

Modeling Impacts of Traffic Information on Driver's Route Choice Decision: An Empirical Analysis of Bangkok Expressway's Motorists

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Abstract: Variable Message Signs (VMS) are typically utilized to display traffic information and are expected to help motorists plan and make better decision for their travel. The objective of this study is to evaluate motorist's awareness and decision regarding text message and color-coded traffic information on the VMS display. Samples are taken from Bangkok motorists by means of questionnaire surveys. Results from ordered discrete modeling reveal that altering various message types on the VMS has no effect on driver's route choice at 95 percent confidence level. However, the color-coded traffic information can significantly influence driver's decision. Others significant variables include driving frequency, daily distance traveled, and awareness of pre-trip traffic information. The current findings could help developing appropriate contents for VMS display that are useful, correct, and consistently meet motorist's demand.

Keywords: Variable Message Sign, Bangkok Expressway, Discrete Choice Model; Route Choice Decision

1. INTRODUCTION

Variable Message Sign (VMS) is a common tool for traffic engineers to disseminate traffic-related information to motorists. The VMS can be simply an electronic matrix sign board displaying text messages, or can be displayed in color showing both text messages and graphical traffic information. Typical information shown to motorists often includes traffic conditions, accidents, incidents, or work zones on highway segments. An appropriate installation of VMS is expected to help motorists plan and make better decision choice for their travel.

This study focuses on route choice decision of motorists as a result of traffic information shown on VMS system. Although several past studies have investigated VMS in various aspects, this paper argues that providing more traffic information to motorists may not be necessarily beneficial to motorists. Different types of VMS could yield different impacts regarding route choice selection, and too much VMS information may potentially lead to confusion and would result in a smaller diversion rate. In addition, the effects of socioeconomic and travel characteristics could be regarded as major determinants for route choice diversion.

The main objective of this study is to evaluate motorist's awareness and decision regarding VMS traffic information. Samples are taken from Bangkok motorists who drive on expressway system by means of questionnaire surveys. Two types of VMS are considered, namely, text-only VMS and color-coded VMS. Similarities and differences in terms of stated route diversion are discussed from the ground of ordered probability modeling.