

Demand Modeling for Taxi and Ride-hailing Transport Services (RTS)

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Abstract	<p>The rapid growth of Ride-hailing Transport Services (RTS) demand is found to have caused a fierce market share battle with conventional taxis in previous decades. In selecting a taxi or RTS, understanding the factors affecting passenger's decisions is substantial for better development and more reliable transit service. The aims of this study to evaluate the demand for taxis and RTS in the Jakarta Greater Area, Indonesia, using the demand-supply and dynamic models. It has been conducted by using 519 respondents, with the model inputs consisting of waiting and travel time, trip costs, and the destination of the conventional passengers. Moreover, the choice between taxi and RTS was analyzed based on the stated preferences of respondents. The results showed that the waiting and travel time, as well as costs per trip of RTS, were 1.49 and 2.67 minutes lower and IDR10,902 cheaper than a taxi, respectively. The factors influencing the demand for these transport modes were also the number of trips per-day, mode share, the average vehicle occupancy, operating hours/day, passengers and driver waiting time, as well as travel period. In the dynamic model, the addition of variable service area, peak hour, and average vehicles speed was subsequently observed. Based on the results, the requests for these transport modes in the Greater Area of Jakarta were 64,494 and 55,811 vehicle units for the demand-supply and dynamic models, respectively. This proved that the dynamic model was better than the demand-supply, due to the added parameters representing the area's traffic characteristics. Additionally, subsequent future research are expected to focus on modeling of taxi and RTS demands through the global positioning system data, as well as analysis using machine learning and deep learning.</p>
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