STUDY OF VEHICLE USAGE REPLACEMENT PROBABILITIES FOR PERSONAL VEHICLES (CARS AND MOTORCYCLES) USER TO BUS RAPID TRANSIT USER ON CORRIDOR I JAKARTA (BLOK M - KOTA)

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Abstract
Public transport service in Jakarta is very bad, this can be seen from the inaccuracies and inconvenience that result in people who normally use private modes are reluctant to move (shifted) to public transportation such as Bus Rapid Transit, Transjakarta. This is also happens in (BRT Corridor Transjakarta I) which links Blok M - Kota. From this conditions will result in a poor road network performance. Therefore, good planning and management of transportation especially for Busway Corridor 1 is really needed. Busway Corridor 1 actually has been served the movement of vehicle users, but existing conditions indicate that the road capacity is not able anymore to serve the vehicles growth that causing traffic jams. One alternative to reduce traffic jams is to switch the personal vehicle user to the Bus Rapid Transit /Busway, which has better service than existing public transport.

The purpose of this study is to analyze the displacement probabilities of private vehicle user (cars and motorcycles) to the Bus Rapid Transit user on Blok M-Kota Corridor. The assumption is that public transport users are not elastic to busway selection. Analysis technique used in this study is Binary Logit Regression by analyzing the pattern of selection of vehicles on its activities.
The findings of this study indicate that respondents prefer to use private vehicles compared with public transports such as Transjakarta Busway. The selection pattern between the user of cars and motorcycles is almost equal to private vehicles and BRT. Existing BRT selection chances from car users is 0.000038, and from the motorcycle user is 0.000041. Probabability of BRT usage is influenced by the outside time of vehicle. Probabability of car use is high during the smaller outside time of vehicle. Probabability of BRT usage from car users is maximum (0.8844 to 0.9997) when there is a reduction 60%-90% of outside time of vehicle(time outside of the BRT is 0.483 min / Km - 1.808 min / Km). Probabability of BRT usage from motorcycle users is maximum (0.8826 to 0.9996) when there is a reduction 60%-90% of outside time of vehicle(time outside of the BRT is 0.482 min / km - 1.935 min /km.). Maximum probability of BRT usage from motorcycle users is 0.8826 to 0.9996. To increase the probabability of Busway usage, the outside time of BRT’s should be reduced by 0.482 min / km to 0.1935 min /km with reducing the busway headway, repairing the feeder’s headway and minimizing the Busway Station range from residential areas.

Keywords: Usage Replacement Probabilities, vehicle selection, busway, binary logit