World Academy of Science, Engineering and Technology
International Journal of Mathematical and Computational Sciences
Vol:14, No:12, 2020

Intermediate-Term Impact of Taiwan High-Speed Rail (HSR) and Land Use on Spatial Patterns of HSR Travel

Authors : Tsai Yu-hsin, Chung Yi-Hsin

Abstract : The employment of an HSR system, resulting in elevation in the inter-city/-region accessibility, is likely to promote spatial interaction between places in the HSR and extended territory. The inter-city/-region travel via HSR could be, among others, affected by the land use, transportation, and location of the HSR station at both trip origin and destination ends. However, relatively few insights have been shed on these impacts and spatial patterns of the HSR travel. The research purposes, as phase one of a series of HSR related research, of this study are threefold: to analyze the general spatial patterns of HSR trips, such as the spatial distribution of trip origins and destinations; to analyze if specific land use, transportation characteristics, and trip characteristics affect HSR trips in terms of the use of HSR, the distribution of trip origins and destinations, and; to analyze the socio-economic characteristics of HSR travelers. With the Taiwan HSR starting operation in 2007, this study emphasizes on the intermediate-term impact of HSR, which is made possible with the population and housing census and industry and commercial census data and a station area intercept survey conducted in the summer 2014. The analysis will be conducted at the city, inter-city, and inter-region spatial levels, as necessary and required. The analysis tools include descriptive statistics and multivariate analysis with the assistance of SPSS, HLM and ArcGIS. The findings, on the one hand, can provide policy implications for associated land use, transportation plan and the site selection of HSR station. On the other hand, on the travel the findings are expected to provide insights that can help explain how land use and real estate values could be affected by HSR in following phases of this series of research.

Keywords : high speed rail, land use, travel, spatial pattern
Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development
Conference Location : Chicago, United States
Conference Dates : December 12-13, 2020