



Traffic Congestion: Shift from Private Car to Public Transportation

Layth Riyadh Abdulrazzaq^a, Mohammed Naeem Abdulkareem^a,
Muhamad Razuhanafi Mat Yazid^{a*}, Muhamad Nazri Borhan^a, Mina Salah Mahdi^a

^aDepartment of Civil Engineering, Faculty of Engineering & Built Environment, Universiti Kebangsaan Malaysia, 43600 Bangi, Malaysia.

Received 17 April 2020; Accepted 03 July 2020

Abstract

Private Cars (PC) are becoming the most common way to travel daily. This is one of the effects of poor access to Public Transport (PT). As a result, increase air pollution, traffic congestion, noise, accidents. This study aims to develop a modal shift model for car users to shift to PT and determine the factors that effects the performance of the mode of transportation. A survey of 384 of PT users was conducted in Kajang city, Malaysia. Data were processed by SPSS software. A binary logit model has been used for three different lines (car, train and bus). The explanatory factors that looked at two models include trip distances, a trip rate per day, trip time, gender, age, and occupation, which are important variables. Mode Choice Model (Car vs Bus) show the travel time and distance travelled are significant factors to increase the use of public buses and reduce dependence on the car. While in Model (Car vs Train), the travel time is an important variable that effects of the switching decision between car and train. Younger people are more likely to switch in both models. Improve some factors like reliability in public transport services and change some fundamental policy could be the most effective measures for shifting from PC to PT.

Keywords: Traffic Congestion; Transport Policy; Mode Choice Model.

1. Introduction

The major challenge that roadway users faces every day in metropolitan cities is traffic congestion [1]. The rapid economic growth, employment and urban sprawl have led to increased numbers of commuters where the use of PC has spread over the past two decades; it has become one of the most common means of transport in Malaysia, this increase in cars leads to various traffic-related social problems [2]. Noise, pollution, global warming and impaired livability are just a few of the negative impacts of transportation systems around the world, these problems can largely be overcome by transforming car-centric cities into cities where PT and non-motorized transport are the dominant modes [3]. The increasingly active car uses in the cities in industrialized countries has led to increased accessibility problems of PC also cause transportation delays, accidents and emissions produced [4, 5].

Expanding the awareness of PT may reduce the quantity of accidents, decrease energy consumption, protect the environment and enhance the personal satisfaction [6]. Many factors play a key role to motivate PC users towards PT, the travel time and service system improvement are required to reduce PC dependency, park implementation with ride service facility near to the PT stations will enhance the PT users [7]. Reduce total travel time, travel cost and subsidized fares for the bus and train have directly effected on shifting [8, 9]. Safety, reliability and cost is the most important criteria (36%, 27% 21% of total) respectively for encouraging indicated the urban commuters to shift from private vehicles to PT, 96% of commuters want an efficient public transport system (PTS) for shifting [10]. There are

* Corresponding author: razuhanafi@ukm.edu.my

<http://dx.doi.org/10.28991/cej-2020-03091566>



© 2020 by the authors. Licensee C.E.J, Tehran, Iran. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC-BY) license (<http://creativecommons.org/licenses/by/4.0/>).