

# Impact Analysis of Hainan Duty-Free Policy Optimization on Tourists' Purchasing Decision-Making Behavior

Meng Wu<sup>1,2</sup>, Mohamad Fazli Sabri<sup>2</sup>, Anthony Ang Sang Nang<sup>2</sup>, Chen Meng<sup>3,\*</sup>

<sup>1</sup> Saxo Fintech Business School, University of Sanya, Sanya, 572000, China

<sup>2</sup> Faculty of Human Ecology, Universiti Putra, UPM Serdang, 43400, Selangor Darul Ehsan, Malaysia

<sup>3</sup> Universiti Pengurusan dan Teknologi Tunku Abdul Rahman, Jalan Genting Kelang, Setapak, 53300 Kuala Lumpur, Malaysia

\* Corresponding author: Chen Meng (Email: [mengc-wr24@student.tarc.edu.my](mailto:mengc-wr24@student.tarc.edu.my))

## ABSTRACT

This paper constructs a theoretical model based on the "Choice Set Theory" to explore the impact of Hainan's offshore duty-free shopping policy on tourists' consumption preferences. The study examines six policy dimensions: tourist identity, quota restrictions, sales channels, spatial distribution, output channels, and market supervision. Using questionnaire surveys, 289 valid samples were collected from duty-free shops in downtown Sanya and the airport, with statistical analysis performed using SPSSAU software. The results show that: quota restrictions, sales channels, spatial distribution, and output channels significantly affect tourists' activation set; females prefer offline channels and mail delivery; port output channels are significantly influenced by age; market supervision has a substantial impact on the inert set and exclusion set, with tourists showing high approval of regulatory policies. This study provides theoretical foundations and practical references for optimizing duty-free policies and formulating marketing strategies.

## KEYWORDS

Hainan; Duty-Free Shopping; Consumer Preferences; Choice Set; Tourism Policy; Tourist Behavior.

## 1. INTRODUCTION

To establish an internationally influential tourism consumption center, China implemented the offshore duty-free shopping policy in Hainan in 2011, becoming the fourth region globally to adopt such a policy. With rising household income levels and evolving consumption attitudes, tourists have placed increasing emphasis on product quality, brand reputation, and shopping convenience. The offshore duty-free policy has played a significant role in promoting the upgrading of tourism consumption structures. In recent years, the policy has undergone multiple rounds of optimization, including relaxed quota restrictions, expanded sales channels, and an increased variety of goods, achieving remarkable results. However, compared to mature duty-free markets abroad, Hainan's duty-free consumption potential remains to be further unlocked.

Existing research has primarily focused on the economic effects of duty-free policies and tourist satisfaction[1], while studies examining the relationship between specific policy measures and tourists' consumption preferences remain relatively scarce. Based on the Choice Set Theory, this paper constructs a theoretical model from six policy dimensions—tourist eligibility, quota restrictions, sales channels, spatial distribution, delivery channels, and market supervision—and combines

empirical questionnaire surveys to systematically analyze the impact of the offshore duty-free policy on tourists' consumption preferences[2]. This study aims to bridge the theoretical gap and provide both theoretical support and practical guidance for policy optimization and marketing strategies of duty-free operators.

## 2. LITERATURE REVIEW

Existing research on duty-free shopping policies has primarily focused on macroeconomic effects[3], tourism demand stimulation, and policy optimization recommendations[4]. Scholars generally agree that offshore duty-free policies can promote tourism industry development, upgrade consumption structures, and drive growth in related sectors such as aviation, hospitality, and retail. However, studies examining how specific policy measures influence tourists' consumption preferences remain relatively limited.

Some studies have analyzed the impact of tourists' personal characteristics-including gender, age, occupation, and cognitive-affective factors-on purchasing behavior [5]. Others have highlighted the significant effects of objective factors such as product pricing, variety, sales channels, and spatial distribution on purchase intention. Nevertheless, most existing research adopts a macro-level perspective, lacking in-depth analysis of tourists' psychological frameworks and decision-making pathways, while neglecting micro-level investigations into the formation mechanisms of consumption preferences.

The Choice Sets Theory, initially proposed by Howard and Sheth and later refined by Narayana and others, has been widely applied in tourism destination selection and marketing research. This theory categorizes consumer decision-making into five subsets: the activation set, consideration set, inert set, unavailable set, and exclusion set, providing a systematic framework for understanding consumers' psychological classification processes during information screening and decision-making. However, the application of this theory in duty-free shopping research remains unexplored.

This study introduces the Choice Sets Theory to investigate the relationship between Hainan's offshore duty-free policy and tourists' consumption preferences. By analyzing six policy dimensions-tourist eligibility, quota restrictions, sales channels, spatial distribution, delivery channels, and market supervision-the research aims to address current theoretical and practical gaps while expanding the depth and scope of duty-free policy studies.

### Research Process

This study takes Hainan's offshore duty-free shopping policy as the research object, focusing on its impact on tourists' consumption preferences. In terms of theoretical framework, it systematically constructs a model and conducts empirical research by integrating Choice Sets Theory with policy formulation dimensions. The research process mainly includes five stages: policy text interpretation and variable extraction, theoretical model construction, questionnaire design and pilot survey, formal investigation, and data processing and analysis.

After an extensive review of existing literature, the research model incorporates five subsets of choice sets to measure tourists' consumption preferences: Evoked Set, Consideration Set, Inert Set, Unavailable Set, and Inept Set. By analyzing the developmental pathways of tourist preferences, it helps to gain a deeper understanding of tourists' consumption preferences and establishes a theoretical foundation for research on tourists' consumption preferences.

This study selects the text of Announcement No. 33 (2020) "Announcement on Offshore Duty-Free Shopping Policy for Hainan Tourists" published on the Chinese government website. Based on the actual development of the offshore duty-free shopping policy, a structured analysis of the policy text was conducted, refining it into six dimensions. The first point in the announcement concerns distribution channels, with duty-free goods being distributed through airports, train stations, ports,

mail delivery, and island pickup. The second point concerns visitor status, including passenger age, whether they are from within or outside the island, and whether they are from Hong Kong, Macao, Taiwan, or overseas. The third point concerns quota restrictions, which limit each passenger to a duty-free allowance of 100,000 yuan per year. The fourth point concerns spatial distribution, which refers to duty-free shops at airports and in urban areas. The fifth point concerns sales channels, including offline duty-free stores and online sales platforms; and sixth and seventh, market regulation, which prohibits travelers from reselling[6], purchasing on behalf of others, smuggling, or trafficking duty-free goods purchased for personal use. For details, please refer to Table 1.

**Table 1.** Policy dimension classification

Dimension	Policy content
Output channel	1. The duty-free policy for departing passengers refers to a tax incentive policy that allows passengers departing from an island by airplane, train, or ship (excluding those leaving the country) to purchase goods tax-free within specified limits on value, quantity, and variety. Payments must be made at duty-free stores implementing the duty-free policy for departing passengers (hereinafter referred to as “duty-free stores for departing passengers”) or at approved online sales platforms, and goods must be collected in designated areas at airports, train stations, or port terminals before departing the island. The tax categories exempted under the duty-free policy for departing passengers include customs duties, value-added tax (VAT) at the import stage, and consumption tax.
Visitor status	2. The term “passenger” as used in this announcement refers to passengers aged 16 or older who have purchased tickets for flights, trains, or ships departing from the island, and who hold valid identification documents (domestic passengers hold resident ID cards, Hong Kong, Macao, and Taiwan passengers hold travel documents, and foreign passengers hold passports) and are leaving Hainan Island but not leaving the country, including residents of Hainan Province.
Quota restriction	3. Each passenger departing from the island is entitled to a duty-free shopping allowance of RMB 100,000 per year, with no limit on the number of purchases. The types of duty-free goods and the quantity limits for each purchase are specified in the appendix to this announcement. Any purchases exceeding the duty-free allowance or quantity limits will be subject to import tax on imported goods in accordance with the regulations. Passengers who depart from the island by plane, train, or ship after shopping will be counted as having made one duty-free purchase.
Spatial distribution	4. The duty-free shops referred to in this announcement are duty-free shops that are qualified to implement the duty-free policy for departing passengers and operate under a franchise system. Currently, these include: Haikou Meilan Airport Duty-Free Shop, Haikou Riyue Square Duty-Free Shop, Qionghai Boao Duty-Free Shop, and Sanya Haitang Bay Duty-Free Shop. Business entities with qualifications to sell duty-free goods may participate in Hainan's duty-free operations for departing passengers in accordance with regulations.
Sales channels	5. Departing passengers may purchase duty-free goods within the limits and quantities specified by the state at duty-free shops on the island or through approved online sales channels. Duty-free shops will arrange for the delivery of goods based on the passenger's departure time. Passengers may collect their purchases at designated areas in airports, train stations, or port terminals using their shopping receipts and carry them off the island in a single trip.
Market Regulation	6. Offshore duty-free goods that have been purchased are final goods for personal use by consumers and may not be resold in the domestic market.  7. Individuals who violate the provisions of this announcement by reselling, purchasing on behalf of others, or smuggling duty-free goods will be included in credit records in accordance with laws and regulations and will be prohibited from purchasing offshore duty-free goods for three years. For those who commit smuggling or violate customs supervision regulations, customs authorities will handle the matter in accordance with relevant provisions. If a crime is constituted, criminal responsibility will be pursued in accordance with the law. Travel agencies, transportation companies, and other entities that assist in violating duty-free policies or disrupt market order shall be subject to comprehensive industry-wide rectification. Duty-free stores that violate relevant regulations in the sale of duty-free goods shall be handled and penalized by customs in accordance with relevant laws and administrative regulations.

### **3. RESEARCH PROCESS**

After completing the model construction, the study designed a structured questionnaire covering respondents' basic attributes and shopping preferences across various dimensions. The questionnaire consisted of six sections: tourist identity, quota restrictions, sales channels, spatial distribution, delivery channels, and market supervision. Each section included items classifying consumers' attitudes toward duty-free goods, aiming to summarize their psychological preference structures.

During the questionnaire survey phase, the study employed a distribution method targeting visitors who had shopped at downtown Sanya duty-free stores and Sanya Phoenix International Airport duty-free shops[7]. Using an interpersonal snowball non-probability sampling approach, a total of 309 questionnaires were collected. After eliminating 29 invalid responses, 280 valid questionnaires were obtained, yielding an effective rate of 90.6%.

#### **3.1. Analysis of Sample Statistical Characteristics**

The survey data reveals distinct demographic patterns among respondents. In terms of gender distribution, female respondents accounted for a significantly higher proportion at 64.95%. Age distribution analysis indicates that the 30-39 age group represents the primary demographic interested in offshore duty-free shopping, constituting the largest segment at 42.02%.

Geographically, non-Hainan residents from other Chinese provinces dominated the sample, comprising over 90% of respondents. Occupational distribution shows enterprise employees as the largest professional group, representing 40.93% of the sample. Educational attainment analysis reveals that bachelor's degree holders formed the majority at 44.1%.

Income distribution patterns demonstrate that respondents with monthly earnings between 5,001-10,000 RMB constituted a slightly higher proportion at 38.01%. This middle-income group typically represents active purchasers or interested observers of duty-free products.

#### **3.2. Analysis of the Impact of Offshore Duty-Free Policies on Tourists' Duty-Free Product Choice Set Structure**

##### **3.2.1. Analysis of the Impact of Tourist Identity on the Choice Set Structure of Duty-Free Products**

The research shows that in analyzing the impact of tourist identity on the choice set structure of duty-free products, factors such as city of origin, occupation, education level, and income have no significant influence, while gender and age show significant differences in sales and delivery channels. Females have higher proportions in the activation set for offline channels (71.01%) and mail delivery (60.17%) compared to males (55.98% and 46.08% respectively). In port pickup channels, the activation set accounts for 48.01% among those aged 50 and above, while the consideration set is 24.21% for the 40-49 age group, the exclusion set is 37.99% for the 30-39 age group, and the unavailable set is 16.43% for the 16-29 age group. Additionally, the activation set proportion for mail delivery reaches 69.89% among those over 50 years old.

##### **3.2.2. Analysis of the Impact of Quota Restrictions on the Choice Set Structure of Duty-Free Products**

The questionnaire results indicate that 60.12% of respondents regard the annual offshore duty-free quota of 100,000 RMB per person as an activation set, demonstrating strong purchase intention; 29.07% consider it as a consideration set, planning to use it in the future; 6.31% classify it as an unavailable set due to certain reasons preventing them from using the quota; 1.67% view it as an inert set with neutral attitudes; and 2.81% identify it as an exclusion set, explicitly expressing no intention to purchase.

### 3.2.3. Analysis of the Impact of Sales Channels on the Choice Set Structure of Duty-Free Products

The data shows that in offline sales channels, 66.11% of consumers are in the activation set, 21.04% in the consideration set, and only 2.79% in the exclusion set. For online channels, the activation set accounts for 65.12%, the consideration set for 23.03%, and the exclusion set for 6.28%. Both channels are predominantly characterized by the activation set, reflecting consumers' shared preference for offline shopping experiences and online convenience[8], which is significantly influenced by factors such as the repurchase policy.

### 3.2.4. Analysis of the Impact of Spatial Distribution on the Choice Set Structure of Duty-Free Products

Airport duty-free shops and downtown duty-free shops have the most significant impact on the activation set, accounting for 66.11% and 62.27% respectively. The consideration set represents 22.97% and 23.48% respectively, while the proportions of other sets remain relatively low (e.g., the unavailable set is below 6% in both cases). Overall, there is little difference in the distribution of choice sets between the two types of duty-free shops, and both spatial distributions are favored by the majority of respondents.

### 3.2.5. Analysis of the Impact of Output Channels on the Choice Set Structure of Duty-Free Product

**Table 2.** Changes in the structure of output channel selection domains

Basic attributes	Select domain	Frequency	Percentage
Pick up at the airport and leave the island	Activated domain	174	60.21%
	Considered domain	69	24.02%
	Unobtainable domain	11	3.78%
	Inert domain	8	2.86%
	Excluded domain	27	9.01%
Pick up at the train station and leave the island	Activated domain	114	39.45%
	Considered domain	56	19.41%
	Unobtainable domain	24	8.20%
	Inert domain	15	5.21%
	Excluded domain	80	27.68%
Pick up at the port terminal and leave the island	Activated domain	102	35.29%
	Considered domain	50	17.29%
	Unobtainable domain	29	10.03%
	Inert domain	19	6.58%
	Excluded domain	89	30.80%
Delivery by mail	Activated domain	158	60.08%
	Considered domain	54	21.49%
	Unobtainable domain	13	4.89%

The data reveals that airport pickup demonstrates the strongest influence on the activation set at 60.21%, followed by mail delivery (60.08%) and post-island pickup (57.69%), reflecting consumers' high prioritization of security, convenience and timeliness. In contrast, railway station and port pickup methods show significantly lower activation set proportions at 39.45% and 35.29% respectively, while their exclusion set proportions reach 27.68% and 30.8% correspondingly, indicating relatively lower acceptance rates. Overall, airport pickup, mail delivery and post-island pickup currently represent mainstream consumer preferences, while emerging channels also demonstrate considerable development potential. For details, please refer to Table 2.

### 3.2.6. Analysis of the Impact of Market Supervision on the Choice Set Structure of Duty-Free Products

The questionnaire results indicate that 91.13% of consumers stated they would not resell purchased duty-free goods domestically, with the exclusion set accounting for 75.88% and the inert set for 15.04%, demonstrating that market supervision significantly influences the exclusion set. Only 5.47% and 3.79% of consumers fell into the consideration set and activation set respectively, which may be attributed to factors such as impulsive consumption or low brand loyalty.

## 3.3. Analysis of the Impact of Offshore Duty-Free Policies on Tourists' Consumption Preferences

The Choice Sets Theory serves as a theoretical approach for consumers to screen alternatives and select products during the purchasing process, while preferences represent consumers' choices among multiple products. Therefore, this study introduces the Choice Sets Theory, which possesses advantages in preference screening, to investigate tourists' consumption preferences. Specifically, it measures tourists' consumption preferences through choice sets, namely the activation set, consideration set, unavailable set, inert set, and exclusion set.

### 3.3.1. Analysis of the Impact of Tourist Identity on Consumption Preferences

The survey results reveal significant correlations between gender and specific dimensions of sales channels and delivery methods. Females show significantly higher proportions in the activation set for both offline sales channels (71.01%) and "mail delivery" (60.17%) compared to males (55.98% and 46.08% respectively), with chi-square test results of  $p=0.002$  and  $p=0.002$ , indicating statistically significant gender differences. Age also demonstrates significant variations in "port pickup" ( $p=0.014$ ) and "mail delivery" ( $p=0.012$ ) among delivery methods, with respondents aged 50+ showing stronger preference for these options. Gender significantly influences product preferences: females prefer cosmetics (60.89%), jewelry (46.79%), and maternal-infant products (23.89%), while males favor watches (63.42%) and electronics (61.02%). Other categories show no significant differences ( $p>0.05$ ).

### 3.3.2. Analysis of the Impact of Quota Restrictions on Consumption Preferences

Chi-square tests indicate that quota restrictions significantly affect tourists' choice sets ( $\chi^2=249.108$ ,  $p=0.000<0.01$ ). Under the 100,000 yuan duty-free quota, cosmetics, jewelry, watches, apparel, food, and maternal-infant products show significantly higher selection rates in the activation set compared to average levels, representing preferred commodities. Electronics, home crafts, and beauty/health equipment mainly concentrate in the consideration set, while sports/cultural products appear more frequently in the inert set, indicating relatively lower demand. The top five product categories with highest purchase intention are cosmetics (61.97%), watches (51.98%), electronics (48.86%), jewelry (39.91%), and luggage (38.11%), demonstrating that price advantages and promotional activities significantly influence tourist preferences.

### 3.3.3. Analysis of the Impact of Sales Channels on Consumption Preferences

Chi-square tests reveal significant differences in tourists' choice set preferences across sales channels, with offline channels ( $\chi^2=274.208$ ) and online channels ( $\chi^2=241.789$ ) both showing  $p<0.05$ . In offline channels, cosmetics, jewelry, watches, and apparel show high proportions in the activation set, representing primary purchase categories; electronics and maternal-infant products concentrate in the consideration set, while luggage appears more frequently in the unavailable set, reflecting incomplete product assortments in physical stores. For online channels, cosmetics, jewelry, fashion accessories, food, and beauty/health equipment perform prominently in the activation set, while sports/cultural products concentrate in the inert set, with luggage remaining an unavailable category. The data further indicates that regardless of channel, tourist preferences consistently focus on cosmetics, watches, luggage, jewelry and electronics, each ranking among the top five categories in both channels.

### 3.3.4. Analysis of the Impact of Spatial Distribution on Consumption Preferences

Chi-square results demonstrate extremely significant effects of spatial distribution on tourists' choice set preferences (airport vs downtown duty-free shops:  $\chi^2=251.831$ ,  $p=0.000<0.05$ ). At airport duty-free shops, cosmetics, watches, luggage, food and maternal-infant products show significantly higher selection rates in the activation set than average levels, indicating strong purchase intention; electronics mainly appear in the consideration set, reflecting potential demand; jewelry shows higher proportions in the unavailable set due to limited brand and variety options; while fashion accessories concentrate in the inert set, indicating acceptance but not necessity. In downtown duty-free shops, cosmetics, watches, luggage, fashion accessories and food show relatively high activation set proportions; electronics and maternal-infant products appear in the consideration set; whereas luggage and beauty/health equipment show higher inert set proportions, suggesting continued limitations in brand coverage.

### 3.3.5. Analysis of the Impact of Delivery Channels on Consumption Preferences

Chi-square test results indicate significant differences in tourists' choice set preferences across all five delivery channels (airport, railway station, port, mail delivery, and post-island pickup) ( $p=0.000<0.05$ ).

For airport channels, cosmetics, jewelry, watches, luggage, apparel, and food show significantly higher selection proportions in the activation set, indicating these as primary purchase categories[9]. Electronics and sports products concentrate in the consideration set, while maternal-infant products appear mainly in the inert set.

At railway station channels, the activation set primarily consists of cosmetics, jewelry, watches, luggage, and fashion accessories. Electronics and beauty/health equipment fall into the consideration set, while food products are more likely to be in the unavailable set due to limited brand options.

Port channels show activation set preferences for cosmetics, jewelry, and luggage, while watches and beauty equipment appear more frequently in the unavailable set. Mail delivery channels also demonstrate high activation set proportions for cosmetics and jewelry, with electronics tending to be in the inert set.

Post-island pickup channels reveal activation set preferences for watches, apparel, food, and beauty equipment, while cosmetics and luggage appear in the unavailable set due to certain restrictions.

Additional data shows the top five preferred duty-free product categories across all five channels are: cosmetics, watches, jewelry, luggage, and electronics. Notably, cosmetics selection rates reach as high as 62.98% for airport channels and 66.67% for post-island pickup channels. Comprehensive analysis confirms these five categories currently represent the most concentrated and preferred duty-free products across all delivery channels.

### 3.3.6. Analysis of the Impact of Market Supervision on Consumption Preferences

Under the influence of market supervision, the top five preferred duty-free product categories are cosmetics (59.91%), watches (49.15%), jewelry (43.53%), luggage (42.88%), and electronics (39.75%), which represent the main star products. The secondary preferred products include fashion accessories (35.02%), food (27.03%), maternal-infant products (16.99%), furniture and crafts (11.92%), beauty/health equipment (13.92%), and sports/cultural products (9.56%), demonstrating a high concentration of consumer preferences.

Through this series of research processes, combining theoretical models with empirical data, we have effectively revealed how various elements of Hainan's offshore duty-free shopping policy specifically influence the structure of tourists' consumption preferences. This provides a solid data foundation and theoretical support for optimizing relevant policies and making marketing decisions for duty-free operators.

## 4. CONCLUSION

This study established an empirical survey-based data analysis framework to comprehensively examine the specific mechanisms through which six policy dimensions of Hainan's offshore duty-free policy influence tourists' five consumption preference choice sets, while providing quantifiable research findings and recommendations for policy optimization and market management.

Grounding our investigation in Choice Sets Theory, we analyzed the impact of Hainan's offshore duty-free shopping policy on tourist consumption preferences across six dimensions: tourist identity, quota restrictions, sales channels, spatial distribution, delivery channels, and market supervision. Through questionnaire surveys collecting 289 valid responses and subsequent empirical analysis, we derived the following key conclusions.

First, the research revealed that quota restrictions, sales channels, spatial distribution, and delivery channels significantly affect tourists' activation set, indicating these policy elements effectively stimulate shopping interest and intention. Notably, female tourists demonstrated stronger preferences for offline sales channels and mail delivery options, highlighting gender-based differences in channel selection. Regarding delivery channels, age emerged as a critical factor, with older tourists favoring traditional methods like port pickup while younger groups prioritized convenience and timeliness.

Second, quota restrictions constituted the most influential factor for tourists entering the "consideration set." The allowance amount not only determines product selection scope but also guides more rational consumption decisions within budget constraints. Furthermore, delivery channels like railway stations and ports, due to their accessibility limitations, were more frequently categorized into the "unavailable set," particularly among older tourists. These findings suggest policymakers should enhance the convenience of diversified delivery methods during implementation.

Third, the market supervision dimension primarily influenced tourists' inert set and exclusion set. The study found widespread tourist approval of Hainan's regulatory framework, recognizing its positive role in ensuring consumption security and combating resale activities. This trust has substantially strengthened consumption confidence and loyalty.

Regarding product categories, cosmetics, watches, jewelry, luggage, and electronics emerged as the five most preferred "star products," reflecting tourists' brand consciousness and premium product orientation in duty-free shopping.

By introducing Choice Sets Theory, this study systematically analyzed policy impacts on tourist consumption preferences, theoretically expanding the theory's application in duty-free shopping research while providing practical references for optimizing Hainan's policy framework and developing marketing strategies. Future policy-making and marketing design should pay closer

attention to tourist psychological structures and preference differentiation to establish Hainan as a globally competitive tourism consumption hub.

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