

## ABSTRACT

The spatial mismatch between the residential developments at the outskirts and the job concentration in the Centre Business District (CBD) has further contributed to the commuting patterns of morning and evening peak hours. This situation has led to traffic congestion on the major highways leading into and out of the city. Park and ride scheme was introduced in many countries, geared towards encouraging commuters to use public transport especially on their journeys to the city centre. The focus of the research is to evaluate the parking usage and characteristics of park and ride users at the multi-storey and surface parking as well as to identify the factors that influence the usage of the park and ride facility at the Putrajaya public transportation terminal. A parking inventory survey was conducted to acquire data on parking supply and the physical condition of the park and ride facility. Another parking utilization survey was employed to determine the number of parked vehicles at regular intervals over a period of time, and a questionnaire survey was conducted to gather data on the characteristics and perceptions of parking users. A total of 254 samples were required involving 177 samples from multi-storey and 77 samples from surface parking users. From a total of 350 distributed questionnaires, 185 completed questionnaires with usable data were returned, corresponding to a response rate of 52.9%. The findings on parking utilization survey show that parking demand on weekdays was higher than the weekend and surface parking shows a higher demand than multi-storey parking both on weekdays and weekends. The average parking occupancy at the surface parking on weekdays was 84.5% as compared to level 1 (25%), level 2 (50%) and basement (20%) of the multi-storey parking. The parking duration showed that a majority of the weekday users parked for more than 9 hours as they were traveling for work purposes, and the average parking duration at surface parking area was lower than that of the multi-storey parking. Principal Component Analysis (PCA) was adopted to explore the principal factors on parking related characteristics and ordinal probit regression model were developed to estimate the effects of the socioeconomic, travel and parking characteristics on the frequency of parking in a month. The factors of monthly income, car ownership and employment sector were among the socioeconomic characteristics that found significant as the parameter estimates of parking demand. The significant factors from the travel characteristics were car occupancy, monthly public transport cost, public transport fare payment method and monthly parking fees. Parking duration, arrival time at the park and ride facility, parking availability, parking charge and operation, and lack of destinations' parking were among the significant factors of parking characteristics that associated in predicting the monthly parking frequency. One of the recommendations to encourage more people to utilize this facility is the promotion on the park and ride facility should be more comprehensive.