

COMMUNICATING WITH KEY TRAVEL DECISION MAKER FOR STRONGER COMPETITIVENESS OF DESTINATIONS: A MULTILEVEL PERSPECTIVE FOR EAST ASIAN FAMILY VACATIONS

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Abstract

Destination marketing organizations (DMOs) find it challenging to appeal to the key decision-maker on travel destination for family vacations because family members have diverse and competing needs and preferences. Research has suggested that family members make decisions about travel destinations for family vacations jointly. The authors contend that in decisions about the destination for family vacations, the family's role structure for decision-making is subject to the characteristics of the society, the travel, and the household. The investigation was undertaken among 1,016 respondents from the senior high school students from China, Japan, South Korea and Taiwan. Exhaustive chi-square automatic identification detector analyses was employed to predict the likely decision maker (LDM) – the father, the mother, or the child(ren)—using a decision tree model. The results revealed that: a). Society, which represents people's socio-cultural and ideological backgrounds, was the strongest predictor of the LDM for decisions about family travel destinations. The "father" was found to be the most acceptable target category when we considered both its cumulative gain and recall rate; b). The study finds an above-average probability of the fathers' dominance as decision maker, suggesting that the decision tree technique is appropriate for DMOs to use in targeting the father-dominant market of travel destinations in East Asia. The managerial measures that can be applied to improve promotion strategies of DMOs have also been proposed.

Keywords: Destination Marketing Organization (DMO), Exhaustive Chi-Square Automatic Identification Detector (E-CHAID), Family Vacation Decision Making (FVDM), Likely Decision Maker (LDM), Travel Destination

INTRODUCTION

Destination choice is considered to be an indispensable element of travel decision making (Bronner & de Hoog, 2011a; 2011b; de Souza et al., 2020; Karl, 2018; Nyman et al., 2018; Spiers, 2017; Stienmetz et al., 2015). For a destination marketing organization (DMO), knowing the best way to market its destination to families for vacation purposes is especially important because family vacationists visit in a group and thus normally consume more than individual visitors do (Kang et al., 2003). On the other hand, identification of the target family market and speaking to the specific person who dominates the destination choices for family vacations are tremendous challenges because a destination is not universally attractive to the vacation needs of all participants (de Souza et al., 2020). That issue has evoked a research focus on families' decision-making styles for choosing a vacation destination (e.g., Cheng et al., 2019).

The extant research on the family role structure in making decisions about destinations for family vacations has presented contradictory findings and arguments. Jenkins's (1978) study was the first publication that explored family members' influence on sub-decisions about family vacations. Jenkins found that husbands had a greater influence than wives and children did in destination decision making, and that there was no commonly used decision-making style for making such choices. Ritchie and Filiatrault (1980) replicated and extended Jenkins's research but concluded that husbands and wives had an equal influence in destination decisions. Furthermore, recent research in general has asserted that destination decisions are made jointly by family members due to the trend toward family democracy (Rojas-de-Gracia & Alarcón-Urbistondo, 2019). These conclusions are inconsistent for 3 reasons.

- The definitions of the analytical concepts used and the instruments employed by those studies were not

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in agreement, which made their results incomparable across the studies (Tagg & Seaton, 1995);

- That research rarely had equal concerns for factors that were related to decision-making style and to the relative influence of the various participants in destination decisions (e.g., Nanda et al., 2007) and thus controlled for the impact of those factors on their results, which could explain the research having arrived at incongruous findings;
- Their evidence was obtained from a single cultural context, and it is too soon to be confident in inferring that the decision style accepted in one society is similar to that in another society.

In response to those unaddressed topics in research on the family role structure for destination decisions, it is desirable to organize a research design that incorporates cultural and socioeconomic backgrounds at the societal level and travel- and household-related characteristics at the individual level, in regard to the processes of family vacation decision-making (FVDM) (Cheng et al., 2019; Nanda et al., 2007; Therkelsen, 2010; Yen et al., 2020). No study to date has examined the predictive power of variables at the macro and micro levels regarding the likely decision maker (LDM) for travel destinations, according to our data mining across cultural contexts such as the East Asian countries.

The purpose of this study, therefore, was to present a data-mining model that will identify the relative importance of those various determining characteristics in predicting the probability of a specific family member being the LDM in destination decisions for family vacations in East Asia. In addition, we sought to identify which of the family members is the most appropriate target in a model that can be used for

market segmentation. Our findings enrich the understanding of the East Asian family tourism market, giving private and public DMOs important information for planning their destination marketing.

LITERATURE REVIEW

Family Role Structure for FVDM

Insights into the consumption behaviours of family tourists, such as their destination decision making, underlie the development of family-focused strategies for destination marketing (Baptista & Matos, 2018). From among the possible perspectives for studies on destination decisions about family vacations, the decision-making roles and interpersonal influence of the family members have won academic attention (Tagg & Seaton, 1995). Typical taxonomies of the role-related decision making used by FVDM studies have consisted of 3 categories: husband-dominant decisions, wife-dominant decisions, and joint (husband-wife) decisions (Jenkins, 1978).

On the basis of key researchers' theories and findings, the authors present in Fig. 1 an analogical configuration that converges measurement and judgment rules for the dominance style in married couples into 4 categories of role taxonomy: husband-dominant, wife-dominant, autonomic (single influence), and joint (Rojas-de-Gracia & Alarcón-Urbistondo, 2018) so that the features that distinguish the 3 categories of family influence patterns (i.e., husband-dominant, wife-dominant, or joint) are clarified in terms of their corresponding approaches, measurement, and rules for judgment.

Measurement (Likert scale)	Rule (Feasibility triangle)		Dominance style (Rojas-de-Gracia & Alarcón-Urbistondo, 2018)	Influence pattern (cf. Nanda et al., 2007)	Approach I (Bronner & de Hoog, 2008; Hsu & Kang, 2003; Kang et al., 2003; Jenkins, 1978; Rojas-de-Gracia & Alarcón-Urbistondo, 2019)		Approach II (Ritchie & Filiatrault, 1980; Wang et al., 2007; Wang et al., 2004)	
	Relative influence	Responsibility sharing %			Rule	Measurement (Nominal scale)	Rule (judged by the statistical significance of the score differences between spouses)	Measurement (100-point constant sum scale/Likert scale reflecting agent's influence level)
1 = Husband; 2 = Joint; 3 = Wife.	< 1.5	--	Husband-dominant	Husband-dominant	H	H = Husband has more influence than wife; W = Wife has more influence than husband; J = Equal husband/wife.	Husband > Wife	Husband's influence; Wife's influence.
	> 2.5	--	Wife-dominant	Wife-dominant	W		Wife > Husband	
	> 1.5 and < 2.5	< 50	Autonomous (single influence)	Joint (Husband-Wife)	J		Husband = Wife	
	--	> 50	Joint (Husband-Wife)					

Fig. 1: Conceptualization and Measurement of the Husband-Wife Styles for Determining the FVDM

Another research perspective has focused on family vacations with children and has extended the participants of joint decision-making to include the children (Kim et al., 2010). Cheng and Colleagues (2019) further divided this husband-wife-child style of decision making into ‘autonomic decisions’ and ‘collective decisions’ according to the level of responsibility shared by the husband, wife,

and child(ren). Following the approach proposed in Fig. 1, an analogical configuration emerged (Fig. 2) and it bridges the measurement and judgment rules for family dominance styles and family influence patterns in to 4 role categories (father-dominant, mother-dominant, autonomic, and collective) and 3 role categories (husband-dominant, wife-dominant, and joint).

Measurement (Likert scale)	Rule (Feasibility triangle)		Dominance style (Cheng et al., 2019)	Influence pattern (Kim et al., 2010)	Rule (judged by the statistical significance of the score differences among categories)	Measurement (Likert scale reflecting how the respondents disagree-to-agree existence of each decision-making style)
	Relative influence	Responsibility sharing %				
1 = Mother alone; 2 = Other; 3 = Father alone.	> 2.5	--	Father- dominant	Husband- dominant	Husband > Joint, Wife	Husband-dominant decision making; Wife-dominant decision making; Joint (Husband-Wife-Child) decision making.
	< 1.5	--	Mother- dominant	Wife- dominant	Wife > Joint, Husband	
	> 1.5 and < 2.5	< 50	Autonomous (single influence)	Joint (Husband-Wife-Child)	Joint > Husband, Wife	
	--	> 50	Collective (Father-Mother-Child)			

Fig. 2: Conceptualization and Measurement of the Husband-wife-child Styles for Determining the FVDM

Are Destination Decisions Actually Made Jointly?

Accumulated arguments and results through the decades of research have demonstrated a debatable basis for family roles in destination decision making. Recent research in general has asserted that decisions about destinations for family vacations are joint sub-decisions, because of the global trend toward family democracy (Bronner & de Hoog, 2008; Hsu & Kang, 2003; Kang et al., 2003; Nanda et al., 2007; Ritchie & Filiatrault, 1980; Rojas-de-Gracia & Alarcón-Urbistondo, 2019; 2018; Wang et al., 2007; Wang et al., 2004). However, the findings supporting destination choice as a joint sub-decision should be interpreted and applied with caution because the research methods that were used had limitations. First, typical research designs restricted the members who participated in the joint decisions to the husband-wife couple.

However, other studies have shown that a joint decision without children’s participation cannot fully reflect the emerging role of children in the FVDM process (Li et al., 2020; Su et al., 2019; Yen et al., 2020). In that context, the prevalence of joint decisions about travel destination from the husband-and-wife perspective may really be attributable to increasing gender equality rather than to growing democracy within the entire family. In addition, the spouses-only researchers typically stressed to the respondents that the couple as a whole is the decision-making unit (Ritchie & Filiatrault, 1980; Rojas-de-Gracia & Alarcón-Urbistondo, 2018; 2019), and that in turn would have predisposed respondents to associate their cases with joint decisions and report on them accordingly (Bronner & de Hoog, 2008).

Second, with just a few exceptions viz. Ritchie and Filiatrault (1980) and Rojas-de-Gracia and Alarcón-Urbistondo (2018), previous research typically demonstrated the taxonomy of roles in FVDM solely on the basis of each person’s relative influence and did not take into account the level of between-spouse role specialization, which would have emphasized responsibility sharing between spouses as a requirement for joint decision making. In regard to the relative influence of the participants, however, the prevalence of any type of decision making was determined by comparing the percentage for between-role proportions or the scores for the level of between-spouse influence. Thus, the most popular decision-making style did not necessarily exist in the majority of the cases. In other words, the prevalence of joint decision-making for travel destination in general might be overstated.

Third, most of the extant research collected data in a single context or a small number of cultural contexts and thus lacked generalizable evidence that could be extended to other cultural settings (Nanda et al., 2007). For example, Kim and colleagues (2010) found in South Korea that in the FVDM process the husbands appeared to dominate sub-decision making more than their counterparts in other countries did, and Yang and colleagues (2020) found that the husband traditionally had more dominance in family communication than the wife and children did. In addition, a 25-country survey conducted by Cheng et al. (2019) found that in the husband-wife-child perspective, rather than in the couple perspective, overall sub-decisions of FVDM appeared to be autonomic, thus suggesting that the nuclear family is a more interdependent household than the couple is and therefore has a higher specialization of roles in destination decision making.

Taken together, there has been no agreement on the operational definition of the ‘joint decision’ category in family role taxonomies. A description of joint decisions as a direct measure also has failed to represent equal influence between spouses (e.g., Jenkins, 1978). Thus, it is postulated here that without a consideration of a composite of decision-making cores and cultural backgrounds, it is premature to assume that joint decision-making is a commonly accepted style in determining travel destinations for family vacations. To render the extant results comparable across research, describing the role structure in a basic and complete taxonomy for FVDM—that is, as husband, wife, child, and other—is more appropriate for the development of further research on FVDM issues, including destination choice.

Predicting the Role Structure for Choosing Travel Destinations

The management of destination resources form a unique selling proposition that meets the needs and desires of the right family vacationers is a critical topic among destination management organizations (Pesonen et al., 2011). However, the way that the role structure of travel destination decisions differs across conditions is more profound than that of other types of sub-decisions, because the destination decision itself is strongly associated with the overall satisfaction of each participant in the family vacation (Bronner & de Hoog, 2008; 2011a). In addition, the destination decision, which needs to be made prior to leaving home, determines the options for consequent sub-decisions, such as the activities that the participants seek to participate in during the vacation (Bronner & de Hoog, 2011b; de Souza et al., 2020). For those reasons, members of the destination decision-making unit are likely to attempt to influence others in an effort to guide decision outcomes that correspond with their preferences.

Along with cultural backgrounds (Cheng et al., 2019; Nanda et al., 2007), a wide range of additional factors at different

levels have been identified to explain the relative degrees of influence among the various participants and to predict the likely decision maker for family vacation issues, such as travel destinations. Overall, those predictive factors are grouped into two primary kinds of characteristics. The first kind is that of vacation-related characteristics, such as the status of travel, the travel group size, and the duration of the trip (Kang et al., 2003; Nanda et al., 2007). Second kind is household-related characteristic such as the number of children in the family (Bronner & de Hoog, 2008; Filiatrault & Ritchie, 1980; Nanda et al., 2007; Spiers, 2017), main financial source of the family income (Filiatrault & Ritchie, 1980; Nanda et al., 2007), current stage in family life cycle (Backer, 2012), highest educational level of the head of household (Kim et al., 2010; Nanda et al., 2007; Schänzel & Yeoman, 2014; Yeoman et al., 2012) and occupation of the head of household (Kim et al., 2010; Schänzel & Yeoman, 2014). Clarification of the relative power of each factor to predict the decision maker for family vacation destinations will assist DMOs in segmenting the family market and identifying the key family members to whom they should promote their destination.

METHODS

Measures

The dependent variable, the LDM of destination, is measured by rating it on a four-category scale: 1 = by the father alone; 2 = by the mother alone; 3 = by the child(ren); or 4 = other. From the literature review, the authors categorized condition factors that could explain the role distribution of FVDM, and those have been listed in the first column of Table 1. The original questionnaire was produced in English and then used standard back-translation procedures to convert the questionnaire into each surveyed society’s official language.

Table 1: Background Profiles of Cases

	Society (Cheng et al., 2019; Nanda et al., 2007)				
	China (n = 201)	Japan (n = 262)	South Korea (n = 268)	Taiwan (n = 285)	Overall (n = 1,016)
No. of children in family (Bronner & de Hoog, 2008; Filiatrault & Ritchie, 1980; Nanda et al., 2007; Spiers, 2017)					
1	68.2	13.0	17.9	14.4	25.6
2	22.9	54.6	62.7	44.2	47.5
3 or more	9.0	32.4	19.4	41.4	26.9
Main financial source for the family (Filiatrault & Ritchie, 1980; Nanda et al., 2007)					
Both parents	82.1	73.3	62.7	60.4	68.6
Father	13.4	19.8	33.6	26.7	24.1
Mother	2.0	6.1	3.0	10.9	5.8

Others	2.5	0.8	0.7	2.1	1.5
Current stage of family life cycle (<i>Backer, 2012</i>)					
Young parents	0.5	2.3	0.4	2.1	1.4
Mature parents	65.7	86.3	42.9	44.9	59.2
Mature couple	30.3	8.0	47.0	46.0	33.4
Senior couple	3.5	3.4	9.7	7.0	6.1
Highest educational level of household head (<i>Kim et al., 2010; Nanda et al., 2007; Schänzel & Yeoman, 2014; Yeoman et al., 2012</i>)					
High school or below	31.3	27.1	21.6	76.5	40.4
College/university	53.2	69.8	59.7	22.1	50.5
Graduate school	15.4	3.1	18.7	1.4	9.2
Occupation of household head (<i>Kim et al., 2010; Schänzel & Yeoman, 2014</i>)					
Homemaker	4.5	3.4	1.9	9.8	5.0
Business and industry	46.8	67.9	28.0	39.3	45.2
Government/agency	13.9	16.8	17.9	3.2	12.7
Faculty/teacher	10.9	5.7	1.5	1.4	4.4
Professional	9.5	4.2	13.1	18.2	11.5
Worker	4.5	1.9	29.9	24.6	16.1
Other	10.0	0.0	7.8	3.5	5.0
Status of travel (<i>Nanda et al., 2007</i>)					
Domestic vacation	66.2	93.1	76.9	90.2	82.7
International vacation	33.8	6.9	23.1	9.8	17.3
Travel group size (<i>Kang et al., 2003; Nanda et al., 2007</i>)					
2-3	52.7	22.5	21.6	15.1	26.2
4	28.4	46.6	54.1	44.2	44.3
5 and more	18.9	30.9	24.3	40.7	29.5
Duration of the trip, in days (<i>Nanda et al., 2007</i>)					
1-2	13.9	43.9	31.3	46.0	35.2
3	16.9	40.8	36.9	28.8	31.7
4 and more	69.2	15.3	31.7	25.3	33.1
LDM					
Father alone	22.9	33.2	46.6	30.5	34.0
Mother alone	28.4	30.2	32.1	28.4	29.8
Child(ren) alone	41.3	24.0	11.9	21.1	23.4
Other	7.5	12.6	9.3	20.0	12.8

Note:

1. Missing observations were excluded in the calculations; papers suggesting the variables included in the study are listed in parentheses.
2. The percentage numbers are presented in the table; the total may not equal 100 due to rounding.
3. Definitions of the family life cycle stages are as follows: young parents = the head of the household (the person who declares the most taxes in the family) is 18-34 years old and the youngest child is 0-17 year(s) old; mature parents = the head of the household is 35 years old or older and the youngest child is 0-17 year(s) old; mature couple = the head of the household is 35 years old or older; senior couple = the head of the household is 55 years old or older.

Samples and Procedures

Bronner and de Hoog (2008) suggested that parents tended to report family decisions as being made more jointly than they actually are, and also that there is a need for researchers to include children's opinions. To ensure that the children to be interviewed have sufficient cognitive ability to realize and express their experience, adolescents who overall are

psychologically developed are preferred over younger children as respondents (Su et al., 2019; Yen et al., 2020). Accordingly, a total of 1,016 usable responses have been collected from adolescents at the campuses of senior high schools (i.e., the equivalent of grades 10 through 12 in the U.S. school system), from 4 East Asia societies namely China ($n = 201$), Japan ($n = 262$), South Korea ($n = 268$), and Taiwan ($n = 285$). 70% of the participating adolescents

were female, and most (87.4%) were currently living with both parents.

In addition, the sampling criteria confined to the age range of the participants (mean = 16.43 years, standard deviation = 0.91) and thus attempted to avoid any significant variations in the family experience that would be explained by the adolescent respondents' age-related transitions in decision-making competence (Nanda et al., 2007). The participants were asked to recall a family decision that had included them and that had been about a vacation during the previous year. They were then asked to report on the role distribution, within their cohabiting family, for making the decision about the vacation destination.

Table 1 lists the background profiles of the cases surveyed, based on characteristics that have potential to predict the LDM for vacation destinations. Overall, the majority of the cases came from a double-income family (68.6%) in which there were 2 children (47.5%), with a head of household who was working in business or industry (45.2%) and who was in middle age or older, with the youngest child's age being no older than 17 years (59.2%). The majority of the travel cases were domestic (82.7%) and ranged from 1-3 days in length (66.9%). In addition, the vacations' destinations were determined primarily by the father alone (34.0%), followed by the mother alone (29.8%), then by the child(ren) (23.4%), and finally by other (12.8%).

DATA ANALYSIS

To identify rules that explained the LDM on the basis of the condition variables, we input the 8 condition factors listed in Table 1 and used the IBM SPSS Decision Trees-20 program to analyse the data in an exhaustive chi-square automatic identification detector (E-CHAID) model. The 'society' was forced as the first predictor, to split the overall sample, because our research was oriented across the societies. The stopping criteria for LDM were set at 60 cases before and 30 cases after the division of the (sub)sample (Rojas-de-Gracia & Alarcón-Urbistondo, 2019), at a significance level of 0.05 for predictor eligibility.

RESULTS

The Algorithm

Out of the 8 factors included, the E-CHAID analysis identified 4 factors that conditioned the LDMs for choosing the destinations for family vacations. Table 2 lists the 4 factors of LDM conditioning, the 3 types of characteristics from which the factors derived and that were used for the algorithm, and their descriptions and corresponding categories. They were: (a). Socio-cultural/ideological characteristics-society

(with "SOC" categorizing each case in China, Japan, South Korea, and Taiwan); (b) Travel characteristics- travel group size (with "GS" categorizing cases into 2-3 group members, 4 group members, or 5 or more group members); and (c). 2 types of household characteristics- the number of children in the family (with "CN" categorizing each case into 1 child, 2 children, or 3 or more children) and the family's primary source of income (with "INC" categorizing each case into both parents, the father, the mother, or others). Given the sample size of 1,016, we yielded a sample-size to condition-variable ratio of 254, which exceeded the minimum ratio of 150 (Van Middelkoop et al., 2003).

Table 2: Retained Factors That Conditioned the LDM for the Destination of Family Vacations

Factor labels	Description	Category
Sociocultural/ideological characteristics		
SOC	society	(1) China, (2) Japan, (3) South Korea, (4) Taiwan
Travel characteristics		
GS	travel group size	(1) 2-3, (2) 4, (3) 5 or more
Household characteristics		
CN	number of children in family	1, (2) 2, (3) 3 or more
INC	main source of income for family	(1) both parents, (2) father, (3) mother, (4) others

The decision tree structure that has been constructed using the E-CHAID algorithm is shown in Fig. 3. The top square of the diagram shows the distribution of the cases over the dependent variable, the categories of "father," "mother," "child," and "others". The model exhibited 6 layers of characteristics and ultimately led to 7 end nodes that represented the final sub-groups of the tree. The tree began with the top decision node (Node 0), with all 1,016 cases of the data set, and the entire data set was then divided into 3 distinctive groups based on society: Node 1 (China) was dominated by "child" (41.3%); Node 2 (Japan; Taiwan) was dominated by "father" (31.8%); and Node 3 (South Korea) was dominated by "father" (46.6%). Node 2 was further divided into 2 groups on the basis of travel group size: Node 4 (2-3 group members) was dominated by "mother" (41.2%) and Node 5 (more than 3 members) was dominated by "father" (35.7%).

Then, Node 5 was split into 2 groups on the basis of the number of children in the family: Node 6 (1 child) was dominated by "mother" (39.5%) and Node 7 (more than one child) was dominated by "father" (37.6%). In addition, Node 7 was divided into 2 groups based on society: Node 8 (Japan) was dominated by "father" (41.1%) and Node 9 (Taiwan) was dominated by "father" (34.3%). At the bottom of the tree, Node 9 was broken into 2 groups by the family's

main source of income: Node 10 (father) was dominated by “father” (54.4%) and Node 11 (both parents; mother; others) was dominated by “mother” (27.5%). The dendrogram shows that the rankings of predictors according to their ability to explain the variances of the

LDM were, from highest to lowest “SOC” ($\chi^2 = 76.76$, Bonferroni adjusted $p < .001$), “GS” ($\chi^2 = 20.53$, Bonferroni adjusted $p < .001$), “INC” ($\chi^2 = 15.58$, Bonferroni adjusted $p < .05$), and “CN” ($\chi^2 = 13.79$, Bonferroni adjusted $p < .01$).

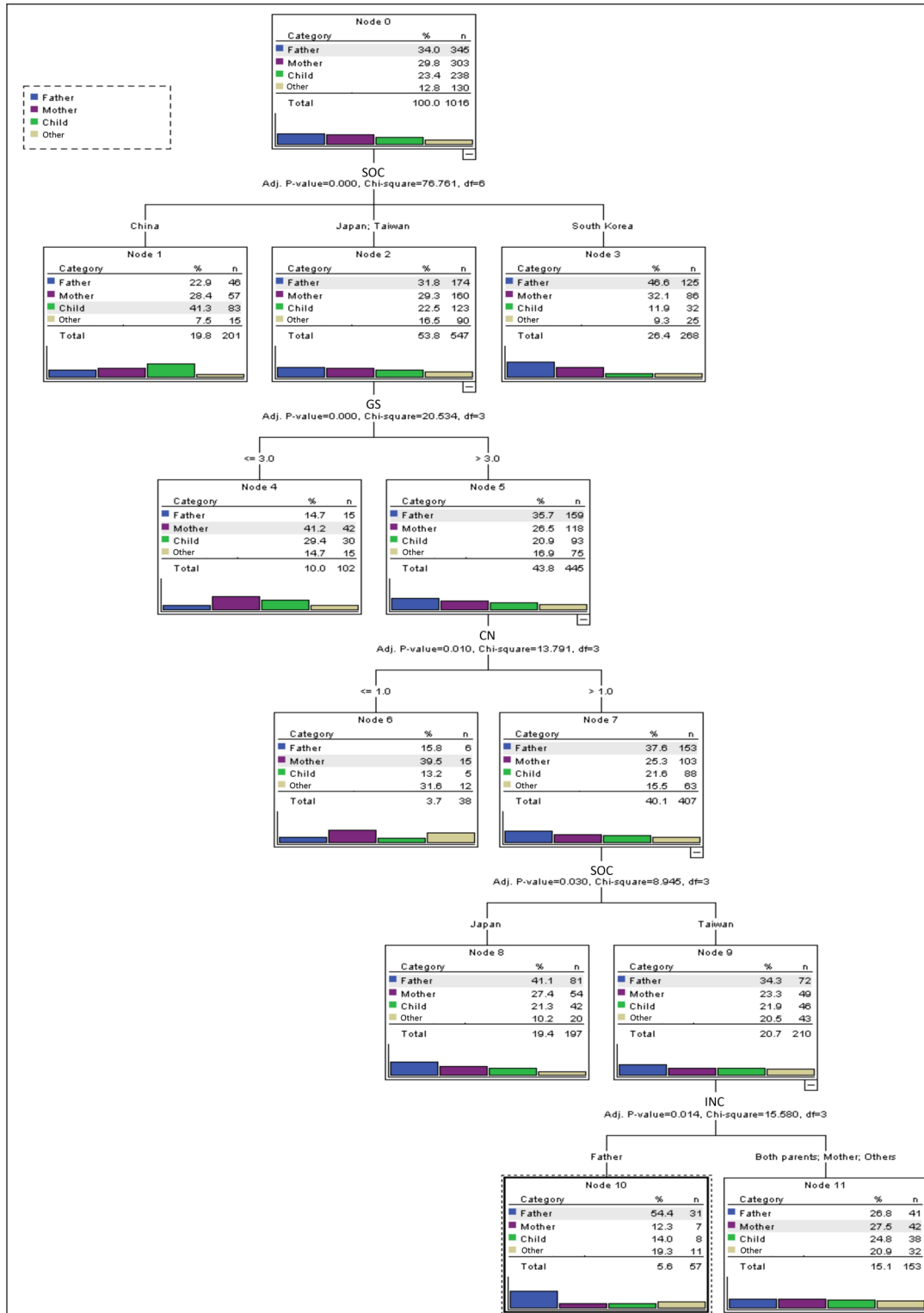


Fig. 3: E-CHAID Model Developed for the Study

The classification rules generated by the decision tree are summarized in Table 3, following the path from each end node to the root node. The relationships between the condition variables and the percentages of “father,” “mother,” and “child” of the LDM that were associated with each variable were therefore determined. These end nodes also represented the segments dominated by the father alone

(i.e., Segment 1, Segment 2, and Segment 3), the segments dominated by the mother alone (i.e., Segment 4, Segment 5, and Segment 6), and those by the child(ren) (i.e., Segment 7). There was no node where the “other” category had a higher proportion of cases than the rest of categories did. We therefore ignored role of “other” in market segmentation and focused on the roles of the father, mother, and child(ren).

Table 3: LDM Classification Rules Generated by the E-CHAID Decision Tree

Node (Segment)	Rule	LDM (%)			
		Father	Mother	Child	Other
8 (1)	IF SOC = “Japan” or “Taiwan” and GS = “4” or “5 or more” and CN = “2” or “3 or more” and SOC = “Japan” THEN LDM = “father”	41.1	27.4	21.3	10.2
10 (2)	IF SOC = “Japan” or “Taiwan” and GS = “4” or “5 or more” and CN = “2” or “3 or more” and SOC = “Taiwan” and INC = “father” THEN LDM = “father”	54.4	12.3	14.0	19.3
3 (3)	IF SOC = “South Korea” THEN LDM = “father”	46.6	32.1	11.9	9.3
4 (4)	IF SOC = “Japan” or “Taiwan” and GS = “2~3” THEN LDM = “mother”	14.7	41.2	29.4	14.7
6 (5)	IF SOC = “Japan” or “Taiwan” and GS = “4” or “5 or more” and CN = “1” THEN LDM = “mother”	15.8	39.5	13.2	31.6
11 (6)	IF SOC = “Japan” or “Taiwan” and GS = “4” or “5 or more” and CN = “2” or “3 or more” and SOC = “Taiwan” and INC = “both parents” or “mother” or “others” THEN LDM = “mother”	26.8	27.5	24.8	20.9
1 (7)	IF SOC = “China” THEN LDM = “child”	22.9	28.4	41.3	7.5

Then, for each category of LDM– the “father”, the “mother” and the “child(ren)” as a target category–the gains for the end nodes were calculated and ranked those according to the index scores, which referred to the rate of the target category as the LDM of each segment relative to the overall rate of the target category. An index score exceeding or falling below 100 suggests that the corresponding end node had an above-average or below-average probability of predicting the category as the LDM (see Appendix).

Table 4 presents the summary of resulting gains for nodes for the predicted LDM. Of the father-predicted segments, Segment-2 had the highest index score of 160 (54.4%/34.0%), thus reflecting that it had the highest probability of predicting the father as the LDM (54.4%). Next were Segment-3, with an index score of 137 (46.6%/34.0%) and Segment-1 with an index score of 121 (41.1%/34.0%). Of the mother-predicted segments, and comparing each with their overall rate of 29.8%, Segment-4 scored the highest (138 = 41.2%/29.8%) and thus reflecting that it had the highest probability of predicting the mother as the LDM (41.2%), followed by Segment-5 (132 = 39.5%/29.8%) and then Segment-6 (92 = 27.5%/29.8%).

The only child-predicted segment, Segment-7, had an above-average probability (>23.4%) underlying its index score of 176 (41.3%/23.4%). Because the authors sought to identify actionable segments for planning target marketing, the ideal target category should be able to pick target cases in the least proportion of the overall sample and produce the correct rate

estimate of cases of interest in each segment. To this end, the performance of each target category of the model has been evaluated by observing its cumulative gain and classification accuracy.

Table 4: Gains for the End Nodes for the Predicted LDM

Segment based on Predicted LDM	Node	Size (%)	Gain (%)	Response (%)	Index score
Father alone					
Seg. 2	10	5.6	9.0	54.4	160
Seg. 3	3	26.4	36.2	46.6	137
Seg. 1	8	19.4	23.5	41.1	121
Mother alone					
Seg. 4	4	10.0	13.9	41.2	138
Seg. 5	6	3.7	5.0	39.5	132
Seg. 6	11	15.1	13.9	27.5	92
Child(ren)					
Seg. 7	1	19.8	34.9	41.3	176

EVALUATION OF THE TARGET CATEGORIES' CAPACITY

A cumulative gain chart was used to compare the gain capacity of the 3 target categories of the LDM– the father,

the mother, and the child(ren)– in the decision tree model (see Fig. 4). The horizontal axis plots the percentages, sorted from high to low on the basis of probability, and denotes the percentages of the data set. The vertical axis records the percentages of the actual predicted values on the curved line. As Fig. 4 shows, each cumulative line of the target categories was an upward curve that rose steeper than 45° and then levelled off, thus suggesting that the tree model was acceptable for predicting the LDM in all target categories. In addition, an upward curve of a gain chart indicates that the more efficiently the cases of interest are identified, the greater the area under the curve will be.

The first 40% of the data set (Lin & Fan, 2019) corresponds to 58.3% of the child-dominated cases, and 54.9% of the father-dominated cases and 47.0% of the mother-dominated cases. The contrast of the area under the curve among target categories indicated that “child(ren)” appeared to have the greatest area under the curve, followed by “father” and then “mother”. These results suggested that “child(ren)” as a target category had a more efficient capacity for picking target cases than the model’s other target categories did.

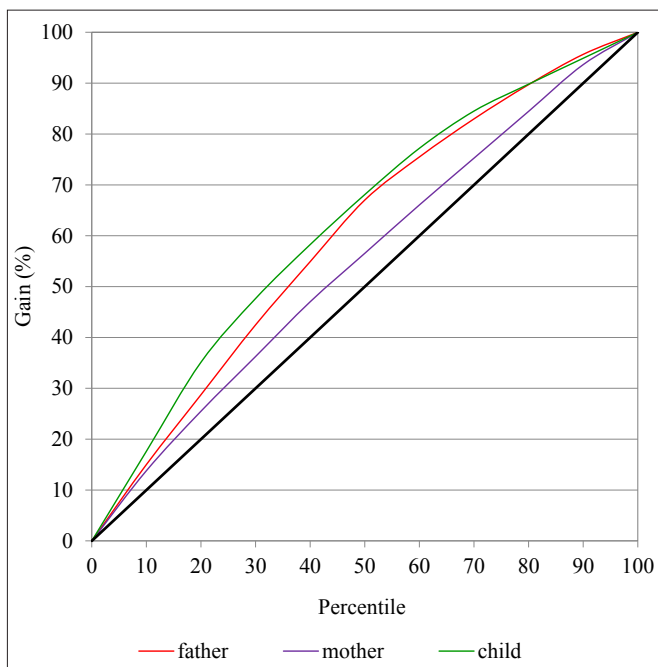


Fig. 4: Gain Chart for the Three Target Categories of LDM

To compare the prediction capacity of the LDM categories with the data to determine the classification performance of each of the model’s target categories, a confusion matrix has been used to evaluate the recall rate of the LDM, and the results are presented in Table 5. It shows the recall rates of 68.7% for the “father,” 32.7% for the “mother,” and 34.9% for the “child(ren)” categories, thus yielding a prediction accuracy of 41.2%. Although the overall accuracy was not

high enough, the ‘father’ category had a satisfactory rate of recall.

Table 5: Confusion Matrix

Observed	Predicted				% Recall
	Father	Mother	Child	Other	
Father	237	62	46	0	68.7
Mother	147	99	57	0	32.7
Child(ren)	82	73	83	0	34.9
Other	56	59	15	0	0.0
Overall %	51.4	28.8	19.8	0.0	41.2

Risk estimate = .588; std. error = .015

Table 6 summarizes the picking and prediction capacities of the father, the mother, and the child(ren) as the target category of the E-CHAID– generated model. It was observed that in terms of picking target cases, the father category’s performance (54.9%) was slightly inferior to that of the child(ren)’s category (58.3%). However, the father’s recall rate (68.7%) was much higher than the child(ren)’s (34.9%), suggesting that overall, “father” appeared to be the most eligible target category of the LDM.

In summary, the proposed model performed satisfactorily in elaborating the condition variables– the socio-cultural/ ideological, travel, and household characteristics of segmentation. The segments in which most of the destination-decisions were made by the father, that is, Segment-2 (54.4%), Segment-3 (46.6%), and Segment-1 (41.1%), are efficient and reliable for accessible father-dominated segments for family vacations (Kang et al., 2003). On the contrary, the segments in which the farther failed to play a leading role in selecting the destination, Segment-4 (14.7%), Segment-5 (15.8%), Segment-7 (22.9%), and Segment-6 (15.8%) are not advantageous to a father-focused mainstream of travel destination selection in East Asia.

Table 6: Performance Contrasts for the Predicted LDM

Performance	LDM		
	Father	Mother	Child(ren)
% Cumulative gain (given the first 40% of the data set)	54.9	47.0	58.3
% Recall	68.7	32.7	34.9

SUMMARY OF FINDINGS AND DISCUSSION

The findings emerged from using the E-CHAID approach augment the relatively limited literature on the factors that

shape the distribution of roles in making decisions about destinations for family vacations. In addition, who in the family should receive the focus of destination marketers as their basis for market segmentation in East Asia was also revealed with evidence. The results derived from 1,016 samples of family vacations from 4 societies provide a structural model illustrating seven rules that delineate the importance of various condition variables in predicting the LDM for decisions about family vacation destinations.

By evaluating the capacity of each category of LDM in the E-CHAID model, it was found that the father category was a more acceptable target category than the categories of the mother or the child(ren). Given “father” as the target category, the study has identified 3 segments that had an above-average probability of the fathers’ dominance in choosing destinations. In that light, it has been arrived to a conclusion that a decision-tree analysis is appropriate for targeting the father-focused market of family travel destinations in East Asia.

The results of this study do not align with the assertions by other researchers that destination choices for FVDMs tend to be made jointly either by the husband-wife couple or the husband-wife-child (Bronner & de Hoog, 2008; Hsu & Kang, 2003; Kang et al., 2003; Nanda et al., 2007; Ritchie & Filiatrault, 1980; Rojas-de-Gracia & Alarcón-Urbistondo, 2018, 2019; Wang et al., 2007; Wang et al., 2004). The results, which are inconsistent with typical arguments, add to literature of FVDMs in 3 ways:

- The role structure of FVDMs that we found in the 4 East Asian societies as a whole are more autonomic than a joint decision-making style would be, thus symbolizing the importance of the role that cultural region plays in shaping family decision-making styles for travel destinations;
- The role structure in the 4 basic categories yielded more accurate information than the direct measurements in role taxonomy did because the wording on role taxonomy used in the survey instrument likely led respondents to associate the experience with joint decision making;
- Our respondents were adolescents who were, overall, more mature than their counterparts in previous research. The adolescents in this study not only reported their experiences more reliably than younger children would tend to do, but they also appeared to have been more influential in decision making about family travel destinations.

For East Asian cases of family vacation in general, travel destinations were most often determined by the father alone, although the mother alone, and also the children, made up a higher proportion of the decision makers. These 3 categories in total comprised 87.2% of the surveyed cases, suggesting

that for destination choices, family members have diverse preferences and involvements that underlie the autonomic decision-making style (Jenkins, 1978; Nanda et al., 2007; Su, 2011; Su & Wang, 2010). Still, the first decision-tree splits showed that the proportion of “father alone” responses as the decision maker in the Chinese group was the lowest, whereas the “father alone” proportion of the South Korean group was above the average level. It thus suggest that China and South Korea are polar opposites in the societal cultures and developmental ideologies that shape their degree of fathers’ dominance in deciding the destination for a family vacation as compared to Japan and Taiwan considered as a whole.

In Chinese society, the FVDM processes were found to be child-centred because care of the children is the highest priority of the family (Wu & Wall, 2016). The family prioritization derived from China’s one-child-policy era (1980-2015) moulded the structure of modern Chinese families and the custom continues (Li et al., 2020). The distinctive historic backgrounds of China also may explain why fathers are not as strong in determining the travel destination for family vacations.

In contrast to China, South Korea has been dominated by Neo-Confucian traditions that have given birth to male and parent-centred communications in the FVDM process (Kim et al., 2010; Yang et al., 2020). These featured practices are in accordance with our findings on the South Korean group. In brief, the use of composites of culture and societal development as predictors takes into account the similarities and differences of societal backgrounds across countries. We obtained evidence that such an approach can be expected to help refine research designs and to explain FVDM behaviours with greater validity (Cheng et al., 2019; Yen et al., 2020).

In addition to the influence of society, it was also found that the travel group size and the number of children in the family appeared to be important predictors of the fathers’ dominance in travel destination decisions. This finding echoes the notion that the cost of a vacation choice, which is determined by the scale of the vacation, affects the family role structure that is adopted in planning family vacations (Bronner & de Hoog, 2008; Filiatrault & Ritchie, 1980; Kang et al., 2003; Nanda et al., 2007; Spiers, 2017). Taking the cases of Japan and Taiwan as a group, in particular, showed that when the travel group size was small, the fathers were not the dominant decision-makers. When the travel group size increased and there was only one child in the family, the fathers again were not the dominant decision-makers.

It was also observed that in the Japan-Taiwan region, the expenditure toward a family vacation could increase the possibility that fathers would be the decision makers about travel destinations, which was inconsistent with Nanda et al. (2007) proposition that the expenditures of vacations

are positively related to joint decisions. That increased possibility as a result of high vacation costs may be because expensive vacations usually involve a novel destination that the family is not familiar with, and such unfamiliarity could arouse fathers' concerns for the family's safety at the destination and thus prompt them to make the decision themselves.

It is noteworthy that in the Taiwanese group with a large-group vacation and more children in the family, the main earning member of the household income appeared to predict whether the fathers were dominant in travel destination decisions. When fathers were not the main source of the family income, they were less likely to be the decision-makers. This finding from the Taiwan group supports the idea that the primary earner of a household's income determines the distribution of decision-making power in planning that family's vacations (Filiatrault & Ritchie, 1980; Nanda et al., 2007).

PRACTICAL IMPLICATIONS

For marketing programs promoting family vacation products in East Asia, the results of this study suggest that DMO marketers would be wise to focus on the role of the father rather than that of other family members as the target decision-makers regarding vacation destinations. To initiate a father-focused marketing strategy for the East Asian market for family vacation destinations, destination-marketers should consider targeting Segment-1, Segment-2, and Segment-3, and not the other segments, in their efforts to access and persuade fathers. Overall, those 3 segments not only carried above-average likelihoods of father-determined decision making, but also were dominated by fathers. In particular, Segment-1 and Segment-2 were featured with larger travel parties, which suggested that they could have higher profitability than other segments (Kang et al., 2003) and should be chosen as priority markets.

To access the goal segments derived from Japan, South Korea, and Taiwan respectively, the differences and similarities of communication norms and media that fathers from those societally diverse markets followed should be identified and used as a foundation for applying information communication technology (ICT) (Sheehan et al., 2016). Social media and online platforms, which are helpful for customizing and contextualizing destination offerings for family vacations, can shape and promote favourable destination images targeting fathers in the target segments (Agapito & Lacerda, 2014; Molinillo et al., 2018). When fathers' concerns for family safety and the expected experience at the destination make them hesitate to select a destination for their family vacation, DMO marketers can organize a mix of media technologies, such as virtual reality (VR) and user-generated content (UGC), to provide a

right-in-the-scene feeling and word-of-mouth effect that will facilitate destination decision making.

The integration of technologies can reduce fathers' perceptions of the risks associated with their destination selection and strengthen their favourable images of the destination (Yung et al., 2020). It can also evoke a social influence on the fathers' decision-making by providing geo-informed photos and text uploaded by the social media users (Mistilis et al., 2014; Wang & Li, 2020; Zhang et al., 2020).

LIMITATIONS OF THE STUDY AND SUGGESTIONS FOR FUTURE RESEARCH

This study identifiably has two limitations. First, it was focused on the role structure of destination choices by parents and child(ren) and did not explore the role that grandparents may play in determining family tourism destinations (Shavanddasht, 2018). Two, without accounting for cross-societal settings, evidences for this study was derived from the 4 societies from East Asia, and that may be responsible for certain findings differing from those of other cultural regions.

The limitations should provide some specific directions for future research on family decision-making roles in the context of destination selection. One, additional empirical research on three-generation families is encouraged to explore how grandparents become involved with the decision making of family travel destinations in East Asia, where seniors are particularly respected and authoritative in family relations (Yang et al., 2020). Two, it would be worthwhile to extend the model derived in this study to other regions that demonstrate a variety of cultural values and societal features so that the factors that predict the deciders on family vacation destinations can be explored in a global context.

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APPENDIX A

Table A1: Gains for the End Nodes, and the End Nodes' Index Scores and Ranking (Target Category: Father)

Segment (Node)	Segment Size (% of Overall Sample Size)	Number of "Father" Respondents (% of all "Father" Respondents)	% of "Father" Respondents to the Segment	Index Score
2 (10)	57 (5.6)	31 (9.0)	54.4	160
3 (3)	268 (26.4)	125 (36.2)	46.6	137
1 (8)	197 (19.4)	81 (23.5)	41.1	121
6 (11)	153 (15.1)	41 (11.9)	26.8	79
7 (1)	201 (19.8)	46 (13.3)	22.9	67
5 (6)	38 (3.7)	6 (1.7)	15.8	47
4 (4)	102 (10.0)	15 (4.3)	14.7	43

Table A2: Gains for the End Nodes, and the End Nodes' Index Scores and Ranking (Target Category: Mother)

Segment (Node)	Segment Size (% of Overall Sample Size)	Number of "Mother" Respondents (% of all "Mother" Respondents)	% of "Mother" Respondents to the Segment	Index Score
4 (4)	102 (10.0)	42 (13.9)	41.2	138
5 (6)	38 (3.7)	15 (5.0)	39.5	132
3 (3)	268 (26.4)	86 (28.4)	32.1	108
7 (1)	201 (19.8)	57 (18.8)	28.4	95
6 (11)	153 (15.1)	42 (13.9)	27.5	92
1 (8)	197 (19.4)	54 (17.8)	27.4	92
2 (10)	57 (5.6)	7 (2.3)	12.3	41

Table A3: Gains for the End Nodes, and the End Nodes' Index Scores and Ranking (Target Category: Child)

Segment (Node)	Segment Size (% of Overall Sample Size)	Number of "Child" Respondents (% of All "Child" Respondents)	% of "Child" Respondents to the Segment	Index Score
7 (1)	201 (19.8)	83 (34.9)	41.3	176
4 (4)	102 (10.0)	30 (12.6)	29.4	126
6 (11)	153 (15.1)	38 (16.0)	24.8	106
1 (8)	197 (19.4)	42 (17.6)	21.3	91
2 (10)	57 (5.6)	8 (3.4)	14.0	60
5 (6)	38 (3.7)	5 (2.1)	13.2	56
3 (3)	268 (26.4)	32 (13.4)	11.9	51