

An Empirical Exploration of the Trip Chaining Behavior among Indian Tourists

Komal Nagar*

Abstract Although a very large number of Indian tourists travel around the country for purposes of fun and work, this market has been marginalized and almost forgotten. The present study examines the travel behavior of Indian tourists whose primary purpose of trip is either hedonic or for work. Using trip pattern and trip motivation as the two factors, the tourists were divided into four types: single destination/hedonic, single destination/work, multi-destination/hedonic and multi-destination/work. The four groups were found to be statistically different in tripographics and some socio-demographic characteristics. Several important recommendations have been provided for the marketers for pursuing Indian travelers as a niche market based on the understanding of their travel behavior.

Keywords: Travel Patterns, Travel Motivation, Indian Tourists, MANOVA

INTRODUCTION

The activity-based approach for analysing travel behavior and predicting travel demand emerged in the late 1980s (Kitamura, 1988; Jones, 1990; McNally, 2000). The daily activities play a central role. The activity-based approach covers a brand new class of models that predict where and when activities are pursued. From the perspective of the activity-based approach, travel is considered as a demand derived from the need for participating in spatially separated activities.

Increasing desire for activity fulfillment with limited time budgets have necessitated a change in travel patterns (McGuckin et. al., 2005). Research suggests that trip making behavior of people has become increasingly complex due to their modern and hectic lifestyle. Individuals travel for participating in various activities distributed in time and space. Managing time for higher activity participations has lead to a higher propensity to link a series of activities into a single multi-stop tour or journey, called trip chaining or tours (Hensher and Reyes, 2000; Shiftan, 1998). Also known as stop-making behavior, trip-chaining involves multiple purposes to a single or multiple destinations which begins

and ends at home or a similar origin (Shiftan, 1998). The linking of activities into a single chain offers convenience to the trip makers (Ye et al., 2007). Therefore, travel behaviors of individuals can be viewed in terms of interlinked trips. Over the past few decades, considerable amount of research has focused on people's trip chaining patterns addressing various factors that influence trip chaining behavior. An analysis of trip chaining complexity is therefore necessitated for a deeper understanding of travel behavior in order to provide a more appropriate framework for policy makers.

Travel involving visits to friends and relatives appears to be the most popular pleasure trip type among tourists involving single or multiple purposes to single or multiple destinations. However, focus on studying the travel behavior specifically in terms of the trip chaining behavior of Indian tourists which has seen considerable development in both methods and applications has been lacking. Hence, the present paper is intended at exploring the variety seeking behavior of Indian tourists who travel for different motives and use different destination patterns. Specifically, the present study seeks to understand the linkage between type of trip chaining and the purpose of travel.

* Assistant Professor, The Business School, University of Jammu, Jammu & Kashmir, India.
Email: komalnagar@rediffmail.com

REVIEW OF LITERATURE

Trip Chaining

Literature on trip chaining reveals that there is no commonly accepted definition of a trip chain with several authors emphasizing the lack of homogeneity in the definition and measurement of trip chaining travel patterns. Although earlier studies defined various trip chain typologies and the same were used in the research field, however, these literatures fail to conclude a commonly accepted definition of trip chain. Since the beginning of the 1960s, the transportation literature has proposed different approaches to trip chaining and to the behavior related to it. In most trip chaining analysis the primary anchors are generally considered home and work. Oftentimes, the term trip chaining and travel tours are used synonymously referring to the sequence of trips that begins at home, involves visits to one or more other places, and ends at home (McGukin and Murakami, 1995), while the individual segments of travel in a trip chain are interchangeably referred to as “legs” or “stops”. However, most of the studies classify trip chains according to only two categories: simple (one stop within the chain) and complex (multiple stops within the chain). Therefore, a simple chain is simply linking of two activities with a single destination, while a complex chain involves linking multiple activities at different places including final destination. Srinivasan (1998) proposed a more generalized definition of trip chains. Under this definition, a trip chain is a scheduling of activities in time and space, made by linking together work and non-work trips or two or more non-work trips. A tour can therefore consist either of one individual trip or of two or more trips that have been linked together. Furthermore, the purpose of each of these trips can be a mix of work related tour, visiting friends and family. Sometime, non-work activities are also conducted during the work trip (Adiv, 1983). Therefore broadly speaking, a trip chain may have a mix of pleasure related travel (hedonic) and work related travel (utilitarian).

DESTINATION PATTERNS

A potential tourist is likely to view multi-destination visits as a rational behavior pattern that reduces time and cost associated with travel (Ben-Akiva and Lerman, 1985). Although the importance of multi-destination trips has been recognized in other fields (Thill and Thomas, 1987; Timmermans and Golledge, 1990), evidence of this recognition in the tourism and outdoor recreation literature has been limited to a few pioneering studies (Baxter and Ewing 1981; Leiper, 1989; Wall, 1978). According to Leiper, “not much information is readily available about patterns of multi-destination tourism” (Leiper, 1989). Wall (1978)

suggested that single and multi-destination trips should be differentiated and should be modeled separately.

Travel comprises relatively complex patterns of interdependent travel activities (Fesenmaier and Lieber, 1988). The heterogeneity of preferences among a group of travelers encourages selection of multiple destinations and single destinations with multiple attractions, since different destinations and attractions may be able to fulfill different needs of each member of a tour group. As suggested by Nelson (1958), the cumulative attraction of a multi-destination trip is likely to be greater than would be the attraction of each of the destinations when they are visited as single trips. Several reasons contribute to explaining this phenomenon. First, an individual may seek an array of benefits from a trip that cannot be met by a single destination (Buchanan, 1983). Second, people traveling together, whether in a small family unit or in a larger tour group, are likely to seek different benefits from a trip and these may be best met by a variety of destinations in the same area (Fesenmaier and Lieber, 1988). In a development context, this indicates that multiple nearby destinations might be compatible with one another and act as stepping stones rather than competitors (Mendel-sohn et. al., 1992) emphasizing multi-destination visits as rational behavior over single destination visits.

TRAVEL MOTIVATIONS

Motivations are seen as the driving force behind all actions (Crompton, 1979). Specifically, travel motivations are fundamental in tourism studies and are essential to tourism development (Wahab, 1975). Understanding travel motivations and travel behavior is considered important in tourism research literature (Lam and Hsu, 2006) as such knowledge plays a significant role in tourism marketing, for creating demand and assisting tourists in decision-making (March and Woodside, 2005). Research in travel motivations in the past has often raised the question of what makes tourists travel (Dann, 1977). Even within a tour group as small as two people or a single family, different members are likely to seek different benefits from destinations on a vacation. Many investigations have been documented in the literature on the push and pull framework used in the study of travel motivations (Dann, 1977; Crompton, 1979). People travel because they are pushed by internal forces and, at the same time, pulled by external forces such as interest in a destination’s attributes (Uysal and Jurowski, 1994). Most of the push factors are intrinsic motivators, such as leisure and relaxation (Uysal and Jurowski, 1994). Pull factors are those that emerge as a result of the travelers’ perceptions and expectations, such as benefit expectation (Uysal and Jurowski, 1994). Therefore, travelers are motivated to travel either by hedonic or utilitarian outcomes often dividing the travel market into four segments: personal business travel,

government or corporate business travel, travel to visit friends and relatives, and pleasure vacation travel (Nesbit, 1973). The push factors have been thought useful for explaining the desire to travel while the pull factors have been thought essential for explaining the choice of destination (Crompton, 1979).

VARIETY SEEKING BEHAVIOR

The study of variety seeking behavior among tourists has been an area of interest among researchers (Faison, 1977; Gilsbrechts, Campo and Nisol, 2000; Hoyer and Ridgway, 1984). Consumers have felt a need for variety in their lives in one aspect or the other (Pessemier, 1978).

McAlister and Pessemier (1982) concluded that there were two schools of thought in explaining this behavior: those who view variety-seeking behavior as the result of other motivations (derived), and those who see variation as a motivation in and of itself (direct). Variety-seeking behavior as explained through derivative theories is a result of external or internal forces that have nothing to do with a preference for change. For example, the difference in preferences within a household leads to the selection of multiple objects. Situations also result in a change in behavior, such as the location of consumption or simply, time constraints. Conversely, few researchers dispute that the variety-seeking behaviors are a result of the intrinsic satisfaction due to behavioral changes. Internal and external, both the forces cause the intrinsically pleasing aspects of changing behaviors. Internal forces include a desire for diversity, or a change in an already familiar alternative, and also for information. Variety-seeking behavior essentially arises out of an individual's internal need for stimulation (Leuba, 1955; Hebb, 1955) which when reaches past the supreme level, leads an individual to try to simplify it (Hoyer and Ridgway, 1984). External forces include the needs for group affiliation caused by social pressure and/or the need for social individuality. The present research study adopted the external force explanation of variety seeking behavior.

Variety-seeking behavior can either be a temporary phenomenon or spatially, or it could be a combination of both. For some visitors, variety seeking in travel is critical as boredom is likely to set in due to repeated exposure to the same destination and/or activities. A multi-destination trip such as business trip, sightseeing, shopping, and visiting friends and family satisfies the need for variety in travel. Variety-seeking behavior explains why a significant number of visitors prefer hybrid or multi-purpose trips (i.e., travel with more than one trip purpose) and trips to more than one destination (multi-destination trips).

Researches in tourist travel behavior classify visitors on the basis of their primary purpose of undertaking a trip

and assume that they travel with the sole purpose of a trip. However, previous literature on consumer behavior suggests that a number of interconnected motives result in a general variety drive (Leuba, 1955; Hoyer and Ridgway, 1984). Thus when travelling, a variety seeking traveler may seek out a combination of several different trip purposes.

RESEARCH PURPOSE

The purpose of this study is to examine the trip chaining behavior of Indian tourists that were classified into the following four types: Single Destination/hedonic, Multi Destination/Hedonic, Single Destination/Work, Multi Destination/Work as indicated in Table 1. The present research focuses in finding out if there is any significant difference in these four types of destination visits. Furthermore, the purpose of the present study was to explore if the trip motivation when coupled with destination patterns made any significant difference in other tripographics. Specifically, the study examined the differences in travel distance and length of stay away from home.

Table 1: Definition of the Four Groups

Single Destination		Destination Patterns	
		Multiple Destination	
Trip Purposes	Hedonic	1 Single Destination/ Hedonic	2 Multiple Destina- tions/Hedonic
	Work	3 Single Destination/ Work	4 Multiple Destina- tions/Work

Hypotheses of the Study

Based on the review of existing literature in consumer behavior and tourism research, the following hypotheses have been generated.

H1a: Travelers who travel for hedonic purposes have a longer length of stay than those who travel for work.

H1b: Travelers who travel for hedonic purposes travel a longer distance than those who travel for work.

H2a: Single destination travelers have a shorter length of stay than multi destination travelers.

H2b: Single destination travelers travel a longer distance than multi destination travelers.

RESEARCH METHODOLOGY

Data Source and Sample Selection

The focus of the present research work was to focus on the domestic Indian travelers whose purpose of travel was either work or for pleasure. Most of the previous studies in this context have been conducted in the U.K., Australia, New Zealand and U.S.A., however variety seeking and trip chaining behavior in the Indian context have not been clearly defined or segmented, especially in the domestic travel. The present study aims at providing comprehensive data about long distance travelers who reside in India. Information was collected on all trips of 100 kilometers or more taken by household members. A total of 238 respondents were randomly selected and information collected.

STATISTICAL METHODS

The study had two stages of data analysis. First, chi-square tests, used to assess counts of categorical responses of two or more independent groups (Cody and Smith, 1997), was used to examine the statistical differences in socio-demographic and tripographics among the four groups. Furthermore, Multivariate Analysis of Variance explored group composition as defined by destination patterns and trip purposes. MANOVA was used in place of ANOVA in order to explain the interrelationships among lengths of stay and travel distances. MANOVA is used to analyze whether destination patterns and trip purposes resulted in groups with differences (Hair et al., 1998). GLM was used because of the unequal sample size in the two levels of each factor. Prior to the MANOVA analyses, univariate tests and Box's M tests of the dependent variables were examined to meet the assumption of homogeneity of variance-covariance matrix (Hair et al., 1998).

Destination patterns and travel motivations were used as the two independent variables. The destination pattern variable (D) had two levels, single-destination and multi-destination. Travelers who did not stop between the origin and the destination were defined as single-destination travelers. Multi-destination travelers were those who went to other places at least once, either to or from the destination. Travel motivation (M) also had two levels, hedonic (for fun) and utilitarian (for work).

The interaction of these two factors divided the sample into four groups, single destination travelers with hedonic motive, single-destination travelers with utilitarian motive, multi destination travelers with hedonic motive, and multi destination travelers with utilitarian motive. The dependent variables used in describing trip behaviors (tripographics) were travel distance (TD) and length of stay away from home (SA).

The full model of GLM MANOVA was:

$$(TD, SA) = b_0 + b_1D + b_2M + b_3D * M$$

The model tested not only the main effects of the two independent variables (trip purposes and Trip Motivation), but also their joint effect on the four groups for the optimal combination of the two dependent variables (travel distance and length of stay away from home).

Analysis

Socio-Demographic Profile of the four Groups of Travelers

Among the 233 respondents, 70 (29.4%) were single destination/hedonic travelers, 80 (33.61%) were single destination/work travelers, 50 (21%) were multi destination/hedonic travelers, while only 33 (13.86%) were multi destination/work related travelers. Results of the chi-square test indicate that the two socio-demographic characteristics, namely, age and household size, were significantly different at the 0.05 levels for all the four groups (chi-square statistics: 37.21 and 25.43 respectively). No significant differences were found for gender, education level, and household income. The results show that the travelers in the age group of 25 to 35 were the multi destination/hedonic travelers while the age group of 35 to 45 fell in the category of single destination /work group of travelers. This indicates that a significant number of older travelers were not interested in visiting multiple destinations for pleasure purposes. The results suggest that travelers with a tendency to visit multi-destinations were young travelers.

Also the four travel groups were found to be significantly different in terms of the household size. A household with four persons or above represented a significant proportion of multi-destination/hedonic groups (41.08%) and single destination/hedonic (33.21%) groups of travelers.

Tripographic Profiles of the Travelers

As shown in Table 2, the four groups were also found to be different in all the trip characteristics. A majority of the hedonic groups (63.4% multi destination/hedonic and 65.7% single destination/hedonic groups) were either groups of two or in larger groups of more than four. This may be because either the newly wedded honeymooners go for sightseeing purposes or families like to travel in groups while going on fun or pleasure trips in India. Travel groups that had more than four people in a group exhibited a higher inclination to stay in one destination, and to travel in larger groups. In the single destination/work group, 49% were those who stayed for less number of nights than those who were multi destination/work group.

Table 2: Tripographic Profile of the Respondents

	Single Destination/ Hedonic	Multi Destination/ Hedonic	Single Destination/ Work	Multi Destination/ Work	Chi- Square	Df	p- Value
Sample Sizes	<i>n=70</i>	<i>n=50</i>	<i>n=80</i>	<i>n=33</i>			
Travel Party Size							
1					32.37	15	0.0032*
2	12.51	10.2	53.69	47.83			
3	41.62	38.2	18.26	25.87			
>4	19.79	26.4	15.61	18.9			
	26.08	25.2	12.44	7.4			
Children (Under 15)					14.83	3	0.0013*
Yes	56.74	31.45	5.67	2.92			
No	43.26	68.55	94.33	97.08			
Weekend Trip					189.45	3	<0.0001*
Yes							
No	68.39	58.64	28.36	52.87			
	31.63	41.36	71.64	47.13			
Length of Stay(Night)					208.23	9	<0.0001*
1-2	55.63	26.02	49.01	88.32			
3-5	27.03	53.21	27.84	7.39			
>= 6	17.34	20.77	23.15	4.29			

*Significant at p=0.01

There was a significant difference among the four groups in terms of the presence of children below the age of fifteen. The single destination/hedonic group had more children in their travel groups. Finally, the decision of going on weekend trip also had a significant difference among the four groups. The single destination/hedonic group had more proportion of traveler than the other three groups.

Effects of Variety Seeking Behavior Factors

The MANOVA test results are presented in Table 3. The Wilks' Lambda statistic was used because it is the one most immune to violations of the assumptions underlying MANOVA, while maintaining the greatest power (Hair *et al.*, 1998). The Wilks' Lambda statistic is the ratio between the residual (within) sum of squares and the cross products over the total (corrected) sum of squares and cross product ($L^* = |W| / |W + B|$) (Johnson and Wichern, 1998). The present study used an alpha value of 0.01 instead of the more commonly applied alpha of 0.05.

Interaction Effect

As shown in Table 3, the MANOVA results reveal significant main effects of destination pattern and travel motivation

which indicated that the differences in destination pattern were not equal across the travel motivation for the dependent variables. The multivariate effects show that there is a significant interaction effect of the Destination Pattern x Travel Motivation interaction term on the dependent variables. An interaction of the two main effects (destination patterns and trip purposes) was found to be statistically significant at 0.01 level, indicating that the difference in destination patterns was unequal across the travel purposes for the two dependent variables (length of stay and travel distances) jointly. When an interaction is significant, the resulting effects of the independent variables may result in unclear comparisons between the means of one of the independent variables. In the present study, an interaction of the two independent variables, namely, destination pattern and travel motivation played a significant role in explaining the variability of distances traveled by tourists and their length of stay.

Results show that multi destination travelers in general tended to travel longer distance than single destination travelers. After the single destination/hedonic travelers, the multi destination/hedonic travelled the furthest, while the single destination/work travelers travelled the shortest distance. Results for the 'length of stay' suggest that multi-

destination travelers were likely to spend more nights away from home than did single-destination travelers.

Table 3: Multivariate ANOVA (MANOVA) Results

Effects	Wilkes' Lambda Value	F Value	P Value
Destination Pattern (P)	0.978	38.74	<0.0001*
Travel Motivation (M)	0.967	63.48	<0.0001*
P*M	0.955	8.57	0.0012*

*Significant at $p=0.01$

DISCUSSION

As one of the first attempts to analyze the effects of tourist travel behavior in India, the present study found that the domestic tourist market is an extremely important segment for the planners and marketers. The present research provides support to the affirmation that understanding travel behavior of tourists is more complex than traditionally assumed and that it would be imprecise to assume that all tourists, whether domestic or foreign, are alike in their travel behavior.

The present study extends the existing research and seeks to understand the travel behavior of Indian tourists. The present study also aims at explaining why a significant number of travelers prefer multi destination trips to a single destination trips while moving in larger groups for the purpose of seeking leisure in travel rather than travel for works. An extensive review of literature on travel behavior suggests that travel behavior broadly comprises two factors, namely, travel motivation and travel patterns. Based on these two factors, the travelers were divided into four categories, which were found to be significantly different in travel distance and length of stay in a trip.

Results of the present study provide partial support for the two hypotheses derived from the literature. The findings of the present study show that travelers who undertook travel for hedonic purposes spent longer time staying out of home while those who travelled for purposes of work had a shorter length of stay. A possible reason for this finding to be true could be that when people undertake travel for fun, they tend to take time off from work and try to make the most of the holiday and therefore spend more time at the destination rather than those who travel for work purposes in which case they travel for a specific job and spend minimum time as is required for the completion of their work.

Findings also show that single destination travelers have a shorter length of stay than the multi destination travelers however there is no significant difference in the travel distance for either the single destination or multi destination travelers. These results are in contradiction to previous findings that assume that single destination travelers will travel longer distance than the multi destination travelers. Results suggest that the distance travelled by the multipurpose travelers is roughly the same distance as the distance travelled by the single destination travelers. However, their average length of stay was significantly higher than the single destination travelers.

The GLM multivariate ANOVA test showed that the interaction of the two factors driving travel behavior, namely destination patterns and trip motivation, explained the variations in travelers' travel distances and lengths of stay. Findings of the present study are in line with the results of Hu and Morrison (2002) suggesting that destination patterns provide a significant typology variable offering destination marketers with an improved understanding of tourist travel behavior and aid in establishing of multi-destination partnerships for future marketing.

LIMITATIONS AND FUTURE RESEARCH

Although the present study took a positive approach in reviewing previous literature of tourist travel behavior, however, the findings of the present research need to be considered in light of some limitations and there are some limitations worth acknowledging. These include issues with the research sample size in relation to and with the actual population of tourists. The constraint may have direct impact on possible generalizations of the research outcomes and may, therefore, call for further research using a larger sample size.

Researchers in future attempting to determine the travel behavior of Indian tourists in terms of their travel pattern and travel motivations may want to elaborate on the participants of the present study. Expansion of the present study may include a larger sample size, both domestic and foreign tourists and a more geographically diverse sample.

REFERENCES

- Adiv, A. (1983). The structure of the work trip based on analysis of trip diaries in the San Francisco bay area. In *Recent Advances in Travel Demand Analysis*, Gower, Aldershot, England.
- Baxter, M. J., & Ewing, G. O. (1981). Models of recreational trip distribution. *Regional Studies*, 15(5), 327-344.

- Ben-Akiva, M., Lerman, S. R. (1985). *Discrete choice analysis: Theory and application to travel demand*. The MIT Press, Cambridge, MA.
- Buchanan, T. (1983). Toward an understanding of variability in satisfactions within activities. *Journal of Leisure Research*, 15(1), 39-51.
- Cody, R. P., & Smith, J. K. (1997). *Applied Statistics and the SAS Programming Language*. Upper Saddle River: Prentice Hall.
- Crompton, J. L. (1979). Motivations for pleasure vacation. *Annals of Tourism Research*, 6(4), 408-424.
- Dann, G. M. S. (1977). Anomie, ego-enhancement and tourism. *Annals of Tourism Research*, 4(4), 184-194.
- Faison, E. W. (1977). The neglected variety drive: a useful concept for consumer behavior. *Journal of Consumer Research*, 4(3), 172-175.
- Fesenmaier, D. R., & Lieber, S. R. (1988). Destination diversification as an indicator of activity compatibility: An exploratory analysis. *Leisure Sciences*, 10(3), 167-178.
- Gijsbrechts, E., Campo, K., & Nisol, P. (2000). Towards a theory based measure of purchase variation. *Academy of Marketing Science Review*. Retrieved from <http://www.amsreview.org/amsrev/measure/gijsbrechts06-00.html> [February 23, 2002].
- Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). *Multivariate data analysis*. New Jersey: Prentice Hall.
- Hebb, D. O. (1955). Drives and the C.N.S. (Conceptual Nervous System). *Psychological Review*, 62, 243-254.
- Hensher, D. A., & Reyes, A. J. (2000). Trip chaining as a barrier to the propensity to use public transport. *Transportation*, 27, 341-361.
- Hoyer, W. D., & Ridgway, N. M. (1984). Variety seeking as an explanation for exploratory purchase behavior: A theoretical model. In T.C. Kinnear (Ed.), *Advances in consumer research*, 11, 114-119. Provo, UT: Association for Consumer Research.
- Hu, B., & Morrison, A. M. (2002). Tripography: Can destination use patterns enhance our understanding of the VFR market? *Journal of Vacation Marketing*, 8(3), 201-220.
- Jones, P. (Ed.), (1990). *Developments in dynamic and activity based approaches to travel analysis* (Oxford Studies in Transport). Avebury.
- Kitamura, R. (1984). Incorporating trip chaining into analysis of destination choice. *Transportation Research Part B: Methodological*, 18, 67-81.
- Lam, T., & Hsu, C. H. C. (2006). Predicting behavioral intention of choosing a travel destination. *Tourism Management*, 27(4), 589-599.
- Leiper, N. (1989). Main destination ratios: Analyses of tourist flows. *Annals of Tourism Research*, 16, 530-541.
- Leuba, C. (1955). Toward some integration of learning theories: The concept of optimal stimulation. *Psychological Reports*, 1, 27-33.
- March, R. G., & Woodside, A. G. (2005). *Tourism behavior: Travelers' decisions and actions*. CABI Publishing, Cambridge.
- McAlister, L., & Pessemier, E. (1982). Variety seeking behavior: An interdisciplinary review" *Journal of Consumer Research*, 9(4), 311-322.
- McGuckin, N., & Murakami, E. (1995). Examining trip-chaining behaviour: A comparison of travel by men and women. *Federal Highway Administration*. Washington, DC, FHWA.
- McGuckin, N., Zmud, J., & Nakamoto, Y. (2005). Trip-chaining trends in the United States: Understanding travel behavior for policy making. *Transportation Research Record*, 1917, 199-204.
- McNally, M. G. (2000). The activity-based approach. In: Hensher, D.A., Button, K.J. (Eds.), *Handbook of Transport Modelling*. Pergamon, 53-69.
- Mendelsohn, R., Hof, J., Peterson, G., & Johnson, R. (1992). Measuring recreation values with multiple destination trips. *American Journal of Agricultural Economics*, 74(4), 918-25.
- Nelson, R. L. (1958). *The selection of retail location*. New York: R. W. Dodge.
- Nesbit, W. R. (1973). *The Art of Forecasting Domestic Air Travel: A Survey Assessment and Overview*. The Fourth Annual Conference, The Travel and Tourism Research Association (pp. 285-290). Salt Lake City, Utah: The Travel Research Association.
- Pessemier, E. A. (1978). Stochastic properties of changing preferences. *The American Economic Review*, 68(2), 380-385.
- Shifan, Y., (1998). Practical approach to model trip chaining. *Transportation Research Record*, 1645, 17-23.
- Srinivasan, S. (1998). *Linking land use, transportation and travel behaviour: Understanding trip chaining in terms of land use and accessibility patterns*. Cambridge, Department of Urban Studies and Planning, Massachusetts Institute of Technology
- Thill, J.-C., Thomas, I. (1987). Towards conceptualising trip-chaining behaviour: A review. *Geographical Analysis*, 19(1), 1-17.

-
- Timmermans, H. J. P., & Golledge, R. G. (1990). Applications of behavioral research on spatial problems II: Preference and choice. *Progress in Human Geography*, 14, 311-354.
- Uysal, M., & Jurovski, C. (1994). Testing the push and pull factors. *Annals of Tourism Research*, 21(4), 844-846.
- Wahab, S. E. (1975). *Tourism Management*. London: Tourism International Press.
- Wall, G. (1978). Competition and complementarity: A study in park visitation. *International Journal of Environmental Studies*, 13, 35-41.
- Ye, X., Pendyala, R. M., & Giovanni, G. (2007). An exploration of the relationship between mode choice and complexity of trip chaining patterns. *Transportation Research*, 41(1), 96-113.