture and atmosphere of the commercial area of the Lisbon airport? (Please select up to 2 options)	There were local products There were souvenirs The products were like in foreign countries Pleasant atmosphere There were newly released products

RQ3 Consume or not consume Purchase or not purchase Park or not park	Favourable price and quality can influence the use of commercial activities.	From the options below which ones do you think that best describe favourable price and quality of the commercial area of the Lisbon airport? (Please select up to 2 options)	There are significant discounts on prices Good exchange rates There are many duty-free products The products are of high quality
RQ3 Consume or not consume Purchase or not purchase Park or not park	How the passenger perceives the airport terminal can influence the use of commercial activities.	From the options below which ones do you think that best describe the Lisbon airport terminal? (Please select up to 2 options)	The rest area was comfortable and sufficient The way to access to the terminal was easy and understandable The stores' position in the terminal was very comfortable The gates were close to the commercial area
RQ3 Consume or not consume	The level of satisfaction of a passenger after using a service influences future usage and his review.	How much do you agree with the following statements regarding the consumption of F&B at the airport? (1- totally disagree, 5 - totally agree) [I am satisfied with my consumption at the F&B consumption.]	1 2 3 4 5
RQ3 Purchase	The level of satisfaction of a passenger after using a service influences future usage and his review.	How much do you agree with the following statement regarding the consumption of products that were not F&B at the airport? (1-totally disagree, 5-totally agree) [I am satisfied with my purchase.]	1 2 3 4 5
RQ3 Park	The level of satisfaction of a passenger after using a service influences future usage and his review.	How much do you agree with the following statements regarding parking at the airport? (1-totally disagree, 5 - totally agree) [I am satisfied with	1 2 3 4 5

		the parking options at the airport.]	

Annex E. Questions for RQ4 from the questionnaire

Research question application	Purpose of question	Question	Options
RQ4 Consume or not consume Purchase or not purchase Park or not park	How the passenger feels can motivate the use of commercial activities.	From the options below which ones do you think that best describe your feelings before departure? (Please select up to 2 options)	I was late in airport processes and I got stressed with my departure time I arrived late at the airport and I got stressed with my departure time I was stressed with flying by plane I was very relaxed with the air trip processes I was on time and very relaxed
RQ4 Consume	The reason for consumption falls under the motivation of the passenger to consume and the perception he has of the airport terminal.	From the options below, choose the three most important ones that best describe why you consumed Food & beverages. (Please select exactly 3 options)	The price was good There were good options I had a lot of time to spend before flight departure I needed to eat I had a discount I needed electricity The place was well located There was no free food on the flight
RQ4 Consume or not consume	Planning to consume before arriving at the airport is part of the passenger's motivation.	Had you planned to use F&B services before arriving at the airport?	Yes No
RQ4 Consume or not consume	After using the service, a passenger's motivation to use it again is important to understand how he perceived the service.	How much do you agree with the following statements regarding the consumption of F&B at the airport? (1- totally disagree, 5 - totally agree) [When I depart again from Lisbon	1 2 3 4 5

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		airport it is likely that I will consume at the food and beverage area.]	
RQ4 Not consume	The reason for not consuming falls under the motivation of the passenger to consume and the perception he has of the airport terminal.	From the options below which ones do you think best describe the reasons why you didn't consume Food & beverages. (Please select at least one option)	The products were too expensive There were no good options I didn't have time I didn't need to eat There was a big line There was no available space to seat I was stressed to reach my gate
RQ4 Purchase	The reason for making a purchase falls under the motivation of the passenger to make a purchase and the perception he has of the airport terminal.	From the options below which ones do you think that best describe why did you purchase products from the commercial area that were not F&B? (Please select exactly 3 options)	The price was good They had good options I had a lot of time to spend before flight departure It was tax free I needed personal items I needed to buy a present I had a discount I had planned on purchasing the products
RQ4 Purchase or not purchase	Planning to make a purchase before arriving at the airport is part of the passenger's motivation.	Had you planned to purchase any products before arriving at the airport?	Yes No
RQ4 Purchase or not purchase	After using the service, a passenger's motivation to use it again is important to understand how he perceived the service.	How much do you agree with the following statement regarding the consumption of products that were not F&B at the airport? (1-totally disagree, 5-totally agree) [When I depart again from Lisbon airport it is likely that I will make a purchase.]	1 2 3 4 5

RQ4 Not purchase	The reason for not making a purchase falls under the motivation of the passenger to make a purchase and the perception he has of the airport terminal.	From the options below which ones do you think better describe why didn't you purchase any products from the commercial area that were not food & drinks? Please don't choose more than two options. (Please select at least one option)	The products were too expensive There were no good options I didn't have time I didn't need anything There were many people in the payment line There were no shops close to my gate The price was the same as in other places
RQ4 Park	The reason for using the parking structures falls under the motivation of the passenger and the perception he has of the airport parking structures.	From the options below which ones do you think better describe why did you use parking? (Please select exactly 3 options)	They had good prices There were good parking options There wasn't much traffic to arrive to the airport The company I work for was paying the parking My return flight arrives too late I need to transport other people as well
RQ4 Park	After using the service, a passenger's motivation to use it again is important to understand how he perceived the service.	How much do you agree with the following statements regarding parking at the airport? (1- totally disagree, 5 - totally agree) [When I depart again from Lisbon airport it is likely that I will use parking.]	1 2 3 4 5
RQ4 Not park	The reason for not using the parking structures falls under the motivation of the passenger and the perception he has of the airport parking structures.	From the options below which ones do you think better describe why didn't you use parking? (Please select at least one option)	The prices were too high I had to walk a lot to the terminal There was too much traffic to get to the airport I didn't know where to park I didn't know the parking prices Other personalized options were easier to use (uber, bolt etc.) My trip is too long to leave the car at the park

RQ4 Consume or not consume Purchase or not purchase Park or not park	Having more time to explore the commercial area can influence the use of commercial activities. Also, no being stressed to catch a flight can influence consumption.	How much time before the flight departure did you arrive at the airport?	Less than 60 minutes Between 60 and 90 minutes Between 90 minutes and 2 hours More than 2 hours
RQ4 Consume or not consume Purchase or not purchase Park or not park	Having more time to explore the commercial area can influence the use of commercial activities. Also, no being stressed to catch a flight can influence consumption.	How much time did you spend in security?	Less than 15 minutes Between 15 and 30 minutes Between 30 and 60 minutes More than 1 hour
RQ4 Consume or not consume Purchase or not purchase Park or not park	Having more time to explore the commercial area can influence the use of commercial activities. Also, no being stressed to catch a flight can influence consumption.	How much time approximately did you have available after passing security control and before boarding?	Less than 30 minutes Between 30 and 60 minutes 1 hour 1 ½ hours More than 2 hours

Annex F. Test of significance for each of the coefficients in the logistic regression model for model

Categorical Variables Codings

		Frequency	Parameter coding						
			(1)	(2)	(3)	(4)	(5)	(6)	(7)
Nationality	1	222	1,000	,000	,000	,000	,000	,000	,000
	Chinese	1	,000	1,000	,000	,000	,000	,000	,000
	Espanhol	1	,000	,000	1,000	,000	,000	,000	,000
	German	1	,000	,000	,000	1,000	,000	,000	,000
	Greem	1	,000	,000	,000	,000	1,000	,000	,000
	Grega	1	,000	,000	,000	,000	,000	1,000	,000
	Mozambic	2	,000	,000	,000	,000	,000	,000	1,000
	Santomen	2	,000	,000	,000	,000	,000	,000	,000
	USA	3	,000	,000	,000	,000	,000	,000	,000
EmploymentStatus	Full time	138	1,000	,000	,000	,000	,000		
	Self-employed	29	,000	1,000	,000	,000	,000		
	Retired	3	,000	,000	1,000	,000	,000		
	Student	45	,000	,000	,000	1,000	,000		
	Unemployed	6	,000	,000	,000	,000	1,000		
	Other	13	,000	,000	,000	,000	,000		
Age	18-24	45	1,000	,000	,000	,000	,000		
	25-34	74	,000	1,000	,000	,000	,000		
	35-44	28	,000	,000	1,000	,000	,000		
	45-54	43	,000	,000	,000	1,000	,000		

	55-64	41	,000	,000	,000	,000	1,000
	+65	3	,000	,000	,000	,000	,000
MonthlyIncome	< 1001	65	1,000	,000	,000	,000	
	1001-2000	87	,000	1,000	,000	,000	
	2001-3000	33	,000	,000	1,000	,000	
	3001-4000	27	,000	,000	,000	1,000	
	> 4000	22	,000	,000	,000	,000	
Education	High school	25	1,000	,000	,000		
	Bachelor	100	,000	1,000	,000		
	Master	103	,000	,000	1,000		
	PhD	6	,000	,000	,000		
Main Currency	European euro	218	1,000	,000	,000		
	US dollar	4	,000	1,000	,000		
	Pound	4	,000	,000	1,000		
	Other	8	,000	,000	,000		
Gender	Male	100	1,000	,000			
	Female	133	,000	1,000			
	Not say	1	,000	,000			
UseAirport	1-3 times	168	1,000	,000			
	4-12 times	56	,000	1,000			
	More than 12 times	10	,000	,000			

Travel Year	1-3 times	163	1,000	,000			
	4-12 times	61	,000	1,000			
	More than 12 times	10	,000	,000			
CityOfResidenc e_Lisbon	0	58	1,000				
	1	176	,000				

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Ste p 1ª	Gender			,644	2	,725	
	Gender(1)	22,227	40193,534	,000	1	1,000	4499208871,063
	Gender(2)	21,945	40193,534	,000	1	1,000	3393982480,350
	Age			7,727	5	,172	
	Age(1)	-1,797	1,585	1,285	1	,257	,166
	Age(2)	-1,006	1,518	,439	1	,508	,366
	Age(3)	,429	1,565	,075	1	,784	1,536
	Age(4)	-,961	1,464	,431	1	,512	,383
	Age(5)	-,189	1,482	,016	1	,898	,827
	Nationality			,014	8	1,000	
	Nationality(1)	43,169	46411,126	,000	1	,999	5600863884303903700,000
	Nationality(2)	26,368	64846,447	,000	1	1,000	282835211473,884
	Nationality(3)	62,830	61395,988	,000	1	,999	1935010312594955600000000000,000
	Nationality(4)	63,560	61395,988	,000	1	,999	4014387754521021500000000000,000
	Nationality(5)	21,643	61395,989	,000	1	1,000	2509650921,822

	B	S.E.	Wald	df	Sig.	Exp(B)
Nationality(6)	,973	63486,855	,000	1	1,000	2,646
Nationality(7)	43,349	46411,126	,000	1	,999	6700836515794884600,000
Nationality(8)	6,658	50887,984	,000	1	1,000	778,853
Main Currency			,000	3	1,000	
Main Currency(1)	-35,943	20870,589	,000	1	,999	,000
Main Currency(2)	-15,158	45288,925	,000	1	1,000	,000
Main Currency(3)	-57,703	28776,492	,000	1	,998	,000
CityOfResidence_Lisbon(1)	,091	,409	,049	1	,825	1,095
Travel Year			,680	2	,712	
Travel Year(1)	17,212	14736,060	,000	1	,999	29847766,312
Travel Year(2)	16,541	14736,060	,000	1	,999	15271191,382
UseAirport			,738	2	,692	
UseAirport(1)	-17,387	14736,060	,000	1	,999	,000
UseAirport(2)	-16,642	14736,060	,000	1	,999	,000
Education			2,758	3	,431	
Education(1)	-19,965	16158,678	,000	1	,999	,000
Education(2)	-20,342	16158,678	,000	1	,999	,000
Education(3)	-20,873	16158,678	,000	1	,999	,000
EmploymentStatus			8,135	5	,149	
EmploymentStatus(1)	-20,879	10678,153	,000	1	,998	,000
EmploymentStatus(2)	-21,236	10678,153	,000	1	,998	,000

		B	S.E.	Wald	df	Sig.	Exp(B)
66	EmploymentStatus(3)	-22,086	10678,153	,000	1	,998	,000
	EmploymentStatus(4)	-19,504	10678,153	,000	1	,999	,000
	EmploymentStatus(5)	-22,772	10678,153	,000	1	,998	,000
	MonthlyIncome			4,657	4	,324	
	MonthlyIncome(1)	-,504	,923	,298	1	,585	,604
	MonthlyIncome(2)	,579	,847	,467	1	,494	1,784
	MonthlyIncome(3)	,295	,863	,117	1	,732	1,343
	MonthlyIncome(4)	,824	,924	,796	1	,372	2,280
	Constant	13,512	67678,247	,000	1	1,000	738136,985

Annex G. Test of significance for each of the coefficients in the logistic regression model for model

Categorical Variables Codings

		Frequency	Parameter coding						
			(1)	(2)	(3)	(4)	(5)	(6)	(7)
Nationality	1	222	1,000	,000	,000	,000	,000	,000	,000
	Chinese	1	,000	1,000	,000	,000	,000	,000	,000
	Espanhol	1	,000	,000	1,000	,000	,000	,000	,000
	German	1	,000	,000	,000	1,000	,000	,000	,000
	Greem	1	,000	,000	,000	,000	1,000	,000	,000
	Grega	1	,000	,000	,000	,000	,000	1,000	,000
	Mozambic	2	,000	,000	,000	,000	,000	,000	1,000
	Santomen	2	,000	,000	,000	,000	,000	,000	,000
	USA	3	,000	,000	,000	,000	,000	,000	,000
EmploymentStatus	Full time	138	1,000	,000	,000	,000	,000		
	Self-employed	29	,000	1,000	,000	,000	,000		
	Retired	3	,000	,000	1,000	,000	,000		
	Student	45	,000	,000	,000	1,000	,000		
	Unemployed	6	,000	,000	,000	,000	1,000		
	Other	13	,000	,000	,000	,000	,000		
Age	18-24	45	1,000	,000	,000	,000	,000		
	25-34	74	,000	1,000	,000	,000	,000		
	35-44	28	,000	,000	1,000	,000	,000		

Category	Value	N					
68	45-54	43	,000	,000	,000	1,000	,000
	55-64	41	,000	,000	,000	,000	1,000
	+65	3	,000	,000	,000	,000	,000
MonthlyIncome	< 1001	65	1,000	,000	,000	,000	
	1001-2000	87	,000	1,000	,000	,000	
	2001-3000	33	,000	,000	1,000	,000	
	3001-4000	27	,000	,000	,000	1,000	
	> 4000	22	,000	,000	,000	,000	
Education	High school	25	1,000	,000	,000		
	Bachelor	100	,000	1,000	,000		
	Master	103	,000	,000	1,000		
	PhD	6	,000	,000	,000		
Main Currency	European euro	218	1,000	,000	,000		
	US dollar	4	,000	1,000	,000		
	Pound	4	,000	,000	1,000		
	Other	8	,000	,000	,000		
Gender	Male	100	1,000	,000			
	Female	133	,000	1,000			
	Not say	1	,000	,000			
UseAirport	1-3 times	168	1,000	,000			
	4-12 times	56	,000	1,000			

	More than 12 times	10	,000	,000
Travel Year	1-3 times	163	1,000	,000
	4-12 times	61	,000	1,000
	More than 12 times	10	,000	,000
CityOfResidence_Lisbon	0	58	1,000	
	1	176	,000	

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1ª	Gender			,309	2	,857	
	Gender(1)	20,976	40193,986	,000	1	1,000	1287383245,843
	Gender(2)	21,174	40193,986	,000	1	1,000	1569873061,237
	Age			3,731	5	,589	
	Age(1)	20,560	23103,693	,000	1	,999	849162150,905
	Age(2)	20,677	23103,693	,000	1	,999	955164205,664
	Age(3)	20,116	23103,693	,000	1	,999	544573035,529
	Age(4)	21,302	23103,693	,000	1	,999	1783836886,950
	Age(5)	21,087	23103,693	,000	1	,999	1439084770,763
	Nationality			,573	8	1,000	
	Nationality(1)	42,534	46411,402	,000	1	,999	2967894611224325600,000
	Nationality(2)	59,726	65162,791	,000	1	,999	86871886344829700000000000,000

	B	S.E.	Wald	df	Sig.	Exp(B)
Nationality(3)	64,511	61396,197	,000	1	,999	10398838457253413000000000000,000
Nationality(4)	23,750	61396,197	,000	1	1,000	20632588830,625
Nationality(5)	23,241	61396,197	,000	1	1,000	12394312774,374
Nationality(6)	64,332	61396,197	,000	1	,999	86896163910451750000000000000,000
Nationality(7)	43,713	46411,402	,000	1	,999	9643884604522772000,000
Nationality(8)	101,771	58572,534	,000	1	,999	1,579E+44
Main Currency			,000	3	1,000	
Main Currency(1)	37,112	21833,560	,000	1	,999	13104797821131188,000
Main Currency(2)	58,394	45741,051	,000	1	,999	22914536308374480000000000,000
Main Currency(3)	17,319	29569,315	,000	1	1,000	33224148,709
CityOfResidence_Lisbon(1)	-,392	,418	,880	1	,348	,676
Travel Year			,038	2	,981	
Travel Year(1)	-18,369	15290,288	,000	1	,999	,000
Travel Year(2)	-18,231	15290,288	,000	1	,999	,000
UseAirport			,423	2	,809	
UseAirport(1)	18,178	15290,288	,000	1	,999	78452352,210
UseAirport(2)	18,656	15290,288	,000	1	,999	126524947,838
Education			5,837	3	,120	
Education(1)	-1,396	1,375	1,031	1	,310	,248
Education(2)	,382	1,187	,103	1	,748	1,465
Education(3)	,064	1,183	,003	1	,957	1,066

EmploymentStatus			5,906	5	,315	
EmploymentStatus(1)	-,389	,656	,353	1	,553	,678
EmploymentStatus(2)	-,548	,771	,506	1	,477	,578
EmploymentStatus(3)	-,340	1,633	,043	1	,835	,711
EmploymentStatus(4)	-1,228	,857	2,054	1	,152	,293
EmploymentStatus(5)	1,588	1,191	1,778	1	,182	4,893
MonthlyIncome			,853	4	,931	
MonthlyIncome(1)	,011	,870	,000	1	,990	1,011
MonthlyIncome(2)	-,233	,770	,091	1	,763	,792
MonthlyIncome(3)	-,517	,773	,447	1	,504	,596
MonthlyIncome(4)	-,254	,795	,102	1	,749	,775
Constant	-121,611	69137,060	,000	1	,999	,000

Annex H. Test of significance for each of the coefficients in the logistic regression model for model

Categorical Variables Codings

		Frequency	Parameter coding						
			(1)	(2)	(3)	(4)	(5)	(6)	(7)
Nationality	1	222	1,000	,000	,000	,000	,000	,000	,000
	Chinese	1	,000	1,000	,000	,000	,000	,000	,000
	Espanhol	1	,000	,000	1,000	,000	,000	,000	,000
	German	1	,000	,000	,000	1,000	,000	,000	,000
	Greem	1	,000	,000	,000	,000	1,000	,000	,000
	Grega	1	,000	,000	,000	,000	,000	1,000	,000
	Mozambic	2	,000	,000	,000	,000	,000	,000	1,000
	Santomen	2	,000	,000	,000	,000	,000	,000	,000
	USA	3	,000	,000	,000	,000	,000	,000	,000
EmploymentStatus	Full time	138	1,000	,000	,000	,000	,000		
	Self-employed	29	,000	1,000	,000	,000	,000		
	Retired	3	,000	,000	1,000	,000	,000		
	Student	45	,000	,000	,000	1,000	,000		
	Unemployed	6	,000	,000	,000	,000	1,000		
	Other	13	,000	,000	,000	,000	,000		
Age	18-24	45	1,000	,000	,000	,000	,000		
	25-34	74	,000	1,000	,000	,000	,000		
	35-44	28	,000	,000	1,000	,000	,000		
	45-54	43	,000	,000	,000	1,000	,000		

	55-64	41	,000	,000	,000	,000	1,000
	+65	3	,000	,000	,000	,000	,000
MonthlyIncome	< 1001	65	1,000	,000	,000	,000	
	1001-2000	87	,000	1,000	,000	,000	
	2001-3000	33	,000	,000	1,000	,000	
	3001-4000	27	,000	,000	,000	1,000	
	> 4000	22	,000	,000	,000	,000	
Education	High school	25	1,000	,000	,000		
	Bachelor	100	,000	1,000	,000		
	Master	103	,000	,000	1,000		
	PhD	6	,000	,000	,000		
Main Currency	European euro	218	1,000	,000	,000		
	US dollar	4	,000	1,000	,000		
	Pound	4	,000	,000	1,000		
	Other	8	,000	,000	,000		
Gender	Male	100	1,000	,000			
	Female	133	,000	1,000			
	Not say	1	,000	,000			
UseAirport	1-3 times	168	1,000	,000			
	4-12 times	56	,000	1,000			
	More than 12 times	10	,000	,000			

Travel Year	1-3 times	163	1,000	,000			
	4-12 times	61	,000	1,000			
	More than 12 times	10	,000	,000			
CityOfResidence_Lisbon	0	58	1,000				
	1	176	,000				

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1ª	Gender			,085	2	,958	
	Gender(1)	20,434	40194,043	,000	1	1,000	748633338,186
	Gender(2)	20,281	40194,043	,000	1	1,000	642503406,030
	Age			4,907	5	,427	
	Age(1)	18,497	19949,359	,000	1	,999	107921546,310
	Age(2)	17,496	19949,359	,000	1	,999	39656252,444
	Age(3)	18,694	19949,359	,000	1	,999	131387680,187
	Age(4)	19,050	19949,359	,000	1	,999	187692695,175
	Age(5)	17,877	19949,359	,000	1	,999	58058181,238
	Nationality			,000	8	1,000	
	Nationality(1)	-5,176	46410,753	,000	1	1,000	,006
	Nationality(2)	9,402	64617,566	,000	1	1,000	12109,551
	Nationality(3)	-24,764	61395,707	,000	1	1,000	,000
	Nationality(4)	-5,063	61838,081	,000	1	1,000	,006
	Nationality(5)	-22,933	61395,707	,000	1	1,000	,000

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	B	S.E.	Wald	df	Sig.	Exp(B)
Nationality(6)	-2,892	63508,402	,000	1	1,000	,055
Nationality(7)	-24,435	54421,461	,000	1	1,000	,000
Nationality(8)	33,071	50595,997	,000	1	,999	230514397372443,500
Main Currency			,000	3	1,000	
Main Currency(1)	34,503	20149,372	,000	1	,999	964431687876505,200
Main Currency(2)	12,661	44960,767	,000	1	1,000	315123,003
Main Currency(3)	56,718	28044,520	,000	1	,998	4287245915183094500000000,000
CityOfResidence_Lisbon(1)	1,443	,537	7,230	1	,007	4,234
Travel Year			2,352	2	,308	
Travel Year(1)	-15,414	12678,053	,000	1	,999	,000
Travel Year(2)	-17,371	12678,053	,000	1	,999	,000
UseAirport			1,611	2	,447	
UseAirport(1)	14,160	12678,053	,000	1	,999	1411327,193
UseAirport(2)	15,709	12678,053	,000	1	,999	6641198,645
Education			,125	3	,989	
Education(1)	,187	17843,755	,000	1	1,000	1,206
Education(2)	19,210	16244,513	,000	1	,999	220180542,660
Education(3)	19,011	16244,513	,000	1	,999	180501279,799
EmploymentStatus			5,747	5	,332	
EmploymentStatus(1)	-1,106	,952	1,352	1	,245	,331
EmploymentStatus(2)	-1,420	1,188	1,429	1	,232	,242

		B	S.E.	Wald	df	Sig.	Exp(B)
	EmploymentStatus(3)	-19,161	20355,344	,000	1	,999	,000
	EmploymentStatus(4)	,969	1,261	,590	1	,443	2,634
	EmploymentStatus(5)	1,336	1,864	,514	1	,474	3,803
	MonthlyIncome			7,232	4	,124	
	MonthlyIncome(1)	-2,602	1,367	3,622	1	,057	,074
	MonthlyIncome(2)	-,541	1,037	,272	1	,602	,582
	MonthlyIncome(3)	-1,510	1,130	1,787	1	,181	,221
	MonthlyIncome(4)	-1,770	1,281	1,911	1	,167	,170
	Constant	-86,311	69551,279	,000	1	,999	,000

Annex I. Test of significance for each of the coefficients in the logistic regression model for model

Categorical Variables Codings

		Frequency	Parameter coding (1)	(2)	(3)	(4)
How many people did you travel with?	0	44	1,000	,000	,000	,000
	1	59	,000	1,000	,000	,000
	2	21	,000	,000	1,000	,000
	3	29	,000	,000	,000	1,000
	4	9	,000	,000	,000	,000
	9	27	,000	,000	,000	,000
TimeFlight	1	83	1,000	,000	,000	,000
	2	40	,000	1,000	,000	,000
	3	22	,000	,000	1,000	,000
	4	22	,000	,000	,000	1,000
	5	13	,000	,000	,000	,000
	6	9	,000	,000	,000	,000
What was your destination?	1	119	1,000	,000	,000	
	2	5	,000	1,000	,000	
	3	39	,000	,000	1,000	
	4	26	,000	,000	,000	
Who paid for your ticket?	1	130	1,000	,000		
	2	40	,000	1,000		
	3	19	,000	,000		
What was the purpose of your trip?	1	56	1,000	,000		
	2	96	,000	1,000		
	3	37	,000	,000		
Starting_Or_Back	0	19	1,000			
	1	170	,000			
Check_Luggage	0	135	1,000			
	1	54	,000			
Lounge_Access	0	153	1,000			
	1	36	,000			
FastTrack	0	150	1,000			
	1	39	,000			
Transport_Payment	0	63	1,000			
	1	126	,000			

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 1ᵃ What was your destination?			9,322	3	,025	
What was your destination? (1)	-2,058	,846	5,913	1	,015	,128
What was your destination? (2)	-3,305	1,382	5,722	1	,017	,037
What was your destination? (3)	-1,180	,936	1,588	1	,208	,307
What was the purpose of your trip?			,523	2	,770	
What was the purpose of your trip?(1)	-,348	,786	,196	1	,658	,706
What was the purpose of your trip?(2)	-,426	,590	,520	1	,471	,653
Starting_Or_Back(1)	,237	,702	,114	1	,736	1,267
How many days did you stay at your destination before returning home?	-,023	,010	5,410	1	,020	,977
Who paid for your ticket?			1,654	2	,437	
Who paid for your ticket? (1)	,815	,653	1,557	1	,212	2,259
Who paid for your ticket? (2)	,816	,837	,949	1	,330	2,261
How many people did you travel with?			8,333	5	,139	
How many people did you travel with?(1)	-,205	,654	,099	1	,754	,814
How many people did you travel with?(2)	-,411	,568	,524	1	,469	,663
How many people did you travel with?(3)	,408	,762	,287	1	,592	1,504
How many people did you travel with?(4)	1,315	,756	3,027	1	,082	3,726
How many people did you travel with?(5)	1,752	1,346	1,696	1	,193	5,769
How many children did you travel with?	-,407	,579	,494	1	,482	,666
FastTrack(1)	,746	,492	2,297	1	,130	2,108
Check_Luggage(1)	-1,084	,476	5,188	1	,023	,338
TimeFlight			2,566	5	,766	

TimeFlight(1)	,597	,937	,406	1	,524	1,817
TimeFlight(2)	,862	,973	,785	1	,376	2,369
TimeFlight(3)	,327	1,028	,101	1	,750	1,387
TimeFlight(4)	1,335	1,113	1,438	1	,230	3,798
TimeFlight(5)	,638	1,236	,267	1	,606	1,893
Lounge_Access(1)	-1,989	,617	10,376	1	,001	,137
Transport_Payment(1)	-,349	,440	,631	1	,427	,705
Constant	3,553	1,565	5,158	1	,023	34,928

Annex J. Test of significance for each of the coefficients in the logistic regression model for model

Categorical Variables Codings

		Frequency	(1)	(2)	(3)	(4)
			Parameter coding
How many people did you travel with?	0	44	1,000	,000	,000	,000
	1	59	,000	1,000	,000	,000
	2	21	,000	,000	1,000	,000
	3	29	,000	,000	,000	1,000
	4	9	,000	,000	,000	,000
	9	27	,000	,000	,000	,000
TimeFlight	1	83	1,000	,000	,000	,000
	2	40	,000	1,000	,000	,000
	3	22	,000	,000	1,000	,000
	4	22	,000	,000	,000	1,000
	5	13	,000	,000	,000	,000
	6	9	,000	,000	,000	,000
What was your destination?	1	119	1,000	,000	,000	
	2	5	,000	1,000	,000	
	3	39	,000	,000	1,000	
	4	26	,000	,000	,000	
Who paid for your ticket?	1	130	1,000	,000		
	2	40	,000	1,000		
	3	19	,000	,000		
What was the purpose of your trip?	1	56	1,000	,000		
	2	96	,000	1,000		
	3	37	,000	,000		
Starting_Or_Back	0	19	1,000			
	1	170	,000			
Check_Luggage	0	135	1,000			
	1	54	,000			
Lounge_Access	0	153	1,000			
	1	36	,000			
FastTrack	0	150	1,000			
	1	39	,000			
Transport_Payment	0	63	1,000			
	1	126	,000			

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 1ª What was your destination?			1,236	3	,744	

	B	S.E.	Wald	df	Sig.	Exp(B)
What was your destination? (1)	-,261	,583	,201	1	,654	,770
What was your destination? (2)	-,162	1,345	,014	1	,904	,851
What was your destination? (3)	,284	,690	,169	1	,681	1,328
What was the purpose of your trip?			4,836	2	,089	
What was the purpose of your trip?(1)	-1,626	,772	4,435	1	,035	,197
What was the purpose of your trip?(2)	-,839	,537	2,441	1	,118	,432
Starting_Or_Back(1)	-,491	,649	,572	1	,449	,612
How many days did you stay at your destination before returning home?	,017	,008	4,238	1	,040	1,017
Who paid for your ticket?			1,967	2	,374	
Who paid for your ticket? (1)	,538	,670	,645	1	,422	1,713
Who paid for your ticket? (2)	1,220	,871	1,962	1	,161	3,389
How many people did you travel with?			1,777	5	,879	
How many people did you travel with?(1)	,479	,673	,507	1	,476	1,615
How many people did you travel with?(2)	,747	,602	1,538	1	,215	2,110
How many people did you travel with?(3)	,508	,778	,427	1	,513	1,663
How many people did you travel with?(4)	,459	,713	,415	1	,520	1,583
How many people did you travel with?(5)	,076	1,091	,005	1	,945	1,079
How many children did you travel with?	,074	,487	,023	1	,878	1,077
FastTrack(1)	-,187	,470	,158	1	,691	,830
Check_Luggage(1)	-,061	,424	,021	1	,885	,941
TimeFlight			5,770	5	,329	
TimeFlight(1)	-,291	,855	,116	1	,733	,747
TimeFlight(2)	,252	,865	,085	1	,771	1,287

TimeFlight(3)	,218	,948	,053	1	,818	1,244
TimeFlight(4)	1,099	,981	1,255	1	,263	3,001
TimeFlight(5)	,401	1,040	,149	1	,700	1,493
Lounge_Access(1)	-,556	,492	1,280	1	,258	,573
Transport_Payment(1)	,529	,408	1,685	1	,194	1,697
Constant	-,802	1,353	,351	1	,553	,449

Annex K. Test of significance for each of the coefficients in the logistic regression model for model

Categorical Variables Codings

		Frequency	Parameter coding (1)	(2)	(3)	(4)
How many people did you travel with?	0	44	1,000	,000	,000	,000
	1	59	,000	1,000	,000	,000
	2	21	,000	,000	1,000	,000
	3	29	,000	,000	,000	1,000
	4	9	,000	,000	,000	,000
	9	27	,000	,000	,000	,000
TimeFlight	1	83	1,000	,000	,000	,000
	2	40	,000	1,000	,000	,000
	3	22	,000	,000	1,000	,000
	4	22	,000	,000	,000	1,000
	5	13	,000	,000	,000	,000
	6	9	,000	,000	,000	,000
What was your destination?	1	119	1,000	,000	,000	
	2	5	,000	1,000	,000	
	3	39	,000	,000	1,000	
	4	26	,000	,000	,000	
What was the purpose of your trip?	1	56	1,000	,000		
	2	96	,000	1,000		
	3	37	,000	,000		
Who paid for your ticket?	1	130	1,000	,000		
	2	40	,000	1,000		
	3	19	,000	,000		
FastTrack	0	150	1,000			
	1	39	,000			
Starting_Or_Back	0	19	1,000			
	1	170	,000			
Check_Luggage	0	135	1,000			
	1	54	,000			
Transport_Payment	0	63	1,000			
	1	126	,000			

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1ª	What was your destination?			1,061	3	,787	

	B	S.E.	Wald	df	Sig.	Exp(B)
What was your destination? (1)	,092	1,038	,008	1	,929	1,096
What was your destination? (2)	1,336	1,687	,627	1	,428	3,802
What was your destination? (3)	-,197	1,138	,030	1	,862	,821
What was the purpose of your trip?			,765	2	,682	
What was the purpose of your trip?(1)	,179	,970	,034	1	,853	1,197
What was the purpose of your trip?(2)	,694	,853	,662	1	,416	2,002
Starting_Or_Back(1)	2,429	,785	9,577	1	,002	11,346
How many days did you stay at your destination before returning home?	,009	,011	,704	1	,401	1,009
Who paid for your ticket?			,379	2	,827	
Who paid for your ticket? (1)	-,226	,774	,085	1	,770	,798
Who paid for your ticket? (2)	,281	,949	,088	1	,767	1,325
How many people did you travel with?			5,437	5	,365	
How many people did you travel with?(1)	,528	,996	,281	1	,596	1,696
How many people did you travel with?(2)	-,538	,889	,366	1	,545	,584
How many people did you travel with?(3)	,650	1,043	,388	1	,533	1,916
How many people did you travel with?(4)	1,305	,954	1,871	1	,171	3,686
How many people did you travel with?(5)	,321	1,524	,044	1	,833	1,378
How many children did you travel with?	-,381	,618	,380	1	,538	,683
FastTrack(1)	-,393	,630	,388	1	,533	,675
Check_Luggage(1)	-1,251	,608	4,233	1	,040	,286
TimeFlight			6,708	5	,243	
TimeFlight(1)	,641	1,156	,308	1	,579	1,899

TimeFlight(2)	-,122	1,170	,011	1	,917	,885
TimeFlight(3)	-1,239	1,385	,801	1	,371	,290
TimeFlight(4)	1,403	1,319	1,132	1	,287	4,069
TimeFlight(5)	-1,409	1,764	,638	1	,424	,244
Transport_Payment(1)	2,277	,586	15,081	1	,000	9,744
Constant	-3,084	1,766	3,049	1	,081	,046

Annex L. Test of significance for each of the coefficients in the logistic regression model for model

Categorical Variables Codings

		Frequency	Parameter coding			
			(1)	(2)	(3)	(4)
R32	1	9	1,000	,000	,000	,000
	2	36	,000	1,000	,000	,000
	3	71	,000	,000	1,000	,000
	4	82	,000	,000	,000	1,000
	5	36	,000	,000	,000	,000
Terminal_CloseGates	0	153	1,000			
	1	81	,000			
Environment_Access	0	115	1,000			
	1	119	,000			
Environment_Confortable	0	165	1,000			
	1	69	,000			
Environment_Nice	0	204	1,000			
	1	30	,000			
Environment_Language	0	190	1,000			
	1	44	,000			
Environment_Moving	0	132	1,000			
	1	102	,000			
CultureAtmosphere_local Products	0	72	1,000			
	1	162	,000			
CultureAtmosphere_souv eniers	0	97	1,000			
	1	137	,000			
CultureAtmosphere_forei gnProducts	0	177	1,000			
	1	57	,000			
CultureAtmosphere_New Products	0	201	1,000			
	1	33	,000			
Terminal_StoresPosition	0	163	1,000			
	1	71	,000			
Terminal_access	0	90	1,000			
	1	144	,000			
Terminal_confortable	0	169	1,000			
	1	65	,000			
PriceQuality_HighQuality	0	138	1,000			
	1	96	,000			
PriceQuality_duttyFree	0	68	1,000			
	1	166	,000			
PriceQuality_Discounts	0	186	1,000			
	1	48	,000			

PriceQuality_Exchange	0	214	1,000				
	1	20	,000				
R31	0	222	1,000				
	1	12	,000				

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1ᵃ	R31(1)	,807	,769	1,099	1	,294	2,240
	R32			5,990	4	,200	
	R32(1)	-,749	,910	,678	1	,410	,473
	R32(2)	,847	,619	1,873	1	,171	2,333
	R32(3)	-,381	,493	,598	1	,439	,683
	R32(4)	,024	,476	,003	1	,960	1,024
	Environment_Access(1)	,026	,395	,004	1	,948	1,026
	Environment_Confortable(1)	,598	,475	1,583	1	,208	1,818
	Environment_Nice(1)	,629	,517	1,480	1	,224	1,876
	Environment_Language(1)	,859	,471	3,324	1	,068	2,361
	Environment_Moving(1)	,678	,429	2,492	1	,114	1,969
	CultureAtmosphere_localProducts(1)	-1,009	,439	5,278	1	,022	,364
	CultureAtmosphere_souveniers(1)	-,200	,486	,170	1	,680	,819
	CultureAtmosphere_foreignProducts(1)	-,586	,529	1,225	1	,268	,557
	CultureAtmosphere_NewProducts(1)	-,049	,588	,007	1	,934	,952
	PriceQuality_Discounts(1)	,479	,494	,939	1	,332	1,614
	PriceQuality_Exchange(1)	-2,097	,875	5,746	1	,017	,123
	PriceQuality_duttyFree(1)	-,390	,505	,596	1	,440	,677
	PriceQuality_HighQuality(1)	-,415	,526	,623	1	,430	,660
	Terminal_confortable(1)	,232	,510	,207	1	,649	1,261
	Terminal_access(1)	1,236	,511	5,841	1	,016	3,440
	Terminal_StoresPosition(1)	,486	,518	,882	1	,348	1,626
	Terminal_CloseGates(1)	,196	,478	,168	1	,682	1,216

Constant	-,252	1,814	,019	1	,890	,777

Annex M. Test of significance for each of the coefficients in the logistic regression model for model

Categorical Variables Codings

		Frequency	Parameter coding (1)
Terminal_CloseGates	0	153	1,000
	1	81	,000
Environment_Access	0	115	1,000
	1	119	,000
Environment_Confortable	0	165	1,000
	1	69	,000
Environment_Nice	0	204	1,000
	1	30	,000
Environment_Language	0	190	1,000
	1	44	,000
Environment_Moving	0	132	1,000
	1	102	,000
CultureAtmosphere_local Products	0	72	1,000
	1	162	,000
CultureAtmosphere_souv eniers	0	97	1,000
	1	137	,000
CultureAtmosphere_forei gnProducts	0	177	1,000
	1	57	,000
CultureAtmosphere_New Products	0	201	1,000
	1	33	,000
Terminal_StoresPosition	0	163	1,000
	1	71	,000
Terminal_access	0	90	1,000
	1	144	,000
Terminal_confortable	0	169	1,000
	1	65	,000
PriceQuality_HighQuality	0	138	1,000
	1	96	,000
PriceQuality_duttyFree	0	68	1,000
	1	166	,000
PriceQuality_Discounts	0	186	1,000
	1	48	,000
PriceQuality_Exchange	0	214	1,000
	1	20	,000
R31	0	222	1,000
	1	12	,000

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1ª	R31(1)	-,361	,697	,269	1	,604	,697
	R32			5,222	4	,265	
	R32(1)	,929	1,014	,839	1	,360	2,532
	R32(2)	1,247	,613	4,138	1	,042	3,478
	R32(3)	1,140	,549	4,316	1	,038	3,127
	R32(4)	1,059	,531	3,972	1	,046	2,884
	Environment_Access(1)	-,430	,363	1,402	1	,236	,650
	Environment_Confortable(1)	-,392	,437	,807	1	,369	,676
	Environment_Nice(1)	-,095	,492	,037	1	,847	,910
	Environment_Language(1)	,788	,486	2,625	1	,105	2,198
	Environment_Moving(1)	-,001	,390	,000	1	,997	,999
	CultureAtmosphere_localProducts(1)	-,470	,450	1,090	1	,297	,625
	CultureAtmosphere_souveniers(1)	-,199	,480	,171	1	,679	,820
	CultureAtmosphere_foreignProducts(1)	,142	,538	,070	1	,792	1,153
	CultureAtmosphere_NewProducts(1)	,055	,578	,009	1	,925	1,056
	PriceQuality_Discounts(1)	-,018	,481	,001	1	,971	,982
	PriceQuality_Exchange(1)	,267	,645	,172	1	,678	1,307
	PriceQuality_duttyFree(1)	,137	,485	,080	1	,777	1,147
	PriceQuality_HighQuality(1)	-,068	,495	,019	1	,890	,934
	Terminal_confortable(1)	-,147	,493	,089	1	,766	,863
	Terminal_access(1)	,036	,469	,006	1	,939	1,037
	Terminal_StoresPosition(1)	-,669	,492	1,849	1	,174	,512
	Terminal_CloseGates(1)	-,249	,465	,287	1	,592	,779
	Constant	-1,014	1,666	,370	1	,543	,363

Annex N. Test of significance for each of the coefficients in the logistic regression model for model

		B	S.E.	Wald	df	Sig.
Step 1ᵃ	R31(1)	19,334	11097,348	,000	1	,999
	Environment_Access(1)	,682	,493	1,915	1	,166
	Environment_Confortable(1)	,147	,551	,071	1	,790
	Environment_Nice(1)	1,212	,849	2,040	1	,153
	Environment_Language(1)	1,078	,703	2,351	1	,125
	Environment_Moving(1)	,765	,515	2,208	1	,137
	CultureAtmosphere_localProducts(1)	-,725	,673	1,160	1	,281
	CultureAtmosphere_souveniers(1)	-,275	,670	,169	1	,681
	CultureAtmosphere_foreignProducts(1)	-,123	,752	,027	1	,870
	CultureAtmosphere_NewProducts(1)	,661	,948	,486	1	,486
	PriceQuality_Discounts(1)	-,284	,706	,162	1	,687
	PriceQuality_Exchange(1)	,375	,872	,185	1	,667
	PriceQuality_duttyFree(1)	1,099	,709	2,404	1	,121
	PriceQuality_HighQuality(1)	,886	,737	1,444	1	,229
	Terminal_confortable(1)	,374	,757	,245	1	,621
	Terminal_access(1)	,191	,677	,080	1	,778
	Terminal_StoresPosition(1)	-1,121	,718	2,434	1	,119
	Terminal_CloseGates(1)	-,724	,689	1,106	1	,293
	Constant	-24,548	11097,348	,000	1	,998

Variables in the Equation

Annex O. Test of significance for each of the coefficients in the logistic regression model for model

Categorical Variables Codings

		Frequency	Parameter coding (1)	(2)	(3)	(4)
How much time approximately did you have available after passing security control and before boarding?	1	25	1,000	,000	,000	,000
	2	82	,000	1,000	,000	,000
	3	51	,000	,000	1,000	,000
	4	26	,000	,000	,000	1,000
	5	4	,000	,000	,000	,000
How much time before the flight departure did you arrive at the airport?	1	18	1,000	,000	,000	
	2	98	,000	1,000	,000	
	3	59	,000	,000	1,000	
	4	13	,000	,000	,000	
How much time did you spend in security?	1	63	1,000	,000		
	2	100	,000	1,000		
	3	25	,000	,000		

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	How much time before the flight departure did you arrive at the airport?			1,153	3	,764	
	How much time before the flight departure did you arrive at the airport?(1)	-,306	,807	,144	1	,704	,736
	How much time before the flight departure did you arrive at the airport?(2)	-,098	,671	,021	1	,884	,907
	How much time before the flight departure did you arrive at the airport?(3)	,272	,701	,151	1	,698	1,312
	How much time did you spend in security?			1,623	2	,444	
	How much time did you spend in security?(1)	-,366	,509	,516	1	,473	,694
	How much time did you spend in security?(2)	,067	,491	,019	1	,891	1,069

How much time approximately did you have available after passing security control and before boarding?			2,705	4	,608	
How much time approximately did you have available after passing security control and before boarding?(1)	-,673	1,274	,279	1	,597	,510
How much time approximately did you have available after passing security control and before boarding?(2)	-,760	1,228	,382	1	,536	,468
How much time approximately did you have available after passing security control and before boarding?(3)	-,193	1,249	,024	1	,877	,824
How much time approximately did you have available after passing security control and before boarding?(4)	-,154	1,299	,014	1	,906	,857
Constant	1,294	1,277	1,028	1	,311	3,648

Annex P. Test of significance for each of the coefficients in the logistic regression model for model

Categorical Variables Codings

		Frequency	Parameter coding			
			(1)	(2)	(3)	(4)
How much time approximately did you have available after passing security control and before boarding?	1	25	1,000	,000	,000	,000
	2	82	,000	1,000	,000	,000
	3	51	,000	,000	1,000	,000
	4	26	,000	,000	,000	1,000
	5	4	,000	,000	,000	,000
How much time before the flight departure did you arrive at the airport?	1	18	1,000	,000	,000	
	2	98	,000	1,000	,000	
	3	59	,000	,000	1,000	
	4	13	,000	,000	,000	
How much time did you spend in security?	1	63	1,000	,000		
	2	100	,000	1,000		
	3	25	,000	,000		

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1a	How much time before the flight departure did you arrive at the airport?			2,446	3	,485	
	How much time before the flight departure did you arrive at the airport?(1)	-1,075	,823	1,704	1	,192	,341
	How much time before the flight departure did you arrive at the airport?(2)	-,950	,643	2,184	1	,139	,387
	How much time before the flight departure did you arrive at the airport?(3)	-,696	,659	1,118	1	,290	,498
	How much time did you spend in security?			2,928	2	,231	
	How much time did you spend in security?(1)	,526	,579	,824	1	,364	1,692
	How much time did you spend in security?(2)	,875	,550	2,533	1	,112	2,400

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How much time approximately did you have available after passing security control and before boarding?			,902	4	,924	
How much time approximately did you have available after passing security control and before boarding?(1)	,911	1,317	,478	1	,489	2,486
How much time approximately did you have available after passing security control and before boarding?(2)	,583	1,265	,213	1	,645	1,792
How much time approximately did you have available after passing security control and before boarding?(3)	,518	1,273	,165	1	,684	1,679
How much time approximately did you have available after passing security control and before boarding?(4)	,384	1,314	,085	1	,770	1,468
Constant	-1,202	1,277	,887	1	,346	,300

Annex Q. Test of significance for each of the coefficients in the logistic regression model for model

Categorical Variables Codings

		Frequency	Parameter coding			
			(1)	(2)	(3)	(4)
How much time approximately did you have available after passing security control and before boarding?	1	25	1,000	,000	,000	,000
	2	82	,000	1,000	,000	,000
	3	51	,000	,000	1,000	,000
	4	26	,000	,000	,000	1,000
	5	4	,000	,000	,000	,000
How much time before the flight departure did you arrive at the airport?	1	18	1,000	,000	,000	
	2	98	,000	1,000	,000	
	3	59	,000	,000	1,000	
	4	13	,000	,000	,000	
How much time did you spend in security?	1	63	1,000	,000		
	2	100	,000	1,000		
	3	25	,000	,000		

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	How much time before the flight departure did you arrive at the airport?			5,439	3	,142	
	How much time before the flight departure did you arrive at the airport?(1)	-1,708	1,042	2,686	1	,101	,181
	How much time before the flight departure did you arrive at the airport?(2)	-1,379	,707	3,808	1	,051	,252
	How much time before the flight departure did you arrive at the airport?(3)	-1,694	,756	5,019	1	,025	,184
	How much time did you spend in security?			4,875	2	,087	
	How much time did you spend in security?(1)	-,572	,584	,958	1	,328	,564
	How much time did you spend in security?(2)	-1,228	,581	4,464	1	,035	,293

	B	S.E.	Wald	df	Sig.	Exp(B)
How much time approximately did you have available after passing security control and before boarding?			4,861	4	,302	
How much time approximately did you have available after passing security control and before boarding?(1)	20,599	18828,266	,000	1	,999	883138508,668
How much time approximately did you have available after passing security control and before boarding?(2)	20,357	18828,266	,000	1	,999	693218558,417
How much time approximately did you have available after passing security control and before boarding?(3)	20,539	18828,266	,000	1	,999	831831217,628
How much time approximately did you have available after passing security control and before boarding?(4)	21,646	18828,266	,000	1	,999	2515397264,533
Constant	-20,091	18828,266	,000	1	,999	,000

Annex R. Cox&Snell's and Negelkerkes results for the 12 models

Model 1

Cox & Snell R^2	Nagelkerke R^2
0,245	0,342

Model 2

Cox & Snell R^2	Nagelkerke R^2
0,202	0,285

Model 3

Cox & Snell R^2	Nagelkerke R^2
0,238	0,439

Model 4

Cox & Snell R^2	Nagelkerke R^2
0,224	0,310

Model 5

Cox & Snell R^2	Nagelkerke R^2
0,120	0,168

Model 6

Cox & Snell R^2	Nagelkerke R^2
0,235	0,398

Model 7

Cox & Snell R^2	Nagelkerke R^2
0,158	0,221

Model 8

Cox & Snell R^2	Nagelkerke R^2
0,088	0,124

Model 9

Cox & Snell R^2	Nagelkerke R^2
0,128	0,236

Model 10

Cox & Snell R^2	Nagelkerke R^2
0,041	0,056

Model 11

Cox & Snell R^2	Nagelkerke R^2
0,029	0,041

Model 12

Cox & Snell R^2	Nagelkerke R^2
0,080	0,135