

別紙 4

報告番 -	※ -	第
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主 論 文 の 要 旨

論文題目

Travel Behavior Analysis Focusing on Private Vehicle Usage and Switch to Public Transport in Ho Chi Minh City

(ホーチミン市における自家用車の利用と公共交通への転換に着目した交通行動分析)

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論 文 内 容 の 要 旨

Introducing a public transport (PT) system in developing cities may be a challenge given residents' common practice of using private vehicles, especially motorcycles. This research aims to develop analyses based on using practical data on vehicle usage in Ho Chi Minh City and applying feasible methods and/or improving them for understanding the situation and for finding solutions for boosting sustainable travel behaviors in the city. Methodologies of demand modeling, discrete choice models were used to explore individual behaviors on the private vehicle usage and switch to PT. The advantage of revealed preference data, stated preference data, and experiment design were taken in specific analyses.

The preference of private vehicle users on their own vehicles is analyzed using a revealed data and a joint discrete-continuous model. The analysis found significant roles of socio-economic attributes on the individual choice of vehicle type and usage, a trend of modal shift from motorcycles to cars, and CO<sub>2</sub> emissions from this trend.

The motivations so that the private vehicle users switch to PT was analyzed using a revealed-stated preference data and a two-stage approach consisting of a multiple-indicator–multiple-cause model for capturing psychological determinants and a bivariate ordered probit model for explaining the decisions on PT usage frequencies. The new PT usage was found to be correlated with bus usage. The significant roles were explored in factors of access/egress time, fare/cost, congestion/comfort, social interaction, agreement to the PT projects, dissatisfaction with PT, distance from home to workplace, motorcycle ownership, occupation, and age. By adding a component of latent class assignment, the heterogeneity among motorcycle users was detected in a latent class choice model. The “collectivistic” and “individualistic” tendencies in the two latent classes were found to make the individuals behave in different ways.

Lastly, by adding a dimension of in-vehicle occupancy into the traditional social interaction that reflects individual’s behavior and other people’s behavior, an equilibrium calculation on both positive and negative mass effects was able to conduct based on loop procedures. The results give envision on travel demand for commuting trips by PT in the future situation.