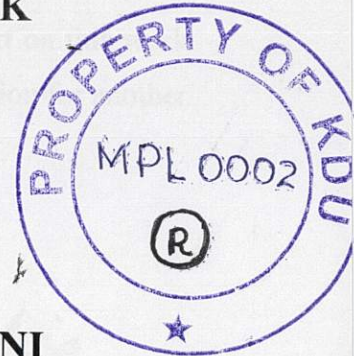


**DEVELOPING TOUR MODE CHOICE MODELS FOR
INDIVIDUALS IN WESTERN PROVINCE WITHIN AN
ACTIVITY-BASED MODEL FRAMEWORK**

by

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Developing Tour Mode Choice Models for Individuals in Western Province within an Activity-Based Model Framework

Transportation is a derived demand because of the activities happening in different locations throughout the day. It is more accurate to consider transport demand estimation based on activities at a disaggregated level rather than trips at the aggregate level. The Activity-Based Method (ABM) is a disaggregated model that is more policy sensitive than other methods. There were two main objectives of this research. One was to identify tour modes out of trip modes for work, educational, and other activity patterns. This research introduced a process to follow for that. The second objective of this research was to generate the tour mode choice models for different activity patterns for individuals in Western Province. Previous research using the same data set has identified the different activity patterns in Western Province. Individual and household-level socioeconomic and tour characteristics were used as independent variables to develop utility functions. The probability of selecting the tour mode of each individual was calculated using these utility functions. The modes of travel were used as the alternatives. The tour time was included in the model as a new variable. The required data have been collected from Home Visit Travel Survey called CoMTrans (the Western Province Transport Demand Model), the Census department, and the Survey department. The tour mode choice models were estimated using a discrete choice model such as the Multinomial Logit Model and Nested Logit Model. Random Utility Maximization theory was the fundamental concept behind these analytical techniques. The model estimation was done using ALOGIT software. The research developed separate models to identify the tour mode of individuals in Western Province for different activity patterns. All of parameters, the absolute value of the t-ratio was greater than 1.96, indicating that all parameters were statistically different from zero at a 95% confidence level except few ASC and travel time and cost which are policy variables. The signs and relative magnitudes of the estimates are consistent with expectations generally based on the review of previous work. Based on the results, workers and students are more concern on travel time than travel cost. Female workers are less likely to use motorcycles, three-wheels, cars, and public transport than being a passenger on private vehicle and home vehicle. The results found that workers are less likely to use motorcycles when age increases. Secondary students are more likely to use bicycles, while post-secondary students are more likely to use drive-home vehicles when age increases. Having intermediary stops positively impacts driving an own vehicle more than being a passenger in other type tours. Based on the results, transit-oriented development, increasing fuel pricing, congestion pricing scheme and few other recommendations for the policy makers were suggested to implement within the Western Province.

Keywords: Activity-Based Model, Tour mode, individuals, Random Utility Maximization, Discrete Choice Model.