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Analysing the efficiency of a temporal travel demand management strategy for an urban rail system

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ABSTRACT

The travel demand management strategies (TDM) urban rail agencies develop and implement are often not efficient at influencing the daily ridership patterns of commuters. The result of this is the large disparity of ridership during peak and non-peak periods, which lowers system efficiency for a given urban rail system. This paper uses the Gautrain urban rail system to analyse the various effects a temporal travel demand management strategy has on different types of commuters. In addition, an analysis was performed to understand the fare elasticities of different types of commuters. To perform the analyses, first, graphical data analysis was performed to note daily ridership patterns. Secondly, four sample sets were chosen for hypothesis testing analysis: (1) ridership before fare increase, (2) ridership after fare increase, (3) ridership during morning, (4) ridership during afternoon. Findings were as follows: most Gautrain users do not change their ridership patterns, regardless of the TDM strategy and fare increases. Certain users do change their ridership patterns, based on the TDM strategy, fare increases or both. This was found to be dependent on the various reasons people use the Gautrain for. It was recommended that the TDM strategy be developed to cater to specific types of commuter, this way the efficiency of the TDM strategy could be increased.