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SERVICE QUALITY, NATIONAL DIFFERENCES, AND SHOPPING BEHAVIOUR AT AIRPORT COMMERCIAL AREA

The case of Keflavik International Airport

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Declaration of Research Work Integrity

This work has not previously been accepted in substance for any degree and is not being concurrently submitted in candidature of any degree. This thesis is the result of my own investigations, except where otherwise stated. Other sources are acknowledged by giving explicit references. A bibliography is appended.

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Abstract

As the airport industry is becoming more competitive airports are under increased pressure to increase their non-aeronautical revenues. Airports are thus focusing more and more on service quality and customer satisfaction, in order to differentiate themselves and attract more passengers, to increase commercial revenues and gain a competitive advantage. However, a deeper understanding of how passengers of different national cultures perceive airport service quality is needed, as well as a deeper understanding of what factors influence shopping. The purpose of this study is threefold. First to determine which service quality factors have an effect on overall satisfaction, both with food and beverage, and duty-free offering. Second, to examine whether national culture has an effect on the perception of service quality, by examining the nationalities of the four largest national groups at Keflavik Airport: Germany, the UK, Iceland, and the US. And third, to examine travellers' expenditure levels and shopping behaviour, as well as to explore the determinants of both food and beverage, and duty-free expenditure. Data from an extensive survey carried out at Keflavik International Airport was used. Using descriptive statistics, ANOVA, and multiple regression, the study finds that the service quality dimensions that have an effect on overall satisfaction with both food and beverage, and duty-free offering, are a good selection of restaurants/shops and products, as well as offering value for money and a high-speed service. The study also finds differences in the perceptions of service quality of food and beverage offering, between travellers from the UK, Iceland, and the US, while it does not find much difference between nationalities regarding the duty-free offering. Furthermore, the results show that different factors affect expenditure levels of both food and beverage, and duty-free items. The study emphasizes the need to take national differences into account when improving service quality, and provides recommendations and actions that can assist airport managers' strategic and marketing activities. The paper adds to the much-needed research on airport service quality of commercial areas, shopping behaviour and differences according to nationalities in service evaluations at airports.

Keywords: service quality, airport, cross-national, shopping behaviour

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1. Introduction

The aviation industry has been growing almost nonstop since the Second World War (Graham, 2013). Year-over-year growth from 2014 to 2015 was 6.1% in terms of total passengers, with airport revenues reaching 142 billion USD in 2014, an 8.2% increase from the previous year (Airports Council International, 2016). Airport passenger traffic has in fact doubled every 15 years since the 1980's, and is expected to double again over the next 15 years (Airbus, 2015). The airport industry has also become more competitive with the deregulation of the air transport markets, which has led to airports having to develop new and proactive strategies to take advantage of these changes (Graham, 2013). As a result, the business model of airports have changed and are becoming more and more diversified (Airports Council International, 2016).

Airports' revenues come from two sources: aeronautical and non-aeronautical. Non-aeronautical, or commercial revenues, are generated from commercial activities and other activities that do not come directly from aircraft operations, or the processing of passengers and freight (Graham, 2013). Airports are under increased pressure from airlines and regulatory bodies to keep aeronautical charges low, which has pushed the airports to increase their revenues through commercial facilities (Graham, 2013). The share of airports' non-aeronautical revenues is increasing. In 2013 they constituted up to 60-70% of total revenues at some of the world's largest airports (in terms of passenger traffic), including Hong Kong International, Charles de Gaulle, and Frankfurt Airport (Yu, 2015; The Port Authority of New York and New Jersey, 2015). Because of this, many airports are focusing more on charging the travellers or the end users, as well as generating income from non-aeronautical or commercial revenues (Airports Council International, 2016). Non-aeronautical revenues also provide the airport with the extra revenue that is needed, for example when facing an economic recession, to cover operating costs, as well as often being used to improve the airport's infrastructure. The main source of non-aeronautical revenues comes from retail concessions (27%), following with car parking (20%), and property income/rent (18%) (Airports Council International, 2014). Although the airport industry as a whole seems to be profitable, according to Airports Council International (2016), many airports are still facing challenges, especially with generating enough traffic to be able to benefit from economies of scale. In fact, 80% of the world's airports, which receive less than one million passenger per year, operate at a net loss (Airports Council International, 2014).

Airports are also in constant need of planning and implementing expansion developments, and to be able to finance these developments they need to increase their commercial revenues (Belardini, 2013). Keflavik International Airport in Iceland is a good example of an airport experiencing unprecedented growth in number of passengers, and relies on increased commercial revenues to support the developments needed to meet this increased demand (Isavia, 2014). Hence, it is important for airport marketers to gain knowledge of their customers' needs and wants in order to be able to increase non-aeronautical revenues, like from restaurants and retail stores.

Airports are an important part of the air transport sector as they offer a wide range of services, like air traffic control and security, as well as a wide variety of commercial services, like shops and restaurants (Graham, 2013). Delivering a high quality service at an airport can be a challenging task, as there are many different companies operating at the airport providing these services, like handling agents, customs, airlines, and restaurants. Another thing influencing the level of service, provided at any given time, is how uneven the demand is. An airport terminal will probably be perceived differently on a busy summer weekend, compared to a slow weekday in the middle of winter (Graham, 2013). The airport also has a wide range of customers, which include passengers, airlines, tour operators, and travel agents. This study focuses on the air travellers, who make up a very diverse group, each with different needs and wants, with some wanting to get through the airport rather quickly without much delay or distractions, while others might like to relax and shop (Graham, 2013). Air travellers can choose between different airports, based on the services they have to offer, which puts a pressure on airport managers and marketers to find a way to differentiate themselves from the competition (Fodness & Murray, 2007). Airports are thus focusing more and more on service quality and customer satisfaction, in order to attract more passengers, increase commercial revenues, and gain a competitive advantage (Merkert & Assaf, 2015).

Research shows that higher service quality leads to increased customer satisfaction and profits (Anderson, Fornell, & Lehmann, 1994; Anderson, Fornell, & Rust, 1997; Anderson & Mittal, 2000), and that customer satisfaction is influenced by service quality and customer experience (Falk, Hammerschmidt, & Schepers, 2010). Airport passengers are demanding a higher level of service and, in order to be able to compete effectively, many airport managers around the world recognize that they need to understand how to increase customer satisfaction if they want to improve business

performance ("ASQ Home," n.d.). Marketers also understand that to be able to effectively improve their service quality, they need to understand how the international traveller perceives service quality (Malhotra, Ulgado, Agarwal, Shainesh, & Wu, 2005). This is a problem at airports, since airport products have to appeal to a diverse group of travellers with different needs and wants. As a consequence, the airport sector has been evolving, focusing on serving these different needs instead of just offering the same product to everyone (Graham, 2013). At the same time, international service providers need to be able to standardise their service and product offering as much as they can to reduce cost, and by that taking advantage of economies of scale. They need to find a balance between standardization and localization (Smith & Reynolds, 2002).

An increasing number of studies show that consumers with different cultural backgrounds perceive and evaluate service quality differently (Herbig & Genestre, 1996; Sultan & Simpson, 2000; Witkowski & Wolfinbarger, 2002). Research is lacking in the air travel sector on the cross-cultural differences on perceived service quality (Basfirinci & Mitra, 2015), especially studies on comparisons inside the airport terminal (Pantouvakis & Renzi, 2016). A few studies have investigated the differences in customer satisfaction, according to passenger characteristics and cultural backgrounds, and have emphasized the need to consider how passenger characteristics may relate to different perceived levels of service quality at airports (Bezerra & Gomes, 2015; Jin-Woo Park & Se-Yeon Jung, 2011). A deeper understanding on how passengers from different national cultures evaluate and perceive the quality of airport services is however needed, in order to provide a higher service quality and more customer-focused marketing practices.

During the last few decades, marketing has become more important for airports because of changes in the airport business environment. Airports are transforming from a public transportation service into a commercial business, offering a wide variety of commercial offerings, like shops and restaurants. As more space has been allocated to retail offerings, commercial revenues have increased. At the same time travellers have become more seasoned as more people are travelling through airports and doing it more frequently. Travellers not only demand a high level of service, but also a wide range of product offering, as well as value for money (Graham, 2013). Airport competition is rather complicated and depends on many factors. Passengers choose an airport mainly based on which airlines that airport offers, meaning that airport competition is linked to airline competition. Location also has a significant effect on competition, but other

factors like quality, and variety of services and facilities, as well as price, are important (Halpern & Graham, 2013).

Shopping at airports differs from other forms of shopping, like street or mall shopping. The difference lies in the purpose of you being there, seeing as your primary purpose at a mall is to shop, while at an airport it is to travel. These principles need to be taken into consideration when developing retail and marketing strategies for airports (Chung, 2015). Several studies have investigated commercial revenues at airports (Appold & Kasarda, 2006; Graham, 2009; Hsu & Chao, 2005; Kim & Shin, 2001; Papatheodorou & Lei, 2006; Tovar & Martín-Cejas, 2009; A. Zhang & Zhang, 1997), while only a few have studied airport shopping behaviour (Castillo-Manzano, 2010; Chung, 2015; Geuens, Vantomme, & Brengman, 2004; Torres, Domínguez, Valdés, & Aza, 2005). Therefore further research on airport shopping behaviour is needed (Castillo-Manzano, 2010; Chung, 2015). To optimize commercial revenues, airport managers need to understand what factors influence shopping, that way they will know what the most important factors are that require focus and resources when improving the commercial offering.

Keflavik International Airport has been growing rapidly and projections, from the airlines operating at the airport, indicate that the number of passengers travelling through the airport will increase considerably over the following years. According to Isavia (2014), to be able to support this increasing growth of tourism in Iceland, Keflavik airport's income must be secured and commercial revenues increased, to support the developments needed at the airport. The challenges that Keflavik Airport is facing are descriptive of the airport industry environment, as stated before. Here Keflavik International Airport will be used as a case study. To put it in context a brief overview will be given to introduce the airport and its operations.

1.1. Case Study: Keflavik International Airport

Keflavik International Airport is the largest airport in Iceland and the main gateway to the island, servicing about 96% of all international traffic ("Keflavik International Airport", n.d.). The airport is operated by Isavia Ltd., which is a government owned private limited company and the national operator of airports and air navigation services in Iceland (Isavia, 2014). Keflavik Airport's air terminal was first opened in 1987. Since then the number of passengers travelling through has increased fivefold, and is expected to increase even further, reaching approximately

seven million passengers by 2020 (“About KEF”, n.d.). The year of 2015 was Keflavik Airport’s busiest year, with a total of 4.86 million passengers traveling through the airport, which is a 25.5% increase from the year before. According to Isavia’s projections, this number will increase even further in the years to come, with a total of 6.66 million passengers expected to travel through the airport in 2016, which is a 37% increase from 2015 (“Updated forecast”, 2016). In 2016 there is also expected to be an increase in the number of flights and the number of airlines operating at the airport, as new airlines will begin operating from Keflavik Airport. Current airlines operating at the airport are planning to increase their number of flights to current destinations, and add flights to new destinations. This will result in 25 airlines flying to 80 destinations in the summer of 2016 (“6.25 million passengers”, 2015). According to the projection, Icelanders will account for 24.3% of the total number of passengers, which is an increase of 10% from 2015. If the projection is right, the number of foreign tourists will increase by 22.2%. It is estimated that the number of transferring passengers will increase as well, making up around 35% of all passengers in 2016 (“6.25 million passengers”, 2015).

To meet the needs of this growing number of passengers, the terminal building is being expanded to 65,000 square meters. This expansion is the largest from the terminal’s opening, as by the summer of 2016 the terminal size will have increased by approximately 16% since the beginning of 2015, and is planned to reach 140,000 square meters by 2032 (“6.25 million passengers”, 2015). Keflavik International Airport’s commercial area has recently undergone a major transformation, starting in November 2014 and completed in June 2015. These changes were meant to increase the range of goods and improve services, to meet the needs of the increasing number of passengers expected, as well as increase the income from the retail area to support future developments at the airport. Operators were selected through a pre-selection process and the number of restaurants was increased (Isavia, 2014). Of the businesses already operating at the airport, six shops and one restaurant continued their operations, with two new stores added as well as four new restaurants. With these changes the variety of products was increased considerably, bringing more variety in food and beverages, high-fashion clothing, and well-known international brands, as well as Icelandic design, confectionary and fine foods (“Nýtt verslunarsvæði”, n.d.).

Keflavik International Airport has worked towards building up a good reputation as an airport that provides high-quality services to travellers (Isavia, 2014),

resulting in it being chosen as the best airport in Europe in 2014 (“Past Winners”, n.d.). This award was given based on the results of an extensive Airport Service Quality (ASQ) survey, carried out by Airports Council International (ACI) at over 320 airports around the world (“ASQ Awards”, n.d.). Keflavik International Airport has also been inducted into the ACI Director General’s Roll of Excellence for having ranked with the top five airports, by size or region, on the ASQ survey, for the five of six previous years (“ACI Director General’s Roll of Excellence”, n.d.).

Isavia plays an important role in the development of tourism in Iceland. To be able to meet the increasing number of passengers at Keflavik Airport, it needs to begin extensive and costly developments, while at the same time being able to pay high dividends (Isavia, 2014). A new Master plan to establish policies for future expansion was introduced in 2015, and according to this plan the airport is expected to be able to receive 14 million passengers a year, bringing the total cost of the expansion to 20 billion ISK (“Updated forecast”, 2016).

The purpose of this study is threefold. First, to determine which service quality factors have an effect on overall satisfaction with both food and beverage, and duty-free offering. Second, to examine whether national culture has an effect on the perception of service quality, by examining the nationalities of the four largest national groups at Keflavik Airport: Germany, the UK, Iceland, and the US. And third, to examine travellers’ expenditure levels and shopping behaviour, as well as to explore the determinants of both food and beverage, and duty-free expenditure. Secondary data, gathered by a professional market research firm carried out at Keflavik Airport, was used to answer the research questions. The findings reveal that the service quality dimensions that have an effect on overall satisfaction with both food and beverage, and duty-free offering, are a good selection of restaurants/shops and products, as well as offering value for money and a high-speed service. Also, the study found differences in the perceptions of service quality of food and beverage offering between travellers from the UK, Iceland, and the US, while the results did not show much difference between nationalities regarding the duty-free offering. Furthermore, the results showed that different factors affect expenditure levels on food and beverage, and on duty-free items. The study emphasizes the need to take national differences into account when improving service quality, and provides recommendations and actions that can assist airport managers in their strategic and marketing activities. The paper adds to the much-

needed research on airport service quality of commercial areas, shopping behaviour and differences according to nationalities in service evaluations at airports.

In order to achieve the aim of the study, an attempt will be made to answer the following questions:

1) Which service quality dimensions have an effect on overall satisfaction with food and beverage, and duty-free offering?
2) Are there any differences in the perceptions of service quality between travellers from Germany, the UK, Iceland, and the US?
3) How are the expenditure levels at the airport commercial area, who makes a purchases, who does not, and why, and what are the key determinants of travellers' expenditure levels?

A research model was developed based on the service quality literature, as well as literature on cultural differences and perceptions of service quality, and literature on airport shopping behaviour, see Figure 1.

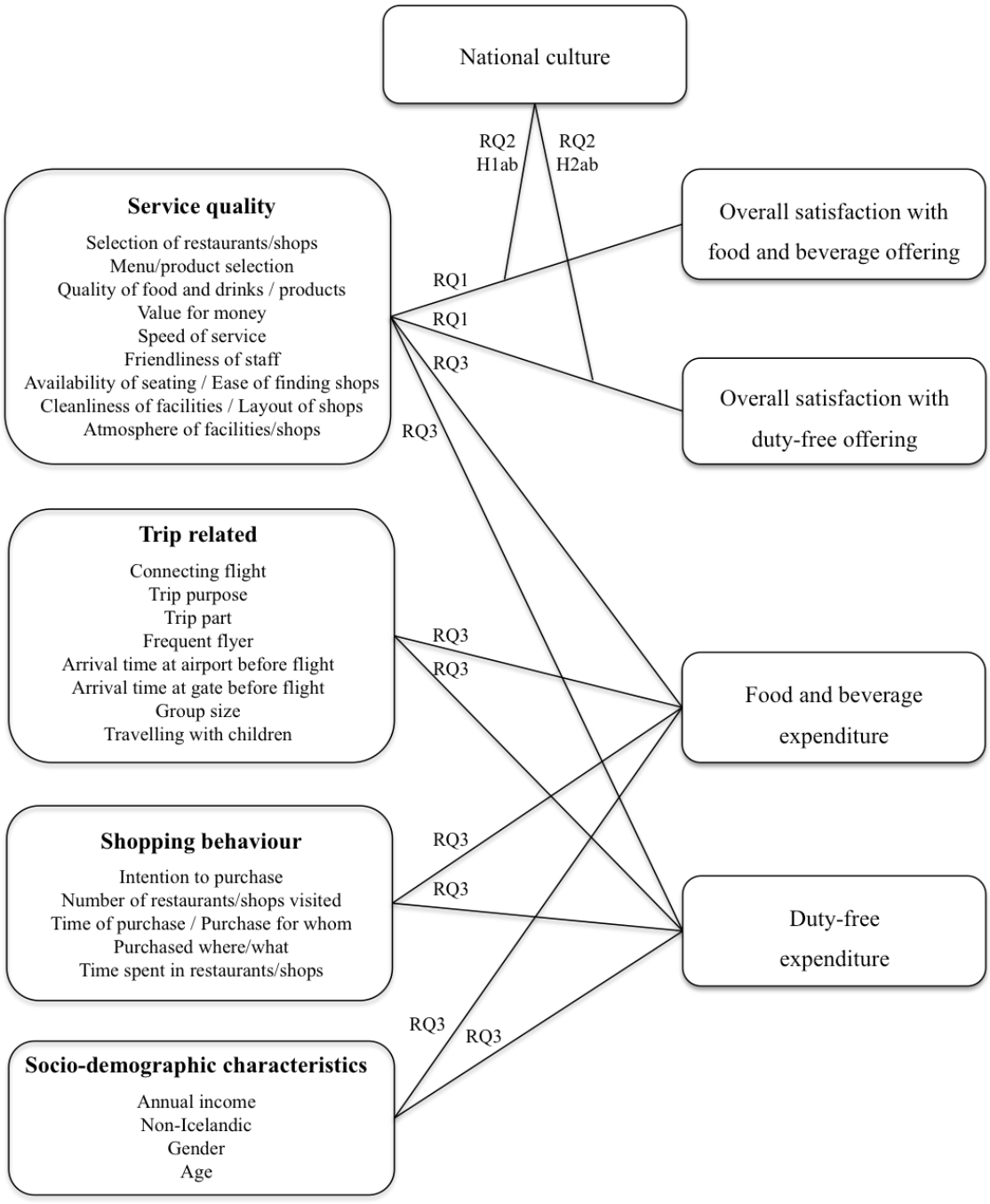

Figure 1. Research model

The remainder of this paper is organized as follows: The literature on airport service quality, national and cultural differences in the perception of service quality, and airport shopping behaviour, is reviewed in section two. The study method is outlined in section three. In section four, the results are presented. Finally, discussion, future research, managerial implications, and conclusions and recommendations are presented in section five.

2. Literature Review and Hypotheses Development

This chapter aims to give a review of some of the literature on airport service quality, national and cultural differences in the perception of service quality, and on airport terminal shopping behaviour. Most of the research regarding service quality at airports has examined the overall satisfaction of airports, that is all the factors related to the airport experience, from the check-in and security screening, to the boarding of the flight. Some have focused on specific attributes, like the airport environment, but few have focused specifically on the commercial area. To locate academic cross-national and cross-cultural service quality research, focused on the air travel industry, a systematic review was conducted. The goal was to find research regarding service quality perception and evaluations. Research regarding, for example reactions to service, i.e. service failures and recovery measures, were excluded. The findings reveal a gap in the literature regarding research on service quality perceptions in the air travel industry. This is especially true in regards to the airport industry as only four studies were found concerning airports. Studies concerning airport shopping behaviour, and especially expenditure levels, are also lacking and still in the experimental phase.

2.1. Airport Service Quality

The concept of service quality has been a significant research topic in many industries, including the tourism and hospitality industries (Barber, Goodman, & Goh, 2011; Bezerra & Gomes, 2015; Kuo & Liang, 2011; Liou, Tang, Yeh, & Tsai, 2011; Lubbe, Douglas, & Zambellis, 2011). Many researchers and companies have found evidence of a relationship between service quality and profitability (Anderson et al., 1994; Anderson et al., 1997; Anderson & Mittal, 2000). However, for several reasons this relationship is not simple. One of the reasons is the inability to see the benefits of service quality for the short term, and thus traditional research practices do not detect them. Since there are many other variables that also affect profits it is difficult to pinpoint how much of a profit increase can be linked to service quality. Furthermore, expenditure being made on service is not what leads to profit increase, but rather how the expenditure is spent and executed. Therefore, it is very important for managers to identify the specific determinants of service quality, in order to be able to understand where to focus their resources to improve service quality (Zeithaml, 2000).

As in other industries, airport operators need to understand what factors have an effect on customer satisfaction. Scholars have examined service quality both at the airport (Arif, Gupta, & Williams, 2013; de Barros, Somasundaraswaran, & Wirasinghe, 2007; Jiang & Zhang, 2016; Merkert & Assaf, 2015; Yeh & Kuo, 2003) as well as in-flight (Basfirinci & Mitra, 2015; Chen & Chang, 2005; Lu & Ling, 2008; Messner, 2016; Sultan & Simpson, 2000). Many airports examine service quality themselves, while others rely on secondary information from international agencies that carry out passenger surveys at airports (Graham, 2013; "IATA Global Passenger Survey", n.d.). One of the most used data sources is an airport service quality survey, issued every quarter by Airports Council International (ACI). This kind of data has the advantage of offering airports cross-comparisons and benchmarking (Graham, 2013).

Researchers in the airport industry have focused on how complicated the airport service is and have tried to develop a model to measure the overall level of service quality at the airport terminal (Correia & Wirasinghe, 2008; Fodness & Murray, 2007; Liou et al., 2011; Pantouvakis & Renzi, 2016). Other researchers have focused on finding the drivers of the overall level of service quality and satisfaction at airports. For example, de Barros et al. (2007) examined transfer passengers' views on service quality at Bandaranaike International airport in Sri Lanka, and found that the courtesy of the security check staff, and the quality of flight information display, were among the most valued service dimensions. Liou et al. (2011) also studied the overall level of service quality at an airport in Taiwan. Using a decision rules approach, their results indicate that frequent flyers are more concerned with the courtesy of airport staff. However, the factors that affect infrequent flyers' image of level of service were ICQ (Immigration, Customers, Quarantine), security, convenience and transportation. Bogicevic, Yang, Bilgihan, and Bujisic (2013) used a content analysis to explore the most frequently mentioned attributes of airport service quality, in order to find the key drivers of passengers' satisfaction/dissatisfaction. The results showed that the key satisfiers were cleanliness and a pleasant environment, while security-check, confusing signage, and poor dining offer were the main dissatisfiers. Bezerra and Gomes (2015) examined the effects of service quality dimensions and passengers' overall satisfaction with a main Brazilian airport, together with variables related to passenger characteristics. Check-in, security, ambience, basic facilities, prices, and earliness of arrival, had a positive effect on overall satisfaction, while convenience and travel frequency had a negative effect.

However, only a few studies have analysed service quality at departure lounges and commercial facilities exclusively. Correia and Wirasinghe (2008) analysed the service level at an airport departure lounge and found that the number of available seats had an impact on passengers' perception of the level of service. Perng, Chow, and Liao (2010) examined consumer satisfaction with airport retailing products, focusing on commodity-related extrinsic features rather than the airport terminal infrastructure. They looked at satisfaction concerning five categories: product variety, quality, price, information, and location. The results revealed that passengers were quite satisfied with brand name, utility, and low-cost products, and least satisfied with café and entertainment products. More recently Del Chiappa, Martin, and Roman (2016) examined how passengers perceive the service quality of airports' food and beverage retailers in a Sardinian airport, and whether age plays a role in the perception. By using fuzzy numbers the findings revealed that overall service quality was elastic to "friendliness of staff", "cleanliness and comfort of the premises", and "provision of entertainment" for the elderly passengers.

Despite the importance of the commercial area for airports' non-aeronautical revenues, there is a research gap concerning the determinants of service quality at airports' food and beverage, and duty-free areas. Prior research has mainly focused on determining the factors that affect the overall level of service quality at the airport. This paper aims to fill this gap by investigating which service quality dimensions affect overall satisfaction with food and beverage, and duty-free offering. The results will also help airport management in prioritizing which service quality factors to focus on when planning improvements to the commercial offering.

2.2. Nationality/Culture and Customers' Perceptions of Service Quality

National culture has been defined by social scientists as patterns of thinking, feeling, and acting that are rooted in societies' shared values and conventions (Nakata & Sivakumar, 2001). It is more important than ever to understand how different cultures and nationalities affect the delivery of services for firms operating globally. Therefore, researchers have been focusing more and more on how culture influences marketing (Morales & Ladhari, 2011). Many studies have examined cross-cultural or cross-national differences in the service industry (Morales & Ladhari, 2011; J. Zhang, Beatty, & Walsh, 2008). Researchers have also specifically focused on service quality expectations and evaluation, of which many claim that consumers with different

cultural backgrounds perceive and evaluate service quality differently (Herbig & Genestre, 1996; Sultan & Simpson, 2000; Witkowski & Wolfinbarger, 2002). Many researchers have examined cultural or national differences based on the SERVQUAL instrument, developed by Parasuraman, Zeithaml, and Berry (1988), and have found that there are differences between different cultures in service quality expectations (Armstrong, Mok, Go, & Chan, 1997; Donthu & Yoo, 1998; Herbig & Genestre, 1996), as well as perceptions of service quality (Furrer, Liu, & Sudharshan, 2000; Tsaur, Lin, & Wu, 2005). Research regarding cross-national and cross-cultural consumer services research was well reviewed in (J. Zhang et al., 2008). They point out that consistent findings from studies on culture and service evaluations show that consumers from different cultures have different perceptions and evaluations of service quality. For example, Herbig and Genestre (1996) found that Mexican respondents rated service quality higher than US respondents, and that service quality factors of importance were different between the two nationalities. Witkowski and Wolfinbarger (2002) examined differences between US and German consumers service quality ratings of banks, medical care, retail clothing stores, postal facilities, and restaurants, and found that the Germans generally had lower perceived service outcomes than the Americans.

Studies have also consistently shown that consumers from different cultures focus on different factors when evaluating service quality. J. Zhang et al. (2008) found a consistent pattern of differences between respondents from Western cultures and Eastern cultures. They presented a framework of two service personalities: “the Western/individualistic” versus “the Eastern/collectivist”, where the former personality has higher service quality expectations, is more focused on tangible cues from the environment when evaluating services, and is less satisfied than the latter personality. More recent studies have also confirmed that service quality perceptions vary by nationality/culture (Bouzaabia, Bouzaabia, & Capatina, 2013; Ladhari, Ladhari, & Morales, 2011; Lu & Ling, 2008; Ueltschy, Laroche, Zhang, Cho, & Yingwei, 2009).

A few studies have examined the differences in perceived service quality between different national cultures in the airline industry. For instance, Sultan and Simpson (2000) examined service quality perceptions and expectations of European and US passengers for European and US airlines. They found that nationality had an influence on both expectations and perceptions of service quality, and that overall service quality assessments vary by nationality, with the European passengers rating both US and European airlines significantly lower than US passengers. Cunningham,

Young, and Lee (2002) also studied airline passengers and found significant differences in service quality perceptions, between passengers from Korea and the US. US passengers were more satisfied with the service than the Korean travellers on most dimensions. Similarly, Lu and Ling (2008) found significant differences in service quality perceptions of Taiwanese and Mainland Chinese passengers of cross-strait airlines. More recently, Basfirinci and Mitra (2015) did a cross-cultural investigation of airline service quality. They measured the perceptions and expectations of customers from the US and Turkey, and found that service quality perceptions can be shaped by cultural differences.

Only a few studies have however examined cultural differences of perception of service quality at the airport. To the researcher's best knowledge, only four previous studies have reported findings to that matter. Kozak (2001) examined tourist satisfaction between travellers from Britain and Germany and, although the purpose of the study was not focused on airport service quality, one of the dimensions he examined was the availability of facilities and services, where he found slight differences between perception scores of travellers' destination airport in Turkey. Park and Jung (2011) then investigated the differences in transfer passengers' perceptions of airport service quality at Incheon International Airport between English, Chinese, and Japanese speaking people. Their results revealed that transfer passengers' perceptions of airport service quality differ significantly according to differences in cultural backgrounds. W.-T. Lin and Chen (2013) analysed satisfaction with shopping among the Taiwanese, the Japanese, and foreigners other than the Japanese, at airport duty-free stores. They found that cultural differences did have an effect on satisfaction with shopping environment, as the study found that the Japanese had both lower service expectations and lower satisfaction. Lastly, Pantouvakis and Renzi (2016) studied the components that can lead to increased satisfaction at airports, and how they differ between nationalities. Their results showed differences in service quality perceptions between Italian and English speaking passengers, on all service dimensions. The results further revealed significant differences in service quality perceptions between Italians, who were in their home country, and other passengers. A summary of the reviewed cross-cultural and cross-national studies on service quality in the air travel sector is shown in Table 1.

Table 1

Summary of Cross-Cultural and Cross-National Research on Service Quality in the Air Travel Sector

Source	Industry	Countries	Findings
Sultan and Simpson (2000)	Airline	US vs. Europe	European passengers rated both US and European airlines significantly lower than US passengers.
Kozak (2001)	Airport	UK vs. Germany	Found no significant differences between the two national groups for the perception of the availability of facilities and services at the destination airport in Turkey, but there was a slight difference between perception scores at the destination airport in Mallorca, with travellers from the UK reporting higher scores than those from Germany.
Cunningham et al. (2002)	Airline	US & Korea	US passengers were more satisfied with the service than the Korean travellers on most dimensions.
Gilbert and Wong (2003)	Airline	North America, Western Europe, China, Japan	Found differences in expectations of service quality between the different national groups.
Lu and Ling (2008)	Airline	Taiwan, Mainland China	Found significant differences in service quality perceptions between the two nationalities.
Park and Jung (2011)	Airport	England, China, Japan	Found significant differences in passengers' perception on 17 out of 22 service quality items. English speaking passengers had most of the highest mean scores, compared to passengers speaking Chinese or Japanese.
W.-T. Lin and Chen (2013)	Airport	Taiwan, Mainland China	Japanese travellers had lower service expectations and lower satisfaction than travellers from mainland China.
Basfirinci and Mitra (2015)	Airline	US, Turkey	Mean gap scores showed the Turkish' ratings as being significantly higher than the Americans', on all dimensions except tangibles.
Pantouvakis and Renzi (2016)	Airport	Italy, England, other nationalities than home country (Italy)	Found differences between Italian and English speaking passengers on all underlying dimensions. Did not find differences between English speaking and other nationalities. Italians reported significantly lower scores than other passengers, on all airport service quality factors.

It is evident, from the literature reviewed that there is a gap concerning research on the cross-national differences on perceived service quality in the air travel sector, especially regarding studies on comparisons inside the airport terminal. In this study the objective is to examine cross-national differences in the perception of service quality, as well as overall satisfaction with food and beverage, and duty-free offering.

The four largest national groups at the airport were chosen for comparison, as it has been suggested to always include more than two countries/cultures when examining

cross-cultural differences. Such comparative studies can answer how one culture is different from another, and in which areas strategies need to differ, and in which they can be similar (Adler, 1983). The four groups are travellers from: Germany, the UK, Iceland, and the US. To the researchers best knowledge, these nationalities have not been compared before, and Icelandic travellers have never been examined. This study will therefore add findings from a new nationality, as well as add to those that have been studied before. The following hypotheses are advanced:

H1a: Food and beverage service quality perceptions vary between passengers from Germany, the UK, Iceland, and the US.

H1b: Duty-free service quality perceptions vary between passengers from Germany, the UK, Iceland, and the US.

H2a: Overall satisfaction with food and beverage service offering varies between passengers from Germany, the UK, Iceland, and the US.

H2b: Overall satisfaction with duty-free service offering varies between passengers from Germany, the UK, Iceland, and the US.

2.3. Airport Terminal Shopping Behaviour

Shopping is one of the most universal tourist leisure activity and it has significant economic benefits (Timothy & Butler, 1995; Yuksel, 2004). Shopping at airports is unlike street or mall shopping, as people go to a mall for the primary purpose of shopping, while at an airport people are there to travel (Chung, 2015). The airport environment is also unique. The travellers experience feelings of nervousness, stress, and excitement, related to their travel process and the fact that they are out of their daily routine. This makes them react differently than usually (Crawford & Melewar, 2003; Graham, 2013). Airports rely increasingly on commercial revenues. To fully utilize this opportunity to increase revenues, through food and beverage, and retail sales, airport managers need to do research in order to get to know their customers. Travellers' perceptions and demands are constantly changing, so the information needs to be updated regularly and include data on who makes a purchase, when they purchase and what they buy, as well as who does not purchase anything and why that might be (Graham, 2013).

Studies on airport shopping behaviour, and the determinants of airport commercial revenues, have been receiving increased interest from scholars. Some studies have examined the determinants of non-aeronautical revenues by using airport

level data (Appold & Kasarda, 2006; Lei & Papatheodorou, 2010; Papatheodorou & Lei, 2006). Some have specifically studied the impact of different airline business models on non-aeronautical revenues. For example, Papatheodorou and Lei (2006) examined how different airline business models affect airport revenues, at both large and small airports. They found that low-cost carriers' (LCC) passengers contribute to non-aeronautical revenues, especially at smaller airports, and that charter and full-service passengers have an effect on non-aeronautical revenues only at smaller airports. Lei and Papatheodorou (2010) extended the same study, adding more variables, and found that LCC passengers do not raise commercial revenues as much as passengers from other carriers. Fuerst, Gross, and Klose (2011) also investigated the main drivers of commercial airport revenues, and found them to be the number of passengers passing through the airport, the ratio of commercial to total revenues, national income, the share of domestic and leisure travellers, and the number of flights. Furthermore, they found a negative influence of business travellers on commercial revenues per passenger. The most recent study is by Fasone, Kofler, and Scuderi (2016), using a dataset of German airports. They attempted to propose a broader empirical model of the determinants of non-aeronautical revenues, by using more regressors in their model. According to their findings, domestic travellers do not have a significant impact on commercial revenues, and LCC passengers have a negative effect on spending, while more available total space has a positive affect on average spending per passenger.

Other studies have investigated the motivations behind airport shopping behaviour. For instance, Geuens et al. (2004) examined airport shopping motivations and developed a typology of airport shoppers. Their results revealed two traditional shopping motivations: functional and experiential, as well as travel-related needs linked to the airport atmosphere and airport infrastructure. They also distinguished three types of airport shoppers: "mood shoppers", "shopping lovers", and "apathetic shoppers". Mood shoppers are mostly stimulated by the atmosphere and mood of the airport environment. Shopping lovers are mainly female and like all kinds of shopping, browsing and purchasing in larger stores. The apathetic shoppers however like to plan their purchases in advance. Y.-H. Lin and Chen (2013) examined passengers' shopping motivations and their impact on airport commercial activities, as well as the moderating effect of impulse buying and time pressure. They found three key factors that impact airport commercial activities: favourable prices and quality, environment and communication, and culture and atmosphere. They also found that time pressure and

impulse buying have a moderating effect on this relationship. Chung (2015) examined airport travellers' shopping decision mechanism, based on a value-attitude-behaviour framework. The study found that the direct effects of shopping values on shopping behaviour are stronger than their indirect effects through attitudes. The results indicate that it is more important to offer a shopping environment that can fulfil travellers' phenomenological experiences, rather than just offer an environment that only satisfies the travellers' shopping tasks. In other words, although it is necessary to have the utilitarian shopping values, it is not a sufficient motivation for airport travellers to shop. The study also investigated the effect of shopping values within different socio-demographic segments, and found that age, gender, and personal income had a significant effect on shopping behaviour. The results also indicated that young, female, and high-income travellers may have more interest in shopping than old, male, and low-income travellers. On the other hand, air-travel experience, prior shopping experience, traveling in groups, and free time before boarding, did not have any significant effect on shopping behaviour. Lu (2014) investigated the influence of passengers' socio-demographic characteristics, trip characteristics, and perceptions of airport shopping on their shopping intentions at airports. Results revealed two primary shopping intentions, pre-planned shopping and impulse shopping, and found that passenger' perceptions of airport shopping have positive impacts on shopping behaviour.

Other studies have also looked into impulse buying behaviour at airports. For example, Omar and Kent (2001) studied the relationship between airport impulsive shopping buying behaviour. They found that only 35% of passengers are shoppers. The other 65%, who did not visit the shops or were only browsing, are the most important target market for airport retailers, as air passengers are mostly driven by impulse decisions. Crawford and Melewar (2003) proposed ten stimuli to induce impulse purchases at an airport: value-driven, holiday, gift giving, guilt, reward, occasion-driven, forgotten items, confusion, exclusivity, and disposal of foreign currency.

Several researchers have studied individual motivations of commercial revenues by using passenger level data. Torres et al. (2005) studied the relationship between passengers' waiting time and airport expenditure, and found that the more time passengers spend in the airport, the more they consume. They also found that expenditure levels differ based on trip purpose, with business travellers seeming to spend less than those going on a vacation. However, if the boarding time is in less than 45 minutes, business travellers tend to consume more than those going on vacation, but

waiting time does not affect the level of consumption. Castillo-Manzano (2010) examined the determinants of commercial revenues at Spanish regional airports. He built upon earlier works, regarding factors that influence purchasing decisions, and examined what affects the amount spent once the passenger had decided to make a purchase, or visit a catering facility. The results showed that destination, group size, whether passengers were seen off, travel mode, waiting time, number of duty-free square meters per departing passenger, and the passengers being non-Spanish, had a positive effect on expenditure. While being a student, travelling with a low-cost carrier, being on a connecting flight, and travelling with children, had a negative effect on expenditure. The results also revealed that some beliefs, like for example that women spend more than males, had no empirical basis in Spanish regional airports. In fact, the variables: sex, age, currency, education level, homemaker, self-employed, salaried worker, retired, non-Eurozone International destination, vacation traveller, business traveller, group size, travelling by taxi, rented car or private car, travelling in the weekend, prior availability of purchase options, being a frequent flyer, and number of F&B stores/total passenger, had no significant effect on the amount spent. Perng et al. (2010) analysed shopping preferences and satisfaction with airport retailing products. They found that most travellers were shopping gifts, and that age, gender, and the passengers' companion, were significant factors in purchasing decisions. Airport shoppers prefer souvenirs and terminal retail products with utility value. W.-T. Lin and Chen (2013) analysed shopping expenditure, behaviours, and preferences at airport duty-free stores in Taiwan. They found that the Taiwanese travellers that had reported the least income actually outspent travellers from Japan and other countries. They also found that the main reason for shopping at the airport were duty-free price differences, complete range of items, and guaranteed product quality, while good after-sale service, multilingual service, and spatial comfort were considered the least important factors. Results also showed that staff service quality, product value, and product had the greatest effect on tourists' level of satisfaction when shopping (W.-T. Lin & Chen, 2013).

To conclude, further research is needed to better understand airport terminal shopping behaviour and expenditure levels. Castillo-Manzano (2010) has for example, expressed a need for creating a system, or a model, with the greatest number of variables needed to understand airport shopping. Also, Graham (2013) has pointed out that airport managers need to know who makes a purchase, what they purchase, as well

as who does not purchase, and why. Prior research has shown conflicting results and more case studies from airports are needed to build up systematic knowledge. This study adds a case study from an airport, in order to better understand the purchasing patterns of travellers at an airport as well as what factors have an effect on airport expenditure levels.

3. Method

3.1. Dataset

Airports Council International (ACI), a professional market research firm, originally collected the dataset used in the current study. The data from ACI's airport service quality retail study is a major source of data for many of the world's biggest airports. This survey is undertaken every second quarter of the year, in more than 50 countries, at more than 190 airports, ranging with 0.5 million passengers to 85 million passengers. Each airport is required to have a minimum of 1,000 responses per survey period. This is done to ensure that the sample is representative (Graham, 2013). The data was gathered using a self-completion survey at Keflavik International Airport, from July 2nd to September 30th, 2015. Employees of Isavia collected the data. Departing passengers of international commercial flights were approached at the departure gate, and asked to fill out a questionnaire with 32 questions. The questionnaires were collected immediately upon completion.

3.2. Participants

Table 2 shows the demographic profile of the respondents. The sample consisted of 1062 travellers, 54% of which were female, with 29% aged between 26-34. In terms of monthly income, 22% had a monthly income between 25,000 to 50,000 USD. Around 57% of respondents had an income level less than 75,000 USD. Regarding travel purpose, 94% travelled for leisure and 6% for business. In terms of number of trips made in the last 12 months, 80% of the respondents travelled 1-5 times.

Table 2

Demographic Profile of Respondents (N = 1062)

	n	%		*n*	%
Gender			Country of Residence		
Male	480	45.6	United Arab Emirates	4	0.4
Female	572	54.4	Austria	11	1
Age			Australia	15	1.4
16-21	104	9.8	Belgium	19	1.8
22-25	144	13.5	Canada	59	5.6
26-34	313	29.4	Switzerland	15	1.4
35-44	152	14.3	China	3	0.3
45-54	158	14.8	Czech Republic	2	0.2
55-64	123	11.6	Germany	106	10
65+	63	5.9	Denmark	51	4.8
Purpose of trip			Estonia	1	0.1
Business	66	5.9	Spain	15	1.4
Leisure	1052	94.1	Finland	10	0.9
Connecting/transferring			France	67	6.3
Transfer	482	43.1	United Kingdom	111	10.5
Non-transfer	580	51.9	Greenland	2	0.2
Journey part			Hong Kong	2	0.2
Leaving home	200	18.4	Croatia	1	0.1
Returning home	775	71.3	Ireland	4	0.4
Other	112	10.3	Israel	1	0.1
Number of trips in the last 12 months			India	1	0.1
1-2	266	40.5	Iceland	85	8
3-5	262	39.9	Italy	16	1.5
6-10	96	14.6	Japan	1	0.1
11-20	22	3.3	Kuwait	1	0.1
21+	11	1.7	Latvia	1	0.1
Number of travel companions			Mexico	1	0.1
None	315	29.5	Nigeria	1	0.1
1	399	37.3	Netherlands	25	2.4
2	156	14.6	Norway	46	4.4
3	100	9.4	New Zealand	1	0.1
4	49	4.6	Philippines	1	0.1
5	13	1.2	Poland	10	0.9
6	9	0.8	Portugal	1	0.1
More than 7	28	2.6	Qatar	1	0.1
Travelling with children under 16			Romania	1	0.1
With children	122	12.7	Russian Federation	1	0.1
Without children	839	87.3	Sweden	52	4.9
Income level			Turkey	1	0.1
Less than 25,000 USD	154	17.8	United States of America	302	28.6
25,000 to 50,000 USD	193	22.4	South Africa	1	0.1
50,000 to 75,000 USD	146	16.9	Other country/Unlisted	8	0.8
75,000 to 100,000 USD	146	16.9			
100,000 to 150,000 USD	131	15.2			
Over 150,000 USD	93	10.8			

3.3. Survey Design

The survey consisted of four sections. In the first section the respondents were asked whether they were connecting/transferring through the airport or not, to which airport they were flying next, principal reason for travelling (business, leisure, or other),

which part of the journey they were on (leaving home, returning home, or other), how many return trips they had made in the last 12 months, how early they arrived at the airport, how long before the scheduled departure time they had arrived at the boarding gate, and how many people (including children) were travelling with them.

The second section included questions regarding satisfaction with food and beverage offering, as well as questions regarding shopping intentions, behaviour, and expenditure. Respondents were asked to rate nine satisfaction attributes (selection/choice of restaurants/bars, menu selection, the quality of food and/or drinks, value for money, speed of service, friendliness of staff, availability of seating, cleanliness of facilities, and atmosphere of facilities), as well as overall satisfaction on a five-point scale, ranging from "Poor" to "Excellent". Respondents were then asked whether they had intended to purchase food or beverages at the airport before they came, how many restaurants/bars/takeaways they visited at the airport, and if they purchased any food or beverages at the airport. If they did purchase food or beverages at the airport, they were asked if they purchased food or beverages before or after boarding pass control, how much money they and their party spent per person on food and beverages, where they purchased, and how much time they spent in restaurants/bars. The respondents that did not purchase any food and beverages were asked what the main reason was for not purchasing any food or beverages.

The third section included questions regarding satisfaction with duty-free offering, as well as questions regarding shopping intentions, behaviour, and expenditure. Respondents were asked to rate nine satisfaction attributes (selection of outlets/shops, selection of products, the quality of products, value for money, speed of service, friendliness of staff, ease of finding shops, design/layout of shops, and atmosphere of shops), as well as overall satisfaction on a five-point scale, ranging from "Poor" to "Excellent". Respondents were then asked whether they had intended to make a purchase at the airport before they came, how many shops they had visited, how much time they spent in the shops, and if they had purchased anything in the shops. If they did purchase anything in the shops, they were asked how much money they and their party spent in the shops, what they purchased, and for whom they bought in the shops. The respondents that did not purchase anything in the shops were asked what the main reason was for not purchasing anything.

Finally, the last section asked for information regarding the socio-demographic characteristics. Respondents were asked about their annual income, nationality, what country they were living in, gender, and age.

3.4. Procedure

The data file was checked for errors, and preliminary analysis was conducted in order to inspect the data file to check for any violations of assumptions. Frequency distribution was obtained to identify passengers' socio-demographic profiles. Data analysis was then conducted on airport service quality, and airport-shopping behaviour, as described below.

3.4.1. Airport service quality

Descriptive statistics were obtained to determine current standing on customer satisfaction levels of food and beverage, and duty-free offering. Next, two multiple regression analyses were conducted to determine which of the factors best predicts overall satisfaction with the commercial offering. The dependent variables were "overall satisfaction with food and beverage offering", and "overall satisfaction with retail offering". The independent variables in the food and beverage model were: "selection of restaurants/bars", "menu selection", "quality of food and/or drink", "value for money", "speed of service", "friendliness of staff", "availability of seating", cleanliness of facilities", and "atmosphere of facilities". The independent variables in the retail model were: "selection of outlets/shops", "selection of products", "quality of products", "value for money", "speed of service", "friendliness of staff", "ease of finding shops", "design/layout of shops", and "atmosphere of shops".

The square root of the dependent variable was used in the regression model with food and beverage expenditure, while the logarithmic transformation of the dependent variable was used in the regression model with duty-free expenditure. These transformations seemed reasonable because the dependent variables were positively skewed (Tabachnick & Fidell, 2014).

One-way analysis of variance (ANOVA) was then used to make comparisons between the four largest national groups, with each of the satisfaction attributes as independent variables, and overall satisfaction of food and beverage, as well as duty-free offering, as the dependent variables. The four largest national groups that were

analysed were Germany, the UK, Iceland, and the US, which comprised 57,1% of the whole sample.

Finally, a series of independent-samples t-tests and ANOVA were used to examine differences in overall satisfaction scores, in relation to socio-demographic characteristics, travel type, journey part and arrival times, both for food and beverage offering, and for duty-free.

3.4.2. Airport shopping behaviour

First, descriptive statistics were used to analyse the expenditure levels of travellers, as well as shopping behaviour at both the food and beverage, and duty-free area. Second, two multiple regression analyses were conducted to analyse the determinants of food and beverage, and duty-free expenditure. The dependent variables were "overall satisfaction with food and beverage offering" and "overall satisfaction with duty-free offering". The independent variables were trip related variables, service quality dimensions, socio-demographic characteristics, as well as variables related to shopping behaviour. The independent variables of the two models are summarized in Table 3.

Table 3

Overview of Independent Variables

Name	Explanation
Trip related	
Connecting flight	1 if connecting to another flight at the airport, 0 otherwise
Leisure traveller	1 if travelling for leisure, 0 otherwise
Leaving home	1 if leaving home, 0 otherwise
Returning home	1 if returning home, 0 otherwise
Arrival time at airport before flight	From 1 if less than 30 minutes, to 7 if more than 2 hours
Arrival time at gate before flight	From 1 if less than 30 minutes, to 7 if more than 2 hours
Group size	Number of people travelling with including children (from 1 if travelling alone to 8 if travelling with seven and over)
Travelling with children	1 if travelling with children aged under 16, 0 if otherwise

Name	Explanation
Service quality	
Selection of restaurants/shops	From 1 if poor to 5 if excellent
Menu/product selection	From 1 if poor to 5 if excellent
Quality of food and/or drinks/products	From 1 if poor to 5 if excellent
Value for money	From 1 if poor to 5 if excellent
Speed of service	From 1 if poor to 5 if excellent
Friendliness of staff	From 1 if poor to 5 if excellent
Availability of seating / Ease of finding shops	From 1 if poor to 5 if excellent
Cleanliness of facilities / Layout of shops	From 1 if poor to 5 if excellent
Atmosphere of facilities/shops	From 1 if poor to 5 if excellent
Shopping behavior	
Intended to buy food/duty-free	1 if traveller had already intended to purchase before coming to the airport, 0 otherwise
Did not intend to buy food	1 if traveller had not already intended to purchase before coming to the airport, 0 otherwise
Number of restaurants/shops visited	From 1 if none, to 7 if six or more
Time spent in restaurants/shops	From 1 if 0-30 minutes, to 6 if more than 120 minutes
Purchased after control	1 if purchased after control, 0 otherwise
Purchased before and after control	1 if purchased before and after control, 0 otherwise
Purchased at a bar/pub	1 if purchased at a bar/pub, 0 otherwise
Purchased at a café/coffee shop	1 if purchased at a café/coffee shop, 0 otherwise
Purchased at a fast-food outlet	1 if purchased at a fast-food outlet, 0 otherwise
Purchased at a quick casual/sandwich	1 if purchased at a quick casual/sandwich, 0 otherwise
Purchased at a served restaurant	1 if purchased at a served restaurant, 0 otherwise
Purchased books	1 if purchased books, 0 otherwise
Purchased confectionery & fine foods	1 if purchased confectionary and fine foods, 0 otherwise
Purchased cosmetics	1 if purchased cosmetics, 0 otherwise
Purchased crystal & china	1 if purchased crystal and china, 0 otherwise
Purchased electronics	1 if purchased electronics, 0 otherwise
Purchased fashion & clothing	1 if purchased fashion and clothing, 0 otherwise
Purchased fashion accessories	1 if purchased fashion accessories, 0 otherwise
Purchased for children	1 if purchased for children, 0 otherwise
Purchased fragrances	1 if purchased fragrances, 0 otherwise
Purchased jewelry	1 if purchased jewelry, 0 otherwise
Purchased newspapers/magazines	1 if purchased newspapers/magazines, 0 otherwise
Purchased outdoor clothing	1 if purchased outdoor clothing, 0 otherwise
Purchased souvenirs/design products	1 if purchased souvenirs/design products, 0 otherwise
Purchased spirits & wines	1 if purchased spirits and wines, 0 otherwise
Purchased sunglasses & eyewear	1 if purchased sunglasses and eyewear, 0 otherwise
Purchased tobacco products	1 if purchased tobacco products, 0 otherwise
Purchased for friend	1 if purchased for friend, 0 otherwise
Purchased for other	1 if purchased for other, 0 otherwise
Purchased for relative	1 if purchased for relative, 0 otherwise
Purchased for spouse/partner	1 if purchased for spouse/partner, 0 otherwise
Socio-demographic characteristics	
Annual income	Annual income in gross US dollars per household (1 = less than 25,000 USD, to 6 = over 150,000 USD)
Non Icelandic	1 if residency Iceland, 0 if other
Gender	1 if male, 0 if female
Age	Age in years (from 1 = 16-21, to 7 = 65 or over)
Frequent flyer	Number of trips taken in the last 12 months (from 1 = 1-2, to 5 = 21 or more)

Finally a series of independent-samples t-tests and ANOVA was used to further examine if any differences in expenditure levels of food and beverage, and duty-free, in relation to socio-demographic characteristics, travel type, journey part and arrival times, would be found.

4. Results

In this chapter the findings will be divided into two sections. The first section reports findings regarding airport service quality: descriptive statistics, multiple regression analyses, ANOVA, and demographic analysis. The second section reports findings regarding airport-shopping behaviour: descriptive statistics, multiple regression, and demographic analyses.

4.1. Airport Service Quality

4.1.1. Descriptive statistics

The mean and standard deviations of the nine service quality dimensions of the food and beverage offering, as well as the overall satisfaction with food and beverage offering, can be seen in Table 4. When asked about the airport's food and beverage offering, respondents rated eight out of nine dimensions as "good". The overall satisfaction was also rated "good", while "value for money" was rated as "fair" to "good".

Table 4

Descriptive Statistics of Perceived Service Quality and Overall Satisfaction with Food and Beverage Offering at Keflavik International Airport

	N	*M*	*SD*
Selection of restaurants/bars	713	3.27	1.10
Menu selection	645	3.23	1.08
Quality of food and/or drinks	652	3.47	0.99
Value for money	677	2.81	1.19
Speed of service	682	3.42	1.02
Friendliness of staff	724	3.72	0.96
Availability of seating	737	3.30	1.26
Cleanliness of facilities	762	3.83	0.96
Atmosphere of facilities	766	3.67	1.00
Overall satisfaction with food and beverage	706	3.33	1.00

Table 5 shows the mean and standard deviations of the nine service quality dimensions of the duty-free offering. When asked about the airport's duty-free offering, respondents rated all the dimensions, as well as the overall satisfaction as "good", see Table 5.

Table 5

Descriptive Statistics of Perceived Service Quality and Overall Satisfaction with Duty-Free Offering at Keflavik International Airport

	N	*M*	*SD*
Selection of outlets/shops	713	3.37	1.01
Selection of products	698	3.39	0.96
Quality of products	661	3.67	0.87
Value for money	642	3.02	1.13
Speed of service	595	3.73	0.91
Friendliness of staff	635	3.86	0.93
Ease of finding shops	689	3.83	0.95
Design/layout of shops	684	3.77	0.96
Atmosphere of shops	681	3.75	0.92
Overall satisfaction with duty free	705	3.52	0.93

4.1.2. Service quality dimensions contributing to overall satisfaction

To determine which service quality dimensions have an effect on overall satisfaction, two multiple regression analyses were conducted. In the first regression model, overall satisfaction with food and beverage offering is the dependent variable, while in the second model, overall satisfaction with duty-free offering is the dependent variable. The nine dimensions of service quality are the independent variables in both models. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity.

The results of the multiple regression analysis, of overall satisfaction with food and beverage offering, show that the total variance of the model, as a whole, was 81.4%, F (9, 595) = 289.156, $p < .001$. The regression equation is written as follows:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + b_9X_9$$

Where Y is the dependent variable overall satisfaction with food and beverage offering; X_1 is the independent variable "selection of restaurants/bars", X_2 is "menu selection", X_3 is "quality of food and/or drink", X_4 is "value for money", X_5 is "speed

of service", X_6 is "friendliness of staff", X_7 is "availability of seating", X_8 is "cleanliness of facilities", and X_9 is "atmosphere of facilities".

Seven of nine measures were statistically significant; in order of importance these were: "selection of restaurants/bars", "quality of food and/or drink", "speed of service", "menu selection", "atmosphere of facilities", "value for money", and "friendliness of staff", see Table 6.

Table 6

Summary of Multiple Regression Analysis of Overall Satisfaction with Food and Beverage Offering

	B	*SE B*	β
Selection of restaurants/bars	0.25	0.03	.28***
Menu selection	0.12	0.04	.13**
Quality of food and/or drink	0.19	0.03	.19***
Value for money	0.07	0.02	.09**
Speed of service	0.14	0.03	.14***
Friendliness of staff	0.08	0.03	.08**
Availability of seating	0.03	0.02	.04
Cleanliness of facilities	0.05	0.03	.04
Atmosphere of facilities	0.12	0.03	.12***
R^2		.814	
F		289.156***	

*$p < .05$. **$p < .01$. ***$p < .001$.

The results of the multiple regression analysis of overall satisfaction with retail offering, show that the total variance of the model, as a whole, was 78.5%, F (9, 559) = 226.366, $p < .001$. The regression equation is written as follows:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + b_9X_9$$

Where Y is the dependent variable overall satisfaction with retail offering; X_1 is the independent variable "selection of outlets/shops", X_2 is "selection of products", X_3 is "quality of products", X_4 is "value for money", X_5 is "speed of service", X_6 is "friendliness of staff", X_7 is "ease of finding shops", X_8 is "design/layout of shops", and X_9 is "atmosphere of shops".

Six of nine measures were statistically significant; in order of importance these were: "atmosphere of shops", "selection of outlets/shops", "selection of products", "design/layout of shops", "speed of service", and "value for money", see Table 7.

Table 7

Summary of Multiple Regression Analysis of Overall Satisfaction with Duty-Free Offering

	B	*SE B*	β
Selection of outlets/shops	0.19	0.04	.21***
Selection of products	0.16	0.04	.16***
Quality of products	0.01	0.04	.01
Value for money	0.11	0.02	.13***
Speed of service	0.16	0.04	.16***
Friendliness of staff	0.01	0.04	.01
Ease of finding shops	0.01	0.04	.01
Design/layout of shops	0.16	0.04	.16***
Atmosphere of shops	0.21	0.04	.21***
R^2		.785	
F		226.366***	

*$p < .05$. **$p < .01$. ***$p < .001$.

4.1.3. Perceptions of airport service quality by nationality

A one-way between-groups analysis of variance (ANOVA) was conducted, to see if there were any differences in perceived service quality between respondents from Germany, the UK, Iceland and the US, for each of the food and beverage, and the duty-free service quality attributes, as well as the overall satisfaction scores. In terms of perceived service quality for food and beverage offering, there was a statistically significant difference for the four nationality groups on six of nine dimensions, as well as on overall satisfaction, see Table 8.

Icelandic respondents reported a statistically significant higher mean score than both British and American respondents on four items of nine: “selection of restaurants/bars”, “menu selection”, ”quality of food and/or drink”, and “value for money”. Both Icelandic and British respondents reported a higher mean score than the American on “availability of seating”. Icelandic respondents also reported a higher mean score than the American on overall satisfaction. There was also a statistically significant difference in mean scores on “atmosphere of facilities”, while post-hoc comparisons did not indicate differences between the groups, Icelanders reported the highest mean score while the British reported the lowest mean score. As only five of nine service quality dimensions showed statistically significant differences between the four national groups, and the results for the German passengers showed no statistical

difference from the other groups for either the nine dimension or the overall satisfaction score, hypotheses 1a and 1b are only partially supported.

Table 8

Summary of ANOVA of Perceived Service Quality and Overall Satisfaction with Food and Beverage Offering

	Germany (A)		United Kingdom (B)		Iceland (C)		United States of America (D)			
Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*	Tukey's HSD
1. Selection of restaurants/bars	3.41	1.08	3.19	1.17	3.76	1.08	3.14	1.14	5.316**	C > B, D
2. Menu selection	3.56	0.96	3.13	1.07	3.66	1.24	3.14	1.11	4.823**	C > B, D
3. Quality of food and/or drink	3.69	0.97	3.47	1.03	3.81	1.09	3.41	1.01	2.854*	C > D
4. Value for money	2.98	1.47	2.60	1.15	3.25	1.44	2.74	1.12	3.185*	C > B, D
5. Speed of service	3.60	1.08	3.35	1.08	3.72	1.13	3.44	1.02	1.707	
6. Friendliness of staff	3.90	0.91	3.68	1.01	4.06	0.98	3.71	1.00	2.604	
7. Availability of seating	3.46	1.30	3.56	1.20	3.63	1.23	3.07	1.33	4.729**	B, C > D
8. Cleanliness of facilities	4.03	0.84	4.01	0.90	4.04	0.90	3.78	1.02	2.376	
9. Atmosphere of facilities	3.88	0.92	3.54	1.05	3.93	1.05	3.59	1.12	2.877*	
Overall satisfaction with F&B	3.51	1.03	3.32	1.13	3.73	1.10	3.28	1.09	3.069*	C > D

Note. The assumption of homogeneity of variance was violated for item four (Value for money); therefore, the Welch F-ratio is reported for that item.
*$p < .05$. **$p < .01$. ***$p < .001$.

In terms of perceived service quality for duty-free, there was a statistically significant difference for the four nationality groups on six of nine dimensions, as well as on overall satisfaction, see Table 9. Icelandic respondents reported a statistically significant higher mean score than both British and American respondents on "value for money". There was also a statistically significant difference in mean scores for "friendliness of staff", while post-hoc comparisons using the Tukey's HSD test did not

indicate differences between the groups, Germans reported the highest mean score while the British reported the lowest mean score. Icelandic respondents also reported a higher mean score than the American on overall satisfaction. As only one of the nine service quality dimensions showed statistically significant differences between the four national groups, hypothesis 2a is not supported. There was only a statistically significant difference between two national groups, and therefore hypothesis 2b is only partially supported.

Table 9

Summary of ANOVA of Perceived Service Quality and Overall Satisfaction with Duty-Free Offering

	Germany (A)		United Kingdom (B)		Iceland (C)		United States of America (D)			
Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*	Tukey's HSD
1. Selection of outlets/shops	3.44	1.03	3.15	0.97	3.57	1.17	3.35	1.08	2.023	
2. Selection of products	3.51	0.98	3.21	0.94	3.60	1.17	3.35	0.99	2.044	
3. Quality of products	3.79	0.92	3.62	0.75	3.98	0.97	3.69	0.85	2.327	
4. Value for money	3.17	1.30	2.90	1.19	3.52	1.31	2.90	1.07	2.090**	C > B, D
5. Speed of service	3.96	0.93	3.79	0.79	3.95	1.02	3.69	0.94	1.812	
6. Friendliness of staff	4.14	0.97	3.79	0.86	4.09	0.95	3.84	0.92	2.672*	
7. Ease of finding shops	4.00	0.92	3.75	0.92	3.94	0.99	3.87	0.98	0.861	
8. Design/layout of shops	3.85	0.87	3.73	1.00	3.90	1.11	3.80	1.00	0.384	
9. Atmosphere of shops	3.87	0.92	3.56	0.93	3.94	0.98	3.82	0.90	2.255	
Overall satisfaction with duty free	3.66	0.87	3.43	1.00	3.85	1.12	3.46	0.95	3.333*	C > D

Note. The assumption of homogeneity of variance was violated for item one (Selection of outlets/shops), two (Selection of products), and four (Value for money); therefore, the Welch F-ratio is reported for those items.

*$p < .05$. **$p < .01$. ***$p < .001$.

4.1.4. Demographic analysis

In order to gain a deeper insight into the travellers' overall satisfaction scores, they were also examined in relation to their socio-demographic variables, travel type, journey part, travel party, and arrival times. Tests were either t-tests for two-group variables, or ANOVA for multi-group variables, see Table 10.

In reviewing satisfaction scores for food and beverage, three questions yielded significant results: connecting/transferring, income level, and age group. Transfer passengers reported lower satisfaction scores for food and beverage than non-transfer passengers, passengers with an income level over 150.000 USD also reported lower mean scores than those with an income level of 75,000 to 100,000 USD, and those older than 65 years of age reported a lower mean score than those 16-34 years old.

In reviewing satisfaction scores for duty-free, two questions yielded significant results: connecting/transferring and age group. Again transfer passengers reported lower mean scores than the non-transfer passengers, but although there was a statistically significant difference between age groups, post-hoc comparisons did not indicate differences between specific groups.

Table 10

Comparison of Overall Satisfaction with Food and Beverage, and Duty-Free Offering, by Passengers' Characteristics, Travel Type, Journey Part, Travel Party and Arrival Times

	Food & beverage					Duty-free				
	M	SD	*F*	t	Tukey's HSD	*M*	SD	*F*	t	Tukey's HSD
Connecting/transferring				-3.222**					-2.375**	
Transfer	3.17	1.04				3.42	0.98			
Non-transfer	3.42	0.97				3.59	0.90			
Trip purpose				-0.483					-0.863	
Business	3.25	0.87				3.40	0.81			
Leisure	3.33	1.01				3.53	0.94			
Journey part			0.950					0.475		
Leaving home (A)	3.44	1.01				3.60	1.11			
Returning home (B)	3.30	1.01				3.50	0.89			
Other (C)	3.35	0.94				3.55	0.82			
Frequent flyers			0.763					0.461		
Non-frequent travellers	3.35	0.99				3.52	0.97			
Average frequency	3.33	1.02				3.53	0.90			
Frequent flyers	3.10	0.98				3.43	0.99			
Arrival time at airport before departure			0.938					0.872		
Less than 30 min (A)	3.16	1.21				3.36	1.21			
30-45 min (B)	3.00	1.21				3.33	0.89			
45-60 min (C)	3.07	0.73				3.46	0.78			
1h-1h15 min (D)	3.47	1.16				3.79	0.95			
1h15-1h30 min (E)	3.36	1.01				3.60	0.89			
1h30-2 hours (F)	3.39	1.03				3.50	0.92			
More than 2 hours (G)	3.33	0.95				3.53	0.92			
Arrival time at boarding gate before departure			1.430					1.478		
Less than 30 min (A)	3.51	1.05				3.59	1.00			
30-45 min (B)	3.41	1.01				3.63	0.92			
45-60 min (C)	3.37	1.00				3.63	0.92			
1h-1h15 min (D)	3.20	1.02				3.42	0.82			
1h15-1h30 min (E)	3.10	0.98				3.50	1.02			
1h30-2 hours (F)	3.30	0.91				3.31	0.96			
More than 2 hours (G)	3.27	0.87				3.49	0.88			

	Food & beverage					Duty-free				
	M	SD	*F*	t	Tukey's HSD	*M*	SD	*F*	t	Tukey's HSD
Number of people travelling with			1.747					1.137		
None (A)	3.28	0.97				3.49	0.89			
1 (B)	3.35	1.02				3.58	1.00			
2 (C)	3.29	1.10				3.46	0.92			
3 (D)	3.61	0.95				3.59	0.91			
4 (E)	3.20	1.03				3.57	0.84			
5 (F)	2.56	1.01				2.67	1.03			
6 (G)	3.17	0.75				3.00	1.00			
More than 7 (H)	3.38	0.87				3.61	0.70			
Travelling with children under 16				0.742					0.121	
With children	3.43	1.05				3.56	1.03			
Without children	3.34	1.00				3.55	0.92			
Income level			2.614*		D > F			1.606		
Less than 25,000 USD (A)	3.29	1.01				3.47	0.92			
25,000 to 50,000 USD (B)	3.42	0.96				3.51	0.89			
50,000 to 75,000 USD (C)	3.46	1.09				3.56	0.99			
75,000 to 100,000 USD (D)	3.55	1.10				3.76	0.92			
100,000 to 150,000 USD (E)	3.18	1.06				3.45	0.99			
Over 150,000 USD (F)	3.05	1.02				3.44	0.99			
Gender				0.142					0.231	
Male	3.26	1.00				3.54	0.89			
Female	3.37	1.01				3.53	0.95			
Age group			3.220**		A, B, C > G			2.614*		
16-21 (A)	3.43	0.93				3.47	0.86			
22-25 (B)	3.49	1.10				3.74	1.01			
26-34 (C)	3.43	1.10				3.65	0.95			
35-44 (D)	3.31	0.99				3.42	0.85			
45-54 (E)	3.19	0.74				3.36	0.77			
55-64 (F)	3.14	0.92				3.43	0.93			
65 and above (G)	2.78	1.04				3.39	1.14			

*$p < .05$. **$p < .01$. ***$p < .001$.

4.2. Airport Shopping Behaviour

4.2.1. Descriptive statistics

The descriptive statistics reveal that the average food and beverage expenditure was $8.93, with a standard deviation of $12.39, while 40.1% of travellers did not purchase any food or beverages. The average duty-free expenditure was $22.07, with a standard deviation of $52.23, while 57.8% did not purchase anything in the shops. The travellers that do purchase, spend an average of $17.2 on food and beverage, and $61.7 in duty-free stores.

Descriptive statistics of the respondents shopping behaviour at the food and beverage area revealed that 40% of respondents had intended to buy food or beverages at the airport before they came, most of who visited none to one restaurant/bar (79.5%). Of those who purchased food and/or beverages, 69% only purchased after control, and the majority (89.9%) spent under 60 minutes in restaurants/bars. The two main reasons that respondents did not purchase food and beverages (76.3%) were "not hungry/thirsty" and "too expensive", see Table 11.

Table 11

Descriptive Statistics of Food and Beverage Shopping Behaviour

	n	%		*n*	%
Intended to buy food			When food was purchased		
Yes	415	39.6	Before control	164	25.5
No	329	31.4	After control	445	69.1
I had not made a decision	303	28.9	Both before and after control	35	5.4
Number of restaurants/bars visited			Time spent in restaurant/bars		
None	328	31.6	0-15 min	246	39.0
1	497	47.9	15-30 min	183	29.0
2	179	17.3	30-60 min	138	21.9
3	22	2.1	60-90 min	36	5.7
4	6	0.6	90-120 min	17	2.7
5	1	0.1	More than 120 min	11	1.7
6+	4	0.4	Main reason for not purchasing food and beverages		
Purchased food/beverages			Not hungry/thirsty	173	56.9
Yes	670	59.9	Too expensive	59	19.4
No	448	40.1	Meals will be provided on board the flight	16	5.3
Where food was purchased			Queues/lines at outlets too long	7	2.3
Bar/pub	42	3.8	Type of food/brands not appealing	2	0.7
Café/coffee shop	159	14.2	Poor quality of food	1	0.3
Fast-food outlet	100	8.9	Did not have the time	12	3.9
Quick casual/sandwich	167	14.9	Poor quality of service	2	0.7
Self-service restaurant	179	16.0	Did not have the right currency	10	3.3
Served restaurant	115	10.3	No seats available	2	0.7
			Wanted to get to the departure gate	20	6.6

Descriptive statistics of the shopping behaviour at the duty-free area show that 23.4% of the respondents had intended to purchase at the airport before arrival, while 76.7% had decided not to, or were undecided. The majority (74.2%) visited one or more shops, most of which spent under 15 minutes in them collectively (61%). Those who purchased duty-free items (42.2%) purchased mostly for themselves (30.2%), but also for friends (8.9%), relatives (8.9%), and a spouse/partner (8.2%). The most purchased items were confectionary and fine foods (14.2%), spirits and wines (13.4%), and souvenirs/design products (10.6%). The two main reasons that respondents did not purchase any duty-free items were "not interested in buying anything" (51.0%), and "too expensive" (17.3%), see Table 12.

Table 12

Descriptive Statistics of Duty-Free Shopping Behaviour

	n	%		*n*	%
Intended to buy duty-free			Duty-free items bought		
Yes	241	23.4	Books	26	2.3
No	504	49.0	Confectionery & fine foods	159	14.2
I had not made a decision	284	27.6	Cosmetics	72	6.4
Number of duty-free shops visited			Crystal & china	3	0.3
None	277	26.0	Electronics	17	1.5
1	266	25.0	Fashion & clothing	13	1.2
2	261	24.5	Fashion accessories	10	0.9
3	149	14.0	For children	84	7.5
4	70	6.6	Fragrances	30	2.7
5	22	2.1	Jewellery	5	0.4
6+	21	2.0	Newspapers/magazines	22	2.0
Time spent in duty-free shops			Outdoor clothing	16	1.4
0-15 min	636	61.0	Souvenirs/design products	119	10.6
15-30 min	299	28.7	Spirits & wines	150	13.4
30-45 min	60	5.8	Sunglasses & eyewear	1	0.1
45-60 min	34	3.3	Tobacco products	29	2.6
60-90 min	12	1.2	Travel goods	84	7.5
More than 90 min	2	0.2	Main reason for not purchasing		
Purchased duty-free items			Too expensive	84	17.3
Yes	472	42.2	Queues/lines at shops too long	3	0.6
No	646	57.8	Not interested in buying anything	248	51.0
Purchased for			Poor quality of products	1	0.2
Friend	100	8.9	Type of products/brands not appealing	5	1.0
Myself	338	30.2	Poor quality of service	1	0.2
Other	16	1.4	Did not have the time	25	5.1
Relative	99	8.9	Did not find what I wanted	20	4.1
Spouse/partner	92	8.2	Did not want to carry it	46	9.5

4.2.2. Importance of dimensions in predicting expenditure

Two multiple regression analyses were performed to analyse the determinants of food and beverage, and of duty-free expenditure at Keflavik airport. The total variance of the food and beverage expenditure model as a whole was 19.8%, F (32, 410) = 3.052, $p < .001$. In total, five measures were statistically significant. All of the significant measures were related to shopping behaviour, while the variables related to the trip, service quality, and socio-demographic characteristics, did not have a significant effect on food and beverage expenditure levels. Four of the variables related to shopping behaviour had a significant positive effect on food and beverage expenditure levels. In order of importance these were: “purchased at a served restaurant”, “time spent in restaurants/bars”, “intended to buy food”, and “purchased before and after control”. One of the variables related to shopping behaviour had a significant negative effect on food and beverage: “purchased at a café/coffee shop”, see Table 13.

Table 13

Summary of Multiple Regression Analysis for Food and Beverage Expenditure

	B	*SE B*	β
Trip related			
Connecting flight	0.15	0.16	.05
Leisure traveller	-0.02	0.34	.00
Leaving home	0.26	0.29	.07
Returning home	0.28	0.24	.09
Number of trips	-0.03	0.08	-.02
Arrival time at airport before flight	0.07	0.06	.07
Arrival time at gate before flight	-0.05	0.05	-.06
Group size	-0.03	0.05	.03
Travelling with children	0.18	0.25	.04
Service quality			
Selection of restaurants/bars	0.02	0.13	.02
Menu selection	-0.11	0.16	-.08
Quality of food and/or drinks	0.15	0.13	.10
Value for money	0.04	0.09	.04
Speed of service	-0.20	0.11	-.13
Friendliness of staff	0.10	0.11	.07
Availability of seating	-0.01	0.07	-.01
Cleanliness of facilities	0.08	0.11	.05
Atmosphere of facilities	-0.07	0.12	-.04
Shopping behaviour			
Intended to buy food	0.36	0.17	.12*
Did not intend to buy food	-0.15	0.22	-.04
Number of restaurants visited	0.01	0.10	.00
Time spent in restaurants/bars	0.24	0.07	.18***
Purchased after control	0.25	0.17	.08
Purchased before and after control	0.68	0.34	.10*
Purchased at a bar/pub	-0.13	0.30	-.02
Purchased at a café/coffee shop	-0.46	0.18	-.13**
Purchased at a fast-food outlet	0.27	0.21	.06
Purchased at a quick casual/sandwich	-0.10	0.18	-.03
Purchased at a served restaurant	0.95	0.22	.24***
Socio-demographic characteristics			
Annual income	0.02	0.05	.02
Non Icelandic	0.20	0.31	.04
Gender	-0.19	0.15	-.06
Age	0.02	0.05	.02
R^2		.198	
Adj. R^2		.133	
F		3.052***	

*$p < .05$. **$p < .01$. ***$p < .001$.

The total variance of the duty-free expenditure model as a whole was 53.0%, F (40, 252) = 6.380, $p < .001$. 15 measures were statistically significant with 13 of them having a positive effect on expenditure. Two of the trip related variables had a positive effect: “group size” and “arrival time before flight”, as well as eleven variables related to shopping behaviour. One variable related to socio-demographic characteristics had a negative effect: “residency not Icelandic”. While none of the service quality measures had a significant effect on expenditure levels, see Table 14.

Table 14

Summary of Multiple Regression Analysis for Duty-free Expenditure

	B	*SE B*	β
Trip related			
Connecting flight	0.01	0.06	.01
Leisure traveller	-0.01	0.10	.00
Leaving home	0.08	0.10	.06
Returning home	0.06	0.08	.05
Number of trips	-0.02	0.03	-.03
Arrival time at airport before flight	0.04	0.02	.12*
Arrival time at gate before flight	-0.01	0.02	-.05
Group size	0.04	0.02	.14*
Travelling with children	-0.21	0.08	-.15*
Service quality			
Selection of outlets/shops	0.04	0.05	.08
Selection of products	0.04	0.05	.07
Quality of products	-0.02	0.05	-.03
Value for money	0.02	0.03	.05
Speed of service	0.01	0.05	.02
Friendliness of staff	-0.01	0.04	-.02
Ease of finding shops	-0.04	0.05	-.08
Design/layout of shops	0.02	0.05	.03
Atmosphere of shops	0.00	0.05	.00
Shopping behaviour			
Intended to buy duty-free	-0.04	0.06	-.04
Did not intend to buy duty-free	-0.08	0.06	-.07
Number of shops visited	0.05	0.02	.14*
Time spent in shops	0.01	0.03	.02
Purchased books	0.29	0.10	.13**
Purchased confectionery & fine foods	-0.04	0.05	-.04
Purchased cosmetics	0.34	0.07	.25***
Purchased crystal & china	0.09	0.31	.02
Purchased electronics	0.36	0.12	.14**
Purchased fashion & clothing	0.23	0.14	.08
Purchased fashion accessories	0.43	0.15	.13**
Purchased for children	0.16	0.07	.12*
Purchased fragrances	0.30	0.10	.15**
Purchased jewellery	0.24	0.24	.05
Purchased newspapers/magazines	-0.10	0.11	-.04
Purchased outdoor clothing	0.42	0.13	.15**
Purchased souvenirs/design products	0.10	0.06	.09
Purchased spirits & wines	0.21	0.05	.19***
Purchased sunglasses & eyewear	0.09	0.50	.01
Purchased tobacco products	0.22	0.10	.11*
Purchased for friend	0.03	0.06	.03
Purchased for other	-0.01	0.13	.00
Purchased for relative	0.13	0.06	.10*
Purchased for spouse/partner	0.12	0.06	.09
Socio-demographic characteristics			
Annual income	0.02	0.02	.07
Residency not Icelandic	-0.24	0.10	-.16**
Gender	0.08	0.05	.08
Age	0.02	0.02	.06
R^2		.530	
Adj. R^2		.447	
F		6.380***	

*$p < .05$. **$p < .01$. ***$p < .001$.

4.2.3. Demographic analysis

To gain a deeper knowledge of the travellers' expenditure levels, travellers' shopping expenditure behaviours were examined among those who did spend, in relation to their socio-demographic characteristics, travel purpose, and travel party type. Tests were either t-tests for two-group variables, or ANOVA for multi-group variables, see Table 15.

When looking at food and beverage expenditure, there was a statistically significant difference between travellers' journey part, arrival time at airport, group size, and gender. However regarding duty-free expenditure there was a statistically significant difference between travellers' that were transferring vs. travellers that were not transferring, journey part, arrival time at airport, income level residency and age group. No statistically significant difference was found with regards to trip purpose, arrival time at boarding gate before departure, travelling with children, or whether they were frequent flyers or not.

Table 15

Comparison of Food and Beverage, and Duty-Free Expenditure Levels by Passengers' Characteristics, Travel Type, Journey Part, Travel Party and Arrival Times

	Food & beverage					Duty-free				
	M	SD	*F*	t	Tukey's HSD	*M*	SD	*F*	t	Tukey's HSD
Connecting/transferring				-0.841					-3.459**	
Transfer	16.45	12.17				46.92	63.97			
Non-transfer	17.31	12.15				68.72	76.08			
Trip purpose				0.677					-0.498	
Business	19.40	14.46				57.14	76.31			
Leisure	17.11	12.30				61.94	71.87			
Journey part			3.022*		B > C			6.207**		A > B, C
Leaving home (A)	17.68	12.88				83.61	84.75			
Returning home (B)	17.53	12.54				58.98	70.39			
Other (C)	12.71	8.13				40.71	43.24			
Frequent flyers			0.079					2.291		
Non-frequent travellers	17.10	11.76				65.74	77.65			
Average frequency	17.17	12.68				57.11	67.07			
Frequent flyers	16.76	11.99				95.98	87.85			
Arrival time at airport before departure			2.561*		F > A			3.232**		G > F
Less than 30 min (A)	10.75	13.48				27.24	30.77			
30-45 min (B)	20.41	7.98				43.89	33.33			
45-60 min (C)	12.63	7.60				44.31	54.49			
1h-1h15 min (D)	16.10	10.84				29.95	26.42			
1h15-1h30 min (E)	14.02	9.37				56.64	76.51			
1h30-2 hours (F)	18.20	12.11				56.87	80.15			
More than 2 hours (G)	17.59	13.18				72.68	73.36			
Arrival time at boarding gate before departure			1.046					1.455		
Less than 30 min (A)	18.96	12.96				80.79	105.11			
30-45 min (B)	15.52	10.26				50.71	53.91			
45-60 min (C)	18.92	13.07				58.81	60.01			
1h-1h15 min (D)	18.01	13.58				77.90	93.28			
1h15-1h30 min (E)	16.24	12.87				52.12	85.56			
1h30-2 hours (F)	16.88	13.07				84.28	81.37			
More than 2 hours (G)	15.61	11.59				58.45	50.66			

	Food & beverage					Duty-free				
	M	SD	*F*	t	Tukey's HSD	*M*	SD	*F*	t	Tukey's HSD
Number of people travelling with			3.159**		C > H			1.276		
None (A)	14.78	10.76				56.09	75.98			
1 (B)	17.17	11.62				63.30	78.12			
2 (C)	21.42	16.47				61.50	56.02			
3 (D)	18.43	9.36				66.53	68.67			
4 (E)	21.14	16.81				77.49	72.14			
5 (F)	10.03	8.17				50.47	14.38			
6 (G)	17.20	14.80				54.93	40.33			
More than 7 (H)	10.70	8.61				85.02	87.64			
Travelling with children under 16				0.884					0.791	
With children	18.93	14.33				66.84	63.10			
Without children	16.97	12.09				63.61	74.68			
Income level			1.275					3.766**		E > A, B
Less than 25,000 USD (A)	15.27	10.28				38.65	40.58			
25,000 to 50,000 USD (B)	16.34	12.58				48.03	56.83			
50,000 to 75,000 USD (C)	17.16	11.62				74.48	97.32			
75,000 to 100,000 USD (D)	19.79	13.47				72.14	69.35			
100,000 to 150,000 USD (E)	15.75	11.48				86.75	90.01			
Over 150,000 USD (F)	19.62	13.58				79.95	95.56			
Residency			0.618					10.533***		C > A, B, D
Germany (A)	19.07	13.25				41.43	53.57			
United Kingdom (B)	11.63	8.59				48.92	59.91			
Iceland (C)	16.86	10.94				107.53	90.26			
United States of America (D)	16.70	12.37				52.14	61.43			
Gender				2.570*					-0.482	
Male	18.71	12.81				59.49	70.29			
Female	16.00	12.13				63.50	73.00			
Age group			1.018					2.267*		
16-21 (A)	14.86	10.14				33.30	32.21			
22-25 (B)	15.56	10.16				41.60	43.98			
26-34 (C)	17.92	12.16				64.02	76.08			
35-44 (D)	17.55	12.94				67.08	72.07			
45-54 (E)	18.73	14.92				76.88	94.34			
55-64 (F)	18.50	12.85				72.40	76.12			
65 and above (G)	14.65	14.00				65.95	56.99			

*$p < .05$. **$p < .01$. ***$p < .001$.

5. Discussion and Conclusion

The purpose of this study was threefold. First to determine which service quality factors have an effect on overall satisfaction with both food and beverage, and duty-free offering. Second, to see if there are any cross-national differences in the perceptions of service quality, and overall satisfaction scores between travellers from Germany, the UK, Iceland, and the US. Third, to examine travellers' expenditure levels, shopping behaviour, and the determinants of both food and beverage, and duty-free expenditure.

This section is organised as follows: In the first part the findings regarding service quality will be discussed: the descriptive statistics, ANOVA, and multiple regression analyses. In the second part, the findings regarding shopping behaviour will be discussed: the descriptive statistics and multiple regression analyses. The last sections include the managerial implications, and limitations and future research.

5.1. Service Quality

As was stated in the Introduction, competition in the airport industry is increasing, and therefore airports are focusing more on service quality and customer satisfaction, as a way to differentiate them from the competition. Airport passengers are demanding a higher level of service, and many airport managers around the world are recognizing that in order to be able to compete effectively, they need to understand how to increase customer satisfaction by improving business performance ("ASQ Home," n.d.). More importantly, they need better information regarding what specific service quality dimensions need to be improved, in order to be able to focus their resources and efforts on the right service attributes (Zeithaml, 2000). Prior research has focused on overall level of service quality at the airport, but few studies have focused specifically on the service quality dimensions of the commercial area. This research adds a new case study regarding service quality and overall satisfaction, where the food and beverage area and the retail area, are examined separately. The results will help researchers and airport managers' to better understand passengers' experience with the commercial offering at an airport.

The results show that a good selection of both restaurants/shops, and products/menu, the atmosphere of facilities and shops, as well as offering value for money, and a high-speed service, positively affects travellers' overall satisfaction with the food and beverage, as well as the duty-free offering. Furthermore, quality of food

and/or drink, and friendliness of staff, has a positive influence on travellers' overall satisfaction with food and beverage, and the design/layout of shops has a positive effect on overall satisfaction with retail offering.

The fact that the atmosphere of the facilities had a positive effect on overall satisfaction is in line with prior results, like Bogicevic et al. (2013) which showed that cleanliness and a pleasant environment was a key driver of passengers' satisfaction; Bezerra and Gomes (2015), who found that ambience and basic facilities had a positive effect on overall satisfaction; and Del Chiappa et al. (2016), who found that overall service quality was elastic to the cleanliness and comfort of the premises. In this study, however, the dimension "cleanliness of facilities" was not a significant factor in explaining overall satisfaction with food and beverage offering. That could indicate that the dimensions of the atmosphere, or ambience of the facilities and the cleanliness of the facilities, should not be examined as one dimension, but rather as separate dimensions, to get a more detailed description of the drivers of the food and beverage offering at airports.

The courtesy of staff has been identified by prior research to be an important service quality dimension, where de Barros et al. (2007) found that courtesy of security check staff was among the most valued service dimensions, and Liou et al. (2011) found that frequent flyers are concerned with the courtesy of airport staff.

There was a difference regarding the quality of products and friendliness of staff, as these were not significant factors in overall satisfaction with duty-free, but showed a positive effect on satisfaction with food and beverage. Travellers shopping at duty-free stores were also concerned with the design/layout of shops, which is a factor that was not asked about regarding the food and beverage offering.

5.2. Perceptions of Airport Service Quality by Nationality

Airports are also under increased pressure to increase commercial revenues. They need to be able to cut cost by standardizing their service offering, while at the same time they have to cater to a diverse group of travellers going through the airport (Graham, 2013; Smith & Reynolds, 2002). Prior research has stressed the need to consider different national groups when trying to improve their service offering, as people from different cultures and nationalities have different expectations and perceptions of service quality (Herbig & Genestre, 1996; Sultan & Simpson, 2000; Witkowski & Wolfinbarger, 2002). That leads to the second objective of this study,

which is to see if there are any cross-national differences in the perceptions of service quality, and overall satisfaction between travellers from Germany, the UK, Iceland, and the US.

The findings revealed that there are some cross-national differences in service quality perceptions, as well as overall satisfaction regarding food and beverage offering. However cross-national differences were only found between travellers from the UK, Iceland, and the US. This is in line with previous findings that have shown that people of different nationalities have different perceptions of service quality (Basfirinci & Mitra, 2015; Cunningham et al., 2002; W.-T. Lin & Chen, 2013; Lu & Ling, 2008; Pantouvakis & Renzi, 2016; Park & Jung, 2011; Sultan & Simpson, 2000). However, significant differences in the perception of retail service quality dimensions were only found on two dimensions, and no differences were found between travellers from Germany and other national groups, on any of the dimensions tested.

Looking at individual dimensions tested for food and beverage, the results show that travellers from the US were less satisfied with the quality of food and/or drink than the Icelanders, with their overall satisfaction measuring lower as well. Travellers from the UK, and the US were less satisfied with the selection of restaurants/bars, menu selection, and value for money than the Icelanders. This could indicate that travellers from the US have higher expectations of the quality of food and/or drinks than the locals. This is also contrary to Pantouvakis and Renzi's (2016) results, which showed that Italians reported significantly lower scores for their homeland’s airport than travellers from other countries.

It is also interesting that the results did not show a statistically significant difference in quality perceptions with travellers from Germany and any of the other groups, as prior research has shown that when studying service quality ratings of banks, medical care, retail clothing stores, postal facilities, and restaurants, German consumers generally had lower perceived service outcomes than Americans (Witkowski & Wolfinbarger, 2002). This could be explained by the notion that airports are a unique retail environment, which makes customers react differently than usually, as travellers are out of their daily routine (Crawford & Melewar, 2003; Graham, 2013), and therefore the perceptions and expectations of service quality may not be the same in the airport industry as in other industries.

5.3. Shopping Behaviour

Shopping at an airport is unlike other forms of shopping because travellers' primary purpose at an airport is not to shop, but to travel. Airports are relying more and more on revenues generated from the commercial area, but in order to be able to optimize this source of revenue, airport managers need to understand the underlying factors that influence shopping. A few studies have investigated airport shopping behaviour (Castillo-Manzano, 2010; Chung, 2015; Geuens et al., 2004; Torres et al., 2005), but there is still a need to examine what factors influence airport shopping. The objective was to examine travellers' expenditure levels and shopping behaviour, as well as the determinants of both food and beverage, and duty-free expenditure levels. The results of this study will hopefully provide valuable information for airport retail management, which can be used to influence shopping behaviour and ultimately increase revenues.

The results show that the majority of travellers did purchase food and/or beverages, but they also show that the majority did not purchase any duty-free items. More travellers purchased food and beverages, and duty-free items than had originally intended to before they arrived at the airport. This is in line with prior research that has shown that impulse buying is a significant factor in airport shopping behaviour (Y.-H. Lin & Chen, 2013; Omar & Kent, 2001).

The main reasons passengers gave for not purchasing were that they were not hungry/thirsty, and that the food/beverages were too expensive. Other reasons for not purchasing were that passengers wanted to get to the departure gate, meals were to be provided on board the flight, they lacked time, they did not have the right currency, queues were too long, the type of food/brands was not appealing, the quality of service was poor, there were no seats available, and the quality of food was poor.

The reasons travellers' gave for not purchasing duty-free items, indicated that some passengers are price sensitive, they are in a hurry, they either do not want to carry the items, do not have the time, or think that the lines are too long. This is in line with prior research, which has shown that favourable price and quality is one of the key factors that impact airport commercial activities, and that time pressure has a moderating effect on the relationship (Y.-H. Lin & Chen, 2013).

The determinants of food and beverage expenditure levels were all related to shopping behaviour, that is place of purchase, time spent in restaurants/bars, intention

to purchase, and time of purchase. The determinants of duty-free expenditure however were related to shopping behaviour, socio-demographic characteristics, as well as factors related to the trip. Travellers' duty-free shopping expenditure was affected by the arrival time at the airport, travel party size and kind, number of shops visited, place of purchase, for whom they purchase, as well as their residency.

The results of the two regression models also show that there are different factors that affect expenditure levels on both food and beverage, and on duty-free items. In fact, no common factor explained both expenditure levels. One of the factors that explained the amount spent on food and beverages, was how much time the travellers spent in restaurants/bars. The reason could be that passengers that have more time to spend at a restaurant/bar are more relaxed, and thus spend more on food and beverages. Although previous studies have not examined how time spent in restaurants/bars affect expenditure levels, Castillo-Manzano (2010) found the waiting time at the terminal to have a significant positive effect on whether passengers decided to consume food and beverages, as well as on the amount spent. Torres et al. (2005), on the other hand, found that the longer the waiting time, the more likely passengers were to purchase something. However they also found that the waiting time did not affect how much money those passengers spent.

Other factors that had a positive effect on food and beverage expenditure levels were if the traveller had already intended to buy food before he/she came to the airport, and if he/she purchased both before and after control. Where travellers purchased food and beverages also explained the amount spent; purchasing at a served restaurant had a positive effect, while purchasing at a café/coffee shop had a negative effect. These findings are no surprise, it is common sense that a person is more likely to buy more food/beverages if he/she already intended to buy them at the airport, and also that a person purchasing both before and after control would be more likely to spend more. With regards to purchasing at a served restaurant versus a café, it is probably related to the pricing, as the food/beverages are often more expensive at a served restaurant than at a café.

One of the factors explaining expenditure levels on duty-free items, was arrival time at the airport before flight; the earlier the travellers arrived at the airport the more they spent. This is in line with Castillo-Manzano's (2010) results, given that an earlier arrival at the airport leads to more waiting time at the airport, he found that more waiting time leads to an increased likelihood of merchandise being purchased, and to

increased expenditure levels, as stated earlier. Passengers trying to alleviate boredom by browsing more, and thus spending more, could explain this.

Group size also had a positive effect on duty-free expenditure, while travelling with children had a negative effect, which is in line with Castillo-Manzano's (2010) study. This could indicate that travelling with children leads to parents purchasing less expensive items, used to keep their children occupied, while not having time to browse and purchase more expensive items.

If a passenger was not Icelandic, it resulted in lower expenditure levels, which contrast earlier findings (Castillo-Manzano, 2010), but could be explained by cultural factors, as it is a sort of an Icelandic tradition to always buy something in the duty-free stores at the airport. On the other hand, it could also be an indicator that the selection of products or the incentives for travellers are directed at Icelanders rather than non-Icelanders.

Other factors that had an effect on the amount spent on duty-free items, were number of shops visited, type of item purchased, and for whom they were purchased. Purchasing books, cosmetics, electronics, fashion accessories, items for children, fragrances, outdoor clothing, spirits & wines, and tobacco products, had a positive effect on the amount spend, which can be explained by a number of factors. These items could for example be more expensive than other items, they could also be in a greater supply at the airport, and also be more popular. Those who purchased for a relative spent more than those who purchased for a friend, spouse/partner, or other.

The results showed several factors that had no effect on either food and beverage, or duty-free expenditure levels. The number of return trips that travellers had made by air in the last 12 months, gender, and whether the trip purpose was business or leisure, did not have any effect on expenditure levels, which is in line with Castillo-Manzano's (2010) study. However, previous results regarding business passengers, and their effect on commercial revenues/spending, are conflicting as Fuerst et al. (2011) found that they have a negative effect on commercial revenues, and Torres et al. (2005) found that business passengers seemed to spend less than leisure travellers. Results also showed no significant impact of travellers being on a connecting flight versus not, which contradicts previous findings that show that connecting to another flight results in lower expenditure levels (Castillo-Manzano, 2010).

5.4. Managerial Implications

The findings of this study have several implications for Keflavik Airport's management. The findings show that the service quality factors that Keflavik Airport should put their resources and focus on when improving the service quality of the food and beverage offering, are to offer a good selection of restaurants and bars, good quality of food and drinks, and a friendly and efficient service. The menu selection is also important, as well as offering value for money, and a good atmosphere at the restaurants. For the duty-free area, the most important factors to focus on should be offering a good selection of shops and products, and offering value for money. Also, the airport retailers might want to consider putting less emphasis on the quality of products, and more on the value for money, and thus, for example, change their selection of products by offering more products at a better value. The speed of the service is also a significant factor, as well as the facilities, notably the atmosphere, and the design and the layout of the shops.

The findings also show that there is a reason for Keflavik Airport to take national difference into account when improving the service quality at the commercial area, especially with the food and beverage offering. The preferences of travellers from the US and the UK need to be examined further, as there seems to be an opportunity to improve the food and beverage offering to better meet their needs, specifically, the quality of food and drinks for travellers from the US, and the selection of restaurants/bars, menu selection, and value for money, for both travellers from the UK and the US. Travellers from the UK and the US might have different preferences for food and drink selection, and be more price sensitive than Icelanders when travelling.

Also, the additional examination of the background variables indicates that there is an opportunity to increase the satisfaction with the food and beverage offering among the travellers that are over the age of 65, and those with the highest income. Furthermore, the transfer passengers were not as satisfied as the non-transfer passengers with both the food and beverage, and duty-free offering. These groups need to be examined further in order to understand their needs and wants.

The third objective of this study was to examine the key determinants of travellers' expenditure levels. The findings reveal that there is an opportunity to get more travellers to purchase, both food and beverages, as well as duty-free items. Impulse buying seems to be a significant factor in airport shopping behaviour and retail

managers should focus on incentives to get more travellers to purchase. Regarding food and beverages, the pricing seems to have the greatest effect, as well as lack of time, and stress. This shows that restaurants/bar operators at the airport need first and foremost to take care of speed of service, but also the quality of service, type and quality of food, as well as to make sure to have enough seating available, in order not to miss a sales opportunity.

As stated above, the main reasons that travellers' gave for not purchasing duty-free items, indicated that some passengers are price sensitive, they are in a hurry, they either do not want to carry the items, do not have the time, or think that the lines are too long. Because of this, it is important for airport operators to reduce check-in and security time in order to increase the waiting time at the terminal. It is also important to have enough staff to be able to deliver a high-speed service when there are a lot of flights leaving at the same time. Based on these results, airport managers should try to reduce the time travellers spend in check-in and security, for example in order to maximize time spent in the commercial area. Although, as Castillo-Manzano (2010) pointed out, while this could lead to travellers using the airport more frequently arriving later, the consumption of non-frequent travellers might increase.

Also, the additional examination of the background variables indicates that background variables need to be taken into consideration when developing marketing strategies to increase expenditure levels of both food and beverages, and duty-free items. The results showed that male passengers, who were returning home, arrived at the airport 90-180 minutes before departure, and were travelling with two people, seem to have spent more on food and beverage than female passengers, who were neither returning nor leaving home, arrived less than 30 minutes before departure, and were travelling with more than seven people. The results also showed that Icelandic passengers leaving home, that arrived at the airport more than 2 hours before departure, and with an income level between 100,000 to 150,000 USD, spent more than German, British and American passengers not leaving home, that arrived 1h30-2 hours at the airport before departure, and had an income level of 50,000 USD or less.

5.5. Limitations and Future Research

There are some limitations to this study that can serve as directions for future research. This study only examined passengers at one particular airport. Airports are however of different sizes, and have different passenger profiles, so caution should be

taken in generalization of the findings. Also, the study only examined the perspectives of travellers from Germany, the UK, Iceland, and the US. When examining the cross-national differences of service quality perception, those findings will likely be different if other nationalities are examined. Furthermore, one of the limitations of the study is that it was specific to the airport industry, and future research should expand it to other industries or service environments. Future research could also study how service quality affects travellers' decision to choose an airport, or even which airport a certain airline operates at, affects a traveller's decision to choose that specific airline. More research is also needed to better understand travellers' shopping behaviour at airports, in order for airport managers to be better able to serve the different needs of different passenger groups.

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