

An Analysis on the Impact of Spatial Structure Factors on Travel Behavior in Tabriz City with a Low Carbon City Approach

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Abstract: With the growth of the city population and the intensity of human activities in them, air pollution in cities has become one of the major issues in urban development, which affects both the quality of life of city residents and the global environment by affecting global warming. This has made the reduction of carbon production in cities an important issue at the global level and has led to the development and expansion of the low-carbon city approach at the global level. The purpose of this article is to study the relationship between the spatial structure of the city and the travel behavior of Tabriz residents and its role in reducing carbon production. In order to achieve this goal, in this article, the effects of spatial structure components of Tabriz city on travel behavior have been investigated. Two Moran models and geographic weighted regression method have been used to set and process the research data. The results of Moran's model show that Moran's index reaches its highest value in the variable of access to bus stations and metro stations, and has the lowest value in the indicators of the mix land uses and access to the commercial center of the city. These two variables mostly have a random pattern and their spatial autocorrelation is very weak, and the distribution pattern of the mentioned variable generally has spatial clustering. Also, the results of the geographic weighted regression method show that the two factors of the mix land use and access to commercial centers have the highest correlation with the use of cars for travel ($R^2=4.04$) and access to metro stations in Tabriz metropolis due to the low expansion of metro routes. It has a small effect on traveling by car ($R^2=4.20$). Based on research findings; With the balanced distribution of commercial cores at the level of urban neighborhoods and the appropriate mix of land uses, city managers can greatly reduce car travel and increase the use of bicycles and pedestrians at the level of neighborhoods and urban areas for traveling. Also, by improving the level of public transportation services, the dependence on cars for city trips in Tabriz will be reduced. thus, the amount of carbon production will be reduced in city of Tabriz.

Keywords: Low carbon city, Travel behavior, Tabriz city.