

**DEVELOPMENT OF A PERSONAL VEHICLE TYPE
CHOICE MODEL FOR WESTERN PROVINCE OF SRI
LANKA**

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Degree of Master of Science

Department of Civil Engineering

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**Thesis submitted in partial fulfilment of the requirements for the degree Master
of Science in Transportation**

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DECLARATION OF THE CANDIDATE & SUPERVISOR

I declare that this is my own work, and this thesis does not incorporate without acknowledgement any material previously submitted for a degree or Diploma in any other University or institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgement is made in the text.

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ABSTRACT

Vehicle ownership is a chief determining factor in many country's economy. In the Sri Lankan context, the vehicle ownership rate is expressively increased, over the last decade. The road congestion in urban and suburban areas also has increased significantly. The predominant objective of the research was to examine how new vehicle choice may vary in the context of household socioeconomics characteristics. Besides, the management of new pricing reformations for annual and variable charging on vehicle price itself, fuel, insurance and other operational aspects and change of user requirements such as enhancing vehicle seating capacity, shifting vehicle operating method etc.

This paper examines the development of a type of personal vehicle ownership model using a sample of people living in Western Province Sri Lanka. A sample survey is being conducted in the Western Region to collect household data in 2013. ALOGIT software is used to obtain the results of this research. This research considers several potential determinants of vehicle choice, including socio-demographic status.

This study initially attempts to identify how to recognize the family's monthly income, age, occupation, social status, and the number of licensed drivers in the family's influence on the ownership of the car and their criticality for the utilities of the vehicle ownership models. Initial assessment on those factors identified that most influential factors are average household income, number of driving license holders in a household and number of household members. Besides, the result of this research is to assist the GoSL in imposing the required taxes and providing as much funding as possible to maximize a sustainable and environmentally friendly transportation system in Sri Lanka.

It was envisaged that three models would be developed separately for single vehicle only, two vehicles only, and at least three personal use vehicles owning HHs. Also, it was expected to have a nested structure of two and three or more vehicles own HHs, but the model results reveal that there is no nested structure where the entire variant is rooted and that it appeared as a single-level logit structure.

Key words: *Choice Model, Vehicle Ownership, Logit Model, ALOGIT, Household*

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LIST OF ABBREVIATIONS

Abbreviation	Description
DSD	Divisional Secretariats Divisions (DSD)
HH	Household
JICA	Japan International Cooperation Agency (JICA)
LC	Letter of Credits

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