

**Consumer Scheduling of Location-Based Experiences:  
The Asymmetric Nature of Trip Order and Agglomeration Effects**

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## Abstract

Consumers trade off travel cost and effort against benefits derived from visiting different stores when planning their shopping trips. Existing retail models with multipurpose-multistop models explicitly account for benefits that consumers derive from retail agglomeration (or co-location of different stores), in particular the effort and travel costs saved by combining multiple store visits in one trip (Arentze et al. 2005; Dellaert et al. 1998; Gijbrecchts et al 2008; Popkowski-Leszczyc et al. 2004). These models however do not account for the nature of the shopping experience, which is increasingly relevant in retail as a basis for differentiation and engagement (Grewal et al 2017; Pine and Gilmore 2012). We posit that in experience-oriented settings consumers holistically schedule their shopping trips, thereby taking into account the relative order in which the locations and store types are visited. As a result, their choice behaviors display *asymmetric* order complementarity and retail agglomeration effects.

Our *contribution* is that we introduce a multipurpose-multistop trip choice model that expands travel cost based trip choice models to account for and measure the impact of these effects. We demonstrate the existence of the effects and how they operate through a trip planning task and choice environment in the context of urban tourism activities. Our model *dynamically* accounts for the consumer's movement in space as the shopping trip progresses and correspondingly accounts for the changing relative locations of relevant sites. The model takes into account the accumulated history of previous choices as choosers travel along their route, extending the approach by Swait, Adamowicz and Bueren (2004). This component captures asymmetries in consumers' preferences for following up one experience with another. In addition, the model accounts for the prospective utility at each location in the trip context by including the utility of future possible choices for each choice stage in the model through a nested structure (Arentze et al. 2005). The nesting structure reflects the extent to which (future) agglomeration benefits influence the consumer's choice at each stage of the sequence. The model also includes a component that models the probability of ending the trip at each particular choice stage. Jointly, these new model components account for differences in scheduling and choice strategies as related to more experience-based trip scheduling contexts versus more efficiency-based ones.

The model is estimated from a dynamic choice experiment in which participants schedule a trip in a hypothetical city. The choice options for the trip involve one or more locations from a geographically distributed set displayed on an interactive map. The scheduling task concerns the planning of a day trip to a city that offers various attractions at the different locations, including shopping, museums, nature, and theme park options. Results from the experiment reveal how the order and composition of a scheduled trip depend on the options' quality ratings, their spatial location relative to each other and implied travel times, and the (asymmetric) complementarity between different attraction types. The model in addition reveals the influence of agglomeration as a form of forward looking behavior differs between two task conditions varying in the degree to which experience- vs. efficiency-based scheduling is activated. The model is estimated on responses obtained from over 200 participants who each completed trip scheduling tasks for different hypothetical cities. The model implications are demonstrated through simulations of how different spatial configurations of store locations impact the demand for particular retailers.

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