World Academy of Science, Engineering and Technology
International Journal of Social and Business Sciences
Vol:14, No:02, 2020

Analysis of Residents' Travel Characteristics and Policy Improving Strategies

Authors : Zhenzhen Xu, Chunfu Shao, Shengyou Wang, Chunjiao Dong

Abstract : To improve the satisfaction of residents' travel, this paper analyzes the characteristics and influencing factors of urban residents' travel behavior. First, a Multinominal Logit Model (MNL) model is built to analyze the characteristics of residents' travel behavior, reveal the influence of individual attributes, family attributes and travel characteristics on the choice of travel mode, and identify the significant factors. Then put forward suggestions for policy improvement. Finally, Support Vector Machine (SVM) and Multi-Layer Perceptron (MLP) models are introduced to evaluate the policy effect. This paper selects Futian Street in Futian District, Shenzhen City for investigation and research. The results show that gender, age, education, income, number of cars owned, travel purpose, departure time, journey time, travel distance and times all have a significant influence on residents' choice of travel mode. Based on the above results, two policy improvement suggestions are put forward from reducing public transportation and non-motor vehicle travel time, and the policy effect is evaluated. Before the evaluation, the prediction effect of MNL, SVM and MLP models was evaluated. After parameter optimization, it was found that the prediction accuracy of the three models was 72.80%, 71.42%, and 76.42%, respectively. The MLP model with the highest prediction accuracy was selected to evaluate the effect of policy improvement. The results showed that after the implementation of the policy, the proportion of public transportation in plan 1 and plan 2 increased by 14.04% and 9.86%, respectively, while the proportion of private cars decreased by 3.47% and 2.54%, respectively. The proportion of car trips decreased obviously, while the proportion of public transport trips increased. It can be considered that the measures have a positive effect on promoting green trips and improving the satisfaction of urban residents, and can provide a reference for relevant departments to formulate transportation policies.

Keywords : neural network, travel characteristics analysis, transportation choice, travel sharing rate, traffic resource allocation
Conference Title : ICTBR 2020 : International Conference on Travel Behaviour Research
Conference Location : Buenos Aires, Argentina
Conference Dates : February 27-28, 2020