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The Impact of Socioeconomic and Travel-Related Aspects on the Allocation of Expenditures by Tourists Traveling to Taiwan

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Abstract: This paper analyzes the spending patterns of foreign tourists visiting Taiwan in 2019. Then, the study examines the impact of socioeconomic and travel-related factors on tourists' allocation of expenditures for five essential trip products. By comparing the behaviors of tourists from different nations, the study investigates their priorities for travel expenses such as food, accommodation, transportation, and shopping. The study's OLS regression results show that distance, visit times, travel modes, duration of stays, number of visitors, gender, income, age, and education significantly affect tourists' travel expenditures in Taiwan. The findings reveal that longer-haul tourists spend more on travel products due to their experience. In addition, tourists traveling with companions spend more than those traveling alone, and males spend more on accommodation while females prefer shopping. The study also highlights the positive impact of the number of nights spent on the purchase level of travel goods and services. These insights provide valuable information on the travel-related variables that influence international tourists' spending behavior in Taiwan.

Keywords: tourist; expenditure; traveling; socioeconomic; Taiwan.

JEL Classification: Z32; Z30; L83; Q50 ; R11.

Introduction

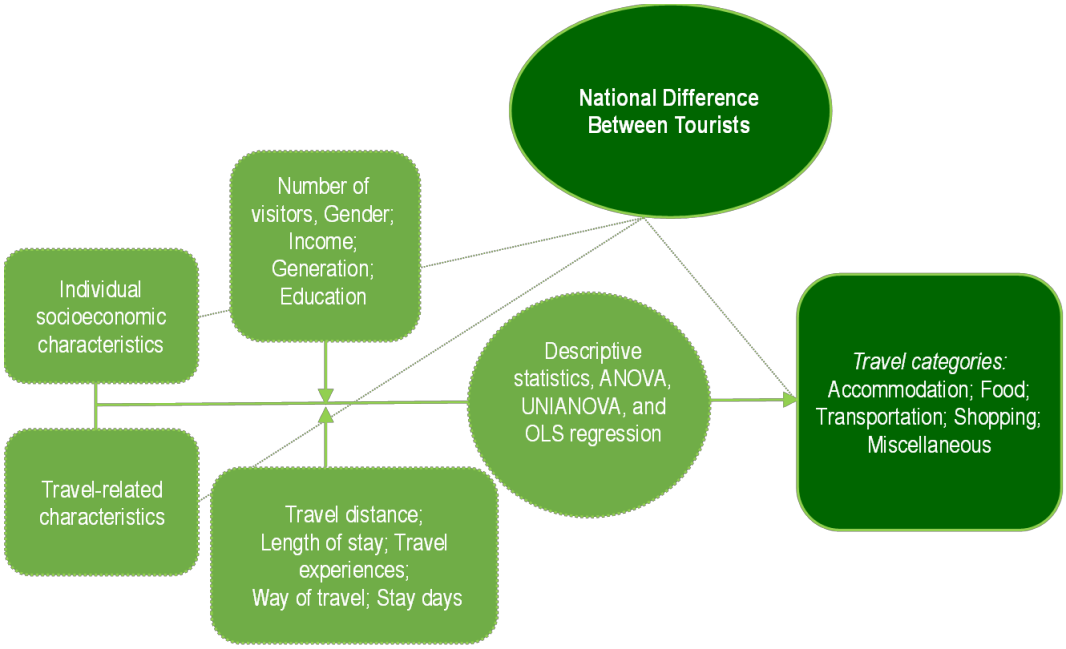
Tourism, a critical industry that contributes significantly to the economic growth of many countries, relies on attracting both domestic and international visitors for its continued success. Li, Song, and Witt (2004) and Anderson (2010) found that studying travel expenditures is crucial to understand how tourist spending influences an economy; hence, the distribution of tourist expenditure is a critical problem in the economics of travel

research. Another aspect of tourist expenditure research is the importance of the trip budget and how tourists allocate their expenditure for travel goods (Anderson 2010).

Many studies were conducted during the 1990s to analyze and comprehend passenger behavior based on nationality (Wu 2010; Sciortino and De Cantis 2022). The impacts of nationality vary depending on the purpose and kind of tourism. Some researchers anticipate that nationality disparities will considerably affect consumer purchasing behavior (Pizam and Sussmann 1995; Flognfeldt Jr 1999). According to some researchers, travelers from certain countries will remain longer at particular tourist sites under identical conditions. Japanese visitors, for example, spend more time in Italy than Chinese tourists (Sciortino and De Cantis 2022). Income and consumption levels also vary between nations. For example, American visitors are typically seen as a higher-income group with greater spending than other nationalities (Sciortino and De Cantis 2022).

Travel expenditure and budget share are essential concepts in tourism research, as they provide insight into how tourists allocate their financial resources during their trips. Recent studies have explored various aspects of these concepts, such as tourists' expenditure allocation at cultural heritage sites (Cai *et al.* 2021), the impact of travel motivation on expenditure allocation across different types of destinations (Lee, Jan, and Liu 2021), and the influence of tourist profiles on expenditure patterns of Chinese tourists in South Korea (Kim, Lee, and Kim 2021). These research findings indicate that by comprehending how tourists distribute their expenses and the factors that impact their spending habits, tourism professionals can customize their products and marketing approaches to cater effectively to various tourist segments' requirements and preferences.

Figure 1. Conceptual framework



Source: proposed by authors

Still, there is a need for more in-depth research on the national differences in travel-related and individual socioeconomic characteristics that influence the spending behavior of inbound tourists. The majority of researchers have concentrated on the elasticity of travel expenditures or the distribution of travel budget portions, while others have looked at the relationship between traveler spending and travel-related and individual characteristics but rarely consider the differences between nations. For this reason, our research focuses on the spending habits of inbound visitors to Taiwan from various nations based on their travel and socioeconomic features. Then, we examine the impact of socioeconomic and travel-related factors on tourists' allocation of expenditures for five essential trip products. We group the visitors' expenditures for five essential trip products: accommodation, food, transportation, shopping, and miscellaneous (e.g., entertainment). Aside from travel spending categories, travel-related features (i.e., distance traveled, duration of stay, traveling experience, and making plans) and individual socioeconomic features (i.e., gender, annual income, age, generation, and education) are thought to make a difference in the spending habits of inbound visitors from various nations. Figure 1 shows the conceptual framework.

Our research delves into two fundamental questions: RQ1 seeks to determine whether travel-related and individual socioeconomic factors impact the spending habits of tourists from different countries. Meanwhile, RQ2

aims to explore how these same factors affect the distribution of expenditures. Through our investigation, we hope to understand better the complex relationship between travel, socioeconomics, and spending behavior. Our study has highlighted the significance of travel commodity prices, including accommodation, transportation, food, shopping, and miscellaneous expenses, for travelers from various countries (Lee *et al.* 2015; Chang, Chen, and Meyer 2013). We have analyzed the impact of travel-related and socioeconomic factors on the spending habits of tourists and how they vary across different nations. Our research aims to contribute valuable insights into the behavior of travelers concerning their expenditure in response to these factors.

The results of OLS regression show that distance, visit times, travel modes, duration of stays, number of visitors, gender, income, age, and education significantly affect tourists' travel expenditures in Taiwan. The findings reveal that longer-haul tourists spend more on travel products due to their experience. In addition, tourists traveling with companions spend more than those traveling alone, and males spend more on accommodation while females prefer shopping. The study also highlights the positive impact of the number of nights spent on the purchase level of travel goods and services. These insights provide valuable information on the travel-related variables that influence international tourists' spending behavior in Taiwan. The paper is structured in such a way that Section 2 presents the literature review, Section 3 outlines the data and methodology, Section 4 presents the empirical findings, and Section 5 discusses the implications and future research directions.

1. Literature Review

Tourist expenditure is a vital measurement concept used to evaluate tourism activities and the overall consumption of products and services. It refers to the total amount a tourist spends during their visit to a destination, also known as tourism expenditure or visitor spending (Zhang *et al.* 2020; Dixon *et al.* 2012). There is a substantial body of literature that examines the factors that influence tourist spending, including studies by Jiménez, Valido, and Pellicer (2023), Kalantari *et al.* (2022), Chen, Hwang, and Chang (2022), Pulido-Fernández, Cárdenas-García, and Carrillo-Hidalgo (2017). However, there is a lack of research on how socioeconomic and travel-related factors affect how tourists allocate their expenses while traveling in Taiwan. Jiménez, Valido, and Pellicer (2023) studied the research on the influence of altered air transport subsidies for Spanish residents on the spending behavior of non-resident tourists in certain areas. The findings indicated that raising the subsidy rate harmed the daily outlay of non-resident tourists traveling between mainland Spain and the islands, resulting in a noteworthy decline in their daily expenses while visiting the Canary Islands, ranging from 9.6% to 12.2%.

Kalantari *et al.* (2022) revealed that tourists who engaged with travel agencies or read magazines and newspapers before their trip tend to have higher expenditures in various categories. However, during their actual trip, these tourists typically turn to the internet to find the best prices on activities, leading to reduced expenses in most categories. Hosseini *et al.* (2022) examined a comprehensive analysis focusing on the determinants of total expenditure and per-person/night spending during domestic trips among Iranian households at the microeconomic level. Miscellaneous factors affect spending, including lodging, transportation, shopping, sightseeing, and entertainment. These encompass economic conditions, demographics, and trip details. Education level, income, age, occupation, family size, length of stay, mode of transportation, and staying with relatives are crucial variables impacting family vacation expenditures. Chen, Hwang, and Chang (2022) conducted a study exploring the impact of wealth on tourist spending and the correlation between age and tourist expenditure. A study found that older wealthy travelers tend to spend more on tourism. Areas with lower income and higher tourism spending are more impacted by wealth. In contrast, Pulido-Fernández, Cárdenas-García, and Carrillo-Hidalgo (2017) pointed out a trend in tourism research that often prioritizes conventional measures such as the purpose of travel, duration of stay, past visits, and accommodation preferences.

1.1. Travel-Related Aspects and Travel Expenditure

The destination is another factor influencing travel expenditure and budget share. For example, tourists visiting urban destinations spend more on accommodation and dining, while those visiting rural areas spend more on activities and attractions (Dwyer and Kim 2003). Moreover, tourists traveling to international destinations spend more than those traveling domestically (Wöber 2007). The type of trip is also an essential determinant of travel expenditure and budget share. Studies have found that leisure travel tourists spend more than those on business trips (Xiao, Cheng, and Zhang 2019). Additionally, longer trips are more expensive than shorter ones, and tourists who travel with others tend to spend more than solo travelers (Wöber 2007). By understanding these factors, stakeholders can develop targeted marketing campaigns, create products and services that meet tourists' needs, and allocate resources effectively to attract and retain tourists. According to (Divisekera 2010), New Zealand is

one of Australia's most significant sources of tourists. Visitors from that country who travel to Australia for sightseeing spend more on food and entertainment and comparatively less on transportation and lodging than visitors from the United States. Contrarily, visitors from the UK prioritize dining, travel, and shopping, while visitors from Japan prioritize lodging, shopping, and entertainment, and Americans visiting Australia spend more on shopping, lodging, and transportation. These variations in spending behavior might result from diverse spending patterns, unique travel objectives, and individual spending budgets.

Wu (2010) research indicates that Chinese travelers are distinct from travelers from other nations as they consider it a luxury to spend a night in a hotel and are especially sensitive to changes in hotel rates, even when their income rises. In recent years, shopping was no longer a particular luxury for Chinese, Australian, and British tourists due to the drop in Hong Kong's consumer price index. Therefore, to draw incoming tourists from the United States, it may not be efficient to market Hong Kong as a shopping destination. Interestingly, Japanese visitors are less price-sensitive than Singaporean, Taiwanese, or Korean tourists due to Japan's high economic level. However, tourists from other source markets view lodging as more of a requirement than Japanese visitors, but the perceived importance of lodging to Japanese visitors has also significantly decreased, meaning they are more sensitive to changes in hotel room rates (Wu 2010). In addition, the study discovered that travelers from Korea have greater price elasticity than travelers from other source markets. As a result, hotels must develop effective promotion strategies for the Korean market to boost income. Wu (2010) also discovered that Singapore tourists' spending on dining outside of hotels is susceptible to outside shocks in the short term and that they increasingly perceive retail products as luxury goods. According to a survey of the Korean market, hotel accommodations are more critical to Taiwanese tourists than shopping, and demand for hotel accommodations from Taiwanese visitors is less sensitive to price changes (Wu 2010). Hotels that depend on Taiwanese visitors should pay greater attention to price changes in the retail industry to understand market changes.

Not surprisingly, the distance traveled is a critical factor affecting travel expenses (Athanasopoulos *et al.* 2014; García-Sánchez, Fernández-Rubio, and Collado 2013; Ho and McKercher 2014; Guillet *et al.* 2011; Lee *et al.* 2015). Distance traveled from home to a destination and travel expenses are strongly correlated, and transportation costs are positively associated with trip distance. Several authors have concentrated on the factors influencing travel spending for international travel markets. For example, Lee *et al.* (2015) and Ho and McKercher (2014) discovered differences in travel expenditures between short- and long-distance travel, as well as between trip distance and travel expenditure. Guillet *et al.* (2011) and García-Sánchez, Fernández-Rubio, and Collado (2013) showed that long-distance travelers spend their budgets differently from short-haul passengers. According to Brida and Scuderi (2013), travel distance can be measured using dummy variables that are nearly always used to represent the distance from the tourist's home to the travel destination. These dummy variables and travel expenditures have a significant positive association. In our current paper, we measure travel distance using categorical variables (i.e., short-haul, medium-haul, and long-haul), so we expect that there is a difference in expenditure between short-haul, medium-haul, and long-haul visitors who come from various countries.

The duration of stay is one of the most often used variables in travel expenditure valuation. Most earlier studies showed a positive correlation between travel expenses and the duration of stay (e.g., Ferrer-Rosell, Coenders, and Martínez-Garcia (2015); Gokovali, Bahar, and Kozak (2007); Jang, Ismail, and Ham (2001); Mok and Iverson (2000). According to Jang, Ismail, and Ham (2001) and Mok and Iverson (2000), the number of days a visitor spends on a trip is a continuous observable variable that determines the overall visitor's spending. Ferrer-Rosell, Coenders, and Martínez-Garcia (2015) recently demonstrated that daily spending was positively impacted by family income, kind of lodging, prior travel experience, and duration of stay. In contrast, some authors have found the opposite (Barros and Machado 2010; García-Sánchez, Fernández-Rubio, and Collado 2013; Smolčić Jurdana and Soldić Frleta 2017), which suggests that a shorter stay causes higher travel costs. In other words, the duration of stay was negatively correlated with expenditure, with shorter stays being associated with higher spending than longer stays. These studies were all concerned with how the duration of the stay affected the daily travel expenditure. Thus, we expect that there is a difference in expenditure between shorter-stay visitors and longer-stay visitors who come from various countries.

Past travel experiences are a categorical variable measured by the number of past visits or whether this is the first time traveling. Alegre and Cladera (2010) showed that repeat visitors spend less money than first-time visitors. Tourists are willing to pay extra for things since they have more experience (lodging, shopping, etc.). Some authors reported that repeat visitors tend to spend less on shopping and focus more on spending time inside the destination periphery visiting attractions, among other things (Oppermann 1996, 1997; Lehto, O'Leary, and Morrison 2004). Thus, we expect a difference in expenditure between first-time and repeat visitors traveling to a specific nation.

1.2 Individual Socioeconomic Aspects and Travel Expenditure

Previous studies have found that several factors influence travel expenditure and budget share, including the characteristics of tourists, the destination, and the trip. Firstly, the primary factor that affects travel expenditure and budget share is the tourist's demographic characteristics, such as age, gender, income, and education level. For instance, younger tourists spend more on travel than older tourists (Xiao *et al.*, 2019), and males spend more than females (Kim, Lee, and Klenosky 2003). Additionally, individuals with higher incomes and education levels tend to spend more on travel than those with lower incomes and education levels (Gursoy and McCleary 2004). Nevertheless, some studies discovered no statistically significant association between gender and tourism expenditures (Abbruzzo, Brida, and Scuderi 2014; Brida and Scuderi 2013; Bernini and Cracolici 2015). Secondly, Travel-related characteristics like distance, gender, age, experience, travel agency, and duration are significant indicators of tourist expenditures (Chen and Chang 2012; Chang, Chen, and Meyer 2013; Lee *et al.* 2015). Some authors claimed that male tourists spend more than female visitors (Thrane 2002; Saayman, Rossouw, and Krugell 2012), while Craggs and Schofield (2009) argued that female visitors spend more than males. Thus, we expect a difference in expenditure between male and female visitors traveling to a specific nation. Nicolau (2008) discovered that income level might affect tourists' spending. Aguiló, Rosselló, and Vila (2017) also found a positive association between income and tourist spending (i.e., accommodation, food, and transport expenditures). Both daily expenses and duration of stay are higher for high-income tourists, even as respondents are often hesitant to disclose their earnings. Because of this, several databases use ordinal categorical variables to survey this variable (i.e., income class). As a result, this income measurement has less information than a value variable and naturally produces an approximate estimate of the wealth status of residents. Thus, we expect a difference in expenditure between the income level of visitors traveling to a specific nation.

Next, age is likewise confounding due to the variety of outcomes. According to Brida and Scuderi (2013), age was significantly associated with tourism spending, and Abbruzzo, Brida, and Scuderi (2014) and Saayman, Rossouw, and Krugell (2012) found that age significantly positively impacts travel spending. In addition, some authors supported that older tourists tend to spend less than younger ones, such as Aguiló, Rosselló, and Vila (2017), Mehmetoglu (2007), Pouta, Neuvonen, and Sievänen (2006), and Kruger and Saayman (2010). We expect a difference in expenditure based on the age of visitors traveling to a specific nation. Finally, Aguiló, Rosselló, and Vila (2017) suggested that age and education level would be intriguing factors to consider when looking for high-income visitors. Similarly, Saayman, Rossouw, and Krugell (2012) discovered that tourists with a higher education level spend much more than those with a lower education level on travel products. Empirical research has produced conflicting findings on education level's influence on travel expenditure. According to Gokovali, Bahar, and Kozak (2007), visitors with a higher level of education do not remain noticeably longer or spend more than tourists with a lower level of education. We expect a difference in expenditure between the education level of visitors traveling to a specific nation.

2. Materials and Methods

2.1 Sampling and Data Collection

According to the Taiwan Tourism Bureau (https://admin.taiwan.net.tw), the Ministry of Transportation and Communication (MOTC) aims to comprehend the intentions, perspectives, consumption patterns, and tendencies of foreign tourists who come to Taiwan to provide helpful information for Taiwan's tourism industry. The survey data may be used to estimate visitors' expenditures. The target respondents are visitors departing Taiwan from the Taiwan Taoyuan International Airport, Taipei Songshan Airport, Kaohsiung International Airport, and Taichung International Airport. Those who arrived from overseas between January 1 and December 31 were the survey's target (except for the overseas transit visitors). In this survey, the quota sampling approach was used because it best complied with the control of working standards and the features of the samples to produce random and sample representatives.

Based on the Tourism Bureau survey, we consider all tourists who visited Taiwan in 2019. We chose 2019 to avoid the impact of the COVID-19 pandemic because most countries applied tourist restrictions which significantly reduced tourism revenue. The total valid samples were 8,562 respondents, including group/individual tours arranged through a travel agency (1,756) and group/individual tours arranged without a travel agency (6,806). Following that, we excluded respondents who had missing information on specific expenditures to avoid errors in our analysis. Furthermore, our study focuses only on tourists with sightseeing and business purposes because most of their budget is spent on travel products, whereas others frequently do not. As a result, our final

sample size is 5,865 observations, which includes group/individual tours arranged through a travel agency (1,593) and group/individual tours arranged without a travel agency (4,272). Our data source is the Annual Survey Report on Visitor Expenditures and Trends published by the Taiwan Tourism Bureau. Appendix A contains the questionnaire used for data collection.

The data report shows the expenses of each tourist for each of the five products as defined by Stynes and White (2006): (1) Accommodations away from home, such as hotels and motels; (2) Food and beverages, such as fast food, meals, snacks, and groceries; (3) Shopping, such as clothes, jewelry, souvenirs, cosmetics, and unique local products; (4) Local transportation, such as high-speed rail, train, mass transit, airplane, coach, bus, taxi, ferry, public bicycles, rental cars, and others; (5) Miscellaneous, such as entertainment expenses, movies, nightlife, golf, and others. Travel expenditure is computed based on the activities of visitors and the consumer price indices for Taiwan's international visitors. The consumer price indices issued by the Directorate-General of Budget, Accounting, and Statistics, Taiwan, are represented by the travel spending categories in Table 1. Expenditure figures are standardized per day by dividing every product's expenditure by the total number of travel days in the trip. Table 1 catalogs the names of the travel-related products used in our analysis, their associated Consumer Price Index (CPI) categories, and the expense items.

We use travel distance variables, which are the approximate distances from a tourist's departure country to their destination, as mediators to explore the disparities in expenditure-allocation behavior of tourists from various countries. These variables are assessed through two methods: national distance and haul distance (i.e., short-, medium-, and long-haul tourists). In our sample, short-haul tourists include Japan, China, Korea, Thailand, Viet Nam, and the Philippines; medium-haul tourists include Malaysia, Singapore, and Indonesia; and long-haul tourists include the United States of America, Canada, and Europe. The information was obtained from the Tourist Bureau.

Table 1. Definition of expenditure categories in the survey, CPI, and current study

No.	Survey item	CPI classification	Current study
1	Lodging	Other accommodations, such as hotels and motels, away from home	Accommodation
2	Food and beverage	Food and drink	Food
3	Retail shopping	Retail purchasing	Shopping
4	Transportation	Transportation	Transportation
5	Recreation and Culture	Recreation and Culture	Miscellaneous
6	Miscellaneous	Other expense	Miscellaneous

Source: The CPI (consumer price index) is obtained from the Directorate-General of Budget, Accounting, and Statistics, Taiwan (https://eng.dgbas.gov.tw).

2.2 Variables and Model

In this study, the dependent variable is the total travel expenditure created by adding up the expenditures for accommodation, food, transportation, shopping, and miscellaneous. Total travel expenditure is standardized per day by dividing every product's expenditure by the total number of travel days in the trip. The expenditure variable is not normally distributed, so the natural log of the total expenditure is used instead. Ordinary least squares (OLS) regression analyses are then used to estimate the models. This allowed us to examine the relationship between total travel expenditure (including sub-expenditure) and socioeconomic and travel-related variables.

$$\begin{aligned} Y_{ij} = {} & \lambda_0 + \lambda_1 \times TravelDistance + \lambda_2 \times VisitTimes + \lambda_3 \times WayofTravel + \lambda_4 \times Staydays \\ & + \lambda_5 \times VisitorNumber + \lambda_6 \times Gender + \lambda_7 \times Millennials + \lambda_8 \times GenX + \lambda_9 \times GenZ \\ & + \lambda_{10} \times EducationLevel + \lambda_{11} \times IncomeLevel \end{aligned} \quad (1)$$

Where Y_{ij} is the total travel expenditure, travel-related aspects (including travel distance, visit times, way of travel, and days of stay), and socioeconomic aspects (including the number of visitors, gender, millennials, Gen X, Gen Z, education level, and income level).

3. Results and Discussions

3.1 Descriptive Statistics of the Sample

Table 2. Travel characteristics of different countries

Unit: %

Country	Travel purpose		Visit times		Travel types of arrangements		Stay days		Visitor number		Travel-attractive reasons		
	Sightseeing	Business	First time	Repeat visitors	Tour group	Non-tour group	Up to 3 days	More than 3 days	One person	2 or more people	Scenery	Gourmet food	Geographical convenience
Short-haul													
Japan	22.32	22.01	16.56	35.17	25.61	13.38	46.01	6.58	24.77	16.01	10.88	11.11	33.33
China	32.29	23.13	37.31	17.84	35.56	19.95	4.99	48.74	30.47	33.45	23.32	33.33	66.67
Korea	15.13	3.67	16.43	8.23	7.28	31.64	26.80	5.37	9.40	25.30	4.66	0.00	0.00
Philippines	5.29	4.94	5.67	4.31	5.53	4.50	6.36	4.52	5.55	4.50	9.33	11.11	0.00
Thailand	4.00	5.74	3.68	5.30	4.16	4.25	4.10	4.24	4.44	3.54	8.29	0.00	0.00
Vietnam	3.96	3.67	4.32	3.04	4.18	3.25	1.96	5.23	4.32	2.94	4.66	11.11	0.00
Medium-haul													
Malaysia	4.38	2.87	2.38	8.34	4.30	4.00	1.62	5.93	3.99	4.80	4.66	0.00	0.00
Singapore	5.46	2.55	4.37	6.90	5.30	4.75	1.45	7.60	5.13	5.22	3.11	22.22	0.00
Indonesia	1.45	1.91	1.52	1.44	1.70	0.94	0.47	2.18	1.54	1.38	1.55	0.00	0.00
Long-haul													
America and Canada	3.16	15.31	3.59	6.41	3.71	6.44	3.93	4.80	5.43	1.98	21.76	0.00	0.00
Europe	2.57	14.19	4.15	3.04	2.66	6.88	2.30	4.80	4.96	0.90	7.77	11.11	0.00
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Source: Data processed, 2023

Regarding travel characteristics of different countries, visitors typically travel either for sightseeing or business purposes. The majority of tourists hail from China (32.29%), Japan (22.32%), and Korea (15.13%) for sightseeing. In contrast, American, Canadian, and European tourists tend to prioritize business travel over sightseeing. The dominant group of first-time visitors from Asia is from China, with an overwhelming percentage of 37.31%, followed by Japan with 16.56% and Korea with 16.43%. However, when it comes to repeat visitors, the majority are from Japan at 35.17% and China at 17.84%. Notably, Japanese and Chinese visitors prefer tour groups, whereas those from Korea, America, Canada, and Europe lean towards non-tour groups. Tourists who visit only for short periods (up to three days) tend to come from Japan and Korea (46.01% and 26.8%, respectively), followed by the Philippines at 6.36% and China at 4.99%.

For tourists who visit for more than three days, the highest proportion is from China (48.74%). Tourists from certain countries typically prefer to travel for more than three days, such as Singapore 7.6%, Japan 6.58%, and America and Canada 4.8%. In terms of the travel group size, a significant percentage of tourists from China and Japan travel alone (30.47% and 24.77%, respectively), followed by visitors from Korea and the Philippines (9.40% and 5.55%, respectively). For tourists traveling with two or more people, the highest proportion is from China at 33.45%, followed by Korea and Japan at 25.3% and 16.01%, respectively. Interestingly, tourists from Europe and Indonesia tend to prefer solo travel. Most visitors visiting scenic attractions are from China, making up 23.32% of the total, followed by visitors from America and Canada with 21.76%, and Japan at 10.88%. Interestingly, visitors from China and Singapore list food as their main reason to travel to Taiwan (33.33% and 22.22%, respectively), followed by Japanese and Vietnamese visitors (11.1%). On the other hand, visitors from Korea, Malaysia, and Thailand tend to travel for the lovely scenery.

Regarding the socioeconomic characteristics of different countries, there is a notable difference in the gender distribution of tourists between China and Japan. In China, a significant proportion of tourists are female, accounting for 34.07% of the total. Conversely, the proportion of male Japanese tourists is considerably higher, with females making up only 24.2% of the total. Several countries, including Korea, the Philippines, Thailand, Vietnam, Malaysia, Singapore, and Indonesia, exhibit a similar trend to China regarding gender distribution among tourists. Females from these countries are more inclined towards travel than their male counterparts. The proportion of Chinese Generation Z travelers is higher (31.58%) than that of Generations X and Y, 32.14% and 41.76%, respectively. Conversely, for Japanese visitors, those from Generations Z and X tend to travel more than those from Generation Y. It is worth mentioning that Gen-X travelers from Thailand, Vietnam, and Indonesia exhibit a lower tendency to travel compared to their Gen-Z counterparts. Yet, Gen-Z travelers from Korea, the

Philippines, Malaysia, Singapore, and the United States and Canada demonstrate a lower inclination to travel than those from the Gen-X group.

The majority of low- and middle-income travelers who show an interest in traveling are from China, accounting for 49.43% and 27.65% of the total, respectively. Additionally, tourists from Japan, Korea, and America and Canada with medium and high incomes tend to travel more than those with low incomes. However, in Vietnam, Singapore, and the Philippines, where incomes tend to be lower, tourists with lower incomes are more inclined to travel than those with higher incomes. This trend is similar to that observed among Chinese tourists regarding income and travel behavior.

Table 3. Socioeconomic characteristics of different countries

Unit: %

Country	Gender		Generation			Education		Income level		
	Male	Female	X Gen	Y Gen	Z Gen	High school	College and above	Low	Medium	High
Japan	24.20	20.46	23.77	14.87	23.08	29.48	20.40	2.19	27.68	24.50
China	28.44	34.07	31.58	32.14	41.76	32.35	31.04	49.43	27.65	27.95
Korea	13.73	14.07	10.07	17.59	3.30	11.06	14.65	4.28	18.35	12.82
Philippines	4.62	5.85	5.44	6.32	4.40	2.13	6.07	9.70	4.06	4.77
Thailand	3.41	4.92	4.36	4.88	6.59	3.11	4.46	5.01	3.49	4.64
Vietnam	3.58	4.26	2.45	5.33	6.59	3.69	3.99	11.37	2.05	2.97
Malaysia	3.76	4.66	6.17	3.57	2.20	4.91	4.03	2.19	5.12	4.02
Singapore	4.28	5.99	5.08	5.55	3.30	7.86	4.44	10.64	3.75	4.46
Indonesia	1.15	1.83	1.54	1.47	4.40	2.46	1.24	2.61	0.72	1.92
America and Canada	6.50	2.50	5.54	3.67	3.30	1.56	5.21	0.63	3.83	6.78
Europe	6.33	1.40	3.99	4.60	1.10	1.39	4.44	1.98	3.30	5.16
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Source: Data processed, 2023

3.2 Travel Expenditure Analysis

Respondents were classified into three tourist categories based on their overall spending in Taiwan. Prepaid costs and local costs were included in the overall expenses, whether purchased independently or as part of a package trip. Prepaid expenses include flights, hotels, meals, airport transfers, and transportation. Meals, excursions, shopping, and entertainment are non-prepaid local expenses. Panel A of Table 4 shows that visitors who traveled from short distances spent an average of $185 per day on their vacation to Taiwan, while those who traveled from medium distances spent an average of $174 per day. Long-haul tourists visiting Taiwan spent, on average, $200 a day. The excessive buying behavior of short- and medium-distance visitors might be related to their cultural value of preserving interpersonal ties by providing presents (Mok and Iverson (2000) Mok and Lam (1997). Giving presents brought back from distant lands to parents, elders, friends, and colleagues at work is one way to demonstrate appreciation and strengthen connections. As a result, in addition to buying gifts for themselves, tourists frequently shop for gifts for others while overseas.

Second, long-distance tourists spent more money in each category (Panel A of Table 4) (excluding shopping). Furthermore, the data revealed two significant discoveries. Initially, all groups of incoming visitors in Taiwan spent much more on accommodation and shopping than any other travel spending category, consistent with earlier findings. Short-haul travelers spent more on shopping (39.98% of the budget share), whereas medium- and long-haul visitors spent more on accommodation (33.39% and 50.58%, respectively). Additionally, medium-haul tourists spent more on shopping (26.77% of the budget share, second rank), but long-haul visitors spent 22.06% of the budget share on shopping. Thus, Taiwan should invest in modern infrastructure and equipment for lodging facilities suited to Western cultures (targeting long-haul visitors) as well as create retail malls in conjunction with tourist attractions, collaborate with a variety of well-known brands, and diversify items, particularly those suited to Eastern cultures (targeting short- and medium-haul visitors). Furthermore, incorporating foreign cultures in the tourism industry will motivate tourists to visit again because experiencing their culture in a foreign land will be an unforgettable experience.

Panel B of Table 4 shows the average daily consumption of five categories per person from each country. According to descriptive data, in 2019, short-haul visitors constituted the greatest number (80.85% of all samples), followed by medium-haul tourists (10.86% of total samples), and finally, long-haul tourists (8.26% of total samples). The outcome of the travel budget share reveals that all travel items are essential for visitors. Compared to overall expenditure, spending on accommodation, shopping, and food is higher than spending on

transportation and miscellaneous products. Medium-haul visitors spent the least on their daily consumption of these five categories.

Table 4. The average daily consumption of the five items per person for distance independent-travel tourists

Panel A: Short-, medium-, and long-distance independent-travel tourists

Items/Distance	Short-haul		Medium-haul		Long-haul		Total	
	Mean (USD)	Budget share (%)	Mean (USD)	Budget share (%)	Mean (USD)	Budget share (%)	Mean (USD)	Budget share (%)
Ex.Accommodation	58.32	31.49	58.37	33.39	101.09	50.58	61.86	33.39
Ex.Food	31.76	17.15	38.42	21.97	43.77	21.90	33.48	18.07
Ex.Transportation	14.45	7.80	22.98	13.14	24.58	12.30	16.22	8.75
Ex.Shopping	72.17	38.98	47.15	26.97	22.06	11.04	65.32	35.25
Ex.Miscellaneous	8.47	4.57	7.91	4.53	8.36	4.18	8.40	4.53
Total	**185.18**	**100.00**	**174.84**	**100.00**	**199.87**	**100.00**	**185.27**	**100.00**

Panel B: The average daily consumption of the five items per person by country

Items	Short-haul											
	Japan		China		Korea		Philippines		Thailand		Vietnam	
	Mean (USD)	Budget share (%)	Mean (USD)	Budget share (%)	Mean (USD)	Budget share (%)	Mean (USD)	Budget share (%)	Mean (USD)	Budget share (%)	Mean (USD)	Budget share (%)
Ex.Accommodation	88.17	44.40	32.00	17.57	73.98	41.07	59.38	34.72	60.56	32.64	39.53	23.23
Ex.Food	38.08	19.18	22.44	12.33	38.65	21.46	35.63	20.83	41.77	22.51	29.94	17.60
Ex.Transportation	15.16	7.63	11.84	6.50	15.14	8.40	21.36	12.49	18.64	10.05	15.16	8.91
Ex.Shopping	44.92	22.62	109.93	60.37	43.93	24.39	45.77	26.76	56.49	30.45	77.79	45.71
Ex.Miscellaneous	12.25	6.17	5.88	3.23	8.43	4.68	8.90	5.20	8.07	4.35	7.75	4.55
Total	**198.57**	**100.00**	**182.10**	**100.00**	**180.13**	**100.00**	**171.04**	**100.00**	**185.53**	**100.00**	**170.16**	**100.00**

	Medium-haul						Long-haul			
	Malaysia		Singapore		Indonesia		America and Canada		Europe	
Ex.Accommodation	66.08	34.57	53.76	31.64	52.52	36.01	111.17	49.30	89.30	52.56
Ex.Food	41.09	21.50	39.32	23.14	27.80	19.06	50.38	22.34	36.03	21.21
Ex.Transportation	24.01	12.56	24.14	14.20	16.11	11.04	27.13	12.03	21.61	12.72
Ex.Shopping	51.85	27.13	45.37	26.70	40.03	27.44	28.39	12.59	14.66	8.63
Ex.Miscellaneous	8.10	4.24	7.33	4.31	9.41	6.45	8.41	3.73	8.31	4.89
Total	**191.13**	**100.00**	**169.92**	**100.00**	**145.87**	**100.00**	**225.49**	**100.00**	**169.91**	**100.00**

Source: Data processed, 2023

On average, Malaysian visitors spent the most money at $191 per person, followed by Singaporeans at $170 and Indonesians at $146.60. For medium-haul travelers, the highest average spending was for Japanese tourists at $199, Thailand visitors at $186, Chinese visitors at $182, Korean visitors at $180, Philippines visitors at $171, and Vietnamese visitors at $170. Finally, long-distance tourists spent the most money. The average spending for American and Canadian tourists was $225, while European visitors spent $169.

3.3 Results of the ANOVA Test

A one-way analysis of variance (ANOVA) test examined whether there was a significant variation in key expenditure categories among the three tourist distances (Table 5). Categorical spending follows the same pattern as total expenditures. As seen in Table 5, there are significant differences in all expenditure factors except miscellaneous across the three travel distances. Given the amount of nighttime entertainment, a night market, a well-known brand, and multiple transit options, these findings may define Taiwan as a tourism destination.

Table 5. ANOVA for the average daily consumption amount of the five items per person for independent-travel tourists

Panel A: For short-, medium-, and long-distance independent-travel tourists

Items	Travel distance			ANOVA		Levene Statistic	
	Short-haul	Medium-haul	Long-haul				
	Mean	*Mean*	*Mean*	F	Sig.	Levene	Sig.
Ex.Accommodation	58.32	58.37	101.09	16.15	0.00	3.69	0.03
Ex.Food	31.76	38.42	43.77	31.04	0.00	11.65	0.00
Ex.Transportation	14.45	22.98	24.58	67.62	0.00	30.86	0.00
Ex.Shopping	72.17	47.15	22.06	40.12	0.00	32.47	0.00
Ex.Miscellaneous*	8.47	7.91	8.36	0.15	0.86	2.07	0.13

Panel B: By country, independent-travel tourists

Items/Country	Short-haul						Medium-haul		
	Japan	China	Korea	Philippines	Thailand	Vietnam	Malaysia	Singapore	Indonesia
	Mean	*Mean*	*Mean*	*Mean*	*Mean*	*Mean*	*Mean*	*Mean*	*Mean*
Ex.Accommodation	88.17	32.00	73.98	59.38	60.56	39.53	66.08	53.76	52.52
Ex.Food	38.08	22.44	38.65	35.63	41.77	29.94	41.09	39.32	27.80
Ex.Transportation	15.15	11.84	15.14	21.36	18.64	15.15	24.01	24.14	16.11
Ex.Shopping	44.92	109.93	43.93	45.77	56.49	77.79	51.85	45.37	40.03
Ex.Miscellaneous	25.78	22.02	36.30	15.73	15.03	14.57	20.42	12.75	14.94

	Long-haul		Differential mean test			
	America and Canada	Europe	ANOVA Test		Levene Statistic	
	Mean	Mean	F	Sig.	F	Sig.
Ex.Accommodation	111.17	89.30	14.66	0.00	3.82	0.00
Ex.Food	50.38	36.03	31.82	0.00	4.67	0.00
Ex.Transportation	27.13	21.61	20.90	0.00	9.09	0.00
Ex.Shopping	28.39	14.66	36.97	0.00	35.10	0.00
Ex.Miscellaneous	20.21	31.80	5.29	0.00	6.48	0.00

Source: Data processed, 2023

Note: The mean difference is significant at the 0.05 level (Sig.<0.05). If the mean difference is insignificant at the 0.05 level, the post hoc test is used.* Miscellaneous expenses: The post hoc test results demonstrate that the mean difference of miscellaneous between short-, medium-, and long-haul tourists is insignificant.

Table 5. ANOVA of the average daily consumption of the five items per person for independent-travel tourists *(Cont.)*

Unit: USD

Panel C: Post hoc of the mean expenditure difference between pairs of countries

	China	Korea	Philippines	Thailand	Vietnam	Malaysia	Singapore	Indonesia	America and Canada	Europe
	Ex.Accommodation									
Japan	56.17*	14.19	28.79	27.61	48.64*	22.09	34.41*	35.65	-23.00	-1.13
China		-41.98*	-27.38	-28.56	-7.53	-34.08	-21.76	-20.52	-79.17*	-57.30*
Korea			14.60	13.42	34.45	7.90	20.21	21.46	-37.19*	-15.32
Philippines				-1.18	19.85	6.70	5.52	26.55	-51.79*	-29.92
Thailand					21.03	-5.62	-6.80	14.23	-50.61*	-28.74
Vietnam						-6.86	-8.04	12.99	-71.64*	-49.77*
Malaysia							12.32	13.56	-45.09*	-23.22
Singapore								1.24	-57.41*	-35.54
Indonesia									-58.65	-36.78
America and Canada										21.87
	Ex.Food									
Japan	15.64*	-0.57	2.45	-3.69	8.14*	-3.01	-1.24	10.28	-12.30*	2.05
China		-16.21*	-13.18*	-19.32*	-7.50	-18.64*	-16.88*	-5.35	-27.94*	-13.59*
Korea			3.03	-3.11	8.71*	-2.44	-0.67	10.86	-11.73*	2.62
Philippines				-6.14	5.68	5.46	-0.68	11.15*	-14.76*	-0.41
Thailand					11.82*	3.70	-2.44	9.38	-8.62	5.74
Vietnam						-7.83	-13.97	-2.15	-20.44*	-6.09
Malaysia							1.77	13.29	-9.30	5.06
Singapore								11.53	-11.06*	3.29
Indonesia									-22.59*	-8.23
America and Canada										14.35*
	Ex.Transportation									
Japan	3.31*	0.01	-6.21*	-3.48	0.00	-8.85*	-8.98*	-0.95	-11.97*	-6.45*
China		-3.30*	-9.52*	-6.79*	-3.31	-12.17*	-12.30*	-4.27	-15.29*	-9.76*
Korea			-6.22*	-3.50	-0.01	-8.87*	-8.99*	-0.97	-11.99*	-6.47*

Philippines				2.72	6.21	2.65	5.37	8.85*	-5.77	-0.24
Thailand					3.48	2.78	5.50	8.98*	-8.49*	-2.97
Vietnam						-5.25	-2.53	0.95	-11.98*	-6.45
Malaysia							-0.13	7.90	-3.12	2.40
Singapore								8.03	-2.99	2.53
Indonesia									-11.02*	-5.50
America and Canada										5.53
					Ex.Shopping					
Japan	-65.01*	0.99	-0.85	-11.57	-32.87*	-6.93	-0.45	4.89	16.53	30.26*
China		66.00*	64.16*	53.44*	32.14*	58.08*	64.56*	69.90*	81.54*	95.27*
Korea			-1.84	-12.56	-33.86*	-7.92	-1.44	3.90	15.54	29.27
Philippines				-10.72	-32.02	6.08	-4.64	-25.94	17.38	31.11
Thailand					-21.30	-0.40	-11.12	-32.42	28.10	41.83*
Vietnam						-5.74	-16.46	-37.76	49.39*	63.13*
Malaysia							6.48	11.82	23.46	37.19
Singapore								5.34	16.97	30.71
Indonesia									11.64	25.37
America and Canada										13.74
					Ex.Miscellaneous					
Japan	6.37*	3.89*	3.34	4.17	4.50	4.14	4.92	2.84	3.83	3.94
China		-2.55	-3.02	-2.19	-1.87	-2.22	-1.45	-3.53	-2.54	-2.43
Korea			-0.47	0.36	0.68	0.33	1.10	-0.98	0.01	0.12
Philippines				0.83	1.16	-0.80	0.03	0.36	0.49	0.59
Thailand					0.32	-1.58	-0.74	-0.42	-0.34	-0.24
Vietnam						0.51	1.34	1.66	-0.67	-0.56
Malaysia							0.78	-1.31	-0.31	-0.21
Singapore								-2.08	-1.09	-0.98
Indonesia									0.99	1.10
America and Canada										0.11

Source: Data processed, 2023

Note: The mean expenditure difference between pairs of countries is significant at the 0.05 level (Sig.<0.05).

Table 6. UNIANOVA for the interaction of travel and socioeconomic characteristics on expenditure patterns

Panel A: Traveling characteristics

Items	Country* Travel purpose		Country* Visit times		Country* Types of travel arrangements		Country* Duration of stay		Country* Visitor number		Country* Travel-attractive reasons	
	F	Sig.	F	Sig.	F	Sig.	F	Sig.	F	Sig.	F	Sig.
Ex.Accommodation	0.51	0.89	0.75	0.67	3.56	0.00	1.06	0.39	1.45	0.15	0.35	1.00
Ex.Food	5.01	0.00	1.87	0.04	8.60	0.00	4.46	0.00	1.01	0.43	1.35	0.08
Ex.Transportation	1.99	0.03	4.43	0.00	7.41	0.00	6.63	0.00	1.33	0.21	8.42	0.00
Ex.Shopping	4.51	0.00	3.16	0.00	4.13	0.00	1.69	0.08	1.17	0.31	1.65	0.01
Ex.Miscellaneous	1.55	0.12	2.84	0.00	2.08	0.02	0.81	0.62	0.48	0.91	3.13	0.00

Panel B: Socioeconomic characteristics

Items	Country* Gender		Country* Gen X		Country* Gen Y		Country* Gen Z		Country* Education		Country* Income level	
	F	Sig.	F	Sig.	F	Sig.	F	Sig.	F	Sig.	F	Sig.
Ex.Accommodation	1.25	0.25	0.77	0.65	2.26	0.01	0.12	1.00	0.52	0.88	0.51	0.97
Ex.Food	1.66	0.09	4.85	0.00	5.13	0.00	0.22	0.99	1.19	0.29	1.43	0.10
Ex.Transportation	2.08	0.02	3.50	0.00	8.57	0.00	0.20	1.00	2.16	0.02	2.02	0.01
Ex.Shopping	1.35	0.20	2.90	0.00	2.88	0.00	0.39	0.95	1.10	0.36	0.77	0.76
Ex.Miscellaneous	1.13	0.34	0.45	0.92	2.54	0.01	0.05	1.00	3.76	0.00	0.51	0.97

Source: Data processed, 2023

Note: The mean difference is significant at the 0.05 level (Sig.<0.05). If the mean difference is insignificant at the 0.05 level, the post hoc test was used.

There are almost no significant differences in accommodation and miscellaneous expenditure between groups of nations (Panel A, Table 6). Specifically, we find an F value of 0.505, sig=0.888 for accommodation items, and an F value of 1.549, sig=0.116 for miscellaneous. In contrast, there are significant differences in food, transportation, and shopping expenses at the 1% level. There are significant differences in food, transportation, shopping, and miscellaneous expenses between groups of nations regarding lengths of stay (1% level). However, accommodation expenditure has almost insignificant differences with an F value of 0.774 and sig=0.116, >5%. Furthermore, the spending behaviors of tourists varies significantly based on their nationality and the type of travel arrangement they chose. This result indicates that non-tour-group visitors spend differently than tour-group visitors, particularly on accommodations. Tourists' expenses on food and transportation vary significantly at a significance level of 1% based on the length of their stay. However, there are almost no significant differences in their spending on accommodation, shopping, and miscellaneous items. Similarly, the number of tourists in the group showed almost no significant differences in the spending behavior of tourists between groups of nations. For those traveling for sightseeing reasons, there are almost no significant differences in accommodation and food expenditure of tourists between groups of nations. Conversely, there are statistically significant disparities (at the 1% level) in their outlays on transportation, shopping, and miscellaneous items.

Gender showed almost no significant differences in the spending behavior of tourists between groups of nations, except for transportation with the value of F=2.079, sig=0.023, <5% (Panel B, Table 6). For Generation X tourists, there are significant differences in food, transportation, and shopping expenses between groups of nations; however, there are insignificant differences in accommodation and miscellaneous expenditures. Gen Y tourists showed significant differences in spending behaviors between groups of nations, while Gen Z was insignificant. Travel expenditures of Gen Z are less than Gen X and Y because Gen Z are primarily students or low-income. Interestingly, Gen X had significant differences in transportation and miscellaneous expenses; however, there are no significant differences in accommodation, food, and shopping expenditure. Similarly, there are almost no significant differences in the spending behaviors of tourists based on income level, except for transportation expenditure.

3.4 Multiple Regression Analysis

The study conducted a formal test on the effects of travel-related and socioeconomic characteristics on tourist expenditures using ordinal least squares regression (OLS). The results of this process are presented in Table 7.

Table 7 −The results of regression

Variables	Total Expenditure	Ex.Accommodation	Ex.Food	Ex.Transportation	Ex.Shopping	Ex.Miscellaneous
	[Model 1]	[Model 2]	[Model 3]	[Model 4]	[Model 5]	[Model 6]
Constants	13.64***	1.362***	1.901***	0.330**	8.884***	1.159***
	[12.718]	[2.596]	[7.472]	[1.963]	[11.403]	[6.702]
Distance	0.680***	1.619***	0.615***	0.516***	-2.156***	0.0861**
	[2.631]	[12.803]	[10.036]	[12.738]	[-11.490]	[2.068]
Visit Times	2.177***	2.342***	0.786***	0.499***	-1.442***	-0.00806
	[6.543]	[14.381]	[9.959]	[9.558]	[-5.966]	[-0.150]
Way of travel	1.741***	-0.0807	-0.478***	-0.158***	2.141***	0.317***
	[4.954]	[-0.469]	[-5.731]	[-2.874]	[8.383]	[5.599]
Stay days	-4.544***	-3.898***	-1.541***	-0.514***	1.969***	-0.561***
	[-14.362]	[-25.166]	[-20.519]	[-10.350]	[8.565]	[-10.999]
Visitor number	0.225***	0.270***	0.0259*	0.0702***	-0.140***	-0.00095
	[3.498]	[8.524]	[1.710]	[7.036]	[-3.024]	[-0.093]
Gender	0.31	-0.553***	-0.0592	-0.0165	1.063***	-0.124**
	[1.020]	[-3.713]	[-0.820]	[-0.345]	[4.808]	[-2.527]
Millennials	-0.506	0.729***	0.535***	0.234***	-2.038***	0.0345
	[-1.205]	[3.546]	[5.372]	[3.555]	[-6.682]	[0.510]
Gen X	2.266***	0.977***	0.449***	0.225***	0.554	0.0594
	[4.739]	[4.175]	[3.960]	[3.007]	[1.596]	[0.770]
Gen Z	-4.613***	-0.368	-0.202	-0.15	-3.593***	-0.301
	[-3.726]	[-0.607]	[-0.687]	[-0.773]	[-3.993]	[-1.507]
Education	2.503***	2.082***	0.396***	0.331***	-0.247	-0.0602
	[5.966]	[10.139]	[3.980]	[5.037]	[-0.810]	[-0.889]
Income level	0.124	0.553***	0.122**	-0.0219	-0.479***	-0.05
	[0.550]	[5.004]	[2.282]	[-0.618]	[-2.922]	[-1.373]
Obs.	5,865	5,865	5,865	5,865	5,865	5,865
R-squared	0.087	0.235	0.132	0.082	0.086	0.027
Prob > F	0.000	0.000	0.000	0.000	0.000	0.000

3.4 The Impact of Travel-Related Aspects on the Allocation of Travel Expenditure

Compared to the baseline model (Model 1), submodels in which the effect of distance was modeled (Models 2–6) were significantly dominant at $p < 0.05$ level. This result highlights the importance of trip distance in determining tourist expenditures. The positive values indicate that longer-haul tourists affect travel expenditures more than shorter-haul tourists. However, it was found that shorter-haul tourists have a more significant impact on shopping expenditures. These findings are consistent with previous studies conducted by Brida and Scuderi (2013), Guillet *et al.* (2011), García-Sánchez, Fernández-Rubio, and Collado (2013), Ho and McKercher (2014), and Lee *et al.* (2015).

Based on the table provided, it is evident that Models 1-6 have statistical significance at the $p < 0.01$ level, except for Model 6, where the effect of visit times was included. This result highlights the importance of past travel experiences in modeling tourists' expenditure allocations. It is noteworthy that repeat tourists significantly impact travel expenditures more than first-time tourists, as evidenced by the positive values. However, the study found that first-time tourists have a more significant impact on shopping expenditures. Interestingly, tourists are willing to pay extra for travel products since they have more experience. These findings are consistent with previous studies conducted by Oppermann (1996), Oppermann (1997), and Lehto, O'Leary, and Morrison (2004), which reported that repeat visitors tend to spend less on shopping and focus more on spending time inside the destination periphery visiting attractions, among other things. However, our findings differ from those presented by Alegre and Cladera (2010).

Based on the table, it is clear that Model 1 demonstrated a negative coefficient regarding the impact of stay days on total expenditure per day at the $p < 0.01$ level. However, regarding consumption choices, stay days played a significant role in determining expenditure for various categories such as accommodation, food, shopping, transportation, and miscellaneous. Expressly, models 2, 3, 4, and 6 indicated that total expenditure decreased as the duration of stays increased for accommodation, food, transportation, and miscellaneous. On the other hand, model 5 showed that expenditure on shopping increased with stay days. These findings align with previous studies that have found that shorter stays lead to higher travel costs (Barros and Machado 2010; García-Sánchez, Fernández-Rubio, and Collado 2013; Smolčić Jurdana and Soldić Frleta 2017), although some studies have found the opposite to be true (Ferrer-Rosell, Coenders, and Martínez-Garcia 2015; Gokovali, Bahar, and Kozak 2007; Jang, Ismail, and Ham 2001; Mok and Iverson 2000).

The statistical significance of the travel mode coefficients, except for Model 2, was observed at a p-value of less than 0.01. Based on the analysis of various submodels, it was found that travel mode plays a crucial role in determining tourist expenditures. The results showed that non-tour group tourists significantly impact travel expenses more than tour group tourists. Furthermore, it was found that non-tour group tourists have a more significant impact on food and transportation expenses. These findings are consistent with previous studies (Chen and Chang 2012; Mok and Iverson 2000; Ahn *et al.* 2018; Chang, Chen, and Meyer 2013; Lee *et al.* 2015) and highlight the importance of considering travel modes while analyzing tourist expenditures.

3.5 The Impact of Individual Socioeconomic Aspects on the Allocation of Travel Expenditure

The statistical significance coefficients of the visitor number variable, except for Model 6, were observed at a p-value of less than 0.01 and Model 3 at less than 0.1. The number of visitors is crucial in determining tourist expenditures based on the analysis of various submodels. The positive values show that more visitors have a more significant effect on accommodation, food, and transportation expenditures, whereas fewer visitors have a more significant effect on shopping expenses.

Based on the analysis of the data, it has been found that the influence of gender on the expenditures of tourists is insignificant in the baseline model (Model 1). However, the submodels, namely Models 2, 5, and 6, have a significant effect at a $p < 0.05$ level. Consistent with prior research (Thrane 2002; Saayman, Rossouw, and Krugell 2012; Craggs and Schofield 2009), males are more willing to spend on accommodation and other expenses, while females prefer shopping. On the other hand, income was a significant factor in predicting travelers' expenditures. The baseline model (Model 1) shows that income level has no significant influence on expenditures, but the submodels, namely Models 2, 3, and 5, have a significant effect at a $p < 0.05$ level. This implies that inbound tourists in Taiwan with higher incomes tend to spend more on accommodation and food while spending less on shopping. This finding is consistent with previous studies by Nicolau (2008) and Aguiló, Rosselló, and Vila (2017).

3.6 Robustness Test

Table 8 —The results of robustness test

	Total Expenditure		
	Short-haul	Medium-haul	Long-haul
	[Model 7]	[Model 8]	[Model 9]
Constants	14.46***[12.182]	19.20***[6.903]	20.46***[5.106]
Visit Times	2.061***[5.320]	1.063[1.310]	3.294***[2.924]
Way of travel	1.122***[2.741]	2.738***[2.981]	5.077***[4.853]
Stay days	-4.151***[-11.856]	-7.823***[-6.585]	-6.412***[-5.712]
Visitor number	0.229***[3.045]	0.204[1.206]	0.277[1.567]
Gender	0.431[1.256]	0.292[0.367]	-2.379** [-1.975]
Millennials	-0.00143[-0.003]	-0.895[-0.772]	-5.425***[-4.063]
Gen X	2.514***[4.585]	1.873[1.529]	-0.507[-0.327]
Gen Z	-4.147***[-3.045]	-6.160*[-1.818]	-9.853* [-1.720]
Education	2.106***[4.387]	2.741***[2.736]	2.734[1.386]
Income level	0.14[0.545]	0.165[0.298]	-0.0499[-0.056]
Obs.	4,742	639	484
R- squared	0.074	0.147	0.228
Prob > F	0.000	0.000	0.000

Source: Data processed, 2023

Note: t statistics in brackets, * p<0.1, ** p<0.05, *** p<0.01

According to the findings presented in Table 8, our robustness test has revealed some interesting insights. The study examined the impact of various travel-related and socioeconomic characteristics on tourist expenditures for short-haul, medium-haul, and long-haul trips. The results indicate that visit times positively impact expenditures for both short-haul and long-haul trips, while the mode of travel positively impacts efficiency for all three distances. However, the duration of stays has a negative impact on efficiency for all three distances, while the effect of Gen Z is the opposite. The number of visitors and Gen X only impact short-haul travel. Additionally, education level significantly positively impacts expenditures for both short-haul and long-haul trips, while income level is insignificant.

Conclusion

This paper compares the traveling and socioeconomic characteristics of inbound tourists to Taiwan from different nations. We used a dataset of 5,865 respondents who visited Taiwan in 2019 from a survey by the Taiwan Tourism Bureau. Inbound tourists' expenditure and budget share were explored for five essential trip products: accommodation, food, transportation, shopping, and miscellaneous items. Simultaneously, we investigated the differences in foreign tourists' spending behaviors on travel categories based on the nation pair-comparison technique and demographics (i.e., travel distance, travel purpose, length of stay, traveling plan, traveling experience, gender, income, age, generation, and education). In 2019, short-haul tourists were the largest group, followed by medium-haul and long-haul tourists. The results of the travel budget share indicate that all travel products are necessities for tourists, and spending on accommodation, shopping, and food is higher than for transportation and miscellaneous items. For the average daily consumption of the five categories, short-haul tourists spent the least (with the highest average expenditure being from Japanese visitors, followed by Thai, Chinese, Korean, Philippines, and Vietnamese visitors), followed by medium-haul tourists (with the highest average expenditure from Malaysian visitors, followed by Singaporean and Indonesian tourists), and finally long-haul tourists (with the highest average spending from American and Canadian visitors, followed by visitors from Europe). Business tourists spent more money on accommodation, food, and transportation while spending less on shopping and sightseeing purposes. Males were willing to spend more money on trips than females, except for shopping. First-time tourists are more interested in shopping than repeat tourists.

The ANOVA test showed that different countries' tourists perceived different levels of importance for travel expenses. We used UNIANOVA and post hoc tests to examine the combined effects of travel and socioeconomic characteristics on expenditure patterns. Our findings indicate significant differences in travel-related characteristics (i.e., travel purpose, visit times, travel arrangements, stay days, visitor numbers, and travel-attractive reasons) in the allocation expenditure of international tourists in Taiwan. Similarly, socioeconomic

characteristics (i.e., gender, generation, education, and income level) contributed to how tourists spent money. However, tourists tended to have the same accommodation expenditure allocation, while Gen Z spent similarly in different countries.

Based on our analysis of the six OLS models, including the baseline model and submodels, it is evident that most of the independent variables had a significant impact at an alpha level of 0.05. This outcome implies that one of the independent variables could explain the variations in the model for travel expenditure allocations. The study's OLS regression results show that distance, visit times, travel modes, duration of stays, number of visitors, gender, income, age, and education significantly explained tourists' travel expenditures in Taiwan. The findings reveal that longer-haul tourists spend more on travel products due to their experience. In addition, tourists traveling with companions spend more than those traveling alone, and males spend more on accommodation while females prefer shopping. The study also highlights the positive impact of the number of nights spent on the purchase level of travel goods and services. These insights provide valuable information on the travel-related variables that influence international tourists' spending behavior in Taiwan.

Implications

Tourist destinations may pursue one or a combination of key marketing objectives to increase: new tourist arrivals; duration of stay; tourist spending per guest; or first-time or repeat visitors. Understanding how to build and execute all four strategies is at the core of any marketing program.

The objective of this study is to utilize the pair-comparison geography technique to investigate tourists' spending patterns. The research aims to determine whether it is possible to identify distinct groups of tourists with significantly different travel expenditures based on their travel behaviors and individual socioeconomic characteristics. If they can, then tourism destinations can formulate strategies to attract more tourists or increase tourist spending. This study's results show that visitors from America, Canada, Japan, Malaysia, Thailand, China, and Korea are willing to spend more on travel products. More broadly, short-haul visitors spend more on shopping than accommodation, food, transportation, and miscellaneous; medium-haul tourists spend more on accommodation than shopping, food, transportation, and miscellaneous; and long-haul visitors spend more on accommodation than food, transportation, shopping, and miscellaneous. Short-haul visitors were the largest group (80.85% of total samples) and preferred shopping more than the medium-haul and long-haul visitors. They tended to travel individually rather than in tour groups and spent more than Japanese, Malaysian, Thailand, Chinese, and Korean visitors.

According to these data, Taiwan should take the following steps to draw more foreign tourists and boost tourist spending: (i) Enhance the variety and quality of shopping options, expand the number of available stores, and highlight these attractions in marketing materials; (ii) Concentrate on producing ads that show a variety of items and shopping options; (iii) Enhance sightseeing, shopping, dining, and entertainment to lengthen visitors' stays and encourage them to return; (iv) Present a romantic image, targeting families, younger couples, or honeymooners using different marketing strategies.

The findings from this study indicate that expenditure patterns based on the nation pair-comparison technique and matching of traveling and personal socioeconomic characteristics are viable ways of segmenting visitors (short-haul, medium-haul, and long-haul). The short-haul was the largest group and had significantly more stable expenditure levels in most travel categories than the other two distances, and they are distinguishable by several unique characteristics.

Limitations and Future Research

This paper is an early attempt to segment foreign tourist expenditure in Taiwan using the national pair-comparison approach and the linking of travel and personal socioeconomic variables, and it has limitations. The main problem is recollection bias in the traveler expenditure surveys. The challenge for tourism researchers is determining how well tourists recall the expenses associated with their vacation activities. However, because the average stay in Taiwan is shorter than seven days, the memory bias in this study was relatively minor. Another disadvantage is the modest cross-sectional sample size.

More study is needed to evaluate the expenditure elasticity of incoming visitors across countries and the relationship between travel and personal socioeconomic factors. As expected, there are no substantial variations in the travel spending of visitors between groupings of nations in this study. Future research should look at this link again. We also suggest segmenting inbound tourist expenditure using the national pair-comparison approach and the combination of travel and personal socioeconomic factors.

Appendix A – Questionnaire Annual Survey of Visitors Expenditure and Trends in Taiwan
A. The number of visits to Taiwan (in the past three years, including this time)
B. The number of days to do planning for this trip before the visitor left for Taiwan
C. The number of days to spend on this trip in Taiwan
D. The ways of traveling (including group or individual tours arranged by a travel agency and personal tours without travel agencies)
E. Total expenditures for this trip to Taiwan? (type of currency, excluding prepayments)
F. Accommodation expenses (including hotel bills)
G. Food expenses (including all meals outside)
H. Local transportation expenses (High-speed Rail, train, MRT, airplane, coach, bus, taxi, ferry, public bicycles, rental car, and others)
I. Entertainment expenses (movies, nightlife, golf, and others)
J. Shopping expenses (including clothes, jewelry, souvenirs, cosmetics, local special products, etc.)
K. Miscellaneous expenses
L. Personal information (nationality, country, age, annual income, education, occupation, gender, and others)
L1. Nationality
L2. The country/area of the visitor's residence
L3. Age: (1) 12-19; (2) 20-29; (3) 30-39; (4) 40-49; (5) 50-59; (6) 60-65; (7) 66 and over
L4. Annual income: (converted to USD) (1) Under 9,999; (2) 10,000-14,999; (3) 15,000-29,999; (4) 30,000-39,999; (5) 40,000-69,999; (6) 70,000-99,999; (7) Over 100,000; (8) No fixed income
L5. Gender: (1) Male; (2) Female
L6. Education: (1) Primary, junior, senior high schools or vocational high school; (2) College or university; (3) Graduate school (master or doctorate); (4) Others

Note. Monetary value = US dollar. Only inbound visitors to Taiwan were asked about their expenditure questions.

Appendix B −Variable definitions		
Variables	**Measurement**	**Expected sign**
Dependent variable		
Total expenditure	Amount of expenditure for accommodation, food, transportation, shopping, and miscellaneous.	
Ex.Accommodation	Includes all expenditures for paying hotel bills.	
Ex.Food	Includes all expenses for meals.	
Ex.Transportation	Includes any transport-related charges.	
Ex.Shopping	Includes all costs associated with purchasing (clothes, jewelry, souvenirs, cosmetics, and others).	
Ex.Miscellaneous	Includes all other expenditures, excluding the above categories (all outlays for entertainment activities such as cinema, nightlife, sports, and others).	
Independent variable		
Travel-related aspects		
Travel distance	A dummy variable is 1 if a visitor comes from a short-distance country; otherwise, it is 0.	(+)
Stay Days	A continuous observable variable is the number of days a visitor spends on the trip.	(+)
Visit Times	A dummy variable is 1 if a tourist travels to Taiwan for the first time; otherwise, more than one is 0.	(+)
Way of travel	A dummy variable is 1 if personal tours without travel agencies; otherwise, a tourist travels arranged by a travel agency is 0.	(+)
Socioeconomics aspects		
Income level	An ordinal categorical variable is measured by the annual income of respondents. In this scenario, income has a value between 1 and 3, with 1 representing the lowest income and 3 being the most.	(+)
Gender	A dummy variable is 1 if the gender is male, and 2 if female.	(+)
Millennials	A dummy variable is 1 if visitors were born between 1981-1996, otherwise, it is 0.	(+)
Gen X	A dummy variable is 1 if visitors were born between 1965-1980, otherwise, it is 0.	(+)
Gen Z	A dummy variable is 1 if visitors were born after 1997 (considered part of Generation Z), otherwise, it is 0.	(+)
Education level	The education level of respondents is an ordinal categorical variable. In this scenario, education has a value between 1 and 4, with 1 indicating elementary, junior, senior, or vocational high schools, 2 representing college or university graduate, 3 representing graduate school (master's or doctorate), and 4 representing others.	(+)

Note. Monetary value = US dollar

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Credit Authorship Contribution Statement

Kieu-Thi Phan: Conceptualization, Investigation, Methodology, Project administration, Software, Formal analysis, Writing –original draft, Data curation, Validation, Writing – review and editing, Visualization.

Sheng-Hung Chen: Conceptualization, Methodology, Project administration, Formal analysis, Writing –original draft, Supervision, Data curation, Validation, Writing – review and editing, Visualization.
Jie-Min Lee: Conceptualization, Methodology, Project administration, Formal analysis, Writing –original draft, Supervision, Writing – review and editing, Visualization.
Ca-Van Pham: Conceptualization, Methodology, Formal analysis, Writing –original draft, Supervision, Validation, Writing – review and editing, Visualization.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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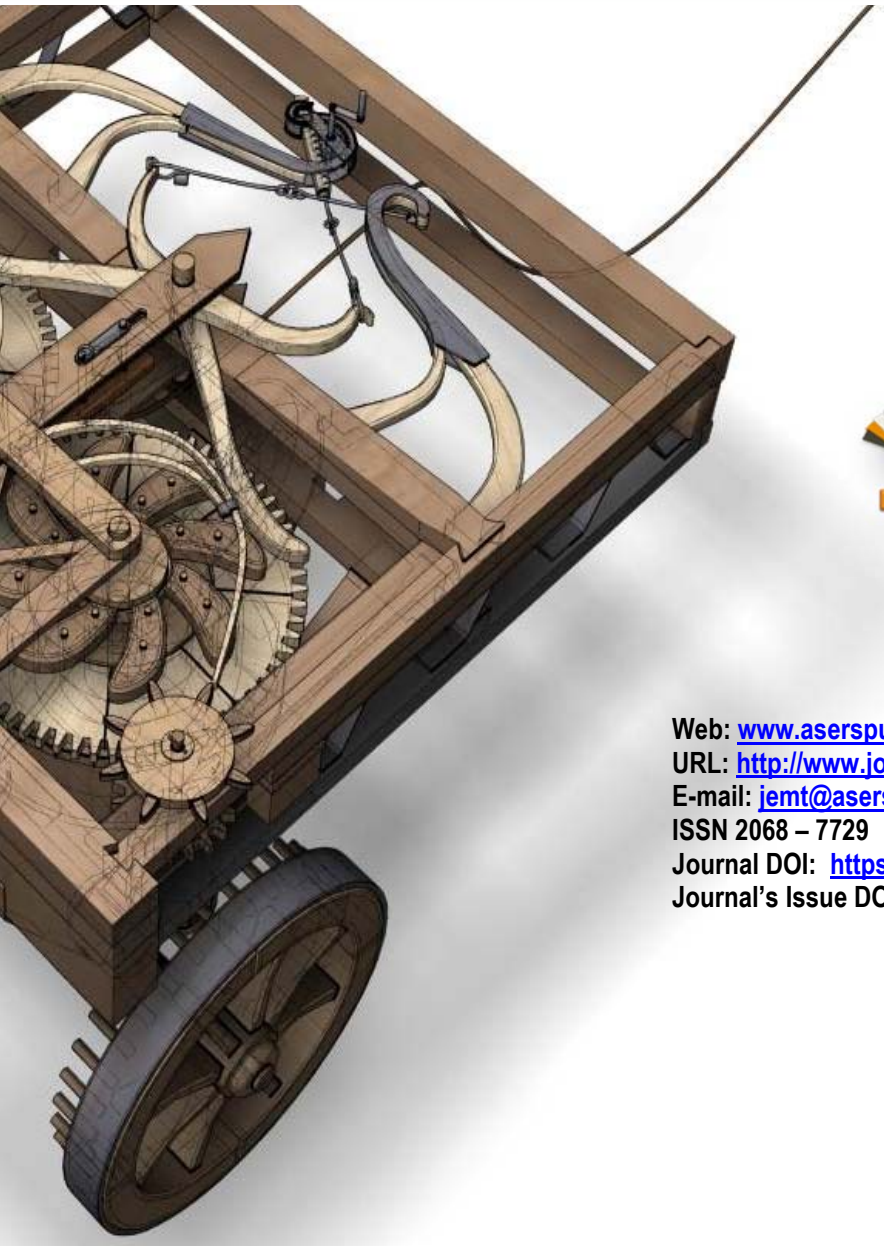

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