# RECREATION AND SPACE: DYNAMICS OF AGENDA FORMATION AND EXECUTION

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## ABSTRACT

As part of a special session, this short paper discuss the scope of the one of the projects of the Recreation and Space research program, which focuses on the dynamics of agenda formation and execution. The motivation and scope of this project is discussed. In addition, research issues, which reflect major operational decisions, are highlighted and decisions are motivated.

Keywords: *recreation, travel behavior, dynamics*

## INTRODUCTION

Traditionally, the travel behaviour community and the tourism, leisure and recreation research community hardly overlap at all. The communities have their own conferences, associations and journals. The travel behaviour community has always had the commuter trips as its main focus of attention, although over the last decade this has gradually shifted into the attention for comprehensive activity-travel patterns. This is not surprising as the journey to work commute still accounts for most traffic and causes most congestion. Studies by researchers active in transportation research on leisure/recreation and certainly on tourism are relatively scarce. Some recent work related to leisure/recreation can be found in Kemperman and Timmermans (2007) and Song and Li (2008).

However, the share of leisure, recreation and tourism trips is rapidly increasing in many countries and is expected to increase due to processes such as increasing wealth, aging populations and changing lifestyles. The study of leisure, recreation and tourism behaviour

therefore deserves more attention, also from the perspective of the travel behaviour research community. These activities do generate traffic with distinct features. We may also expect the existence of interdependencies between leisure activities and non-leisure activities, and between leisure, recreation and tourism travel. Because of changes in the offerings of leisure and tourism products and services, the associated travel may contribute increasingly to emissions and a better understanding of this behaviour from the perspective of sustainable development is therefore highly relevant.

The theories, concepts and modelling approach used in leisure research do not differ that much from commonly used approaches in travel behaviour research, although the variety is a little higher. Similar to travel behaviour research, many models are based on the principle of utility-maximizing behaviour and several multinomial, nested and mixed logit models have been applied (e.g. van Middelkoop et al. 2001, Kemperman et al. 2003, van der Waerden et al. 2001, Kemperman et al. 2005, Crouch et al. 2009, Hong et al., 2006, Kelly et al., 2007, Lyons et al., 2009). Other models, like the one proposed in 1980 by Ajzen and Fishbein (1980) arose from the theory of reasoned action (TRA) after they were trying to estimate the discrepancy between attitude and behavior. This TRA was related to voluntary behavior. Later on behavior appeared not to be 100% voluntary and under control, this resulted in the addition of perceived behavioural control. With this addition the theory was called the theory of planned behavior (TPB). Dellaert et al. *(*2008) used a complex choice model to investigate consumers' mental representations of complex shopping trip decision problems.

Similar to developments in travel behaviour research, there is also increasing attention for more complex models, taking into account the interdependencies of various choice facets, including destination, transport mode, travel party and accommodation. For example, van Middelkoop et al. (2004) developed a comprehensive simulation model system, called MERLIN, which is very similar in approach to ALBATROSS developed by the same group, but focuses on city trips and vacations. It predict which kinds of trips are made in any given year, the destination of these trips, the transport mode used, the duration of the trip, accommodation, travel party and expenditure. The model has been estimated using a Dutch vacation behaviour survey.

Most studies are cross-sectional in nature; very few studies have examined dynamics. This is a shortcoming in light of the changing socio-demographics, lifestyles and other dynamic processes. As part of the DBR (*Duurzame Bereikbaarheid van de Randstad* - Sustainable Accessibility of the Randstad) programme, the research project, described in this paper, intends to examine the dynamics of recreation behaviour, where the term recreation should be understood in a very broad meaning and includes leisure and tourism.

## GOALS, OBJECTIVES AND RESEARCH QUESTIONS

The goal of this project is to better understand the dynamics of recreation in time and space, under the current general contextual conditions. It will examine the process of activity-generation and adjustment, from a lifetime perspective and how this dynamic agenda is

executed across years, seasons, weeks and scheduled with other activities in time and space. Conceptually, commonly used utility-maximizing principles will be supplemented by concepts such as variety-seeking and lifetime utility.

The research project will address the following research questions:

1. How are long-term agendas for recreation and leisure activities formulated?
2. What is the influence of lifecycle, social networks, advertising, spatial characteristics?
3. What are the properties of these agenda? Do they show evidence of variety-seeking?
4. How are these agendas scheduled in time and space?
5. What is the nature of the relationship between vacations, short trips and other recreational and leisure trips? Are these complements or substitutes?
6. What is the influence of spatial, environmental (climate, energy), transportation, institutional and socio-demographics factors on 1-2-3?
7. What are the effects on accessibility?
8. What are the policy implications?

# APPROACH

Data will be collected for a sample of individuals and households of different composition about factors influencing their leisure/recreational activities and their actual behaviour. The survey will use different formats:

1. Qualitative research and retrospective questions will be used to collect data about the history of recreational leisure activities. These data can be used to address questions 1-3.

2. Next, a series of questions will be asked about the scheduling of these activities. In particular, a diary approach will be adopted. In addition, scheduling experiments with different constraints will be used to examine the underlying scheduling principles. These data concern type of activity, destination, timing and duration and travel party.

3. Assuming that transport mode depends on the kind of trip (short trip, vacation etc) and the supply side is now rapidly increasing, we will apply a stated choice experiment on the sub-problem how the choice of transport mode for these various types of activities depends on airport/kind of airline, accessibility, costs, ease of parking, timing etc. Data collected in 2-3 allow addressing research questions 3-4.

Data on all covariates will be collected as part of these surveys. By asking respondents about their post code, data fusion can be used to link these data to available data on spatial characteristics and transportation. These data are available in Eindhoven in GIS format, implying that different measures of accessibility can be calculated and linked to the data.

State of the art discrete choice analysis and artificial intelligence algorithms will be applied to analyze the data.

# RESEARCH ISSUES

## *Retrospective surveys*

As indicated, the focus of the project concerns lifecycles and how these influence the formation of agendas. This means that we need to collect data about the vacation history of the respondents in chronological order. Ideally, a panel survey in which a sample of respondents is followed over a longer period of time or during critical phases which may change their agenda may be ideal. However, in the context of a four year project, panel data or pseudo-panel surveys are not realistic. Moreover, such data collections are very expensive as attrition rates tend to be high.

Retrospective surveys may offer an alternative means of data collection. Such surveys ask respondents to go back in their memory and report the occurrence and details of events (in this case vacations) they experienced in the past. Retrospective surveys thus rely on respondent's ability to recall their previous experiences. The potential advantage of retrospective surveys is that this data collection method is very simple and not different from standard surveys. Problems of attrition are avoided, and one does not need long-lasting panels. Moreover, the costs are not prohibitive. However, because respondents need to recall the past, their responses will not necessarily be error-free as people's memory is limited and people tend to forget (East and Uncles, 2008). The key question is whether the strength of people's memory traces is strong enough to recall past events and experiences in a sufficiently reliable way. We contend that memory traces will be stronger for those experiences that are more important to them, that are more unique, dramatic etc. Moreover, memory traces may be weaker if the event recalled and the time of recall are farther apart. Thus, the quality of retrospective surveys may be sufficient if the recall is concerned with special, memorable, events, especially when the time elapsed between the occurring of the event and the time of the survey is not too far apart. Vacation histories may satisfy that criterion. Moreover, we believe that a holiday is a remarkable experience in someone's life, then, it promotes strong memories.

The limited experience with the application of retrospective surveys in transportation research tends to support this statement. Behrens and Del Mistro (2006) asked respondents to recall past behavioural changes and the events and circumstances surrounding these changes. They concluded that even when considerable time had elapsed since the behavioural change, respondents did not report uncertainty in their recollection of the number of years that had passed since the change. Our experiences with the application of a retrospective survey on lifecycles events such as moving house, changing job, birth of a child, and buying a car were very similar (Verhoeven et al., 2008). By and large the quality of the data seemed good. Other examples in a tourism context are a study on spatial-temporal patterns of demand for hotel accommodation (Jeffrey, 1985), and a study on air travel (Denstadli, 2000).

This does not mean that respondents may necessary be able to recall all details of such events (Baddeley, 1997). Moreover, there may be differences between respondents in recall

and forgetting. Selective memory can play a role. Probing their memory may be enhanced by encouraging respondents to use personal records or by using techniques such as systematically retracing the chronological order of events. Retrospective surveys will not be perfect, but they may be perfect for the research topic and project at hand.

### *Internet x paper-and-pencil survey*

Data can be collected in various ways: through face-to-face interviews, by telephone interviews, or via self-administered surveys (delivered by mail or internet). In all cases, the main goal is to get the better data with less error possible. There exist an overwhelming literature on the pros and cons of these alternative data collecting methods. It is generally believed that face to face contacts may results in the highest response rates and probably the most reliable data, although one should not rule out interviewer-bias. A disadvantage however of face-to-face interviews is their high costs. It is not surprising therefore that many commercial firms have shifted to telephone interviews, and more recently to web-based interviews.

Web-based surveys do however have the potential of being an efficient way to collect large amount of data (Cole, 2005) and are usually less expensive compared to paper-and-pencil surveys (Cobanoglu et al., 2001). They have several advantages, as cited by Verhoeven et al. (2008), they can provide extra-information in pop-up windows to support better understanding of a question, checking possibilities can be added to make sure the answers are in a desired range, they allow a dynamic sequence of questions depending on previous answers, and also the answers can be automatically downloaded by means of drop-down lists, avoiding the data entry process, thus, saving costs and eliminating human errors (cited also by Ilieva et al., 2002 and Cobanoglu et al., 2001). It is however also well-known that it is considerably more difficult to obtain a representative sampling.

As always, the optimal choice depends on the specifics of the research projects and the available budget. The quintessence of our research project is to collect information about the vacation history of respondents, in addition to some socio-demographic information and some general questions. Most questions are pretty standards and can therefore be easily collected using different modes of administration. The necessity to explain the questions is rather limited. The most difficult part is the information about the vacation histories. This would rule out the option of telephone surveys as respondents should be given the time to reflect on their past and recall the vacations. Information on these histories is collected in matrix form. That sometimes creates difficulties for web-based surveys as the matrix should fit on a screen or scrolling should be allowed. Ultimately, we decided that a web-based survey is preferable especially for the young adult segment as this group is familiar with the internet, the data collection is cheap, automatic checks of data quality can be installed and no data entry is required.

It should be emphasized that the survey for this segment also included a stated choice experiment. This requires more explanation and moreover commercial survey software is often difficult to use to design such experiments. However, because we developed our own

platform for web-based surveys and this platform does have templates for choice experiments, using a web-based survey even has the advantage that profiles can be randomly generated and data handling is automated. Using randomisation otherwise involves a lot of work and a high potential of making errors.

### *Stated x Revealed preference choice data*

A wide range of studies have investigated recreation/leisure behaviour using, jointly or separately, SP and RP methods for measuring choices. As cited by Hensher *et al*. (2005), in the choice literature, these two data paradigms are associated with the attributes of the alternatives. The collection of socio-demographic data and data on contextual influences is usually not associated with any particular data paradigm.

Louviere and Timmermans (1990) discussed the usefulness of stated preference and choice models, comparing stated preference modelling approaches and revealed preference approaches based on observations of choices made in real markets. Stated preference and choice approaches are to be preferred in measuring preferences if (i) observed choices are difficult to interpret in terms of underlying preferences only, (ii) no historical data are available. The main advantage of stated choice methods is that researchers have control over the variance-covariance structure of the data. However, these experimental approaches are also not necessarily error-free as respondents need to be motivated, understand the task and their preferences in the experimental task could be different from their preferences in the real-world. Several positive experiences with stated choice methods have been reported in the literature, although variations have been suggested to better resemble decision processes in the real world. For example, Collins et al. (2007) argued that in the area of air travel choice, the use of revealed and stated preference surveys does not do justice to the complexity of the choice processes faced by air travellers and proposed the use of a “search & sort” tool allied to the traditional SP survey. Hess et al. (2007) also used SP data for airport and airline choice because they believe that the quality of RP data is lower in relation to the non-chosen alternatives. Hensher et al. (2001) also used SP data for airline choice between New Zealand and Australia.

Revealed preference data represent data collected on choices that are made in an actual market, therefore, represents events that actually occurred. According to Hensher et al. (2005), some advantages of using RP data are: (1) this data represent the real world and; when collected for a representative sample it is possible to expand the theory within that context, (2) constraints that limit choices are necessarily part of RP data, (3) such data provides face validity. As indicated above, whether (2) is a true advantage depends on the purpose of the study. Some disadvantages relate to (1) limitation to currently existing alternatives, attributes and attribute levels within a current context, (2) attribute-level invariance as there is, in the real-market, strong evidence of this phenomena, (3) no information is collected about the non-chosen alternatives, (4) the collection of RP data can be costly, in terms both of time and money.

In our study therefore a mixture of these alternative methods will be used. Because we first want to analyse the vacation history and agenda formation, we will use RP data for this paper, using the retrospective survey. This concerns factual information about the history. Data on future plans will be collected in a similar way. However, the project will also try to better understand the conditions under which certain choices are made and how preferences and constraints interact to generate particular choices. As we strongly believe that it is very difficult to disentangle these effects from RP data, choice experiments will be designed and implemented to examine how respondents combine various attribute levels to arrive at particular choices.

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