Modelling the impact of Weather Conditions on Passenger Mobility

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Abstract

The objective of the study is to analyze the role of weather conditions on passenger mobility in case of Mumbai Suburban Railways. Three major weather conditions - temperature, humidity and wind speed, have been taken into consideration whereas passenger mobility is measured in the number of tickets sold through the major ticket booking systems. Wavelet Coherence and Quantile-on-Quantile Regression approaches have been used to check the association among them for the daily data from 2012 to 2017. The results show that the impacts of extreme weather conditions tend to converge for aggregate passengers, whereas the impacts largely differ based on various ticket booking systems. Results have important implications for transport planner to design the infrastructure and improve operational efficiency during the extreme weather conditions in coastal cities like Mumbai. Such transport system would not only to increase passenger mobility but also the experience and safety of the passengers.

Keywords – Passenger Mobility, Mumbai Suburban Railways, Transport, Weather Conditions, Johansen Cointegration, Multiple Wavelet Coherence, Quantile-on-Quantile Regression

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