

Original Article

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Comparison of Shopping Behavior of Duty-Free Users at Incheon Airport

Yu-Jin Choi*, Kyuseon Park**

ABSTRACT

면세점 판매 채널이 다양화되고 스마트 여객 증대 등 쇼핑 성향의 변화로 인해 인천공항 면세점 객단가는 하락하고 있다. 면세점 매출액 감소에 따라 사업 다각화 및 고도화 등 대응 노력이 필요하다. 따라서 인천공항 면세점 이용객의 쇼핑 행태 및 면세점 트렌드 변화에 적기 대응을 위한 기초자료 및 마케팅 강화 방안을 제시하는 데 궁극적인 목적이 있다. 본 연구는 인천공항 면세점 내·외국인 구매자/비구매자, 환승객을 대상으로 쇼핑실태를 심층 조사하여 행동 특성을 분석하였으며, 그 결과 내국인과 외국인, 환승객별로 인구통계학 특성, 여행 특성, 쇼핑 특성에서 차이가 나타났다. 인천공항 면세점 이용객별 중요하게 인지하는 요소와 만족하는 요소를 파악하고 개선할 부분을 파악하였다. 이로써 인천공항 면세점 운영정책 수립 및 기본방향 설정을 위한 기초자료로 활용할 수 있고, 인천공항 면세점 마케팅 강화 및 활성화를 위한 전략 방안을 제시하는 데 의의가 있다.

Key Words : Incheon International Airport Duty-Free Shop(인천국제공항 면세점), Downtown Duty-Free Shop(시내 면세점), Online Duty-Free Shop(온라인 면세점), In-Flight Duty-Free Shop(기내 면세점), Shopping Behavior Characteristic(쇼핑 행동 특성)

1. INTRODUCTION

According to Incheon Airport's concession sales as of 2018, the airport is the world leader in concession sales. Duty-free shop sales make up 1.279 trillion won, 41% of total revenue (including air and non-air revenue). A decline in the unit price of airport duty-free shops has been observed recently due to changes in the external environment such as the development of low-cost travel and the development of

substance-oriented consumption in the shopping propensities of travelers. Additionally, the expansion of downtown and Internet duty-free shops led to a decrease in the sales of duty-free shops, requiring renewed efforts for business diversification and advancement. Despite the drop in unit prices, airport duty-free shop rentals continue to rise, increasing complaints from airport duty-free businesses and necessitating increased sales in preparation for the decline in airport purchasing power. The shopping activities at duty-free shops have become an important part of departing travelers' time investment and cost expenditure. It is, therefore, necessary to analyze the shopping behavior characteristics of Korean and foreign users and non-users of the duty-free shop at Incheon International Airport in detail to determine the user's needs and formulate a

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* Assistant Researcher, Incheon International Airport Corporation

Corresponding Author E-mail : cyj@airport.kr

Corresponding Author Address : 444, Je2terminal-daero, Jung-gu, Incheon, Korea

** Vice President, Incheon International Airport Security

plan for activating the duty-free shop.

This study conducts an in-depth survey and analysis of duty-free shop usage experiences and shopping behavior related to shopping characteristics of Incheon International Airport duty-free shop users. In this study, we will provide information on basic data and marketing strategies for the operation plan for the airport duty-free shops, which will be used for creating a customer-oriented commercial environment at Incheon International Airport. It can also contribute to deriving a differentiated marketing strategy for duty-free shop operators.

II. THEORETICAL BACKGROUND

2.1 Duty-free Shopping Behavior

Airports are transformed into multi-purpose entities, including commercial facilities, which are a major source of non-aeronautical revenue, providing opportunities to enjoy other pleasures along with travel (Kim, 2018).

Based on telephone interviews with Chinese tourists visiting the United States, Xu and McGehee (2012) found a strong demand for Chinese-speaking store staff. The authors argued that Chinese-speaking sales staff must be employed in stores to encourage Chinese purchases. In an analysis of 354 overseas travelers, Han et al. (2018) examined perceived value, alternative attractiveness, satisfaction, and aspiration variables to identify factors affecting airport duty-free loyalty. Satisfaction and aspiration had significant effects on loyalty, the perceived value of satisfaction, and satisfaction on aspiration, respectively. Furthermore, when the group was divided into groups with high and low alternative attractiveness, there was no effect on the relationship between satisfaction and loyalty for airport duty-free shopping.

Han and Hyun (2018) conducted a questionnaire survey at Korean international airports

to verify the purchase decision-making model of airport duty-free shops and used variables such as shopping value, emotion (positive and negative), shopping satisfaction, and behavioral intention. A moderating effect of alternative attractiveness was observed in the relationship between satisfaction and action intention, but Flow had no effect.

Lin and Chen (2012) examined 2,000 Taiwanese, Japanese, and other foreigners' shopping environments for goods and services to measure satisfaction with airport duty-free shops at Taiwan Taoyuan International Airport by using a questionnaire survey. As a result of the response, Taiwanese people had a low monthly income, but actually spent more than other groups. The Japanese showed low expectations and satisfaction with the service. Taiwanese prefer cigarettes and alcoholic beverages, while other foreigners and Japanese prefer Taiwan's souvenirs and food. In addition, Taiwanese and Japanese identified sales staff's interest in customers as an important factor in service quality, especially when purchasing luxury goods. The dissatisfaction factor in the three groups (Taiwanese, Japanese and other foreigners) was the professional knowledge of the sales staff on the product.

To understand the impulse purchase behavior of travelers at duty-free shops, Sohn and Lee (2017) used time pressure and shopping absorption variables. Using a questionnaire survey, 343 foreign tourists who visited hotel duty-free shops in Korea were surveyed, and it was found that positive emotions lead to impulse purchases, and time pressure during shopping strengthens negative emotions and makes impulsive purchases more likely. In addition, the higher the degree of shopping involvement, the higher the cognitive impulse purchasing.

An analysis was conducted by Lyu (2018), who analyzed the shopping satisfaction of 366 Chinese and Japanese consumers using Korean duty-free shops. As a result, Chinese consumers

recognized the importance of store attributes in order of reliability, convenience, product quality, accessibility, recommendability, promptness, and economic feasibility. As for Japanese consumers, they recognized that store attributes were crucial to product quality, economic feasibility, convenience, reliability, promptness, accessibility, and recommendation. There was a statistically significant difference between consumers of both countries in all factors except convenience. Furthermore, convenience and recommendation ability both contributed significantly to Chinese shopping satisfaction, whereas accessibility, reliability, and promptness contributed significantly to Japanese shopping satisfaction.

As part of their analysis of airport duty-free shops on user perception of value, Ahn et al. (2020) analyzed the types of resources they used and the degree of experience they had when leaving the country via the airport. The data collected for this study comes from 390 passengers who have experienced duty-free shops at Incheon International Airport.

The analysis indicated that people with money resources were perceived to be more pleasing in shopping than those with time resources who had a lot of outbound experience. There was no significant difference between the types of resources possessed by the group with little experience leaving the country.

Choi and Lee (2016) analyzed 312 people who had purchase experience at airport duty-free shops to measure the effect of airport duty-free shop users' perception of congestion on their shopping sentiments. An analysis of the data revealed that spatial congestion and human congestion significantly influenced emotional responses.

Lee et al. (2019) analyzed the effect of duty-free shop usage at Incheon International Airport departure hall and duty-free shop selection attributes on customer satisfaction

and repurchase intention for Chinese customers. According to the verification, the duty-free shop in the departure hall of Incheon International Airport needs to hold price-related events and increase its professionalism. Additionally, customer satisfaction was found to have a significant effect on repurchase intention, so a marketing strategy aimed at achieving customer satisfaction is required.

III. RESEARCH DESIGN

3.1 Research Method

To strengthen the competitiveness of Incheon Airport duty-free shops in 2019, this study analyzed respondents' shopping experience, purchasing behavior, and non-purchasing behavior at the airport.

A questionnaire was designed for this study based on items that have been shown to have validity and reliability in previous research on duty-free shops. A combination of duty-free shop selection attributes and general shopping characteristics was measured as part of the study. This questionnaire used a Likert 5-point scale, with 5 points indicating 'strong agree' and 1 point indicating 'strong disagree'. Below is Table 1 which lists the contents and measurement items of the variables for the questionnaire.

A study conducted at Incheon International Airport's duty-free shop examined Koreans, foreigners non-users, and transit passengers. Due to the lack of population-related statistics on Incheon Airport's duty-free shop users by terminal and nationality, the sample distribution was based on the number of departure passengers (January 2018~April 2019) and the number of duty-free shoppers by nationality.

Table 1. Measurement items

Variable	Item
Demo-graphics	Gender, age, education, occupation, monthly income level, region of residence, marital status
Travel characteristics	Number of overseas departures, airline used most, transit status and departure itinerary, purpose and duration of departure, type of companion, type of travel
Shopping characteristics	Reasons for using duty-free shop, purchase items and purpose, shopping time and amount, reasons for non-purchasing at airport duty-free shop, satisfaction with duty-free shops at Incheon International Airport compared to competing airports, etc.
Others	Intention to use in the future, additional sales items, whether the duty-free limit is appropriate, strengths and weaknesses of duty-free shops in the departure hall, and improvements
Product	Store brand level, diversity, product price
Sales-person	Salesperson appearance, expertise, kindness
Shop	In-store atmosphere, cleanliness, location/accessibility, interior
Promotion	Affiliate discount, discount coupon, event, free gift

3.2 Data Collection & Methodology

The survey was conducted by a professional interviewer at Incheon International Airport Terminal 1, Concourse, and Terminal 2 between May 20 and June 30, 2019, using a 1:1 question-and-answer format or self-report format. The survey had a response rate of 4,237 subjects, which was used for the empirical analysis.

Data from the survey were analyzed using the SPSS 21.0 program to determine demographic characteristics. As downtown duty-free shops can be directly compared with duty-free shops at Incheon Airport, the survey subjects were limited to Incheon Airport duty-free shop purchasers and downtown duty-free shop

purchasers.

3.3 Result of Empirical Analysis

3.3.1 Demographic analysis

The survey was conducted without gender bias based on the demographic analysis of Korean purchasers and non-purchasers among the total respondents, and the 20s were the largest age group. Most Korean shoppers were in their 30s, followed by 40s and 20s, while the largest number of non-Korean shoppers were in their 20s, followed by 40s, 50s, 30s and 60s. The average monthly income of individuals was between 2-3.99 million won, accounting for more than 40% of the total, and the proportion of those without any income was approximately 22%-24%, resulting in an average income level. Generally speaking, the higher the income, the higher the percentage of purchasers. Marriage was more prevalent than unmarried regardless of whether Korean purchasers or non-purchasers were married, and children were also more prevalent proportionally. By occupation, office workers accounted for the most at over 35%, followed by professional workers, housewives, and self-employed workers. By region of residence, more than 70% of both purchasers and non-purchasers were residents of Seoul and Gyeonggi, and Gyeongsang had the highest percentage of the provinces. The sample characteristics of Korean purchasers and non-purchasers are shown in Table 2 below.

A demographic analysis of foreign purchasers and non-purchasers showed that women represented a high percentage of respondents, regardless of whether they were foreign purchasers or non-purchasers. A majority of the sales came from people in their 20s, regardless of whether the purchase had been made, followed by those in their 30s, 40s, and 50s. Among foreign purchasers, 57% had incomes between \$6,000 and \$6,999 per month; meanwhile, no income accounted for the greatest

Table 2. Korean purchasers/non-purchasers' sample characteristics

Division	Item	Korean purchasers frequency (%)	Korean non-purchasers frequency (%)
Gender	Male	490 (50.2)	245 (50.2)
	Female	487 (49.8)	243 (49.8)
Age	18~29	216 (22.1)	124 (25.4)
	30~39	240 (24.6)	92 (18.9)
	40~49	221 (22.6)	107 (21.9)
	50~59	185 (18.9)	94 (19.3)
	60 or older	115 (11.8)	71 (14.5)
Region of residence	Seoul	321 (32.9)	159 (32.6)
	Gyeonggi	370 (37.9)	204 (41.8)
	Chungcheong	105 (10.7)	47 (9.6)
	Jeolla	37 (3.8)	31 (6.4)
	Gyeongsang	116 (11.9)	40 (8.2)
	Gangwon/Jeju	28 (2.9)	7 (1.4)
Marital status	Married	629 (64.4)	304 (62.3)
	Single	346 (35.4)	184 (37.7)
	Others	2 (0.2)	-
Children	Yes	536 (84.9)	268 (88.2)
	No	95 (15.1)	36 (11.8)
Occupation	Professional worker	187 (19.1)	95 (19.5)
	Office worker	359 (36.7)	171 (35.0)
	Self-employed	105 (10.7)	49 (10.0)
	Student	59 (6.0)	49 (10.0)
	Housewife	187 (19.1)	82 (16.8)
	Not employed	62 (6.3)	32 (6.6)
	Physical labor	2 (0.2)	-
	Service	6 (0.6)	3 (0.6)
	Management	2 (0.2)	2 (0.4)
	Production/sales/technician	1 (0.1)	1 (0.2)
	Serviceman	1 (0.1)	1 (0.2)
	Freelancer	6 (0.6)	3 (0.6)
Income	₩ 1~1.99 million	58 (5.9)	45 (9.2)
	₩ 2~2.99 million	227 (23.2)	114 (23.4)
	₩ 3~3.99 million	202 (20.7)	92 (18.9)
	₩ 4~4.99 million	86 (8.8)	53 (10.9)
	₩ 5~5.99 million	85 (8.7)	29 (5.9)
	₩ 6 million<	102 (10.4)	38 (7.8)
	No income	217 (22.2)	117 (24.0)

percentage of foreign non-purchasers. Foreign non-purchasers tended to be single, while foreign purchasers tended to be married and to have children in high numbers. By region of residence, more than 40% of both foreign purchasers and non-purchasers resided in China, followed by the rest of Asia. The sample characteristics of Korean & foreigner) purchasers and non-purchasers are shown in Table 3 below.

Table 3. Foreign purchasers/non-purchasers sample characteristics

Division	Item	Foreign purchasers frequency (%)	Foreign non-purchasers frequency (%)
Gender	Male	559 (36.7)	340 (42.3)
	Female	963 (63.3)	464 (57.7)
Age	18~29	538 (35.3)	329 (40.9)
	30~39	472 (31.0)	212 (26.4)
	40~49	281 (18.5)	132 (16.4)
	50~59	155 (10.2)	80 (10.0)
	60 or older	76 (5.0)	51 (6.3)
Nationality	Chinese	679 (44.6)	328 (40.8)
	Japanese	228 (15.0)	101 (12.6)
	Other Asians	432 (28.4)	218 (27.1)
	American	98 (6.4)	84 (10.4)
	European	68 (4.5)	59 (7.3)
	Others	17 (1.1)	14 (1.7)
Marital status	Married	866 (56.9)	375 (46.6)
	Single	635 (41.7)	416 (51.7)
	Others	21 (1.4)	13 (1.6)
Children	Yes	689 (77.7)	300 (77.3)
	No	198 (22.3)	88 (22.7)
Income	₩ 1~1.99 million	45 (9.2)	143 (17.8)
	₩ 2~2.99 million	114 (23.4)	161 (20.0)
	₩ 3~3.99 million	92 (18.9)	125 (15.5)
	₩ 4~4.99 million	53 (10.9)	87 (10.8)
	₩ 5~5.99 million	29 (5.9)	44 (5.5)
	₩ 6 million<	38 (7.8)	71 (8.8)
	No income	117 (24.0)	173 (21.5)

3.3.2 Shopping characteristics

3.3.2.1 Korean purchasers' shopping characteristics

The results of the analysis of the shopping characteristics (shopping items, time, purpose) of actual purchasers among Koreans using Incheon International Airport duty-free shops are shown in Table 4 below. Korean purchasers mainly bought cosmetics/perfume, cigarettes, and fashion goods, and the most shopping time was less than an hour (92%). For shopping, personal use was the highest at 71%, and for gifts, 26%.

The results of a detailed analysis of the shopping amount of Koreans who purchased at Incheon International Airport's duty-free shops, such as region of residence, type of companion, terminal, age, and whether or not they

Table 4. Response results of Korean purchasers' shopping characteristics (shopping item, time, purpose)

Division	Item	Frequency (%)
Shopping item	Cosmetics/perfume	440 (45)
	Cigarettes	342 (35)
	Liquor	27 (3)
	Fashion accessories	88 (9)
	Luxury goods	-
	Souvenir	10 (1)
	Electronic products	10 (1)
	Food	59 (6)
Shopping time	Less than 30 min	586 (60)
	30 min~1 hour	313 (32)
	1~2 hours	78 (8)
	2 hours or more	-
Shopping purpose	Personal use	694 (71)
	Gift	254 (26)
	Friend request	29 (3)
	Others	-

used airport self-service are shown in Table 5 below. Korean purchasers spent Duty-free purchases at Incheon International Airport's duty-free shops averaged 171,474 won, with 22% of purchases for less than 50,000 to

Table 5. Response results of Korean purchasers' shopping characteristics

Division	Item	Frequency (%)
Shopping amount	Less than ₩50,000	195 (20)
	₩50,000~less than 100,000	215 (22)
	₩100,000~less than 150,000	166 (17)
	₩150,000~less than 250,000	186 (19)
	₩250,000~less than 500,000	127 (13)
	₩500,000<	88 (9)
Shopping amount by region	Seoul/Gyeonggi	₩171,902
	Chungcheong	₩176,536
	Jeolla	₩231,414
	Gyeongsang	₩165,042
	Gangwon/Jeju	₩121,963
Shopping amount by type of companion	Friend/lover	₩138,693
	Colleague	₩156,141
	Group/meeting	₩187,954
	Relative	₩65,000
Shopping amount by terminal	Family	₩202,520
	Terminal 1	₩153,374
	Terminal 2	₩189,968
Shopping amount by age group	Concourse	₩180,394
	18~29	₩144,942
	30~39	₩157,210
	40~49	₩210,028
	50~59	₩181,956
Airport self-service	60 or older	₩123,174
	Use	₩170,415
	Non-use	₩173,319

100,000 won. For those who live in Jeolla and Chungcheong, the amount of shopping was higher than in other regions. The most shopping spending occurred with family, and the least spending occurred with relatives. This was determined by examining the amount of shopping by type of companion. As the average amount of shopping in Terminal 2 was 189,968 won, the Incheon International Airport terminal passenger share was higher than that of T1 and Concourse. Terminal 1 (70.3%, including Concourse) and Terminal 2 (29.7%) had the largest number of passengers at the Incheon International Airport. According to the analysis by age group, people in their 40s, who constitute the majority of economically active people, spent the most money on average with an average of ₩210,028. When Korean shoppers did not use airport self-service, their shopping

amounts were about ₩3,000 higher.

For Koreans who bought at Incheon International Airport's duty-free shop, it was mainly because they could see and purchase different products directly, and because the price was cheaper than other duty-free shops. A study found that 20% of shoppers are motivated by the ability to receive their purchases immediately after purchase, a reflection of the nature of airport duty-free shops (Table 6).

3.3.2.2 Foreign purchasers' shopping characteristics

The results of the analysis of shopping items, time, and purpose among the shopping characteristics of foreign shoppers are shown in Table 7 below. As the shopping items of

Table 6. Results of Korean purchasers' shopping response at the Incheon airport duty-free shop

Division	Item	Frequency (%)
Reason for shopping	Because I can see and purchase various products myself	225 (23)
	Because the price is cheaper than other duty-free shops	225 (23)
	Because I can receive it immediately after purchase	195 (20)
	Because there is still time before boarding the plane	156 (16)
	Because of confidence in purchasing	43 (4)
	Because I have a coupon / discount	39 (4)
	Because the store is famous or had a brand name	39 (4)
	Because the store has a variety of brands/products	34 (3)
	Because other Internet and downtown duty-free shops are out of stock	21 (1)

Table 7. Response results of foreign purchasers' shopping characteristics

Division	Item	Frequency (%)
Shopping item	Cosmetics/perfume	776 (51)
	Food	274 (18)
	Cigarettes	213 (14)
	Fashion accessories	76 (5)
	Boutique (luxury goods)	30 (2)
	Souvenir	76 (5)
	Liquor	61 (4)
Shopping purpose	Electronic product	15 (1)
	Personal use	898 (59)
	Gift	548 (36)
	Friend request	61 (4)
Shopping amount	Others	15 (1)
	Less than 50,000 won	244 (16)
	₩50,000~less than 100,000	228 (15)
	₩100,000~less than 150,000	213 (14)
	₩150,000~less than 250,000	259 (17)
	₩250,000~less than 500,000	198 (13)
	₩500,000<	381 (25)

foreign purchasers appear in the order of cosmetics/perfume, food, tobaccos, and fashion accessories, this is different from Korean purchases. For shopping purposes, personal use accounted for the highest at 59%, and for gift use 36%. Shopping amounts averaged ₩325,332, and more than ₩500,000 accounted for the highest proportion.

Table 8 below shows the results of analyzing the shopping amount of foreign purchasers by the terminal, age, type of companion, travel type, and whether or not they use airport self-service. The average shopping amount was ₩410,966 for Terminal 2, ₩351,150 for the Concourse, and ₩254,501 for Terminal 1, indicating shopping spending was the highest in

Terminal 2. Among those 70 years and older, the greatest shopping spending was recorded when analyzing data by age group. Taking a closer look at the monthly income level and nationality of this age group, it was determined that they had a monthly income between \$3,000 and \$3,999 and were US citizens. As a result of examining the amount of shopping by type of companion, it was found that group travel had the most shopping expenditure, but that with family/relatives, the shopping expenditure was the lowest. It was found that the shopping amount of foreign purchasers who did not use the airport self-service was about ₩100,000 higher than the case of using the airport self-service.

The results of a detailed analysis of the shopping amount by nationality of foreign purchasers are shown in Table 9 below.

In the case of Chinese nationals, those with ₩500,000 or more were the highest at 23%, and for Japanese, other Asian, European, and other nationals, those with less than ₩50,000 were the highest at 24%, 23%, 44%, and 21%, respectively. On the other hand, in the case of American nationals, those with ₩50,000 to less than ₩100,000 were the highest at 25%.

Many foreign purchasers said they were shopping because they could see and purchase a wide variety of products, and because there was still time before boarding the plane. Another reason for shopping is to receive it immediately, which accounted for 17%, the same as Korean purchasers Table 10.

3.3.2.3 Shopping characteristics of Korean and foreign non-purchasers

The shopping characteristics of Koreans who did not purchase at Incheon International Airport's duty-free shop but purchased at other duty-free shops (downtown / on-line / in-flight) are shown in Table 11 below. The shopping purpose was found to be shopping for one's

Table 8. Response results of foreign purchasers' shopping amount

Division	Item	Amount (₩)
Shopping amount by terminal	Terminal 1	254,501
	Terminal 2	410,966
	Concourse	351,150
Shopping amount by age group	18~29	259,237
	30~39	379,609
	40~49	345,997
	50~59	248,839
	60~69	353,505
	70 or older	889,784
Shopping amount by type of companion	Alone	338,186
	Family/relatives	294,372
	Friend/lover	304,040
	Group/meeting	504,636
	Colleagues	361,378
Shopping amount by travel type	Individual travel	378,124
	Air-tel	268,017
	Group travel	290,817
Airport self-service	Use	258,459
	Non-use	359,515

Table 9. Results of shopping amount response by foreign nationality

Division	Item	Ratio (%)
Chinese	Less than ₩50,000	11
	₩50,000~less than ₩100,000	14
	₩100,000~less than ₩150,000	11
	₩150,000~less than ₩250,000	18
	₩250,000~less than ₩500,000	20
	₩500,000<	26
Japanese	Less than ₩50,000	24
	₩50,000~less than ₩100,000	15
	₩100,000~less than ₩150,000	20
	₩150,000~less than ₩250,000	18
	₩250,000~less than ₩500,000	16
	₩500,000<	7
Other Asian	Less than ₩50,000	23
	₩50,000~less than ₩100,000	18
	₩100,000~less than ₩150,000	19
	₩150,000~less than ₩250,000	18
	₩250,000~less than ₩500,000	10
	₩500,000<	12
American	Less than ₩50,000	22
	₩50,000~less than ₩100,000	25
	₩100,000~less than ₩150,000	15
	₩150,000~less than ₩250,000	10
	₩250,000~less than ₩500,000	13
	₩500,000<	14
European	No response	1
	Less than ₩50,000	44
	₩50,000~less than ₩100,000	16
	₩100,000~less than ₩150,000	24
	₩150,000~less than ₩250,000	5
	₩250,000~less than ₩500,000	11
Others	₩500,000<	2
	Less than ₩50,000	21
	₩50,000~less than ₩100,000	-
	₩100,000~less than ₩150,000	29
	₩150,000~less than ₩250,000	21
	₩250,000~less than ₩500,000	15
	₩500,000<	14

Table 10. Response results of foreign purchasers' shopping reason

Item	Ratio(%)
Because I can see and purchase various products myself	30
Because there is still time before boarding the plane	26
Because I can receive it immediately after purchase	17
Because the store is famous or had a brand name	5
Because of the brand	6
Because of confidence in purchasing	5
Others	4
Impulse purchasing	2
Because I had a coupon/discount	2

use, and the shopping items were mainly cosmetics/perfume. Most of the shopping time was 30 minutes to less than an hour, and in the case of downtown duty-free shops, there was no time limit for shopping, so the response rate was also high for 1-2 hours. Similar to downtown duty-free shops, online duty-free shops also did not have any restrictions on shopping hours, so they are not biased by time. The average amount of shopping in downtown duty-free shops and online duty-free shops was ₩290,000, and in-flight duty-free shops averaged ₩205,000. In detail, the response rate was high for downtown duty-free shops with ₩100,000 to less than ₩200,000, for online duty-free shops with ₩200,000 to less than ₩400,000, and in-flight duty-free shops with ₩200,000 to less than ₩500,000.

Among the foreign respondents, the shopping characteristics of those who did not purchase at Incheon International Airport duty-free shops, but purchased in downtown, online, or in-flight duty-free shops are shown in Table 12 below. The shopping purpose was to shop for one's use in all channels, and the main

Table 11. Response results of Koreans' shopping characteristics in other (downtown, online, in-flight) duty-free shops

Division	Item	Type of duty-free shop		
		Down-town duty-free shop (%)	Online duty-free shop (%)	In-flight duty-free shop (%)
Shopping purpose	Personal use	79	61	67
	Gift	14	30	22
	Friend request	7	9	11
Shopping item	Cosmetics / perfume	71	55	38
	Fashion accessories	14	26	0
	Liquor	0	0	38
	Electronic products	7	5	13
	Boutique (luxury goods)	0	2	0
	Cigarettes	7	3	0
	Food	0	8	0
	Souvenir	0	1	0
	No response	0	0	11
Shopping time	Less than 30 min	29	30	67
	30 min~less than 1 hour	36	37	33
	1~2 hours	35	13	0
	2 hours or more	0	20	0
Shopping amount	Less than ₩100,000	35	10	50
	₩100,000~less than ₩200,000	28	29	0
	₩200,000~less than ₩500,000	15	36	33
	₩500,000~less than ₩1 million	14	22	17
	₩1 million<	8	3	-

Table 12. Response results of foreigners' shopping characteristics in other (downtown, online, in-flight) duty-free shops

Division	Item	Type of duty-free shop			
		Down-town (%)	On line (%)	In-flight (%)	Other airport (%)
Shopping purpose	Personal use	52.4	56.8	53.3	46.2
	Gift	33.1	24.3	28.9	41.0
	Friend request	14.5	17.1	15.6	12.8
	Others	-	1.8	2.2	-
Shopping item	Cosmetics/perfume	41.5	56.6	41.5	31.1
	Fashion accessories	2.4	7.1	2.4	4.4
	Liquor	14.6	1.8	14.6	13.3
	Electronic products	12.2	4.4	12.2	-
	Boutique	-	11.5	-	8.9
	Cigarettes	-	1.8	-	13.3
	Food	26.8	11.5	26.8	22.2
	Souvenir	1.3	5.3	-	6.8
	No response	1.2	-	2.5	-
Shopping amount	Less than ₩100,000	14.3	19.8	25.8	35.5
	₩100,000~less than ₩200,000	11.2	11.1	16.1	16.1
	₩200,000~less than ₩500,000	22.4	28.4	16.1	19.4
	₩500,000~less than ₩1 million	22.0	24.7	35.5	29.0
	₩1 million<	29.3	16.0	-	-
	No response	0.8	-	6.5	-

shopping items were cosmetics/perfume, and the proportion of food was also high. In terms of shopping amount, the downtown duty-free shop showed the highest average value of ₩1,462,981, followed by other airport duty-free shops, online duty-free shops, and in-flight duty-free shops. As there are no restrictions on duty-free and purchase limits, foreigners spend relatively more on shopping than Koreans.

The reasons why Koreans and foreigners did not purchase at Incheon International Airport duty-free shops are shown in the following Table 13. The reasons for non-purchasing at Incheon International Airport's duty-free shop were mainly 'because the store doesn't have the product/brand I want (need)' or 'for rest'. Among other reasons, "because the duty-free price is not cheaper than I thought" showed a high response rate from Korean non-purchasers, and the "lack of time to shop" showed a high response rate from foreign non-purchasers.

According to Table 14, Table 15, and Table 16, Koreans and foreigners purchase goods at other duty-free shops than Incheon International Airport duty-free shops for a variety of reasons.

The reasons for purchasing at other duty-free shops were different for each purchase channel, and it is judged that the characteristics of each purchase channel are reflected. The main reasons for downtown duty-free shops were, 'I can see and wear items myself' and 'I can shop at a leisurely pace'. According to respondents, online duty-free shops are better than airport duty-free shops because they offer more benefits and can be compared more easily. 'It's convenient to purchase' and 'the price is cheap' were the most popular reasons for using in-flight duty-free shops.

IV. CONCLUSION

4.1 Discussion

As a result of the analysis of the shopping

Table 13. Reasons for Korean and foreign non-purchasers not purchasing at Incheon Airport

Item	Korean (%)	Foreigner (%)
The store don't have the product/brand I want (need)	24.0	21.4
For rest	16.9	17.7
Because the duty-free price is not cheaper than I thought	14.9	7.7
Due to lack of time to shop	10.9	19.0
Because It is difficult to compare products and prices	10.0	6.5
Because there are no price benefits (accumulation points, discounts, etc.) compared to other duty-free shops	8.2	13.3
The store don't have the product I want	3.3	0.3
Because the store environment is too congested.	3.1	1.8
To purchase at the in-flight duty-free shop	2.4	3.2
Because the product composition (set and single item sales) is not diverse	2.3	2.0
Because online purchase is more convenient	1.1	-
Long waiting time for payment	0.9	1.4
It is cumbersome to carry	0.5	0.2
Exceeding the duty-free limit	0.5	1.8
To purchase upon arrival next time	0.5	-
Because the price is too high	0.3	0.1
I am not interested	0.1	0.3
Because of the transfer	0.1	-

Table 14. Reasons for Korean and foreign non-purchasers for purchasing at downtown duty-free shop

Item	Korean (%)	Foreigner (%)
Because I can see and wear items myself	33.3	17.8
I can shop with a leisurely pace	25.9	29.9
Because I can visit at any time I want.	18.5	14.4
There are many benefits such as price discounts/promotions, etc.	11.1	12.8
I can shop with friends who are not leaving the country.	3.7	9.4
I thought the time to use the airport duty free shop would be tight when leaving the country.	3.7	7.1
I only need to receive the goods at the airport duty-free delivery area.	3.8	2.9

Table 15. Reasons for Korean and foreign non-purchasers for purchasing at online duty-free shop

Item	Korean (%)	Foreigner (%)
There are many benefits compared to airport duty free shops.	34.2	27.3
It is easy to compare products and prices.	25.0	18.8
Because I can shop whenever I want more leisurely.	14.8	14.3
I only need to receive the goods at the airport duty-free delivery area.	11.2	15.6
Duty-free shops other than online duty-free shops.	7.7	9.1
Considering the time to use the airport duty-free shop would be tight when leaving the country.	3.1	2.6
To avoid crowded airport duty-free shop.	2.0	2.6
In appreciation of various payment methods	1.0	7.1
I can shop with friends who are not leaving the country.	1.0	1.9

Table 16. Reasons for Korean and foreign non-purchasers for purchasing at in-flight duty-free shop

Item	Korean (%)	Foreigner (%)
It is convenient to purchase	45.5	41.8
Because the price is inexpensive	27.3	20.0
To lighten the load	18.2	18.2
I want to feel like traveling	9.0	5.5
Because I don't have the opportunity to use the downtown, internet or airport duty-free shop	-	14.5

characteristics of Korean shoppers at Incheon International Airport's duty-free shops in this study, the most frequent shopping items were cosmetics/perfume, the purpose of shopping was personal use, and the shopping time was less than 30 minutes. There is a higher shopping rate among people who live in rural areas or who travel with their families, and those who do not use the airport self-service also show a higher shopping rate. The reason Korean purchasers shop at Incheon International Airport's duty-free shop is that they can personally see and purchase various products. The purpose, items, and time of shopping in downtown/online/in-flight duty-free shops of Koreans were similar to those of other Korean purchasers. By purchase channel, the online duty-free shop had the highest amount of shopping, followed by downtown, in-flight, and Incheon International Airport duty-free shops.

The shopping characteristics of foreign purchasers at Incheon International Airport's duty-free shops were that they purchased cosmetics/perfume items the most and used them for their use. The average shopping amount was over 500,000 won, the highest spending ratio. When traveling individually, when not using airport self-service, the higher the age group, it can be seen that the shopping amount was

high. The reason foreign purchasers shop at Incheon International Airport's duty-free shops is that they can personally see and purchase various products, just like Korean purchasers.

The results of the analysis of foreign respondents who made purchases at duty-free shops at Incheon Airport were similarly based on the purpose, items, and time of shopping at duty-free shops downtown/online/on flight/other airports, not at duty-free shops at Incheon Airport. However, in terms of purchase channels, downtown duty-free shops had the highest shopping amounts, followed by airports, online, and in-flight duty-free stores.

4.2 Implications

Since the major foreign customers of Incheon International Airport's duty-free shop are Chinese, planning promotional products in cooperation with the shop's operators will increase sales.

In the third quarter of 2019, when looking at the passenger performance by route of Incheon International Airport, the market share in China was 20.3%, an increase of 10.9% compared to the same period of the previous year, ranking 1st among individual countries in passenger occupancy. Hence, it is necessary to upgrade shopping facilities to reflect the travel characteristics of passengers. China's global consumption of luxury goods is 770 billion yuan, accounting for 33% of the global market share, setting the world's No. 1 record (KOTRA, 2019) for seven consecutive years. Daigou (peddler), which has high purchasing power, is important, but it is important to can maximize sales at T2 by strengthening marketing, targeting Chinese individuals travelers, and maximizing revenue from T2. Salespeople can obtain accurate data on customer characteristics without having to conduct a separate survey by identifying the purpose of duty-free products and inputting them in advance when calculating duty-free

products.

The benefit of using Incheon International Airport's duty-free shop is that it saves time and enables personal purchasing after looking for items. As a result, airport users who prefer 'offline stores' should be targeted to take advantage of these characteristics. The age group of customers who use the online duty-free shop is mainly young people, whereas the age group who prefers the offline store is in their 50s to 60s and mainly used national airlines. Therefore, to cater to the characteristics of users, promotional activities should be conducted during the main air routes of national airlines and the most popular items and brands should be prepared. Also, Incheon International Airport's duty-free shops should increase the frequency of product exposure and establish an online shopping environment. As customer trends change to online-oriented consumption patterns, online duty-free shop sales are increasing and are threatening the sales of Incheon International Airport's duty-free shops. Therefore, Incheon Airport must also operate an online duty-free service tailored to the trend and change to an omnichannel form. Through this, it can be expected to provide a service centered on consumer experience that converges online and offline. Since the shopping time at Incheon Airport's duty-free shop is less than 30 minutes, it is important to implement online duty-free service by installing tablet PCs in transit lounges, airport waiting areas, around gates, and restaurants. By installing tablet PCs in the boarding area, you will be able to provide additional shopping opportunities for both users and non-users alike. The airport duty-free shop can also be designed to accommodate those with limited access. Furthermore, it is possible to provide a lounge and gate area where transit passengers can rest.

The provision of duty-free delivery services should also be considered. Currently, the storage of duty-free items when moving to a restaurant

or gate after shopping at a duty-free shop acts as a shopping burden factor and is one of the non-purchase factors. Accordingly, if a gate delivery service is provided for airport duty-free shoppers, it is judged that the convenience of moving after shopping will be improved. Honolulu, Toronto, and Dallas-Fort Worth airports deliver duty-free items in bulk at their gates, eliminating the need for travelers to carry duty-free items. According to the Customs Act, the qualifications for duty-free items delivery are limited to the Duty Free Shop Association and non-profit corporations, but the Ministry of Trade, Industry and Energy is permitting delivery in front of the duty-free gate after reviewing the regulatory sandbox, such as actively interpreting smart cart services using IoT as being eligible. Incheon Airport duty-free shops should also introduce the pre-order service already in place at advanced overseas airports such as Changi and Heathrow airports to enhance customer convenience and operational efficiency.

In light of the fact that the shopping behavior characteristics by terminal, nationality, demography, travel characteristics are clearly distinguishable, it is necessary to organize duty-free products that are custom-tailored (in terms of price/item). Small-scale individual travels (individuals, families) accounted for most of the proportion, and it was found that Chinese and Southeast Asian passengers were dissatisfied with communication with sales staff. It is necessary to arrange products taking into account the product lines where cross-purchase takes place and sell cosmetics of mid- to low-priced brands in Korea to passengers in China and Southeast Asia. As passengers with children tend to shop more than those without children, simultaneous purchases of men (liquor, cigarettes), women (cosmetics/perfume), and children (toys, etc.) should result in higher sales. The reason why Chinese and Southeast Asian passengers are not purchasing at Incheon

International Airport duty-free shops is that there are no products that meet cost-effectiveness and cost-satisfaction, so it is necessary to arrange mid- to low-priced brand items targeting them. It is necessary to increase customer convenience by increasing sales staff for each language or establishing a multilingual kiosk service. The main reason for non-purchasing at Incheon International Airport's duty-free shops is the perception that prices are high compared to other purchase channels and lack of variety of products. Therefore, it is necessary to establish a price policy to secure a competitive edge in price and to identify customer needs through a survey on the willingness to pay when introducing a customer's preferred brand/product. It is necessary to research preferred brands and products by terminal among the stores located in Incheon Airport.

4.3 Limitations and Future Research

This study reveals that it is the minimum basic data on the characteristics of Incheon Airport's duty-free shopping behavior. There is a need for further research on the shopping trends of Incheon Airport's duty-free shop users/non-users to understand the characteristics of duty-free shopping behavior at the airport. Incheon Airport's duty-free shop does not have direct operation rights and does not have customer information, so there are many limitations in identifying needs it is also necessary to conduct regular quarterly systematic surveys to compare and analyze shopping trends.

As there were no standards for key indicators, it was difficult to compare the survey with existing studies, and it was difficult to estimate sample sizes since there was no actual population. It is necessary to accurately understand customer needs by adding new survey content such as desired items (brands) and prices. Since the number of samples of the shopping characteristics survey conducted by duty-free shop

operators is about 20,000, future research needs to reflect this and expand the number of samples for detailed analysis.

In the future, research outcomes should be derived through a comparison of passenger flow (pattern) analysis with direct survey results, or by predicting airport duty-free shoppers' demand. Passenger flow (pattern) analysis will determine product exposure according to major passenger movements, and demand forecasting using the Gruber Index will be able to calculate the loyalty customer conversion rate. Considering that most departing travelers do not have enough free time to purchase at airport duty-free shops due to procedures, delivery hall, meals, currency exchange, etc., it is necessary to reduce survey questionnaire items. Also, in order to increase the accuracy of shopping items, it may be necessary to adjust the classification of some items. In addition, there is a need for more objective and timely data-based research by installing an in-building base station in the airport to combine the movement of users and sales (card performance) centering on duty-free shops.

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