

AN ABSTRACT OF A THESIS

MODELING TRIP GENERATION USING DATA FROM MULTIPLE INDEPENDENT CROSS-SECTIONAL TRAVEL SURVEYS

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This thesis investigates the possibility of developing trip generation models using data collected at two or more points in time in independent cross-sectional travel surveys conducted in the same urban area. Alternative methods for formulating a forecasting model based on the availability of data from two independent periods are presented. Models are then estimated on the study-data and the models assessed in terms of their ability to replicate the number of trips made at the disaggregate household level, and at the aggregate traffic zone level in the estimation data. The performance of these jointly estimated models is compared to the predictive performance of a conventional single cross-section trip generation model.

The formulated models are then applied to forecast trips at the disaggregate household level and at the aggregate traffic zone level on a third independent cross sectional dataset collected in the same urban area but at a different point in time. Again, forecast performance of the formulated jointly estimated models is compared to forecast performance of the conventional model on this third independent dataset.

The results show that well specified joint models estimated on data from two time-periods yield comparable disaggregate and aggregate forecasts to those obtained from conventional forecasting models, which are estimated with data from a single cross-sectional survey. Accounting for transfer-bias in the modelling process does not result in predictive performance superior to those models that do not account for transfer-bias.