Analyzing Weekend Leisure Travel Behavior Characteristics by Reference Group Focused on Family Life Cycle: a Case Study of Seoul

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Abstract

An appropriate model to quantify leisure travel has not yet been developed. In leisure studies, the major objects of analysis for leisure activities have been leisure activities as per reference groups based on the family lifecycle. In this study, leisure travel characteristics for each reference group based on the family lifecycle are analyzed to present a methodology of designing a leisure travel demand model. The analyses lead to the following conclusions: first, a leisure travel demand model should be presented based on the family lifecycle in light of the individual households' given circumstances. Second, with leisure travel showing different patterns depending on leisure type, a leisure travel demand model should be designed with due attention paid to a detailed differentiation of leisure activities. Consequently, to present a methodology that effectively reflects the complex and multiple characteristics of leisure travel integrating the family lifecycle as well as leisure types.

1. Introduction

Travel patterns form as a result of people's needs, longings, and potentiality manifested by limitations and opportunities encountered. Structural limitations and individual characteristics influence travel-pattern-related behaviors, and individuals' and families' socio-demographic characteris-

tics are variables affecting travel patterns (Naess, 2003). Regarding the discretionary nature of leisure travel, the wide range of different patterns varies by household, age bracket, and income. Mainstream studies about leisure activities have focused on individuals' and families' social characteristics as well as their lifestyles. The family lifecycle, in particular, is closely related with age and has often been used to predict people's tendencies for leisure activity involvement (Landon and Locander, 1979).

Childbirth and child rearing, for example, affect the patterns of leisure activities. Leisure activities during the period of marriage and childbirth center on family, and parents' leisure patterns change when the children reach adulthood and leave home. Above all, long-distance and overseas travel is difficult to manage while children are still young. Childless young couples are reported to enjoy various leisure activities, and young adults engage in multifaceted leisure activities such as entertainment and culture, sports and outdoor activities, and travel and alcohol consumption. Such is the change in leisure activity patterns in accordance with changes in the family lifecycle, and it affects people's leisure travel patterns in diverse ways. Yet, because this apparent specificity of intra-household change has not been reflected in earlier aggregate or disaggregates leisure travel demand models, it is necessary to set up a leisure travel forecasting modeling methodology capable of analyzing travel characteristics for each reference group.

To achieve this end, this study was conducted with three approaches of investigation. First, analyzing leisure travel characteristics by household type based on the review of related previous studies. Second, presenting the problems related to existing models based on previous studies on leisure travel demand. Third, analyzing leisure travel characteristics by household type based on the collected data.

2. Literature reviews

2.1. Family life cycle and leisure travel

Each individual goes through a general course of life, that is, a lifecycle consisting of infancy, childhood, adulthood, late adulthood, and old age. The family lifecycle influences consumer behaviors and presupposes a familial constellation as its basic unit. Family is the most basic social unit in human society, and its members refer to family values and rules in their activities. Therefore, consumption behaviors and family members' dynamic behaviors can be determined via the family lifecycle. Put another way,

the family lifecycle is a powerful instrument capable of explaining not only the general desires and circumstances of the whole family but also the socioeconomic behaviors of each family member (Sim and Kim, 1998). The activity that connects the dwelling place and economic activities—the two core elements of urban life—is commuting trips. Although many studies have analyzed commuting trips, very few studies have addressed lifecycle-based commuting patterns. Most studies report that households with children spend more hours commuting relative to residential location (Ha, 2006; Lee, 2011).

Kelly et al. (1987) elucidated that family influence is the reason lifecycles are a major variable for leisure activity involvement and that the family lifecycle is a decisive factor for varying involvement patterns of leisure activity, depending on the stage of family lifecycle. Rapoport and Rapoport (1975) reported that each stage of the family lifecycle has different concerns about leisure activities. It also reported that there are limited possibilities of long-distance travels such as overseas trips while the children are still young, that childless young couples enjoy active and diverse leisure activities, and that young adults are engaged in multifaceted leisure activities such as entertainment and culture, sports and outdoor activities, travels and alcohol consumption (Oppermann, 1995; Ken, 2006).

The family lifecycle is a multidimensional, dynamic element that changes depending on various socio-demographic characteristics. Therefore, the family lifecycle is a very useful frame that offers a reliable basis for discerning a wide variety of activities performed in the urban environment. The family lifecycle, which is of much importance, also influences the housing movement and residential location. Commuting trips, the link between residential and economic activities, also demonstrate different patterns aligned with the family lifecycle. Furthermore, the family lifecycle, as an indicator superior to age for understanding leisure behaviors, also serves as a valuable instrument for identifying leisure travel patterns.

2.2. Leisure travel demand

Leisure travel demand models have mainly been investigated in leisure activities and the travel sector from their respective perspectives. From the perspective of travel, a leisure travel demand model has adopted the conventional four-stage travel demand modeling approach. However, conventional four-step travel modeling approach has not been applied in decision making related to leisure travel, which is influenced by the characteristics of individuals and households, since this model cannot precisely express the reasons for traveler decisions. Regarding the tourism leisure sector, in-

dividual or household leisure travel demands have been analyzed to gauge the spatial effect on leisure tourism activities from a geological viewpoint (Fotheringham,1981;Ewing, 1983; Fesenmaier and Lieber, 1987; Kim and Fesenmaier, 1990) or leisure tourism demand forecasting to create marketing strategies. In transport sector, leisure travel model relies on aggregate modeling and disaggregate modeling approaches.

Many scholars such as Ortuzar and Willium (1994) reported disaggregate modeling as an approach better suited for estimation and matching in the trip generation model. Atherton and Ben-Akiva(1976) emphasized that disaggregated models tend to maintain the variance and behavioral context of the response variable and, therefore, are expected to give better estimates when transferred. Downes and Gyenes(1976) pointed out that when the explanatory power of the model is of interest rather than the aggregate forecasts, the disaggregate level should be selected. Wilmot (1995) indicated that disaggregate models are preferred because of their independence from zonal definitions. In Supernak et al.(1983) and Supernak(1987), the person level was preferred for TGM because of the identity of the response factor(trip) and the generative(the person) (Cotrus et al., 2005) Disaggregate data are better suited for purposes of studying the link between the built environment and travel behavior, because they enable more sophisticated behavioral modeling, and because the use of disaggregate data averts the problem of ecologic fallacy, wherein relationships seen at the aggregate level do not hold at the disaggregate level (Handy et al., 2002). Forms of travel that are strongly influenced by individual characteristics as leisure travel lend themselves well to a disaggregate-level analysis. In most cases, however, disaggregated analyses in leisure travel have been studies on leisure travel destination choices to investigate outbound point-to-point travel to learn Koreans' tourism demands to foreign countries, or inbound point-to-point travel from abroad to learn Korea-bound foreigners' tourism demands. LaMondia et al. (2010) performed an analysis on leisure trips among many European countries and Simma et al. (2001) among many cities in Switzerland, while other studies focused on the analysis of intra-metropolitan short-distance leisure travels.

A review of the aforementioned previous studies revealed the following limitations: first, the existing leisure trip-related demand model cannot provide intra-city leisure travel demand forecasting because the existing leisure travel-related demand forecasting models have been focused on long-distance travel at national and regional levels, and second, they fail to realize that leisure travel demand models, be they conventional aggregate models or disaggregate models, are derived demand dependent on leisure activities as a special aspect of leisure travel. In other words, to perform

leisure travel demand forecasting, lifestyles, such as family lifecycles, should be taken into consideration.

3. Survey and method

3.1. Leisure travel behavioral survey and data collection

In this study, weekend leisure travel experiences, lifestyle-based travel patterns, and related socio-economic demographic characteristics were examined. The investigative survey specified respondents' number of leisure travels made within a one-month period, leisure travel destinations, modes of travel, preferences for leisure travel destinations, travel patterns, residential environments, and socio-economic characteristics.

The geographic choice for the survey consisted of three boroughs in Seoul, which are interesting from an urban travel viewpoint; the metropolitan city of Seoul and surrounding areas are plagued by increasing traffic congestion due to weekend leisure travel. The final questionnaire was established following two preliminary surveys with lay respondents and one expert feedback session conducted to check the face validity and content validity of the survey's question items. First, the survey was conducted in three separate areas (Yeouido-dong, Weolgye-1-dong, Yangjae-2-dong) during four weeks between April and May 2012. Second, with a census covering the whole survey area being impossible, the sample size was set using the Cochran formula at a total sample size of 900 evenly distributed among the three survey areas based on the collection of 270 for Yeouido-dong, 269 for Weolgye-1-dong, and 269 for Yangjai-2-dong. Third, samples were extracted from the total samples using the proportional stratified sampling method. To ensure evenly distributed household type ratios among the three sample groups, a stratified random sampling was conducted on the basis of the 2010 municipal data on residential status, as it was impossible to conduct a separate investigation on household-type data.

3.2. Household type classification for analyzing leisure travel behavior

Many previous studies (Rapport and Rapport, 1975; Landon and Locander, 1979; Kelly et al., 1987; Oppermann, 1995) confirmed the correlation between leisure activities and the family life cycle. Therefore, the household type was classified into five categories considering probable leisure activities and travel patterns based on the family life cycle: single households, households with preschool children, households with primary school children, households with junior and senior high school children, and households of couples with or without adult children. Of the 900 samples, 853 valid samples were taken and analyzed after the exclusion of 47 samples not belonging to any of the five households classified. We investigated the characteristics of leisure travel patterns of single households and preschool children households whose lifestyles are substantially different from those of the other three household types. The ratios of single households and preschool children households were 14.9% and 19.1% respectively.

Table 1. Household type classification focused on family life cycle

Household Type	Frequency	Portion (%)
Single households	127	14.9
Households with preschool children	163	19.1
Households with primary school children	86	10.1
Households with junior and senior high school children	180	21.1
Households of couples with or without adult children	247	34.8

Meanwhile, to grasp leisure travel characteristics reflecting travel pattern variability, it is necessary to make a detailed, purpose-based differentiation of leisure activities related to leisure travel as characterized by intrapersonal variability and heterogeneity (Schlich, et al., 2004: 234-235). Ohnmacht et al.(2009) have classified leisure travel types into SPO (the sporty types), FUN (the fun and distraction seekers), CUL (the culture-oriented), and HOME (the neighborly home-lovers) based on the leisure travel data of enlarged municipalities as established by the Swiss Statistical Office and the Swiss Federal Office for Spatial Planning. Lanzendorf (2002) defined and differentiated the purposes of leisure activities into five types: urban leisure facilities, social contacts, urban leisure facilities and social contacts combined, visiting recreational areas, and driving/horse riding/walking.

For the purposes of our study, leisure activities were divided into four types: fun & shopping, hobbies and entertainment, recreation in nature, and social interaction. Leisure travel characteristics involving many activities was assigned to the "hobbies and entertainment" category, with destinations providing a range of urban recreational facilities.

4. Leisure travel behavior characteristics

4.1. General travel characteristics

The respondents' general travel characteristics are shown as follows: For weekday commutes, respondents used public transport (26.4%), car (21.2%), public transport + car (8.3%), walking and biking (2.3%), and others (41.7%): public transport + taxi, taxi, etc.

Table 2. Mean travel distance of the respondents

Household type	the average commuting distance(km/day)	the average leisure travel distance(km/week)
Single households	8.704	19.347
Households with preschool children	10.674	11.903
Households with primary school children	9.874	12.134
Households with junior and senior high school children	18.622	13.654
Households of couples with or without adult children	9.009	18.188

The average commuting distance and leisure travel distance by household type are shown in Table 2 below. The analysis results of the average commute are as follows, starting with the longest distance: households with junior and senior high school children (18.622 km), households with preschool children (10.674 km), households with primary school children (9.874 km), households of couples with or without adult children (9.009 km), and single households (8.704 km). On the other hand, in terms of average leisure travel distance, single households (19.347 km) traveled the farthest, followed by households of couples with or without adult children (18.188 km), households with junior and senior high school children

(13.654 km), households with primary school children (12.134 km), and households with preschool children (11.903 km).

4.2.1. Leisure travel characteristics by mode of transport

Table 3 shows the leisure travel distances by mode of transport for hobbies and entertainment. The results of the car leisure travel distance analysis for hobbies and entertainment are single households (10.896 km), households with preschool children (7.426 km), households with primary school children (12.646 km), households with junior and senior high school children (10.484 km), and households of couples with or without adult children (9.588 km), showing the households with primary school children is the type that traveled high distance for leisure by car. For hobbies and entertainment leisure travel via public transport, the results are single households (11.903 km), households with preschool children (11.071 km), households with primary school children (10.670 km), households with junior and senior high school children (9.241 km), households of couples with or without adult children (12.471 km), indicating the households of couples with or without adult children is the type traveled high distance for leisure by public transport.

Table 3. Average leisure travel distance for hobbies and entertainment (unit: km/week)

Household type	Car	Walking	Public transport
Single households	10.896	6.137	11.903
Households with preschool children	7.426	3.771	11.071
Households with primary school children	12.646	2.385	10.670
Households with junior and senior high school children	10.484	2.999	9.241
Households of couples with or without adult children	9.588	4.643	12.471

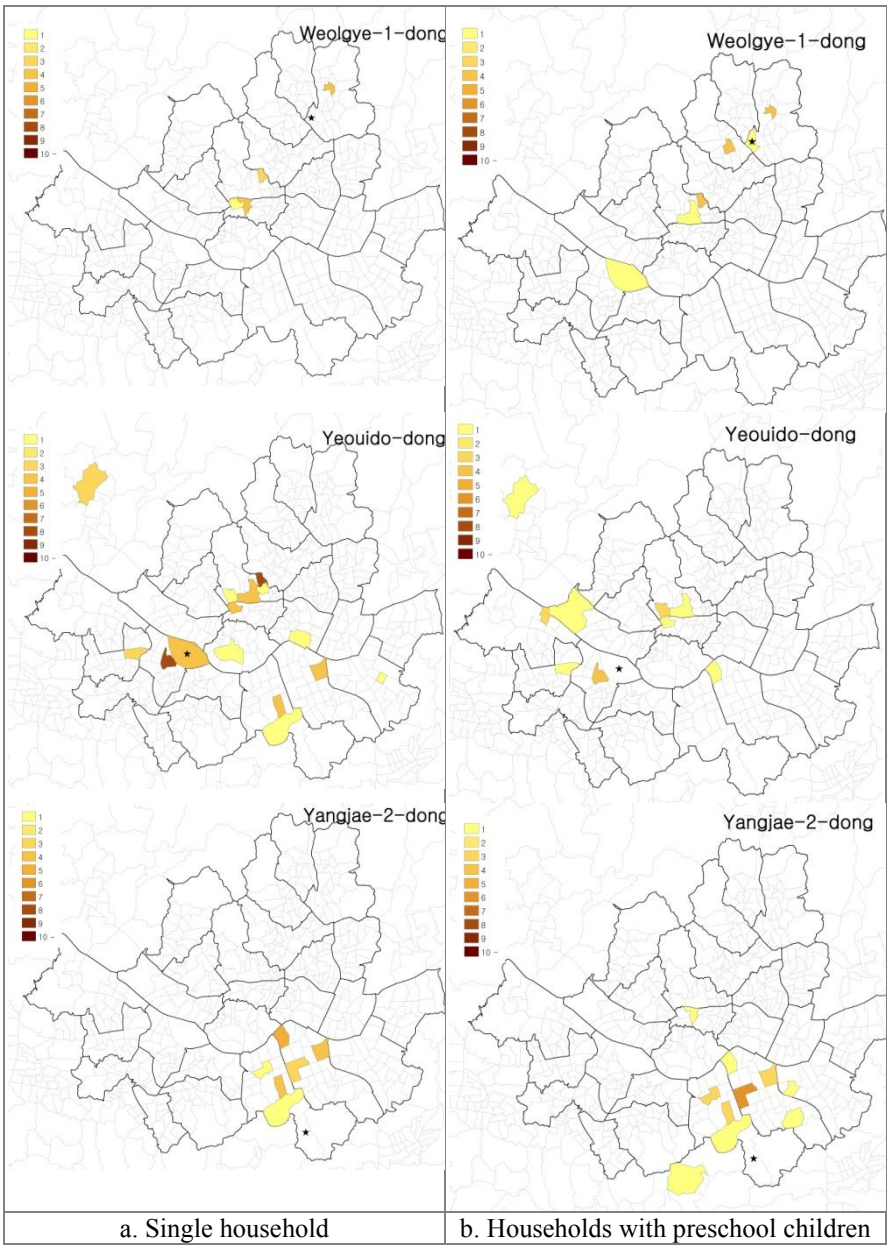
4.2.2. Distribution of leisure travel destinations by household type

Leisure travel destinations for hobbies and entertainment by household type are depicted in Figure 1; the numbers of trips that was chosen at the leisure destination for a month.

First, single households showed a distribution pattern preferring the district or city downtown to their own boroughs when traveling for hobbies and entertainment.

Second, the destinations for hobbies and entertainment leisure travel of preschool children households showed a distribution pattern favoring dis-

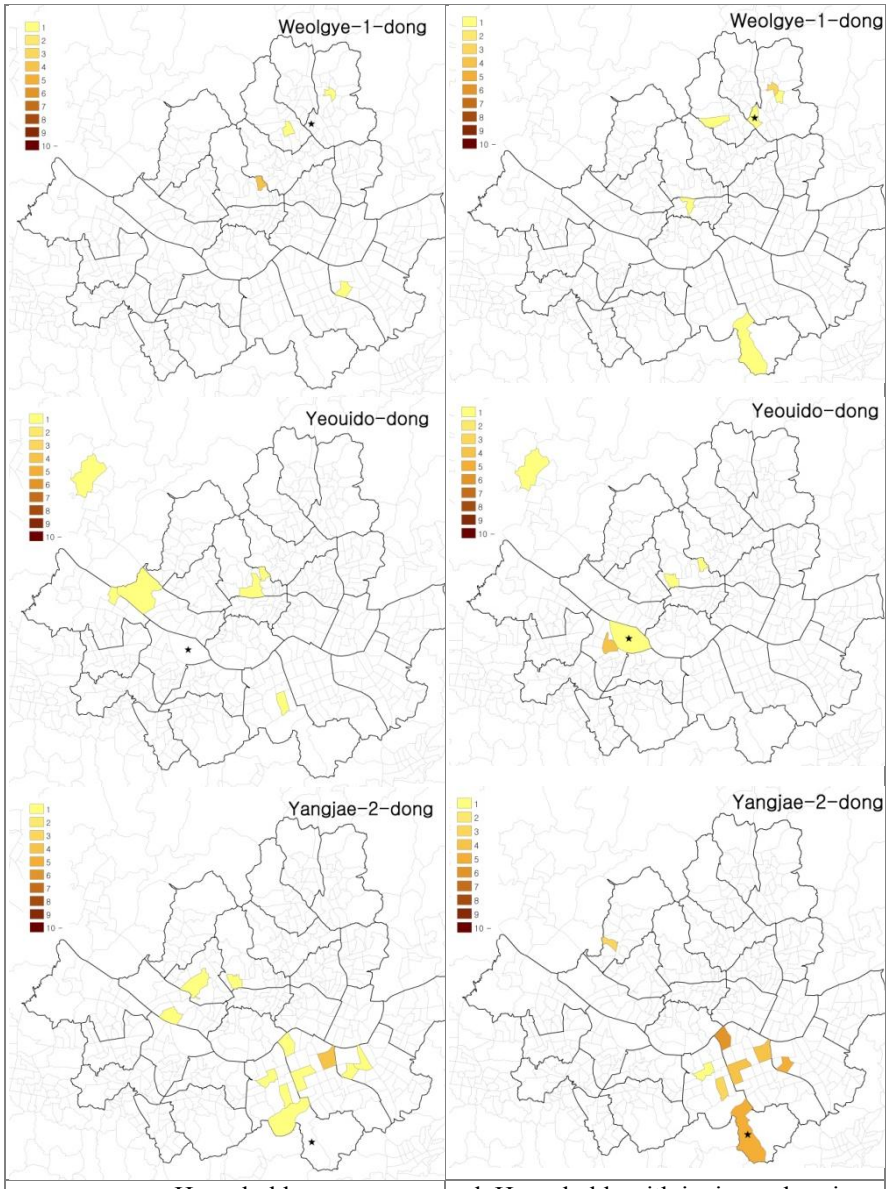
trict downtown and other city areas or suburbs of Seoul, with more frequency for district downtown.



a. Single household | b. Households with preschool children

Fig. 1. Distribution pattern of leisure travel destinations by household type (★: Origin)

Third, although primary school children households did not travel often for hobbies and entertainment, the distribution pattern of their destinations showed a general tendency for longer-distance travel to other city areas and suburbs of Seoul.

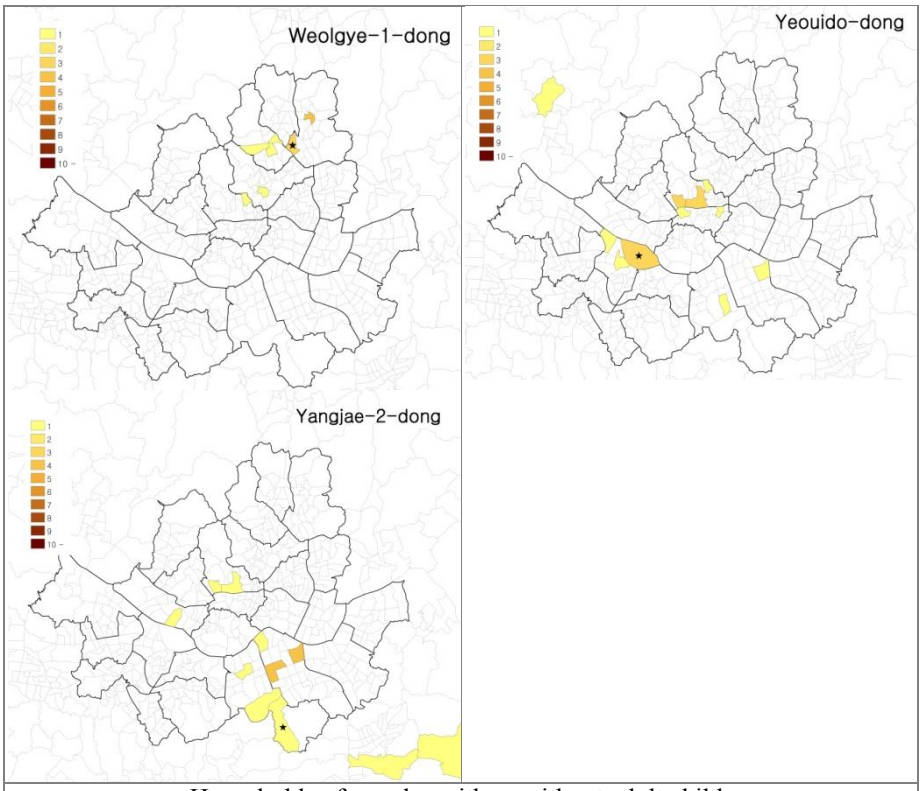


c. Households with primary school children

d. Households with junior and senior high school children

Fig. 1. Distribution pattern of leisure travel destinations by household type (★: Origin)

Fourth, the most common destinations of households with junior and senior high school children for hobbies and entertainment leisure travel showed a distribution pattern of choosing their own boroughs and districts downtown, with the latter chosen more frequently.
Fifth, the destinations of households of couples with or without adult children for hobbies and entertainment showed a distribution pattern of choosing mainly their own boroughs and the suburbs of Seoul, with the former chosen more frequently.



e. Households of couples with or without adult children

Fig. 1. Distribution pattern of leisure travel destinations by household type (★: Origin)

5. Conclusion and discussion

As a part of leisure activities, leisure travel has become increasingly important in urban with rapid social change diversifying urban activities. Despite the increasing importance of leisure travel, however, a leisure travel demand model is yet to be developed that is capable of featuring various leisure travel characteristics that is discretionary, such as leisure activities. Therefore, to present a methodology of designing a leisure travel demand model, this study examined leisure travel characteristics of each reference group, focusing on the family lifecycle.

The analyses yielded the following results: first, households with junior and senior high school students had the longest average commuting distance of all household types, and single households had the longest average leisure travel distance. The travel distance by mode of transport correlated with the residential location of each household, and the choice of residential location was influenced by family constellation, which was, in turn, reflected in the mode of transport. Thus, a leisure travel demand model should be designed in light of the family lifecycle, which reflects individual households' given circumstances. Second, the analysis of leisure travel distances by mode of transport for hobbies and entertainment resulted in the findings that the households with primary school children traveled most frequently by car to pursue hobbies and entertainment activities, single households on foot, and couple households by public transport. These results, contrasting those related to the overall average leisure travel distance as presented earlier, suggest that leisure travel features different travel characteristics depending on the type of leisure activities pursued. Consequently, a leisure travel demand model should be designed with due attention paid to a detailed differentiation of leisure activities. Third, in terms of destination distribution of leisure travel for hobbies and entertainment, households with primary school children and couple households (including those with adult dependants) showed a general tendency for a long-distance pattern, differing only in preference, with the households with primary school children for other city areas in Seoul and couple households (including those with adult dependants) for their own boroughs. On the other hand, households with preschool children and households with junior and senior high school students, with slight differences of frequency, mainly chose the residential neighborhood. Unlike the choice of destinations for the fun & shopping type of leisure travel, the destination-choosing tendency for hobbies and entertainment leisure travel appeared more complex with various distribution patterns by household type. This evidences the varying tendencies for destination choice depending on

leisure type, which should be taken into consideration in a leisure travel demand model such that it can analyze the destination distributions of leisure travel by leisure type.

The significance of this study consists of the systemized presentation of a leisure travel demand modeling methodology integrating the family lifecycle to analyze the complex and multiple characteristics of leisure travel. Given the limitations in covering the entire range of leisure activities, however, the scope of the analyses was narrowed down with the main focus on hobbies and entertainment leisure travel. It may serve as a referential basis for the future development of a leisure travel demand model that takes into account changes in family constellation and related characteristics of leisure activities by analyzing the leisure travel characteristics as per the purposes of leisure activities.

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