engineering proceedings

MDPI

Proceeding Paper

Analysis of the Package Tour Consumption Behaviors of Families in Taiwan, 2009–2019 †

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† Presented at the 2024 IEEE 4th International Conference on Electronic Communications, Internet of Things and Big Data, Taipei, Taiwan, 19–21 April 2024.

Abstract: Destination platforms provide travel information and cheaper travel products, thus increasing the number of individual travelers. Therefore, travel agencies need to understand consumer behaviors toward family package tours and maintain and create new business opportunities. Using the cohort analysis method, we studied three variables in the time dimension: age, period, and cohort effects. A two-part model was combined to construct a model of family package tours in Taiwan, using data from the "Survey of Family Income and Expenditure in Taiwan" covering the period from 2009 to 2019. The results show that there were two peak periods when customers chose package tours: when the head of the household was between 46 and 50 years of age and between 66 and 70 years of age. A younger head of household had a higher willingness for such tours than an older one. The highest selection rate for these tours occurred in 2013, and then, it decreased gradually. Families with a head of household aged between 71 and 75 years had the highest expenditure on family package tours.

Keywords: cohort analysis; two-part model; package tour

Citation: Chen, T.-S.; Ou Yang, C.-P.; Chu, J.-Y. Analysis of the Package Tour Consumption Behaviors of Families in Taiwan, 2009–2019. *Eng. Proc.* **2024**, *74*, 80. https://doi.org/10.3390/engproc2024074080

Academic Editors: Shu-Han Liao, Teen-Hang Meen and Cheng-Fu Yang

Published: 28 November 2024

1. Introduction

The lives of human beings have been profoundly transformed by computer technology, which is evident in personal, social, economic, and medical aspects. The internet enables easy access to diverse information, thereby popularizing knowledge. The evolution of electronic commerce has revolutionized the shopping experience, allowing individuals to purchase goods and services online. This enhances convenience and broadens consumer choices and experiences, influencing people's travel behavior. With the rapid development of computer technology and mobile devices, travel information is available on online platforms, thus allowing users to access the latest travel information and book various travel products, such as package tours, accommodation, flight tickets, and amusement park tickets. The catalytic effect of the rapid growth of regional low-cost airlines has accelerated the trend of individuals planning overseas trips on their own.

According to data from the Tourism Bureau's survey on the travel habits of Taiwanese nationals, the proportion of outbound tourists participating in group tours decreased from 54.6% in 2011 to 44.1% in 2019. During the same period, the proportion of individuals planning overseas trips increased from 11.5 to 40.7%. The rapid advancement of technology is reshaping people's consumption habits and the way that they travel abroad.

Tourism plays a crucial role in the economies of countries. It stimulates economic growth and expands domestic markets, creates employment opportunities, catalyzes increased private investment, and enhances the participation in and quality of leisure life. According to statistics from the World Travel and Tourism Council in 2019, the global scale

of tourism and sightseeing reached USD 8.90 trillion, contributing to 10.3% of the global gross domestic product (GDP). The global tourism industry employs 3.3 billion people, accounting for 10.0% of global employment. Considering its contributions to economic output and employment, it is evident that tourism is significant to economies.

In 2019, the outbreak of the COVID-19 pandemic significantly impacted the global tourism market. According to data from the World Tourism Organization, the number of global inbound tourist arrivals was 1.465 billion in 2019, but this dropped to 407 million in 2020, with a decrease of 72.2% compared to 2019. In 2022, the number of global tourist arrivals reached 963 million, representing 65.7% of that in 2019. As the pandemic subsided, borders reopened, and global tourism gradually returned to its former trend. Economic growth is now expected worldwide. Thus, it is important to seize opportunities in tourism-related businesses, create operational efficiencies, and understand the characteristics of people's travel consumption behaviors.

In Taiwan, tourism provides diverse activities for family leisure. From 2015 to 2019, more than half of annual leisure expenditures were allocated to package tours. In recent years, destination travel platforms have emerged, offering an abundance of travel information and a variety of affordable travel products and itineraries for consumer choice. This trend has increased the number of independent travelers, posing a significant challenge to traditional travel industry operators.

We identified three variables in the time dimensions of family package travel data using a cohort analysis. The effects of age, period, and cohort were analyzed through an observation of long-term changes in family package travel consumption. Package travel is not a necessity in daily life, and there was no data for several families, known as zero spending. If parameter estimation is conducted using ordinary least squares during these periods, then it may lead to biased and inconsistent results [1]. Thus, the double-hurdle model [2] and the Heckit model [3] were used to explore consumption behaviors, participation, and consumption decisions. A two-part model or two-stage decision model was used to address the issue of zero spending by analyzing the consumption behavior of tourists.

We combined the two-part model with the cohort analysis method to construct a model for the package tour consumption behavior of the Taiwanese population. We determined the factors influencing participation and expenditure decisions in family package travel, thus providing a reference for travel industry operators in formulating business strategies.

2. Literature Review

Previous research on tourism expenditures has been conducted in terms of macroeconomics and microeconomics. In macroeconomics, the impact of prices and income from tourist countries and destination countries on tourism expenditures were investigated. An analysis of tourist destination countries or regions, with a predominant emphasis on Europe as the primary subject, was used in the construction of an analysis model of a demand system [4], and the data were aggregated. In microeconomic studies, the optimal choice behavior of tourism demand, the influencing factors, and the construction of tourism price models were investigated [5]. The data used in these studies consisted of household or individual survey cross-sectional data, with traditional linear regression models being commonly employed [6].

2.1. Two-Part Model for Travel Expenditure

Weagley and Huh [7] used the double-hurdle (DH) model to explore the factors influencing the leisure consumption expenditures of households with older people who were either retired or nearing retirement in the United States. They compared the differences in the factors of decision-making on participation and consumption expenditure. The results revealed that, concerning the participation in decisions about active leisure activities, variables such as income, education level, and homeownership positively impacted the willingness of retired and near-retirement households to engage in leisure consump-

tion. Variables such as the age of the household head, Black ethnicity, residence in the northwestern United States, and sources of income impacted the willingness of retired and near-retirement households to participate in active leisure activities. Regarding the expenditure decisions in active leisure, only income significantly impacted the willingness of retired and near-retirement households to spend money on active leisure activities.

Nicolau and Más [8] employed the Heckman model to analyze the factors influencing the participation and expenditure decisions of Spanish residents in tourism. Income, education level, and vacation preferences had a significantly positive impact on the willingness of individuals to participate in tourism. Family size negatively affected the willingness of Spanish families to participate in tourism. In terms of tourism expenditure, decisions, distance, accommodation location, family size, marital status, and income influenced the tourism expenditure of Spanish families. However, education level had no influence on the tourism expenditure of Spanish families.

Alegre, Mateo, and Pou [9] utilized data from the Spanish Household Survey from 2006 to 2010 and applied the Heckman model to investigate the factors influencing the participation in and expenditure on tourism for Spanish households. Income, the presence of children under 14 in the household, and education level positively affected the participation in and expenditure on family tourism. However, household size, renting a home, and unemployment of household members negatively affected participation in and expenditure on family tourism.

Bernini and Cracolici [10] used household expenditure data from Italy, spanning from 1997 to 2007, to explore the relationship between demographic characteristics, life cycle, and travel expenditure. Employing the double-hurdle model, they analyzed domestic and international travel participation decisions and consumption expenditure decisions and examined the significance of age and cohort effects. Demographics significantly impacted a household's travel behavior. For domestic or international travel, the willingness of Italian households to travel decreased gradually with age, while travel expenditures increased with age.

Lin, Qin, Li, and Wu [11] utilized data from the China Family Panel Studies (CFPSs) conducted in 2014, 2016, and 2018 and investigated the factors influencing the travel consumption behavior of Chinese households, employing the Heckman model. Household income, the number of family members aged over 65 years, ownership of a private car, education level, and general trust in others significantly influenced the participation in and expenditure on family tourism. Additionally, household size exhibited a significant negative impact on participation in and expenditure on family travel.

2.2. Cohort Travel Expenditure

Values, attitudes, and preferences shaped by generations are not easily changed with age and lifestyle [12]. Oppermann [13] used longitudinal data and explored the travel patterns of German residents. He analyzed differences in family life cycles and travel patterns between different generations. The family life cycle influences the travel patterns of German residents, affecting destination choices, travel expenditure, transportation, accommodation and group size, duration of stay, activities, and travel seasons. Pennington and Kerstetter [14] examined whether the travel preferences of two generations of elderly individuals in Canada changed over time using data from Statistics Canada and the Canadian Tourism Commission. Significant variations in travel preferences were found for older Canadian adults across different generations and periods.

Newbold et al. [15] investigated the travel behavior of the elderly population in Canada using data from the General Social Survey conducted in 1986, 1992, and 1998. Older Canadians traveled less frequently than younger generations. Chen and Shoemaker [16] analyzed time-series data to examine the psychological characteristics and travel behavior of elderly travelers from the Silent, Lucky Few, and Baby Boomer Generations in the United States, employing cohort theory, life course theory, and continuity theory. The results supported family life cycle theory and continuity theory in the U.S. senior travel market.

In explaining group differences in the travel market for seniors, age effects were more influential than cohort effects, suggesting limitations in using cohort theory to explain the elderly travel market.

Lin, Jiang, Li, and Qin [17] utilized five-year longitudinal data from the China Household Financial Survey to explore the impact of psychological factors, specifically risk aversion, on travel participation and expenditures. The results represented the integration of the hierarchical age–generation–period model and the Heckman model in analyzing the role of risk aversion in travel decision making. Risk aversion significantly influenced travel participation and expenditure. Individual willingness to travel and expenditure gradually decreased with the life cycle. Differences existed in the effects of period and cohort factors on travel participation and expenditure.

Travel is not a commodity that households regularly consume, making it crucial to choose appropriate models when exploring factors influencing family travel expenditure, especially in addressing zero expenditure. Additionally, it is necessary to understand the dynamic characteristics of family travel expenditure over time and introduce cohort analysis models to disentangle the effects of age, generation, and period for the prediction of changes in travel consumption patterns. In this study, the two-part, double-hurdle, dependent double-hurdle, and Heckman models were selected. The Voung test method was also employed to determine the appropriateness of the model for analyzing family package travel consumption behavior in Taiwan with factors influencing family package travel and its consumption patterns.

3. Methods

3.1. Data Collection

We utilized longitudinal data from 2009 to 2019, obtained from the "Taiwan Area Household Income and Expenditure Survey" of the Directorate General of Budget, Accounting, and Statistics, Executive Yuan [18], and investigated family package travel consumption behavior. The survey data included data on individuals and households in Taiwan. The total number of sampled households in this study was 126,312, with 46,596 households having zero expenditure on family package travel, accounting for 36.9% of all households.

3.2. Cohort Grouping

The term "cohort" originally referred to a military unit or soldiers, but now it denotes a group of people sharing common characteristics [19]. Cohort groups are classified based on shared experiences of historical events or by using birth years (birth cohort). In this study, birth years were used to distinguish cohorts. The range of years for cohort grouping can be arbitrarily determined [20], with intervals of five or ten years commonly used as the boundary points. We categorized cohorts based on the age of the head of household, with each cohort spanning five years across fourteen generations: 1926–1930, 1931–1935, 1936–1940, . . ., 1991–1995. Households with heads born before 1926 or after 1995 were excluded from the analysis.

3.3. Effects of Cohort, Age, and Period

As period (era) is equal to age plus birth year, it results in a perfect linear overlap with age, cohort, and period. Therefore, when estimating, it is necessary to introduce constraints to differentiate the effects of age, cohort, and period. Otherwise, the parameter estimation cannot be used to observe trends in consumption behavior. Thus, we employed the cohort–age–period linear decomposition model [21,22] to include age, cohort, and period variables. It was assumed that the long-term period effects were averaged to zero and were orthogonal to the linear trend.

3.4. Two-Part Model

3.4.1. Double Hurdle

The Tobit model is used to address the issue of zero expenditure in consumption [23]. It is used to analyze the observed data, assuming that zero expenditure represent the true consumption value of the goods. Zero expenditure is influenced by economic factors (corner solution), and the possibility that no consumption may result from a lack of willingness to participate can be overlooked. Crag [2] modified the Tobit model and suggested that the origin of zero observations was determined due to corner solutions and the fact that consumers had zero demand for the product, meaning that they chose not to consume. Cragg's double-hurdle (DH) model separates consumption into two components: the participation decision and the consumption decision. In the DH model, zero observations may occur either due to non-economic factors leading to non-participation in consumption in the first stage or due to economic factors resulting in zero expenditure in the second stage [24].

The primary distinction between the DH and Heckit models lies in the occurrence of zero observation. In the Heckit model, zero observation appears in the first stage of consumption choice, whereas in the DH model, it occurs in the first or second stage. Assuming independence between the error terms of the participation decision and consumption decision equations, the logarithmic likelihood function of the DH model is written as (1) [25,26]

$$lnL = \sum_0 ln[1 - \Phi(\alpha' z_i)\Phi(\frac{\beta' x_i}{\sigma})] + \sum_+ ln[\Phi(\alpha' z_i)\frac{1}{\sigma}\varphi(\frac{y_i - \beta' x_i}{\sigma})], \quad (1)$$

where z_i represents the variables affecting the participation decision, x_i represents the variables influencing consumption expenditure, and y_i is the observable consumption expenditure. In the DH model, the explanatory variables in the participation decision equation differ from those in the consumption decision equation, as shown in Equation (2) [27,28]:

$$\begin{pmatrix} \mu_i \\ v_i \end{pmatrix} \sim \left[\begin{pmatrix} 0 \\ 0 \end{pmatrix}, \begin{pmatrix} 1 & \rho\sigma \\ \rho\sigma & \sigma^2 \end{pmatrix} \right], \quad (2)$$

where ρ represents the correlation coefficient. The logarithmic likelihood function of the dependent double-hurdle model with the inclusion of the correlation coefficient is expressed as (3) [29]

$$lnL = \sum_0 ln[1 - \Phi(\alpha' z_i, \frac{\beta' x_i}{\sigma}, \rho)] + \sum_+ ln\left[\Phi\left(\frac{\alpha' z_i + \frac{\rho}{\sigma}\left(Y_i - \beta' x_i\right)}{\sqrt{1-\rho^2}}\right)\frac{1}{\sigma}\phi\left(\frac{y_i - \beta' x_i}{\sigma}\right)\right]. \quad (3)$$

3.4.2. Heckit Model

Heckman [3] proposed a sample selection model to address zero expenditure on unobservable goods, suggesting that zero expenditure results from consumer self-selection not to participate. If model parameter estimation is performed using only a subset of the sample, then the issue of sample selection bias may arise. The Heckit model assumes a correlation between the error terms (μ_i,ν_i) of the decision equation and the consumption equation, with the degree of correlation denoted as ρ. The bivariate normal distribution of the errors in the two equations of the Heckit model is expressed in Equation (2). In addition to using a two-step estimation method, the Heckit model also employs maximum likelihood estimation for parameter estimation. The logarithmic likelihood function for the Heckit model is specified as follows [30,31]:

$$lnL = \sum_0 ln[1 - \Phi(\alpha' z_i)] + \sum_+ ln\left[\Phi\left(\frac{\alpha' Z_i + \frac{\rho}{\sigma}\left(y_i - \beta' x_i\right)}{\sqrt{1-\rho^2}}\right)\frac{1}{\sigma}\phi\left(\frac{y_i - \beta' x_i}{\sigma}\right)\right]. \quad (4)$$

4. Results and Discussion

4.1. Variables

The influencing variables on family package travel consumption behavior in Taiwan were categorized into four types, namely, economic factors, constraint factors, socio-demographic factors, and cohort factors, by summarizing the past literature on travel expenditure [6,8,10,32,33]. The economic factors included the household disposable income and the employment status of the homemaker. The constraint factors consisted of the presence of children under the age of 14, adults over the age of 65, and healthcare expenditure. The socio-demographic factors included the educational level, occupation, gender, and marital status of the head of the household. The cohort factors involved age groups such as 20–25 (AGE1), 26–30 (AGE2), . . ., 86–90 (AGE14), forming fourteen age categories and fourteen cohort groups. Variables such as household disposable income, package travel expenditure, and health expenditure were adjusted for inflation using the Consumer Price Index. Other variable explanations are detailed in Table 1. In the two-part model, there is currently no theoretical basis providing a reference for whether the explanatory variables must be the same in the two decision equations. Including the same explanatory variables in both decision equations may lead to an incorrect identification of model parameters [24]. Therefore, it is necessary to introduce exclusion constraints [24,26,29] to estimate accurate parameters in the model equations. In the decision-making process for family consumption in the market, the purchase decision is primarily influenced by non-economic factors. Hence, income variables were excluded from the purchase decision equation [24,26].

Table 1. Model for cohort analysis of family travel expenditure: explanation of variable names and descriptive statistics.

Variable	Description	Measurement		Statistics
LY	Household disposable income	Logarithmic household disposable income		9.09
WEMP	Women's employment per household	1: yes	0: no	39.31%
EDU1	Below middle school	Omitted variables		12.53%
EDU2	High school	1: yes	0: no	14.88%
EDU3	Junior college education	1: yes	0: no	32.22%
EDU4	College education	1: yes	0: no	33.50%
EDU5	Graduate education and above	1: yes	0: no	6.86%
OCU1	Not working	1: yes	0: no	10.40%
OCU2	Management level	1: yes	0: no	5.72%
OCU3	Professional	1: yes	0: no	33.34%
OCU4	Service	1: yes	0: no	15.40%
OCU5	Labor industry	1: yes	0: no	30.86%
OCU6	Agriculture	1: yes	0: no	3.61%
OCU7	Soldier	Omitted variables		0.67%
SEX	Gender	1: male	0: female	71.50%
MAR	Marital status	1: married	0: unmarried	79.97%
CH14	Number of children under 14	Number of children under 14		0.47 person
A65	Number of seniors aged over 65	Number of seniors aged over 65		0.42 person
HEL	Household healthcare expenditure	Expenditure on health and family care		5.07

4.2. Analysis Results

STATA statistical software (version 13) was used for the maximum likelihood estimation of the two-part models, namely, the DH, DDH, and Heckit models. The Voung test [34] was used to select the appropriate consumption behavior model for family package travel data. The test results are shown in Table 2, indicating that DDH was the most appropriate for analyzing family package travel consumption behavior in Taiwan.

Table 2. Test settings.

Model	Type of Test	Testing Value
Heckit vs. double hurdle	Vuong	3.31
Heckit vs. dependent double hurdle	Vuong	−30.89

4.2.1. Participation Decision

Table 3 presents the parameter estimation results for the dependent double-hurdle model. The participation of women in the workforce (WEMP) showed a significantly positive relationship with family participation in package travel, coinciding with the findings of Sun et al. [35]. Concerning the constraint factors, the number of individuals aged over 65 years in the household (A65), the number of individuals aged below 14 years (CH14), and health expenditure (HEL) exhibited a significant positive relationship with family willingness to participate in package travel. This indicates that, as the number of individuals aged 65 or over, the number of children aged below 14 years, and health expenditure in the household increased, the willingness of the family to participate in package travel also increased.

Table 3. Estimated coefficients of the cohort analysis model for family package travel expenditure.

Variable	Coefficient	Normalized Value	Variable	Coefficient	Normalized Value
			LY	1.1207	89.71 **
MAR	0.2493	17.19 **	MAR	−0.1475	−7.03 **
SEX	0.0155	1.75	SEX	−0.1120	−9.01 **
EDU2	0.1707	10.46 **	EDU2	0.3312	13.36 **
EDU3	0.2558	16.56 **	EDU3	0.5099	21.57 **
EDU4	0.3712	21.92 **	EDU4	0.7747	30.18 **
EDU5	0.4384	19.17 **	EDU5	1.0038	31.52 **
OCU1	−0.0648	−1.33	OCU1	0.5941	8.50 **
OCU2	0.6363	13.06 **	OCU2	1.0314	15.44 **
OCU3	0.4289	9.36 **	OCU3	0.6845	10.65 **
OCU4	0.2556	5.49 **	OCU4	0.4009	6.14 **
OCU5	0.2486	5.39 **	OCU5	0.3130	4.83 **
OCU6	0.2545	5.09 **	OCU6	0.2919	4.16 **
CH14	0.2851	39.91 **	CH14	−0.2315	−27.52 **
A65	0.0342	4.95 **	A65	−0.0957	−10.86 **
WEMP	0.1153	12.61 **	WEMP	0.0602	5.12 **
HEL	0.1166	24.07 **	HEL	−0.0041	−0.49
AGE2	0.0403	1.01	AGE2	0.3491	5.64 **
AGE 3	0.1208	2.81 *	AGE 3	0.5720	8.60 **
AGE 4	0.3796	8.37 **	AGE 4	0.7946	11.43 **
AGE 5	0.6975	14.66 **	AGE 5	1.0874	15.11 **
AGE 6	0.7626	15.40 **	AGE 6	1.2089	16.34 **
AGE 7	0.6970	13.61 **	AGE 7	1.4003	18.46 **
AGE 8	0.7085	13.31 **	AGE 8	1.6561	21.09 **
AGE 9	0.7953	14.11 **	AGE 9	1.8615	22.46 **
AGE 10	0.8656	13.66 **	AGE 10	2.1290	22.81 **
AGE 11	0.8399	11.63 **	AGE 11	2.1643	19.82 **
AGE 12	0.6885	8.57 **	AGE 12	2.0431	16.27 **
AGE 13	0.5272	5.76 **	AGE 13	1.7172	11.26 **

Table 3. *Cont.*

Variable	Coefficient	Normalized Value	Variable	Coefficient	Normalized Value
AGE 14	0.3733	3.31 *	AGE 14	1.6140	7.78 **
COH2	0.0381	0.65	COH2	0.0010	0.01
COH 3	0.1367	2.01 *	COH 3	0.0120	0.09
COH 4	0.2524	3.36 *	COH 4	0.1056	0.74
COH 5	0.2605	3.23	COH 5	0.1731	1.15
COH 6	0.3460	4.17v	COH 6	0.4049	2.64 *
COH 7	0.3528	4.18v	COH 7	0.5199	3.36 *
COH 8	0.4195	4.91v	COH 8	0.6481	4.16 **
COH 9	0.5105	5.90 **	COH 9	0.7578	4.83 **
COH 10	0.5633	6.43 **	COH 10	0.8586	5.45 **
COH 11	0.6106	6.88 **	COH 11	0.9705	6.12 **
COH 12	0.7408	8.22 **	COH 12	1.1932	7.44 **
COH 3	0.8594	9.25 **	COH 3	1.5218	9.27 **
COH 14	0.9796	9.72 **	COH 14	1.6986	9.74 **
YR3	0.0229	2.05 *	YR3	−0.0040	−0.27
YR4	0.0629	5.46 **	YR4	−0.0199	−1.3
YR 5	0.0793	6.69 **	YR 5	−0.0067	−0.43
YR 6	0.0327	2.79 *	YR 6	−0.0524	−3.38 *
YR 7	0.0456	3.90 **	YR 7	0.0159	1.03
YR 8	−0.0091	−0.79	YR 8	−0.0023	−0.15
YR 9	−0.0133	−1.18	YR 9	0.0268	1.83
YR 10	−0.0400	−3.71 *	YR 10	−0.0020	−0.14
YR 11	−0.0440	−4.29 **	YR 11	0.0014	0.1
Constant	−2.4431	−21.75 **	Constant	−8.8922	−42.83 **
ρ	0.6587	56.97 **			
Log likelihood		−208,619.43			

(**: $p < 0.01$, *: $p < 0.05$).

In terms of the socio-demographic factors, the education level of the head of the household (EDU) showed a positive relationship with the family's willingness to participate in package travel. The coefficients of the education level variables were not zero. As the education level of the head of the household increased, the willingness of the family to participate in package travel also increased, consistent with the findings of Nicolau and Más [8], Alegre et al. [9], Bernini and Cracolici [10], and Sun et al. [35].

Regarding the head of the household's occupation, the military profession (OCU7) was the baseline, and the coefficients for all five occupation variables, except for unemployment (OCU1), were not zero. By observing the estimated coefficients for the occupation variables, it was found that households with heads in managerial positions (OCU2) and professional occupations (OCU3) exhibited a higher willingness to participate in package travel. In contrast, households with unemployed heads (OCU1) demonstrated a lower willingness. Households with male heads (SEX) showed a significantly higher willingness to participate in package travel than households with female heads, although the estimated coefficient did not reach the significance level. Married households (MAR) exhibited a significantly higher willingness to participate in package travel than unmarried households, with the estimated coefficient being significantly different from zero.

In terms of the cohort factors, the Wald test results for the age, generation, and period coefficients revealed that age and cohort effects were significantly different from zero for participation and consumption decisions (Table 4). Regarding family participation in package travel decision making, as the age of the head of the household increased, the willingness to participate in package travel increased (Figure 1a).

Table 4. Wald test results of age, cohort, and period.

Equation	Age Effect	Cohort Effect	Period Effect
Participation	chi2 = 830.1 *p*-value = 0.000	chi2 = 231.5 *p*-value = 0.000	chi2 = 178.2 *p*-value = 0.000
Consumption	chi2 = 904.7 *p*-value = 0.000	chi2 = 457.6 *p*-value = 0.000	chi2 = 32.6 *p*-value = 0.000

Source of data: this study.

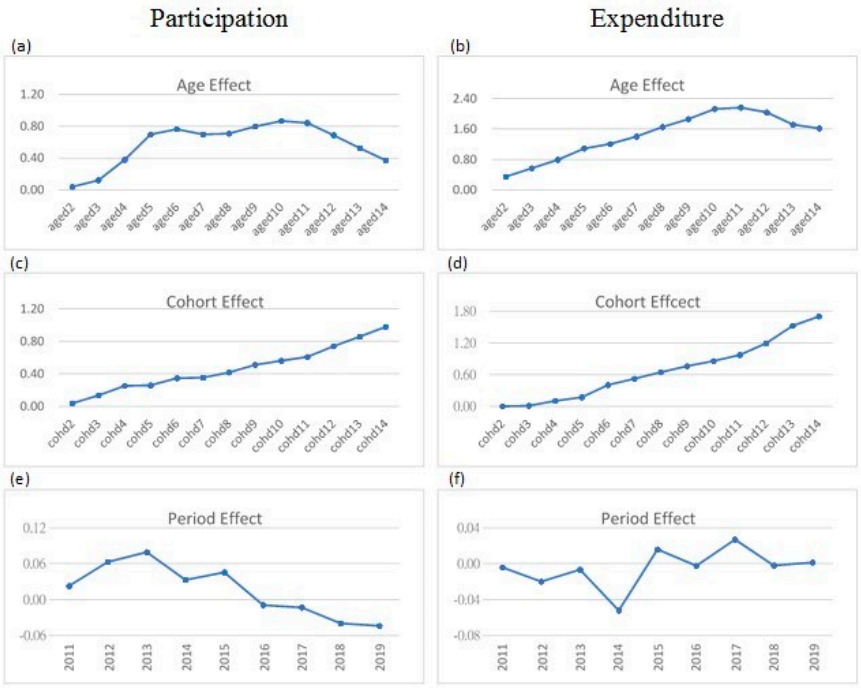

Figure 1. Effects of age, cohort, and period on household package travel consumption and expenditure decisions (**a**–**f**).

The first peak in travel willingness was observed around the age of 46–60 (AGE 6), followed by a decline and a gradual rise. Another peak in willingness to participate in family package travel was observed between the ages of 66 and 70 (AGE 10), with a subsequent decline in willingness for heads of households over 70 years old (Figure 1c). The cohort variable coefficients exhibited a monotonic increase, indicating that, as the generation became younger, the willingness of families to participate in package travel increased. In terms of the period variables, a peak in willingness to participate in family package travel was observed in 2013, followed by a gradual decline in subsequent years (Figure 1e).

4.2.2. Consumption Decision

Regarding family package travel expenditure decisions, the economic factor of disposable family income showed a significant positive relationship with package travel expenditure. As income increased, the amount that families allocated to package travel expenses also increased. This result aligns with the findings of previous studies [7,9,32–34,36–40]. The participation of females in the workforce (WEMP) in the household also significantly impacted package travel expenditure [34]. As a limiting factor, household health expenditure (HEL) showed a negative relationship with package travel expenditure, although the coefficient was not significant. The number of adults aged 65 or over (A65) showed a negative relationship with package travel expenditure, indicating that the higher the number of seniors aged 65 or over in the family, the less the family spent on package travel [35]. The number of individuals aged below 14 years (CH14) in

the household had a significant negative relationship with package travel expenditure, suggesting that the higher the number of individuals aged below 14 years in the family, the less the family spent on package travel.

Regarding socio-demographic observations, there was a significant positive relationship between the educational level of the household head and package travel expenditure. As the educational level of the household head increased, the amount spent on package travel also increased. This finding aligns with the results of previous studies [7,9,10,32,33,35,38,40]. In terms of the household head's occupation, the coefficients of variables were not zero. Households with a management-level head (OCU2) and professional head (OCU3) tended to spend more on package travel. Conversely, households with a head employed in the military (OCU7) or engaged in agriculture (OCU6) spent less on package travel. Single households (MAR) exhibited significantly higher package travel expenditure than married households. Additionally, households with a female head (SEX) had significantly higher package travel expenditure than those with a male head.

In terms of cohort factors, with an increase in the household head's age, the expenditure on household package travel participation also increased (Figure 1b). The peak of household package travel expenditure was observed between the ages of 71 and 75 years (AGE11), and, over the age of 75 years, the expenditure gradually decreased. The coefficients of the cohort variables increased, indicating that the younger the age of the generation, the higher the household package travel expenditure (Figure 1d). In terms of period variables, household package travel expenditure fluctuated in response to changes in the economic environment (Figure 1f).

5. Conclusions

The COVID-19 pandemic in 2019 significantly impacted the global tourism industry. As the pandemic subsided and borders reopened, countries embraced the vast business opportunities with the recovery of tourism. The rapid development of computer technology has transformed people's lifestyles and consumption patterns. Destination travel platforms provide the latest and abundant travel information and affordable travel products, increasing the number of independent travelers. With this change, package tours are gradually losing their appeal and competitiveness. For traditional travel agencies, it is necessary to adopt these changes and maintain and create business opportunities. Therefore, it is essential to understand the characteristics of family package travel consumption behavior. We used longitudinal data from the Directorate-General of Budget, Accounting, and Statistics of the Executive Yuan, focusing on the "Family Income and Expenditure Survey Report." Employing the two-part model with the dependent double-hurdle and cohort–age–time linear decomposition models [21,22], we analyzed the consumption behavior of Taiwanese families regarding package travel. The results revealed two peaks in the willingness to participate among household heads aged 46–50 and 66–70 years, with the highest willingness observed in families with heads aged between 66 and 70 years. Younger household heads exhibited a higher willingness to participate in package travel than older household heads. The peak of willingness to participate in family package travel occurred in 2013, and, since then, it has declined. A higher propensity to participate in package travel was found for household heads who were male or married with higher education levels, who had managerial or professional occupations, who had family members aged 65 years or over and below 14 years, and who had higher health expenditure and working housewives. The respondents aged 71 to 75 years old spent the most on family package travel. Younger families had higher package travel expenditure than older generations, and family package travel expenditure fluctuated due to changes in the economic environment. Higher income, working housewives, female and single household heads, higher education levels of household heads, managerial or professional occupations, and fewer family members aged over 65 and below 14 years were demographic characteristics associated with higher package travel expenditure.

Family participation in packaged travel in Taiwan was mostly for outbound tourism. Younger families who were less familiar with travel abroad expressed a higher willingness to participate in package tours abroad and, consequently, exhibited higher travel expenditure. Travel industry operators need to consider the characteristics of the younger generation in planning travel itineraries and marketing to sustain the development of the package travel market. The willingness of families to participate in package travel peaked after a household head retired.

The results of this study serve as a basis for travel agencies in formulating market segmentation strategies. The willingness of families to participate in package travel has gradually declined since 2013, indicating an increase in independent travel. Regarding package travel expenditure, little change was observed in travel spending. Strategies for travel agencies are necessary to mitigate the impact of independent travel, explore the high-end package travel market, and address the challenges of slowing expenditure growth and a shrinking market share for the sustainable development of the tourism industry.

Author Contributions: Conceptualization, methodology, formal analysis, and writing—original draft, T.-S.C.; data curation, C.-P.O.Y.; formal analysis and writing—review and editing, J.-Y.C. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Analyses were conducted based on the information contained in the datasets on the Survey of Travel by R.O.C. (Taiwan) Citizens for the years 2009–2019. The information can be found in the reference list.

Conflicts of Interest: The authors declare no conflicts of interest.

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