JOURNAL OF AVIATION

e-ISSN: 2587-1676 J Aviat 2021; 5(2): 265-281

Research Article DOI : 10.30518/jav.1010982

Passengers' Shopping Preferences: A Study of Istanbul Airports

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Abstract

Today, a significant part of airports' revenues is derived from support services such as retail stores, food and beverage (F&B) services, and entertainment activities. These services are also vital for enhancing passenger experience, which plays a major role as arbiter of airport success. There are different typologies of passengers, and a successful airport must deliver an optimal service mix to satisfy the needs of different passenger typologies. This requires an adequate transformation of the voice of the customer with respect to different profiles. Hence, the first aim of this study is to distinguish the preferences of different passenger profiles at airports by examining their choice of retail stores, F&B services, and entertainment activities. The second aim of the study is to determine the relative importance of factors that affect passengers' airport purchase behavior and transform them into recommendations for distinct airport strategies.

Keywords: Airport management, Shopping preferences, Conjoint analysis

1. Introduction

Airports have evolved from basic transportation systems into complex systems, including various commercial facilities such as retail stores, food and beverage (F&B) services, and entertainment activities [1]. Commercial facilities have a noticeable impact on the revenue streams of airports. According to a report published by Airports Council International (ACI), non-aeronautical revenue represented 39.9% of total airport revenues in 2017 [2] and is expected to represent a major revenue stream in the upcoming years [3]. In addition, commercial facilities with a good quality and a wide range of offerings within an appropriate mix enhance the passenger experience [4]. Thus, diversification and increase of commercial facilities embody a solid need for airports as a means of both increasing revenues and passenger satisfaction [5].

The demographics of the passengers can have a significant impact on their spending behavior and consequently on the volume and nature of commercial airport facilities [6]. This is particularly setting up a new challenge for the airport management: determining the right product mix to fulfill the preferences of different passenger typologies with different demographic characteristics. This requires the transformation of the customers' voice belonging to different typologies. Consequently, the first aim of the study is to identify passengers' preferences of commercial services, including retail stores, F&B services, and

Corresponding: Özge Yanıkoğlu ozge.peksatici@ozyegin.edu.tr
Citation: Kılıç. S., Yanıkoğlu, Ö., Ucler, C. (2021). Passengers' Shopping Preferences: A Study of Istanbul Airports J. Aviat. 5 (2), 265-281.
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DOI: https://doi.org/10.30518/jav.1010982
Received: 20 October 2021 **Accepted:** 28 November 2021 **Published (Online):** 20 December 2021

entertainment activities, and to understand the impact of different passenger typologies on their preferences. The second aim of the study is to determine the relative importance of factors that affect passengers' airport purchase behavior.

2. Terminal Shopping Behavior at Airports

Passengers usually arrive at airports earlier than their flight time and spend at least an hour waiting inside the terminals [7] [8]. The waiting time can be longer for transit passengers or in the case of delayed or canceled flights. In addition, with recent developments in technology, passengers spend less time in the processing areas such as check-in, security screening, and customs. Moreover, technology allows passengers to receive instant updates about the status of their flights so that they can spend more time in concessions areas to shop or use other available services [9] [10]. Shopping or engaging in other activities helps passengers spend better time during their stay at the airport [11]. Therefore, commercial activities have to be organized in such a way that passenger experience is improved, especially for those who spend a relatively long time waiting at the airport [12]. This can be managed by offering a wide range of products and services tailored to the needs of different passenger typologies. The most common commercial activities offered at airports are retail stores, food & beverage (F&B) services, and leisure activities [10].

2.1. Retail Shopping at Airports

The largest non-aeronautical revenue source for airports is retail, with 30,2% [2]. Besides its financial importance, the retail environment also contributes to the passenger experience. Passengers reduce their travel-related stress by spending time in the retail area [13]. In addition, retail shops are also effective tools for creating a cultural impression of the airport region [14]. Therefore, retail areas have been focal points while designing the airports [15].

Understanding passengers' expectations and behavior are crucial for offering them the right product mix [16]. There are different factors affecting the purchase behavior of passengers in the airport retail environment, such as the demographic profiles of the passengers, i.e., gender, income level, and trip-related characteristics, i.e., travel purpose [1], [17]. In addition, passengers' familiarity with the shopping environment impacts their shopping behavior, which relates mainly to frequent flyers for business purposes [18]. Moreover, there is a direct relationship between product variety offered at the retail areas and the passengers' purchase behavior [17]. It is crucial for a successful airport retail performance to map and match the factors affecting the purchase behavior and the retail offerings.

2.2. Airport Layout

The features of the shopping environment, including its location and size, appeal to different senses of consumers and cause them to perceive their shopping experiences differently [19]. Studies have found that the location and arrangement of the shops are crucial for managing passengers' spending behavior [20]. Today, many airports strive to use the limited terminal area wisely [21] to maximize their revenues [22]. For example, big stores are mostly located at the center of the passenger terminal, and smaller stores are placed close to the boarding gates [20]. In addition, unlike traditional shopping malls, there is a unique passenger flow at airports, where passengers have to complete mandatory steps at check-in and security control and follow a certain path to reach gates [23]. Thus, at many airports, service providers have turned these mandatory flows into an opportunity and developed walk-through store concepts on the passenger paths to the gates [20].

2.3. Food and Beverage (F&B) Services at Airports

Food and beverage (F&B) services are essential parts of non-aviation revenues at airports and have crucial effects on passenger experience [24]. Passengers are not only affected by the quality and taste of the F&B offerings [25] but also by the servicescapes, which include the physical characteristics and ambiance of the F&B environment as well as the interaction with the service employees [26]. Studies have found that passengers' sociodemographic characteristics influence their attitude towards F&B services [27]. For instance, while younger customers tend to be price-sensitive in their F&B selections, elderly customers seek intangible qualities such as employee performance [28]. Also, women give

more importance to staff performance and service processes than men in the F&B areas [29]. Consequently, the F&B strategy of airports has to consider and respect different passenger profiles' expectations and needs.

Rezende and Sivla [30] categorized F&B service providers into six main groups in terms of the experience offered. Accordingly, the first service group includes places like Irish pubs, which provide an authentic environment with unique characteristics based on tradition or culture. The second group offers a more relaxed atmosphere, where food diversity is not necessarily a priority and where people can meet others or work alone. Coffee shops such as Starbucks are examples of such places. The third group is defined as "all you can eat" places that offer a wide range of unlimited food options. The fourth group creates "a home feeling" to customers by providing a cozy atmosphere and warm relations through their staff. The fifth group is called "efficient environment", which mainly involves fast-food chains. These types of food restaurants offer convenient, standardized, and low-cost meals to customers. The last group provides high-quality food and high service standards with distinct environment concepts.

2.4. Leisure Activities and Related Amenities at Airports

Airports are experiencescapes, where the experience is created through a variety of leisure entertainment facilities [31]. The correct selection of the facility mix at airports is an important task to maximize customer satisfaction and non-aeronautical revenue [18]. Many international airports have been exerting considerable efforts to respond to the needs of the passengers who value different amenities and concession offerings [11] [1] [2]. They aim to transform traditional terminals into commercial hubs with an enormous array of services, attractions, and recreational areas such as internet centers, gyms/ health clubs, shower rooms, spa, massage and beauty treatment centers, silent areas, sleep boxes, yoga rooms, swimming pools, play & gaming areas for kids and adults, cinemas and movie theaters, aquariums, libraries, live music and performances, art museums and exhibitions, and green areas and gardens [32]. These facilities help to enhance passenger experience by entertaining travelers who have plenty of time to roam around and wait for their flight, creating a peaceful, relaxing environment and helping passengers in relieving tension, stress, and ennui of traveling, and help them make better use of their time.

2.5. Research Gap

There are different typologies of passengers with different characteristics. Knowing exactly how these passenger typologies would like to spend their time at the airport and their shopping, dining, and entertainment preferences would help airports make the right investments in the right facilities. This insight can also lead to the optimization of the airport facility mix offered to different passenger profiles. Although several studies have been conducted on passengers' shopping preferences of non-aeronautical services at airports [[6], [33], [34], there has been little research on F&B preferences of passengers. In addition, there have been limited studies exploring the leisure activity preferences of passengers. Considering the research gap, the first aim of this study is to identify passengers' preferences of retail stores, F&B services, and leisure and entertainment activities and to distinguish between different passenger typologies subject to their preferences among different alternatives. The second aim of the study is to determine the relative importance of factors that affect passengers' airport purchase behavior.

3. Methodology

A survey for the airport shopping behavior was developed based on the literature review and the most recent trends in terminal concessions followed by top-ranking airports worldwide. The top 20 airports were identified by Skytrax [35], which is a UK-based international airport review and ranking site. Then, the latest customer service improvement and innovations were reviewed with regard to dining, shopping, and entertainment. Furthermore, while developing the survey, a small group of international aviation professionals, including two airport managers and three academicians with a cumulative experience of 52 years, were consulted.

3.1. Survey Design and Measurement

The questionnaire was divided into four sections. The first part collected data about participants' food and beverage preferences at the airport. In the first question of Part 1, the participants were asked to what extent they think different food & beverage options should be at the airport (e.g., coffee shops, restaurants, or pubs). Answers were collected by a 5-point Likert scale [1=no preference; 2=slightly prefer; 3=prefer; 4=strongly prefer; 5=very strongly prefer]. In the second question of Part 1, respondents were asked to rank three eating options (casual dining restaurants, fast-food restaurants, and buffets or vending machines) according to their preferences. The participants were given country-specific brand examples to make sure that they understand what each option represents. In the third question of Part 1, participants were asked to rank different cuisine options that they would like to have at the airports according to their preference, i.e., Home-cooked Turkish meals, fast-food, Mediterranean cuisine, and Far East cuisine.

The second part of the survey involved questions about participants' shopping preferences at the airport. In the first question of this part, participants were asked to indicate whether they prefer brand stores or department stores. In department stores, a wide range of consumer goods is offered, where each department is specializing in a product category such as clothing, cosmetics, furniture, home appliances, toys, and houseware. Examples of brand stores are Debenhams, Selfridges, Macy's, Kohl's, and Nordstorm. Again, the participants were given well-known country-specific examples of both options. In the second question of the second part, participants were asked to rank apparel brand groups they would like to see at the airport according to their preferences. Apparel brands are categorized into three: Luxury brands, premium brands, and value brands. Luxury brands are non-essential products that are exclusive, prestigious, authentic, and expensive [36]. Examples are Hermes, Chanel, and Burberry. Premium brands focus on high-quality products and attract consumers with their strong brand images [37]. Examples are Nike, Under Armour, and Levi's. Value brands serve a utilitarian purpose and promise maximum utility for a minimum price [38] [39]. Examples are H&M, Forever 21, and Missguided. The examples of each brand category provided in the survey were those available and well-known in Turkey. In the third question of the second part, participants were asked to indicate the extent to which they would purchase the listed products (e.g., cosmetics and perfumes, jewelry, alcohol and tobacco products, souvenirs, etc.).

The third part of the survey involved questions regarding participants' preferences about the leisure and entertainment activities provided at the airport. The participants were asked to indicate the extent to which they would prefer different entertainment activities (e.g., theater, gym, live performances, spa centers). Participants were asked to provide answers using a 5-point Likert scale [1=no preference; …. 5=very strongly prefer]. Additionally, in this part, passengers' retail layout preference (a separate shopping street or walk-through shops) was questioned.

The fourth part of the survey aimed to collect demographic (e.g., gender, age group) and travel-related characteristics (e.g., purpose of travel (business / leisure), type of travel (domestic / international), and flight frequency) of the respondents.

Before conducting the survey, twenty pilot questionnaires were handed out and pretested to check whether the wording of the questionnaire is clear and that the questions can be correctly understood. Based on the test participants' feedback, minor changes in the wording of some questions were made to avoid language confusion or misinterpretation.

3.2. Survey Sample

This study's target population consisted of passengers traveling from/to any of the two Istanbul airports: Istanbul Airport and Istanbul Sabiha Gokcen Airport. The survey was conducted online using a non-probability snowball sampling from February 2020 to April 2020. This method brings an advantage of collecting data from a hidden population. A total of 436 questionnaires were gathered using this process, and after excluding incomplete responses, a total of 426 valid cases were used for the analysis.

3.3. Data Analysis

Descriptive statistics and ANOVA analysis were conducted to reveal passengers' preferences and whether these preferences were influenced by the demographic and travel-related characteristics of the passengers. In addition, a conjoint analysis was applied to the data to understand the relative importance of the factors that affect passengers' airport purchase behavior [40] [41]. The conjoint analysis helps researchers to discover how customers make tradeoffs among alternatives [42]. All the analyses were conducted with IBM-SPSS, Statistics software Version 20.0.

4. Results

4.1. Sample Characteristics

There was almost a balanced gender distribution across the survey participants, where 56,8% were male, and 43,2 % were female. The participants were mainly younger, with 33.1% between the ages of 18-24 and 31,0 % between the ages of 25-34. Further demographic profile and travel-related characteristics of the sample are shown in Table 1.

Table 1. Demographic profile of respondents

Category	Variable	Frequency (#)	Percentage (%)
Gender	Female	184	43,19%
	Male	242	56,81%
	Total	426	
Age	18-24	141	33,09%
	25-34	132	30,99%
	35-44	57	13,38%
	45-54	38	8,92%
	55-65	58	13,61%
	Total	426	
Marital Status	Single	266	62,44%
	Married	156	36,62%
	Other	4	0,94%
	Total	426	
Purpose of Travel	Mostly for holiday and leisure	247	58%
	Equally for holiday and business	113	26,53%
	Mostly for business	66	15,49%
	Total	426	
Flight Type	Mostly domestic	197	38,86%
	Equal domestic and international	144	33,80%
	Mostly international	85	19,96%
	Total	426	
Flight Frequency	0-5 times / year	195	45,8%
	6-15 times / year	144	33,8%
	16-25 times / year	47	11%
	More than 26 times / year	40	9,4%
	Total	426	

4.2. Passenger Preferences

4.2.1. Food & Beverage (F&B) Preferences

"Restaurants" and "Coffee shops" were listed as the respondents' most preferred F&B options. In addition, the results revealed that female respondents would like to have "Coffee shops", "Bakeries and Patisseries", and "Restaurants serving special requests" at the airports more than male respondents (Table 2).

Table 2. Mean Comparison of Food & Beverage Options based on Gender

	Gender	Mean
Restaurants (casual-dining and fast-food)*	Female	4,5707
	Male	4,4793
	Total	4,5188
Coffee shops*	Female	4,5272
	Male	4,3512
	Total	4,2772
Bakeries and Patisseries*	Female	4,3587
	Male	4,1364
	Total	4,2324
Restaurants serving special requests (e.g., gluten-free or vegan products)*	Female	4,2500
	Male	3,9091
	Total	4,0563
Bars / Pubs	Female	3,5326
	Male	3,6570
	Total	3,6033

*Mean difference significant at 0.05 value

Respondents traveling "Mostly domestic" (M=3,37, SD=1,16) preferred "Bars / Pubs" at the airports more than respondents traveling "Equally domestic and international", (M=3,68, SD=1,15) and "Mostly international" (M=4,00, SD=1,023). Then, respondents travelling with a higher frequency - 6-15 times (M=3,82, SD=1,08) and 16-25 times (M=3,98, SD=1,05) in a year - preferred "Bars / Pubs" more than respondents travelling 0-6 times in a year (M=3,32, SD=1,14).

Among the three restaurant options, "Fast-food restaurants" were ranked first in the list with a 1,85 mean ranking score. In addition, the results revealed that male respondents were more likely to prefer “Fast-food restaurants” compared to female respondents (Table 3).

Table 3. Mean Comparison of Food & Beverage Options based on Gender

	Gender	Mean
Fast-food restaurants (e.g., Burger King, McDonald's, KFC)*	Female	1,9511
	Male	1,7645
	Total	1,8451
Casual Dining Restaurants (e.g., Midpoint, Cookshop, Happy Moons)	Female	1,8967
	Male	2,0413
	Total	1,9789
Buffets or Vending Machines	Female	2,1522
	Male	2,1942
	Total	2,1761

*Mean difference significant at 0.05 value

Table 4. Comparison of Mean Cuisine Ranking Scores based on Gender

	Gender	Mean
Home-cooked Turkish meals	Female	2,8424
	Male	2,9008
	Total	2,8756
Fast – food (Hamburger, pizza, etc.)	Female	3,1902
	Male	3,2438
	Total	3,2207
Mediterranean Cuisine (Italian, Spanish, etc.)*	Female	3,3098
	Male	3,8182
	Total	3,5986
Turkish Kebab meals*	Female	4,0054
	Male	3,4504
	Total	3,6901
European Cuisine (French, German, etc.)	Female	5,0489
	Male	4,9711
	Total	5,0047
South American Cuisine (Mexico, Argentina, etc.)	Female	5,2826
	Male	5,5909
	Total	5,4577
Far East Cuisine (Thai, Chinese, etc.)	Female	5,9130
	Male	6,0372
	Total	5,9836
Middle Eastern Cuisine (Lebanese, Israeli, etc.) *	Female	6,4076
	Male	5,9876
	Total	6,1690

*Mean difference significant at 0.05 value

The results of the cuisine comparison revealed that "Home-cooked Turkish meals", "Fast-food", and "Mediterranean cuisine" were ranked highest in the list with 2,88, 3,22, and 3,60 mean ranking scores, respectively. In addition, the findings revealed that female respondents were more likely to prefer "Mediterranean Cuisine" compared to male respondents. In contrast, male respondents were more likely to prefer "Middle Eastern Cuisine" and "Turkish Kebab meals" compared to female respondents (Table 4).

In terms of marital status, the findings revealed that single respondents (M=2,98, SD=2,33) were more likely to prefer "Fast – food" than married respondents (M=3,57, SD=2,43). In addition, in terms of travel type, respondents traveling "Mostly domestic" were less likely to prefer "Far East Cuisine" and more likely to prefer "Turkish Kebab meals" compared to respondents traveling "Equally domestic and international", and "Mostly international". Moreover, respondents traveling "Mostly international" were less likely to prefer "Home-cooked Turkish meals" and "Fast-food", and more likely to prefer "Mediterranean Cuisine" compared to respondents traveling "Equally domestic and international", and "Mostly domestic" (Appendix A).

Travel purpose was also impacting the preferences: Respondents traveling "Mostly for business" were more likely to prefer "Middle Eastern Cuisine" compared to respondents traveling "Mostly for holiday", who, in contrast, preferred "Fast-food" (Appendix B).

4.2.2. Shopping Preferences

The majority of the respondents (61%) preferred "Department Stores" over "Brand Stores". In addition, the data revealed that the majority of male respondents participated in this preference with 67%, while for female respondents, the ratio was more equally distributed (Table 5).

Table 5. Department Stores vs. Brand Stores Crosstabulation

		Department Stores	Brand Stores	Total
Gender	Female	95 (52%)	89 (48%)	184
	Male	163 (67%)	79 (33%)	242
Total		61%	39%	426

The answers to the apparel brand question reveal that the "Premium brands" option was ranked first in the list with a 1,74 mean ranking score. In addition, the data showed that male respondents were more likely to prefer "Value brands" compared to female respondents (Table 6).

Table 6. Comparison of Mean Apparel Brand Option Ranking Scores based on Gender

	Gender	Mean
Premium brands	Female	1,6739
	Male	1,7934
	Total	1,7418
Value brands*	Female	2,2500
	Male	1,9917
	Total	2,1033
Luxury brands	Female	2,0761
	Male	2,2149
	Total	2,1549

*Mean difference significant at 0.05 value

In addition, single respondents (M=2,07, SD=0,82) were more likely to prefer "Luxury brands" compared to married respondents (M=2,28, SD=0,85). In contrast, married respondents (M=1,87, SD=0,81) were more likely to prefer "Value brands" compared to single respondents (M=2,24, SD=0,85).

Among various product options, respondents were more likely to buy "Alcohol and tobacco", "Cosmetics and perfumes", and "Souvenirs". In addition, the data revealed that female respondents were more likely to buy "Cosmetics and perfumes", "Clothing and shoes", "Jewelry", and "Books and stationery products" compared to male respondents (Table 7).

Table 7. Mean Comparison of Product Options based on Gender

	Gender	Mean
Alcohol and Tobacco	Female	3,9185
	Male	4,0289
	Total	3,9812
Cosmetics and Perfumes*	Female	4,033
	Male	3,599
	Total	3,786
Souvenirs	Female	3,6576
	Male	3,6157
	Total	3,6338
Local Food (e.g., Turkish delight)	Female	3,2663
	Male	3,2645
	Total	3,2653
Clothing and Shoes*	Female	2,8043
	Male	2,4628
	Total	2,6103
Jewelry*	Female	2,5163
	Male	2,1818
	Total	2,3263
Technological products	Female	2,8967
	Male	2,9793
	Total	2,9437
Sports equipment	Female	2,5217
	Male	2,4504
	Total	2,4812
Books and Stationery Products*	Female	3,2880
	Male	2,9256
	Total	3,0822

*Mean difference significant at 0.05 value

In terms of travel type, respondents traveling "Mostly domestic were less likely to buy "Cosmetics and Perfumes" and Alcohol and Tobacco" compared to respondents traveling "Equally domestic and international" and "Mostly international". In addition, respondents traveling "Mostly domestic" were less likely to buy "technological products" compared to respondents traveling "mostly international" (Appendix C).

The majority of all respondents with 70% coverage preferred a separate shopping street over walk-through shops on the way to the gate (Table 8).

Table 8. Gender * Separate shopping street vs. Walk-through Shop Crosstabulation

	Shopping area preference	
Gender	Separate shopping street	Walk-through Shop
Female	65%	35%
Male	73%	27%

4.2.3. Activities & Services Preferences

Among various activities and service options offered, respondents were more likely to pay for "Free internet usage areas", "Quiet areas", and "Designated areas for sleeping". In addition, female respondents were more likely to buy "Designated areas for sleeping", "Yoga and meditation areas", "Gardens, green natural areas", "Library", " Play & gaming areas", "Free internet usage areas", and "Quiet areas" compared to male respondents (Table 9).

Respondents traveling "Mostly for holiday" were more likely to buy "Movie theatre" compared to respondents traveling for other purposes. Also, respondents traveling "Mostly for holiday" were more likely to buy " Play & gaming areas", "Free internet usage areas", and "Quiet areas" compared to respondents traveling "Mostly for business". Moreover, respondents traveling "Mostly for business" were less likely to buy "Designated areas for sleeping" compared to respondents traveling for other purposes (Appendix D).

Lastly, in terms of travel type, respondents traveling "Mostly international" (M=3,96, SD=0,98) were less likely to buy " Play & gaming areas" compared to respondents traveling "Equally domestic & international" (M=4,26, SD=0,82) and "Mostly domestic" (M=4,34, SD=0,77).

Table 9. Mean Comparison of Activities & Services Options based on Gender

	Gender	Mean
Free Internet Usage Areas*	Female	4,8478
	Male	4,6570
	Total	4,7394
Quiet Areas*	Female	4,7283
	Male	4,5083
	Total	4,6033
Designated Areas for Sleeping*	Female	4,5543
	Male	4,3719
	Total	4,4507
Gardens, Green Natural Areas*	Female	4,4239
	Male	4,2397
	Total	4,3192
Play & gaming areas	Female	4,4022
	Male	4,1198
	Total	4,2418
Library*	Female	4,2989
	Male	4,0165
	Total	4,1385
Shower Areas	Female	3,9293
	Male	3,9504
	Total	3,9413
Art and Museum Exhibitions	Female	3,8478
	Male	3,7479
	Total	3,7911
Massage and Spa Center	Female	3,5815
	Male	3,4587
	Total	3,5117
Yoga and Meditation Area*	Female	3,5761
	Male	3,1446
	Total	3,3310
Gym	Female	3,0924
	Male	3,0000
	Total	3,0399
Movie theater	Female	3,0000
	Male	2,9174
	Total	2,9531
Concert / Live Performance	Female	2,9293
	Male	2,9091
	Total	2,9178

*Mean difference significant at 0.05 value

4.3. Conjoint Analysis

In order to determine the relative importance of factors that affect passengers' airport purchase behavior, a conjoint analysis was conducted. The different options of four attributes, including Restaurant type (Casual dining restaurants, Fast-food restaurants, and Buffets or vending Machines), Store type (Brand stores and Department stores), Brand type (Luxury brands, Premium brands, and Value brands), and Layout (Shopping Street and Walk-through shops) were examined. As the first step of the conjoint analysis, the combination of factor levels was demonstrated by an orthogonal table [43]. The complete set of combinations (Restaurant Type x Store Type x Brand x Layout) included a set of 36 cards (3x2x3x2), all of which were included in the analysis. By using a fractional factorial design, all of these cards were presented in Appendix E.

After the survey had been completed, respondents' preferences were coded into SPSS as the next step through a procedure called dummy coding. For each question, the dummy variable took on the value 1 for the selected option or if the respondent ranks it as the first option; and the dummy variable took on the value 0for the unselected options, or if the respondent does not rank it as the first option. One potential complication that might have occurred at this point was a linear dependency among options which makes it impossible to predict an independent variable for each level [44]. In order to avoid this problem, one option for each attribute was deleted. After specifying each respondent's preference score as a dependent variable and four dummy-coded attributes as independent variables, regression analysis was computed on SPSS. Since in conjoint analysis, respondents' total utility for product or service stands for their part-worth utilities, it needed to be estimated for each attribute. In this study, ordinary least squares (OLS) regression was used to estimate part-worth utilities (Table 10).

Table 10. Path-worth Utilities and their Contribution to the Total Utility

Attribute	Utilities	Relative Importance
Layout		
Shopping Street	10,098	42,31%
Walking-through Street	-10,098	
Restaurant Types		
Fast-food Restaurants	3,235	25,04%
Casual Dining Restaurants	,969	
Buffets or Vending Machines	-4,204	
Store Types		
Brand Stores	5,695	23,87%
Department Stores	-5,695	
Apparel Brand Types		
Luxury Brands	-3,559	12,15%
Premium Brands	2,900	
Value Brands	,659	

Part-worth utilities indicated that layout was the most effective factor in the preferences of the passengers, with 42,31% part-worth scores. It was followed by restaurant types, store types, and brands, with part-worth scores 25,04%, 23,87%, and 12,15%, respectively. Furthermore, after over standardized part-worth's were calculated, Shopping Street x Fast-food Restaurants x Brand Stores x Premium Brands was the most selected combination (29 out of 426 participants). The utility of this combination was equal to 1.

5. Discussion & Recommendations

The results of the conjoint analysis revealed that the most important factor in the airport shopping decision process of passengers had been the layout of stores, followed by restaurant types, store types, and brand types. In addition, the conjoint analysis revealed that the majority of the participants preferred "fast-food restaurants" for F&B with the possibility to spend time in "brand stores" buying "premium brands" within a "shopping street". This finding can be utilized in the planning of the airport shopping area. However, the individual analysis of each attribute reveals more insights into the choices of passengers.

At airport shopping areas, which have different characteristics compared to traditional shopping areas, passengers prefer "shopping streets" where shops are located in designated areas instead of a "walk-through" layout. So, Wu and Chen's [20] utilization of paths to the gates is not preferred, and apparently, passengers do not want to be forced to pass through the shopping areas. They would like to spend time in a dedicated shopping area, away from the mandatory travel processes. Therefore, the shopping area planning should be done considering this layout preference.

The second most influential factor in the preferences of the passengers was the restaurant types. Accordingly, passengers preferred fast-food restaurants over casual dining restaurants and buffets, and vending machines. This may mean that passengers prefer convenient, standardized, and low-cost meals offered by the "efficient environment" based on Rezende and Sivla's [30] F&B classification. Looking at the gender-based results, male customers valued fast-food options more than female passengers. This finding confirms Snipes et al.'s [29] study, which highlighted the impact of passengers' gender on F&B services. Although Lee, Cho, and Ahn [28] found that younger travelers value cheaper F&B options - implying the fast-food - there was no distinction among different age groups with respect to this preference. Therefore, it is recommended that airport management prioritize fast-food restaurants and offer a wide range of such options considering the high frequency of male and/or younger air travelers.

In terms of F&B preferences, the most preferred option by the passengers were restaurants, coffee shops, and bakeries. The findings are in line with the common approach followed by many airports, including the Istanbul airports, as these F&B options are the most widespread ones. Based on the gender comparison, female passengers were more likely to prefer special service restaurants compared to male passengers. Thus, a limited number of special restaurants serving gluten-free products or vegan products might be provided to cover the demand of female passengers. Alternatively, hybrid offerings with a mix of such special offerings within classical menus can be encouraged by airports.

Based on the type of travel comparison, bars/ pubs were preferred by passengers who are flying mostly domestic. In addition, the results reveal that frequent flyers were more likely to choose bars/pubs. Thus, the airport management may invest in bars/pubs in the domestic terminal and provide special promotions to frequent flyer domestic passengers.

Among all the cuisine options, home-cooked Turkish meals, fast-food, and Mediterranean cuisine were the most preferred options, whereas Middle Eastern, Far East, and South American cuisines were the least preferred ones. These findings should be respected while planning restaurant concessions. Particularly, there are limited cuisine options at both Istanbul airports [45] [46]. Therefore, the airports may launch restaurants that offer Mediterranean cuisine in the international terminals as this option is preferred mostly by international passengers. In the domestic terminal, a local cuisine restaurant involving Turkish kebab options might be provided to customers.

The findings revealed differences in the preference of passengers with different demographics. For instance, according to the findings, female passengers were more likely to prefer Mediterranean cuisine, whereas male passengers preferred Middle Eastern Cuisine and Turkish Kebab meals. In addition, single customers were more likely to prefer fast-food restaurants compared to married ones. Moreover, passengers traveling mostly for business preferred Middle Eastern cuisine, and those traveling mostly for holiday preferred fast-food option. Considering the findings, airport management may offer promotions targeting passengers with different profiles.

The third most effective factor in the preferences of the passengers was the store types. Passengers preferred department stores over brand stores. Still, both Istanbul airports invest in individual brand stores rather than department stores [45], [46]. For this reason, instead of having separate brand stores, both airports may give a higher priority to department stores that are popular in Turkey.

Finally, the least important factor in passengers' preference was the brand types. Accordingly, passengers valued premium brands over affordable and luxury brands. The examples of such brands in Turkey are Marks & Spencer, Mango, and Network. Based on the marital status comparison, single passengers were more likely to prefer "Luxury brands", whereas married respondents were more likely to prefer "Value brands". In addition, the findings revealed that male respondents were more likely to prefer value brands compared to female respondents. Although brand type has less impact on respondents' airport shopping preferences compared to other attributes, the planning of the stores can be enhanced by respecting the revealed preferences.

In terms of shopping preferences, alcohol, cosmetics, and souvenirs were the most preferred products by the passengers. This is totally in line with the traditional airport duty-free offerings. In general, female customers were more likely to spend money on many items mentioned, e.g., cosmetics and perfumes, clothing and shoes, jewelry, books, and stationery products. Consequently, the promotions should primarily target female passengers.

In terms of the activities and services provided at the airport, the most preferred options were the free internet usage areas, quiet areas, designated areas for sleeping, green & natural areas, and play & gaming areas. The least preferred options were concert / live performance, movie theater, gym, yoga and meditation areas, massage and spa centers, art and museum exhibitions, and shower areas. The following practical implications might also be useful for Istanbul airports: Istanbul New Airport offers sleeping pods, quiet areas, one-hour free Wi-fi, and an airport library to its passengers. The airport also invested in spa and shower facilities, museums, and exhibitions [45]. There are, however, no green places and play & gaming areas at the airport. Thus, the airport management may consider investing in gardens, green, natural areas, and play & gaming areas for enhancing passenger experience as these options were more preferred than spas, shower facilities, museums, and exhibitions. In addition, Sabiha Gökçen Airport offers free Wi-fi, and sleep cabins/resting units to its customers [46]. Considering the most preferred options, the airport might consider investing in green and natural areas, airport library, and play & gaming areas. Instead of investing in the least preferred facilities, both

airports should increase the number of most preferred options, such as the sleeping units, quiet/resting areas, and extend the time of free Wi-fi. Also, the findings revealed that passengers traveling mostly for holiday were more likely to prefer movie theatres, play & gaming areas, free internet usage areas, and quiet areas. Therefore, the airports should make special offers suited to different passenger profiles.

6. Conclusion

The purpose of the study was to identify passengers' shopping, dining, and entertainment preferences at the airports and to distinguish between different passenger typologies subject to their preferences among different alternatives. In addition, the study aimed to determine the relative importance of the factors that affect passengers' airport purchase behavior. The results aimed to offer the ideal combination of shopping, F&B, and entertainment offerings at the airport. The recommendations provided here would not only help airport planners to increase their non-aeronautical revenues but also enhance passenger experience at the airport. This study has some limitations as all studies. Most importantly, the revealed passenger preferences just give an idea, and they might not turn into actual shopping behavior. Thus, the results should be compared and evaluated considering the passengers' actual spending behavior and numeric indicators such as revenue data from the concessions. Secondly, the sample of the study includes only Turkish passengers. For future studies, the same survey can be conducted to transit passengers from different countries and cultures to paint the differences between cultural differences in the preferences.

This study also aimed to make a valuable contribution to the airport business with its context-independent findings. Airports tend to imitate other airports' structures and offer similar commercial facilities. However, understanding whether the passengers would value those offerings is essential. Investing in the correct offerings is crucial for airports to avoid unnecessary costs, increase non-aeronautical revenues, and enhance passenger experience. Each airport serves unique passenger groups with different profiles. Therefore, a service preferred by passengers at one airport may not be preferred at another one. In fact, within the same airport, different passenger profiles might value other offerings. Consequently, each airport should conduct their own research and make their shopping, F&B, entertainment, and retail layout planning accordingly. The airport management should consider the findings while making activity and service offerings. In addition, the results should be used to provide special offers suited to different passenger profiles. In short, conducting context-based passenger behavior studies is critical for effective airport concession management.

It should also be noted that an important factor that determines the consumption preferences of passengers at the airports is the price of goods and services provided. The findings of this study whereas just reveal the preferences of passengers without considering their willingness to pay (WTP) levels for the provided options. With a further study, it would be worth to assess the WTP level of passengers to see how the price of the goods and services provided would shape their preferences. In essence, offering right pricing is crucial to ensure that the preferences of passengers turn into actual consumption behaviors.

Ethical Approval
Not applicable

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Appendix A. Comparison of Cuisine Ranking Scores Based on Type of Travel

Dependent Variable	(I) Type of travel	(J) Type of travel	Mean Difference (I-J)	Std. Error	Sig.
Far East Cuisine	Mostly Domestic	Equally Domestic & International	,70498*	,23466	,008
		Mostly International	1,20311*	,27776	,000
Home-cooked Turkish meals	Mostly International	Mostly Domestic	,62359*	,24134	,030
		Equally Domestic & International	,59387	,25437	,060
Turkish Kebab meals	Mostly Domestic	Equally Domestic & International	-,54318*	,21196	,032
		Mostly International	-,91042*	,25089	,001
Fast – food	Mostly International	Mostly Domestic	1,01385*	,30742	,003
		Equally Domestic & International	,77933*	,32402	,050
Mediterranean Cuisine	Mostly International	Mostly Domestic	-1,09710*	,22581	,000
		Equally Domestic & International	-,72239*	,23800	,008

Appendix B. Comparison of Cuisine Ranking Scores Based on Type of Travel

Dependent Variable	(I) Travel purpose	(J) Travel purpose	Mean Difference (I-J)	Std. Error	Sig.
Middle Eastern Cuisine	Mostly Business	Mostly Holiday	-,61894*	,22896	,021
Fast – food	Mostly Holiday	Equally Holiday & Business	-,83225*	,26667	,006
		Mostly Business	-1,20139*	,32536	,001

Appendix C. Mean Comparison of Product Options based on Type of travel

Dependent Variable	(I) Type of travel	(J) Type of travel	Mean Difference (I-J)	Std. Error	Sig.
Cosmetics and Perfumes	Mostly Domestic	Equally Domestic & International	-,5600*	,1113	,000
		Mostly International	-,4739*	,1317	,001
Alcohol and Tobacco	Mostly Domestic	Equally Domestic & International	-,46990*	,12734	,001
		Mostly International	-,55993*	,15072	,001
Technological products	Mostly Domestic	Mostly International	-,40973*	,14830	,018

Appendix D. Mean Comparison of Activities & Services Options based on Travel Purpose

Dependent Variable	(I) Travel purpose	(J) Travel purpose	Mean Difference (I-J)	Std. Error	Sig.
Movie theater	Mostly Holiday	Mostly Business	,35358*	,14426	,044
Designated Areas for Sleeping	Mostly Business	Mostly Holiday	-,32830*	,10475	,006
		Equally Holiday & Business	-,29606*	,11712	,036
Play & gaming areas	Mostly Holiday	Mostly Business	,31475*	,11647	,021
Free Internet Usage Areas	Mostly Holiday	Mostly Business	,26322*	,09298	,015
Quiet Areas	Mostly Holiday	Mostly Business	,25997*	,10120	,032

Appendix E. Full Factorial Design

Card ID	Restaurant Types	Store Types	Apparel Brand Types	Layout
1	Fast-food Restaurants	Brand Stores	Premium Brands	Walk-through Shops
2	Buffets or Vending Machines	Brand Stores	Premium Brands	Shopping Street
3	Fast-food Restaurants	Department Stores	Premium Brands	Walk-through Shops
4	Fast-food Restaurants	Department Stores	Value Brands	Shopping Street
5	Casual Dining Restaurants	Department Stores	Value Brands	Walk-through Shops
6	Buffets or Vending Machines	Department Stores	Value Brands	Shopping Street
7	Casual Dining Restaurants	Brand Stores	Luxury Brands	Walk-through Shops
8	Casual Dining Restaurants	Brand Stores	Value Brands	Shopping Street
9	Fast-food Restaurants	Brand Stores	Premium Brands	Shopping Street
10	Buffets or Vending Machines	Brand Stores	Value Brands	Shopping Street
11	Fast-food Restaurants	Department Stores	Luxury Brands	Shopping Street
12	Casual Dining Restaurants	Brand Stores	Luxury Brands	Shopping Street
13	Fast-food Restaurants	Department Stores	Luxury Brands	Walk-through Shops
14	Casual Dining Restaurants	Brand Stores	Premium Brands	Walk-through Shops
15	Fast-food Restaurants	Department Stores	Premium Brands	Shopping Street
16	Buffets or Vending Machines	Brand Stores	Value Brands	Walk-through Shops
17	Buffets or Vending Machines	Department Stores	Premium Brands	Walk-through Shops
18	Fast-food Restaurants	Brand Stores	Value Brands	Shopping Street
19	Fast-food Restaurants	Brand Stores	Luxury Brands	Walk-through Shops
20	Buffets or Vending Machines	Department Stores	Luxury Brands	Shopping Street
21	Casual Dining Restaurants	Brand Stores	Value Brands	Walk-through Shops
22	Buffets or Vending Machines	Department Stores	Premium Brands	Shopping Street
23	Casual Dining Restaurants	Department Stores	Value Brands	Shopping Street
24	Fast-food Restaurants	Brand Stores	Luxury Brands	Shopping Street
25	Buffets or Vending Machines	Department Stores	Luxury Brands	Walk-through Shops
26	Buffets or Vending Machines	Department Stores	Value Brands	Walk-through Shops
27	Casual Dining Restaurants	Department Stores	Premium Brands	Shopping Street
28	Buffets or Vending Machines	Brand Stores	Luxury Brands	Shopping Street
29	Fast-food Restaurants	Brand Stores	Value Brands	Walk-through Shops
30	Casual Dining Restaurants	Department Stores	Luxury Brands	Shopping Street
31	Fast-food Restaurants	Department Stores	Value Brands	Walk-through Shops
32	Buffets or Vending Machines	Brand Stores	Luxury Brands	Walk-through Shops
33	Casual Dining Restaurants	Department Stores	Luxury Brands	Walk-through Shops
34	Casual Dining Restaurants	Brand Stores	Premium Brands	Shopping Street
35	Buffets or Vending Machines	Brand Stores	Premium Brands	Walk-through Shops
36	Casual Dining Restaurants	Department Stores	Premium Brands	Walk-through Shops