Thesis Title   A Study on School Trip Mode Choice in Chiang Rai City Area Using a Multinomial Logit Regression Approach

Author   Chanyanuch Pangderm

Degree   Master of Business Administration

(International Logistics and Supply Chain Management)

Advisor   Assistant Professor Tosporn Arreeras, D. Eng.

ABSTRACT

This study investigates school trip mode choice behavior among senior high school students in Mueang Chiang Rai District, Thailand, with a focus on environmental conditions, particularly adverse weather, that influence transportation decisions. Given Chiang Rai's unique geographic and climatic context, characterized by seasonal haze and limited transport infrastructure, understanding students' commuting preferences is critical for designing sustainable and equitable school transportation systems. This research collected data from 472 student respondents across six extra-large schools using structured questionnaires. The analysis employed both Multinomial Logit (MNL) regression and Exploratory Factor Analysis (EFA) to examine the relationship between travel behavior and influencing factors.

The findings reveal motorcycles as the most common mode under normal weather conditions, while adverse weather significantly reduces their use, with a corresponding increase in private vehicle and school bus usage. Key determinants of mode choice include household vehicle ownership, income, travel distance, waiting time, and perceived safety. The EFA identified latent variables such as convenience, environmental satisfaction, and transport reliability that further shape behavior.

These insights suggest the need for resilient school transport policies that address equity and environmental sustainability. Strategies such as expanding formal school bus services, improving weather-protected infrastructure, and promoting active travel for short-distance students are recommended. The study highlights the importance of integrating behavioral modeling with local policy to improve transport accessibility for students in secondary urban regions of Thailand.