Accessibility in the Austria and the United States: Influences of the Automobile and Alternative Transport Modes on Household Activity Patterns

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Abstract

An investigation of how access to alternative modes of travel affects activity participation by different household members is underway in a collaborative research being conducted at the University of Innsbruck, the Eidgenössische Technische Hochschule, Zürich and the University of California, Irvine. The research is aimed at testing hypotheses concerning how traditional and evolving social roles influence travel opportunities and time and monetary costs. We hope to uncover evidence as to the degree of similarity between Austria and the U.S., in particular with regards to the pattern of reliance on the automobile, contrasted with the degree to which differences in cultural priorities, time use paradigms, and build environments account for variations in travel behavior. An understanding of the nexus between activity participation, land use and car use is central for the planning of sustainable transport.

Similarities and differences in travel behavior in regions of the two respective countries are being compared using a merged activity and travel diary dataset. The merged dataset combines comparable portions of (1) the 1992 Upper Austria Travel Diary Survey, and (2) the 1994 Portland and Southwest Washington Area Activity and Travel Survey. The Upper Austria Survey contains observations on over 123,000 households (with an average of 2.9 persons per household) located throughout the entire Federal Province of Upper Austria, including the major urbanized area of Linz, while the Portland, Oregon Survey consists of observations on more nearly 4,500 households (with an average household size of 2.3 persons). Both surveys include trip diaries for all household members older than five (the Portland survey including diaries for younger children as well). Work is underway to develop compatible coding for variables in the two surveys.

Household activity time use/generation models will be estimated in the form of segmented structural equations models. Separate models will be estimated for different household types (e.g. singles, couples without children, couples with young children etc.), and endogenous variables will be specified for generation by activity type for each individual in the household. Special attention will be given to the description of the household structure and the roles in the household. Auto ownership will be specified as an endogenous variable so that we do not have to assume a one-way causality between car ownership and activity demand. Exogenous variables will include comparable land use and network variables, and direct accessibility measures, such as distances to transit stops. The segmented model design will facilitate testing of national differences. The authors will be prepared to discuss the conceptual and practical difficulties inherent in attempting to specify and estimate such a cross-cultural model system.

The results will shed light on the interactions between the diverging social goals of sustainability and of a wider and more equal participation of both genders in in-home and out-of-home work, which so far has led

to a bigger reliance on the individual car and dispersed settlement patterns. The possible conclicts will be highlighted.

1. Introduction

Background of the work; European and American comparison; household structures and changes in behaviour and land use patterns; relations to sustainable transport (hystersis between sprawl and concentratioon, time lags, permanence of the social changes and in the roles of the different household members; role of real income growth)

2. Aim and scope

Comparison of the interaction between land-use, household-structures and travel behaviour; identification of the effects; two examples: OÖ and Portland;

3. Related results

Earlier work by:

Tom
Ryuichi Kitamura
Mark Bradley et al.

4. The European and American perspective

General discussion of the dynamic of urban development; of social development (based on review Simma); discussion of possible difference;

5. First results

Description of OÖ-dataset
Description of Portland data set

Description of variables selected and of subgroups selected

First estimations (if possible)

6. Outlook

Further work planned

Connection to sustainability

7. Acknowledgements

Land Oberösterreich (Kubasta and ?); Portland (Keith Lawton); FWF; ESF and NSF

8. References