ANALYSING THE SPENDING BEHAVIOUR OF DIFFERENT AIRLINE TRAVELLERS: EVIDENCE FROM TAIWANESE TOURISTS TRAVELLING TO NORTHEAST ASIA

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ABSTRACT

This study investigates the spending behaviours of Taiwanese outbound tourists travelling to Japan and Korea and explores the differences between various airline users. Raw data analysis demonstrates that the budget allocation strategy of tourists using full-service carriers (FSCs) is quite different from that of tourists using low-cost carriers (LCCs). More specifically, the users of low-cost carriers have purchase power at local destinations, which is not weaker than that of the users of full-service carriers. The seemingly unrelated regressions model was further employed. The model results suggest that the impacts of trip characteristics and personal sociodemographic characteristics on various levels of travel expenditures are varied between FSC and LCC users. Moreover, tourists' consumption behaviours at destinations are partially subject to their prepaid expenditures. Finally, according to the results, managerial implications for the aviation and tourism industries are discussed.

KEYWORDS: Travel expenditures, seemingly unrelated regressions, outbound travel, full-service carriers, low-cost carriers, Taiwan

1. INTRODUCTION

According to a report released by the Air Transport Action Group (ATAG) in 2018, aviation accounted for $2.7 trillion of the GDP globally in 2016, one-third of which came from the tourism catalytic effect (ATAG, 2018). In particular, outbound tourism expenditures (OTEs) are calculated as tourism import expenditures for the country of origin and are added to the GDP of the country (Mehran and Olya, 2018). With the development of the airline industry, tourists can now choose from a variety of airlines, especially low-cost carriers (LCCs), for outbound travel. Among them, low-cost carriers (LCCs) have attracted an increasing number of passengers. Not only do LCCs offer budget outbound travel, but they may also enable travellers to spend more at destinations by enabling them to reallocate their travel expenditures (Dayour et al., 2016; Eugenio-Martin and Inchausti-Sintes, 2016; Ferrer-Rosell et al., 2015).

A tourist's travel expenditures normally include spending on transportation, accommodation, and local food and products (Ferrer-Rosell et al., 2015; Mok and Iverson, 2000). Some expenditures are incurred prior to travel; some spending is incurred while individuals are at their destinations. Hence, tourists' strategies for allocating travel expenditures under a planned travel budget might be influenced by economic constraints, travel characteristics, and the types of airlines they use (Dayour et al., 2016; Thrane, 2016; Jang et al., 2004; Ferrer-Rosell and Coenders, 2017; Mehran and Olya, 2019).

However, even though there have been several studies investigating the differences between various types of airline tourists, such as the studies of Desai et al. (2014), Lu (2017), Lin and Huang (2015), O'Connell and Williams (2005), and Kuljanin and Kalić (2015), travellers using LCCs compared to those using full-service carriers (FSCs) were mostly young and price-sensitive, and the studies by Desai et al. (2014) and Martinez-Garcia et al. (2012) found evidence that business or high-income travellers had begun considering LCCs as an option for air travel. A small number of studies have empirically studied the diversity of travel expenditures among different types of airline users.

Therefore, this study explores the spending behaviour of different airline travellers. Specifically, this study aims to answer the following questions. What are the factors that influence the spending behaviours of different types of airline users? Does any interaction exist between passengers' expenditures incurred prior to the trip and paid during the trip

(i.e., at the destination)? Are expenditure allocation strategies different between FSC and LCC users? Taiwanese outbound tourists travelling to Northeast Asia, Japan and Korea and their decisions regarding travel expenditures were chosen as a research context.

The remainder of this paper is organized as follows. The next section is a literature review, which is followed by the research design including descriptions of the survey design, implementation of data collection and introduction of the analysed model—the seemingly unrelated regressions (SUR) model. The third section presents the empirical analysis. The analysis and insights from the raw survey data are presented first, and then, the SUR model is estimated to analyse the interactions between the different types of expenditures. The resulting insights into the significant determinants and the relationship between prepaid and locally paid expenses are discussed. Finally, some concluding comments are provided.

2. LITERATURE REVIEW

According to past studies, the factors influencing a tourist's decision regarding travel expenditures include economic constraints (e.g., personal or family income), socioeconomic characteristics (e.g., age and gender), trip characteristics (e.g., length of trip, travel accompanies, and type of tour), and psychology variables (e.g., motivation and perception) (Dayour et al., 2016; Thrane, 2016; Marrocu et al., 2015; Abbruzzo et al., 2014; Brida and Scuderi, 2013).

However, only a few studies have examined the impact of the type of airline (i.e., FSC or LCC) that passengers use on their travel expenditures. A study by Ferrer-Rosell and Coenders (2017) provides an example; their study used official statistics microdata collected every other year from 2006 to 2014 in Spain to compare the relative importance of various budget components (i.e., total budget and at-destination budget) between FSC and LCC tourists. Evidence was found that the distribution of the differences between FSC and LCC tourists' trip budgets across four biennial years converged regarding both the ratio of transportation expenses to at-destination expenses and the ratio of accommodation expenditures to expenditures on local activities and shopping; however, the distribution of the difference in total travel expenditures between the two types of airline tourists presented a divergent trend. The study of Ferrer-Rosell and Coenders (2017) offered information regarding the tourist spending behaviours of different types of

airline users; however, some control variables were omitted in the study due to the constraint of data resources.

Almeida and Garrod (2017) used quantile regression to estimate the relationships between tourist travel expenditures and some potential determinants, including the airline type used. In their models, whether a tourist used an LCC was set as a dummy variable, and the outcomes presented negative impacts on travel expenditures, indicating that LCC users would spend less at destinations. In addition, length of stay, gender, income, and travel in a family were also identified as having a significant effect on travel expenditure decisions. However, the study of Almeida and Garrod (2017) did not further categorize the source of travel expenditures, and their arguments, particularly regarding LCC tourist spending behaviour, might need more examination. Moreover, in the study of Qiu et al. (2017), they concluded that LCC users spent less at the destinations; however, their overall spending increased along with an increasing length of stay.

Hentschel and Klingenberg (2017) found that LCC passengers' spending behaviour at airports varied across generations. Therefore, they suggested that segmentation is needed to identify various LCC passengers' needs and expectations. Lima et al. (2012) and Nickson and Garu (2015) also indicated that segmenting tourists by travel expenditure enables related organizations to better review marketing strategies and policy decisions to maximize the economic benefits of tourism for local destinations.

These abovementioned studies implied that the expenditure allocation strategies of tourists might vary depending on the types of airline they use. However, the conclusions regarding the differences and similarities of the spending behaviours between FSC and LCC tourists are still diverse, and the sources and volumes of the travel expenditures might be the reasons for such varying conclusions. Therefore, segmentation based on tourists' travel expenditures is needed to analyse the spending behaviours of FSC and LCC tourists.

3. METHODOLOGY

3.1 Data Collection

This study selected Taiwanese tourists travelling to Northeast Asia, Japan and Korea as the case for empirical analysis. Japan and Korea shared over one-third of the outbound tourism market in Taiwan. Japan surpassed China to become the favourite destination for

Taiwanese travellers in 2015. In addition, the number of Taiwanese tourists to Korea has been continuously breaking records in the past 5 years, exceeding 1 million trips. The compound annual growth rate (CAGR) from December 2014 to November 2019 was approximately 25% (Taiwan Tourism Bureau, 2019). Moreover, Taiwanese visitors ranked as the fourth-largest market visiting Korea (Korea Tourism Organization, 2019).

The data were collected via an online questionnaire survey assisted by a third-party online survey company in Taiwan. The online survey company has more than 150 thousand registered members around the Taiwan area, and approximately 80% of all the members live in the six major cities in Taiwan. The questions in the survey were mainly categorized into two parts. In the first section of the survey, respondents provided information on their latest experiences of outbound travel, such as the purpose of the trip, final destination, travel type, booking channel, accommodation, length of stay, airline used, spending incurred prior to departure, spending at the destination and, for travellers using LCCs, ancillary services used (bought) while flying. In the second section, data on respondents' sociodemographic characteristics were obtained. These characteristics were gender, age, education background, monthly income, and frequency of travelling abroad. The survey questionnaire was transformed into an online format and emailed to 2,500 registered members randomly selected by the online survey company. Among them, 1,233 members took at least one trip abroad in the past 12 months, which met the criteria for sample selection, and 651 respondents ultimately responded to the survey. After a preliminary check, 16 respondents provided inconsistent answers to the questions, and 10 were under the age of 20 years; hence, 625 respondents were retained. Among these 625 respondents, 432 took outbound trips to Korea or Japan and were selected for analysis.

3.2 Model for Analysis

The main purpose of this study is to determine the factors that influence different airline users' travel expenditures at two stages of travel: prepaid expenditures prior to the trip and local expenditures at the destination. However, these two sources of expenditures might contain each other under the condition of pre-planned travel budgets. In other words, tourists might constrain their spending before the trip and spend more at the destinations, and vice versa; tourists might also not constrain their expenditures regardless of when and where. Hence, the two types of travel expenditures could be

correlated with each other, and thus, modelling any type of expenditures independently would lead to biased outcomes. Therefore, the seemingly unrelated regressions (SUR) model (Washington, et al., 2003) was employed in this study, which enables us to identify whether an interaction relationship between various types of expenditure exists (i.e., prepaid expenditures and local paid expenditures in this study) by means of correlations, controlled across the residuals in the equations for different expenditures. The model also allows us to explore the important determinants of tourists' spending behaviours.

The model can be briefly described as follows (Lu, 2014; Washington et al., 2003):

$$\begin{aligned} y_1 &= \alpha_1 + \beta_{1i} x_i + \gamma_{1i} Z_i + \varepsilon_1 \\ y_2 &= \alpha_2 + \beta_{2i} x_i + \gamma_{2i} Z_i + \varepsilon_2 \end{aligned} \quad (1)$$

where y_1 and y_2 are the prepaid and locally paid expenditures, respectively. x_i represents the factors related to tourists' trip characteristics, and Z_i represents the variables associated with the personal backgrounds of the tourists. α, β, and γ are the estimated parameters. ε_1 and ε_2 are the residuals for the y_1 and y_2 equations, respectively. If $\rho(\varepsilon_1, \varepsilon_2)$ is estimated to be significantly different from zero using Breusch-Pagan χ^2 test, then an interaction relationship between y_1 and y_2 exists. Without considering the potential interaction relationship between the two expenditure equations, the estimates of the determinants would be biased.

4. EMPIRICAL ANALYSIS

4.1 Sample Description

A total of 195 of 432 respondents used FSCs, while 237 used LCCs. Table 1 presents the sociodemographic characteristics profiles of respondents who used FSCs and LCCs.

To investigate whether there was a significant relationship between the two categorical variables (the sociodemographic characteristics of the respondents and the types of airlines used), the Chi-square test of independence was applied. The null hypothesis of the test is that the frequency of each categorical variable of a specific sociodemographic characteristic has no association with the airlines (i.e., FSCs or LCCs) used by respondents. That is, gender, monthly income, or the frequency of travelling abroad is irrelevant to the types of airline at the α-level of 0.1. In contrast, respondents' age or education background had a significant association with airlines (α=0.01). These findings reveal that approximately 41% of respondents who used LCCs were young adults (aged between 21

and 30 years), compared with 25% of FSC respondents (i.e., a 15% difference). In contrast, 25% of respondents who used FSCs were older adults (aged over 40 years) compared with 16% of LCC respondents. This significant difference provides adequate evidence that by offering low prices and simple services, LCCs are able to attract younger passengers, while FSCs retain the market share of older passengers. The proportion of LCC respondents who held a graduate degree was also higher than those of the corresponding respondents who used FSCs. This finding implies that highly educated passengers might be more aware of the business model of LCCs.

Table 1 - Description of Sociodemographic Characteristics

	FSC sample (n_1=195)		LCC sample (n_2=237)	
Variables	Freq.	%	Freq.	%
Gender (Chi-square=0.314; p=0.575)				
Male	90	46.2	103	43.5
Female	105	53.8	134	56.5
Age (Chi-square=12.843; p=0.002***)				
21-30 years	49	25.1	96	40.5
31-40 years	97	49.7	103	43.5
41 years and above	49	25.2	38	16.0
Monthly income (NT $) (Chi-square=0.148; p=0.985)				
Low: less than 30K (1K=1,000)	66	33.9	83	34.5
Medium-low: 30-50K	75	38.5	91	38.4
Medium-high: 50-70K	34	17.4	41	17.4
High: more than 70K	20	10.2	22	9.7
Education (Chi-square=11.731; p=0.003***)				
High school	25	12.8	20	8.4
University	149	76.4	163	68.8
Graduate school	21	10.8	54	22.8
Frequency of travelling abroad (Chi-square=3.036; p=0.219)				
Less than 1	112	57.4	138	58.2
2-3	55	28.2	77	32.5
4 or above	28	14.4	22	9.3

***: p<0.01

Regarding the trip characteristics of the two groups of airline users, Table 2 demonstrates that only the trip purpose did not significantly differ across types of airline users. This indicates that the profiles of the Taiwanese tourists using FSCs or LCCs were divergent in terms of most trip characteristics. For illustration purposes, a higher percentage of tourists who travelled alone were more likely to use LCCs. Compared to FSC users, more than 70% of LCC respondents were free independent travellers (FITs). More than 60% of LCC respondents stayed at business hotels, hostels, and bed-and-breakfast facilities (B&Bs), while 50% of FSC users chose to stay at 3- or 4-star hotels or even 5-star hotels (i.e.,

22%). Finally, approximately 90% of LCC users paid travel expenditures by themselves; in contrast, the travel expenditures of a substantial number of FSC respondents, i.e., over 20%, were paid by their parents, family members, or employers.

Table 2 - Description of Trip Characteristics

	FSC sample (n_1=195)		LCC sample (n_2=237)	
Variables	Freq.	%	Freq.	%
Trip Purpose (Chi-square=0.824; p=0.364)				
Tourism	187	94.4	228	96.2
Non-tourism	11	5.6	9	3.8
Travel Group (Chi-square=10.525; p=0.005***)				
Travelling alone	15	7.7	33	13.9
Travelling with friends/colleagues	91	46.7	129	54.4
Travelling with family	89	45.6	75	31.7
Travel Type (Chi-square=96.635; p=0.000***)				
Free individual tour	54	27.7	170	71.6
Package tour	69	35.4	52	21.9
All-inclusive group tour	72	36.9	15	6.3
Accommodation (Chi-square=59.558; p=0.000***)				
5-star hotel/resort	43	22.1	18	7.6
3- or 4-star hotel	99	50.7	68	28.7
Business hotel or others	53	27.2	151	63.7
Paid by (Chi-square=13.687; p=0.001***)				
Oneself	152	78.0	214	90.2
Parents or other family members	24	12.3	16	6.8
Employers or others	19	9.7	7	3.0

***: p<0.01

Because of the constraint of the length of the survey, only two categories of travel expenditures were anchored. One category was the spending incurred prior to the outbound trip, which mostly comprised the airfare and a small down payment for local accommodations; the other category was the expenditures on local transportation, accommodations, activities, food, and shopping. Table 3 further summarizes the travel expenditures of Taiwanese tourists to Korea or Japan. Note that US$1 was approximately equal to NT$30 at the time of the survey. The prepaid expenditure of FSC users was more than double the associated expenditure of LCC users, while the locally paid expenditures did not show much difference between airline types. This is because most of the prepaid expenditures are for airfare. There is no doubt that on average, a ticket for FSCs costs much more than a ticket for LCCs. However, after further review of the distribution of expenditure data, the range of the locally paid expenses (i.e., the difference between the maximum and minimum) of LCC tourists was close to that of FSC tourists; hence, the

respondents can probably be grouped in terms of travel expenditures to reflect their different spending behaviours or budget allocation strategies. Therefore, the sample was clustered into three segments based on respondents' total expenditures using the 33rd and 67th percentiles as boundaries: light spenders, medium spenders, and heavy spenders (Mok and Iverson, 2000).

Table 3 - Market Segment by Expenditure

		Segment				
Expenditures[a]	All	Light	Medium	Heavy	*F*-stat.[c]	*p*-value
Full-service Carrier Travellers	*N*=195	*N*=64	*N*=67	*N*=64		
M. Total expenses[b]	55,437.2	29,903.1	48,422.5	88,314.7	119.435	0.000
M. Prepaid expenses (1)	27,618.4	17,829.7	27,561.0	37,467.3	46.301	0.000
M. Local paid expenses (2)	27,818.7	12,073.4	20,861.5	50,847.4	59.618	0.000
Ratio: (1)/Total	0.50	0.60	0.57	0.42		
Ratio: (1)/(2)	0.99	1.48	1.32	0.74		
Low-cost Carrier Travellers	*N*=237	*N*=79	*N*=79	*N*=79		
M. Total expenses	37,173.9	19,085.2	32,616.0	59,820.5	225.452	0.000
M. Prepaid expenses (3)	12,524.4	8,263.3	13,090.6	16,219.2	24.460	0.000
M. Local paid expenses (4)	24,649.5	10,821.9	19,525.4	43,601.3	108.336	0.000
Ratio: (3)/Total	0.34	0.43	0.40	0.27		
Ratio: (3)/(4)	0.51	0.76	0.67	0.37		
Significance of H_0: (3) ≤ (1)[d]	0.000	0.000	0.000	0.000		
Significance of H_0: (4) ≤ (2)	0.080	0.106	0.150	0.072		

[a]: The unit for expenditure is NT$. US$1 is approximately equal to NT$30.
[b]: M. represents the mean value.
[c]: One-way ANOVA *F*-statistics and *p*-value.
[d]: T-test for two-group mean comparison.

As shown in Table 3, the means of the various expenditures across the three segments were all significantly different when examined by the ANOVA *F*-test at the α-level of 0.05. Checking with the ratio of prepaid expenses to total expenses, it is to see that FSC tourists, in average, spend half on airfare and half on local consumption. Only heavy FSC spenders allocate budget for prepaid expenses less than 50% of total expenses. This indicates that FSC tourists allocate almost the same budgets before the trip and at-destination. As for LCC tourists, they obviously allocate less budget share on prepaid expenses to total expenses.

Besides, the ratio of prepaid expenses to local paid expenses demonstrated that light and medium FSC spenders both allocate budgets before the trip higher than at-destination. However, LCC tourists allocate the budget to local expenses, in average, twice as prepaid

expenses. For each segment of LCC tourists, they spent less before the trip and more at-destination. This implies that LCC tourists intend to allocate more budget to local consumptions. To summarize, FSC tourists generally constrain their local paid expenses, as they have paid higher expenses prior to the trip. However, LCC users generally allocate less of their budget to air tickets and spend more on local tourism.

4.2 Model Analysis

The SUR model results for the three segments of spenders with FSCs or LCCs are shown in Tables 4, 5, and 6. Note that the correlation coefficients of the residuals in all models are highly significant using Breusch-Pagan χ^2 test (p<0.01) and demonstrate negative directions, denoting that the prepaid and locally paid expenditures have a negative interaction relationship among the two types of expenditures. The models further identify that several trip-related characteristics and sociodemographic characteristics have various impacts on tourist spending behaviours across airline types, even though only a few factors are estimated to be significant at the α-level of 0.1; however, the t-values of most estimates are still greater than 1.0.

An overview of the model results shows that budget allocation strategies vary among passengers with different socioeconomic backgrounds and different types of airline users. To illustrate, if FSC light spenders (Table 4) are highly frequent travellers (i.e., travelling abroad more than 3 times a year) or have a monthly income less than NT$30,000, then they will spend more money prior to the trip but less at local destinations. However, if FSC users travel alone or with friends, then they will save prepaid expenditures for local consumption. LCC light spenders who stay at business hotels, who travel abroad 1 to 3 times a year, or who are female or young adults will allocate more of their budget to prepaid expenses and reduce their expenses at their destinations. In contrast, if LCC light spenders travel alone, then they will spend less on prepaid expenses and, although insignificant, on locally paid expenditures.

Table 4 - Seemingly Unrelated Regressions Model Results: Light Spenders

	FSC (64)		LCC (79)	
Variables	y_1[a]	y_2	y_1	y_2
Intercept	10.226***	8.554***	7.755***	9.951
	(24.256)	(11.422)	(10.509)	(14.122)
Staying at 3- to 4-star hotels	0.243	-0.022	0.172	-0.520*
	(1.351)	(-0.070)	(0.520)	(-1.646)
Staying at business hotels	0.303	-0.154	0.585*	-0.607**
	(1.582)	(-0.453)	(1.812)	(-1.966)
Package tour	-0.007	-0.259	0.078	-0.138
	(-0.056)	(-1.138)	(0.428)	(-0.792)
All-inclusive tour	0.186	-0.138	0.256	-0.010
	(1.578)	(-0.661)	(0.725)	(-0.030)
Fees paid by oneself	-0.046	0.548**	-0.298	-0.374
	(-0.332)	(2.232)	(-0.847)	(-1.114)
Fees paid by family members	-0.079	0.701*	-0.272	-0.163
	(-0.384)	(1.909)	(-0.509)	(-0.319)
Travel abroad 1-3 times a year	-0.126	0.092	0.336**	-0.089
	(-1.234)	(0.508)	(2.232)	(-0.619)
Travel abroad more than 3 times a year	0.484***	-0.776**	0.114	0.175
	(2.665)	(-2.404)	(0.402)	(0.649)
Travel alone	-0.362**	0.600**	-0.624***	-0.270
	(-2.379)	(2.220)	(-2.758)	(-1.250)
Travel with friends/colleagues	-0.154	0.422**	-0.243	-0.147
	(-1.600)	(2.467)	(-1.475)	(-0.935)
Number of nights	-0.246*	0.121	0.263*	0.032
	(-1.711)	(0.474)	(1.704)	(0.216)
(Number of nights)^2	0.013	-0.006	-0.016	-0.006
	(1.068)	(-0.285)	(-1.320)	(-0.508)
Female	-0.139	0.164	0.320**	-0.050
	(-1.446)	(0.960)	(1.957)	(-0.322)
20-30 years old	-0.142	0.227	-0.329	0.380*
	(-1.252)	(1.130)	(-1.532)	(1.854)
30-40 years old	0.170	-0.070	-0.165	0.202
	(1.536)	(-0.357)	(-0.866)	(1.107)
Monthly income less than NT$30,000	0.277**	-0.585**	0.270	0.144
	(2.112)	(-2.515)	(1.342)	(0.749)
Monthly income NT$30,000-50,000	0.123	-0.490**	0.203	0.059
	(1.063)	(-2.375)	(1.117)	(0.340)
R^2	0.465	0.379	0.316	0.145
χ^2-value	55.671***	38.984***	36.463***	13.368
Correlation of residuals	-0.523***		-0.534***	
Breusch-Pagan test χ^2-value	17.522***		22.514***	

Note: value in parentheses is the estimated t-statistic.

[a]: y_1: prepaid expenditures; y_2: locally paid expenditures.

*: p-value <0.1; **: p-value < 0.05; ***: p-value < 0.01

Table 5 - Seemingly Unrelated Regressions Model Results: Medium Spenders

	FSC (67)		LCC (79)	
Variables	y_1[a]	y_2	y_1	y_2
Intercept	9.248***	10.450***	8.993***	9.893***
	(20.372)	(17.619)	(25.643)	(33.125))
Staying at 3- to 4-star hotels	-0.124	0.075	0.039	-0.086
	(-1.309)	(0.609)	(0.235)	(-0.619)
Staying at business hotels	-0.260**	0.159	-0.067	-0.019
	(-2.124)	(0.991)	(-0.437)	(-0.146)
Package tour	0.256	-0.190	0.099	-0.215**
	(0.248)	(-1.404)	(0.782)	(-2.005)
All-inclusive tour	0.342***	-0.386***	0.463***	-0.449***
	(3.255)	(-2.808)	(2.890)	(-3.289)
Fees paid by oneself	-0.137	0.441**	0.320 **	-0.356***
	(-0.927)	(2.291)	(2.109)	(-2.757)
Fees paid by family members	0.041	0.252	–	–
	(0.234)	(1.090)		
Travel abroad 1-3 times a year	-0.133	0.008	-0.186*	0.137
	(-1.426)	(0.065)	(-1.714)	(1.486)
Travel abroad more than 3 times a year	0.008	0.042	0.063	-0.083
	(0.059)	(0.251)	(0.334)	(-0.517)
Travel alone	0.061	0.006	-0.034	0.416***
	(0.383)	(0.030)	(-0.192)	(2.751)
Travel with friends/colleagues	0.015	-0.070	-0.094	0.131
	(0.186)	(-0.663)	(-0.840)	(1.367)
Number of nights	0.409**	-0.322	-0.008	0.125
	(2.510)	(-1.510)	(-0.077)	(1.425)
(Number of nights)^2	-0.037***	0.026	-0.002	-0.006
	(-2.601)	(1.386)	(-0.301)	(-0.960)
Female	0.133*	-0.125	0.029	0.033
	(1.691)	(-1.223)	(0.297)	(0.402)
20-30 years old	-0.100	0.249*	0.076	-0.257*
	(-0.877)	(1.667)	(1.475)	(-1.902)
30-40 years old	-0.055	0.107	0.240*	-0.216**
	(-0.671)	(0.997)	(1.862)	(-1.968)
Monthly income less than NT$30,000	-0.181*	-0.060	0.291*	-0.105
	(-1.712)	(-0.438)	(1.913)	(-0.807)
Monthly income NT$30,000-50,000	-0.140	0.152	0.104	-0.075
	(-1.502)	(1.246)	(0.784)	(-0.660)
R^2	0.457	0.396	0.372	0.428
χ^2-value	56.295***	43.983***	46.708***	59.060***
Correlation of residuals	-0.687***		-0.615***	
Breusch-Pagan test χ^2-value	31.583***		29.852***	

Note: value in parentheses is the estimated t-statistic.

[a]: y_1: prepaid expenditures; y_2: locally paid expenditures.

*: p-value <0.1; **: p-value < 0.05; ***: p-value < 0.01

Table 6 - Seemingly Unrelated Regressions Model Results: Heavy Spenders

	FSC (N=64)		LCC (N=79)	
Variables	y_1[a]	y_2	y_1	y_2
Intercept	9.974***	10.811***	8.099***	10.780***
	(17.070)	(14.158)	(10.833)	(24.037)
Staying at 3- to 4-star hotel	0.245**	-0.090	0.219	-0.186
	(2.314)	(-0.653)	(0.694)	(-0.984)
Staying at business hotel	-0.092	-0.033	-0.133	-0.032
	(-0.605)	(-0.166)	(-0.441)	(-0.177)
Package tour	-0.088	-0.416**	-0.089	0.028
	(-0.577)	(-2.089)	(-0.541)	(0.240)
All-inclusive tour	0.249	-0.641***	-0.456	0.290
	(1.543)	(-3.041)	(-1.147)	(1.216)
Fees paid by oneself	0.156	-0.274	1.900***	-0.398*
	(0.986)	(-1.324)	(5.045)	(-1.761)
Fees paid by family members	0.418*	-0.449	1.616***	-0.054
	(1.871)	(-1.540)	(3.619)	(-0.200)
Travel abroad 1-3 times a year	0.138	0.192	-0.578***	0.338***
	(1.168)	(1.241)	(-2.847)	(2.776)
Travel abroad more than 3 times a year	0.252*	-0.433**	-0.362	0.396**
	(1.882)	(-2.475)	(-1.355)	(2.473)
Travel alone	-0.188	-0.271	0.138	0.196
	(-0.892)	(-0.985)	(0.480)	(1.134)
Travel with friends/colleagues	0.038	-0.212*	0.119	-0.023
	(0.411)	(-1.753)	(0.677)	(-0.215)
Number of nights	0.027	0.236	0.013	-0.137
	(0.117)	(0.770)	(0.072)	(-1.306)
(Number of nights)^2	0.001	-0.017	-0.007	0.018*
	(0.036)	(-0.512)	(-0.473)	(1.926)
Female	-0.452***	0.448***	0.027	0.011
	(-4.449)	(3.379)	(0.138)	(0.093)
20-30 years old	0.095	-0.600***	-0.608**	0.347**
	(0.570)	(-2.753)	(-2.240)	(2.132)
30-40 years old	0.028	-0.025	-0.463*	0.406***
	(0.231)	(-0.158)	(-1.910)	(2.792)
Monthly income less than NT$30,000	0.232	-0.009	0.623**	-0.307**
	(1.582)	(-0.046)	(2.484)	(-2.041)
Monthly income NT$30,000-50,000	0.102	-0.136	0.151	0.079
	(0.862)	(-0.883)	(0.706)	(0.641)
R^2	0.482	0.512	0.382	0.427
χ^2-value	59.471***	67.117***	48.792***	58.774***
Correlation of residuals	-0.356***		-0.544***	
Breusch-Pagan test χ^2-value	8.114***		23.412***	

Note: value in parentheses is the estimated t-statistic.
[a]: y_1: prepaid expenditures; y_2: locally paid expenditures.
*: p-value <0.1; **: p-value < 0.05; ***: p-value < 0.01

For medium spenders, Table 5 shows that both FSC and LCC tourists participating in all-inclusive tours have similar strategies for budget allocation: allocate more to prepaid

expenditures but less to locally paid expenditures. Furthermore, FSC users who stay at business hotels or have monthly income less than NT$30,000 are more likely to constrain their prepaid expenditures; however, if an FSC user is female, then she would significantly spend more prior to the trip. For FSC users who paid travel fees by themselves, they would control their prepaid expenses but pay more at the destination; however, for LCC travellers who also afford their own travel fees, they would spend more prior to the trip but turn to constraining their expenditures on local tourism. If an LCC tourist travels alone, then his/her local expenses would be significantly higher. Finally, LCC users who participate in package tours or are aged from 31 to 40 years spend significantly less on local tourism (but might spend more prior to the trip).

With respect to heavy spenders (Table 6), FSC tourists who stay at 3- or 4-star hotels, travel abroad frequently, or do not need to pay their own travel fees (paid by family members) would significantly allocate more of their budget to prepaid expenditures. For FSC tourists who join package tours or all-inclusive tours, travel abroad frequently, travel with friends and/or colleagues, or are aged between 20 and 30 years, they would significantly control their local paid expenses. Female FSC users would be more likely to control their prepaid expenses but to spend more at local destinations. However, the results for LCC tourists are slightly different, indicating that LCC tourists who travel less (1 to 3 times a year) or who are young or middle-aged adults (21 to 40 years old) would significantly allocate less of their budget to prepaid expenditures but more to expenses at their destinations. For low-monthly-income LCC users or for LCC users whose travel fees are paid by themselves or family members, they would significantly allocate a higher budget to prepaid expenditures but reduce their local expenses.

It is noted that the variable "number of nights" is considered to have a nonlinear effect on tourist spending behaviours; however, the results vary. For light spenders, more nights staying at destinations will reduce FSC users' expenditures prior to the trip; however, if staying for more than 9 nights, FSC users will increase their prepaid expenditures. While more nights staying at destinations will encourage LCC tourists to increase their prepaid budget, such expenses will be reduced if they are staying for more than 8 nights. In contrast, FSC medium spenders will allocate more of their budget before the trip, along with a higher number of nights stayed, but will decrease such expenses if they are staying for more than 5 nights at destinations. Although the variable "number of nights" only has

limited impacts on the locally paid decisions of LCC heavy spenders (i.e., only the squared term of the variable is estimated to be significant at the α-level of 0.05), it shows that LCC heavy spenders will reduce their locally paid expenditures with more nights stayed, while such expenses will be sharply increased if they stay at destinations for longer than 3 nights.

5. DISCUSSION

This study investigates the differences in travel spending behaviour between tourists using FSCs and LCCs. We first demonstrate that the customers of LCCs in Taiwan mainly consist of younger passengers, while FSCs retain older passengers, which reflects the findings of Desai et al. (2014) and Kulijanin and Kalić (2015). This also implies that LCCs have altered Taiwanese young adults' choices of airlines by offering affordable prices for air travel. In addition, more highly educated people are more likely to use LCCs, as they might be more aware of the business model of LCCs. Moreover, a substantial number of FSC users travel with their colleagues or friends, while there is a higher proportion of LCC users who travel alone and comparatively less with their family. More than 70% of LCC tourists take free individual tours; in contrast, FSC tourists show high participation in all-inclusive or package tours. With respect to accommodations, half of FSC users choose to stay at 3- or 4-star hotels when travelling to Korea or Japan, but up to 65% of tourists using LCCs stay at business hotels or B&Bs. No more than 10% of LCC tourists stay at luxury hotels.

Travel expenditure analysis demonstrates that FSC tourists generally allocate a relatively larger amount of their budget to prepaid expenses than to locally paid expenditures, except for FSC heavy spenders. This finding partially reflects the findings from Ferrer-Rosell and Coenders (2017), concluding that FSC users continue to devote a somewhat greater share of their budget to transportation (compared to the expenses incurred at destinations). However, LCC tourists are more likely to reduce expenditures prior to travel to save more of their budget for locally paid expenditures. Accordingly, LCC tourists have purchasing power in terms of the volume of locally paid expenditures that is no weaker than that of FSC tourists, which is in contrast to the findings from Almeida and Garrod (2017) and Hentschel and Klingenberg (2017), both suggesting that LCC users spend less. Our analysis provides some implications for destination airports because some airport terminals specialized for LCCs only deploy small and simple commercial areas (i.e., budget terminals). If such arrangements are due to the anticipation that LCC users will not only

save money on airfare (i.e., the reason why these tourists choose LCCs) but also control their consumption, then this is a misunderstanding. Choi et al. (2020) found that LCC passengers actually have comparable or even higher purchasing power than that of FSC passengers in consuming duty-free goods at airports and suggested that budget terminal design may damage concession revenue from certain LCC passengers with high purchasing power.

Through model analysis, the seemingly unrelated regressions model successfully identifies a negative indirect interaction relationship between prepaid and locally paid travel expenditures under pre-planned travel budgets. The impacts of the significant variables, including trip characteristics, sociodemographic characteristics, and economic constraints, are generally in accordance with the findings from past studies. The model also reveals that tourist spending behaviours at destinations are partially subject to prepaid expenditures. Finally, the impact of the "number of nights" on travel expenditures was non-linear, in contrast to the results of Almeida and Garrod (2017) and Qiu et al. (2017), denoting that tourists' travel spending would not be constantly increasing or decreasing along with the increasing length of stay; instead, it would decrease or increase after staying a certain number of nights at destinations.

6. CONCLUSIONS

Destination marketing is not only an important issue for attracting visitors but also makes visitors spend money on tourism products at destinations, and destination airports are no exception. Our empirical evidence first identifies that some trip-related characteristics, sociodemographic characteristics, and personal economic constraints significantly influence tourists' travel spending behaviours. Second, a negative interaction relationship exists between prepaid and locally paid expenditures, and the SUR model further demonstrates that tourists' consumption behaviour at the destination is somewhat subject to their expenditures incurred prior to the trip. That is, in contrast to FSC users, LCC tourists spending less on air tickets have more in their budget for local tourism. Finally, our analysis also found that the budget allocation strategies to prepaid and locally paid expenditures are not similar between different types of airline users. LCC tourists do not always spend less than FSC tourists; some of them have comparable purchasing power to FSC users. Accordingly, we recommend that although the types of airline used can be a factor in discriminating tourists' travel expenditures, wrongly misunderstanding LCC

tourists' purchasing power could damage the potential benefits for local tourism. Furthermore, destination marketing managers should consider effective marketing promotions, particularly to FSC passengers, as their local expenses are partially subject to higher prepaid expenditures.

Segmenting tourists based on expenditures and identifying their profiles could provide valuable information for destination management, which may limit the sample size in each segment and, as a result, limit the goodness-of-fit of the model analysis and explanation abilities of the variables. More samples are necessary to empirically investigate different airline passengers' spending behaviours in the future.

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