

## Elasticity Model for Easing Peak Hour Demand for Metrorail Transport System

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**Abstract :** The demand for Urban transportation is characterised by a large scale temporal and spatial variations which causes heavy congestion inside metro trains in peak hours near Centre Business District (CBD) of the city. The conventional approach to address peak hour congestion, metro trains has been to increase the supply by way of introduction of more trains, increasing the length of the trains, optimising the time table to increase the capacity of the system. However, there is a limitation of supply side measures determined by the design capacity of the systems beyond which any addition in the capacity requires huge capital investments. The demand side interventions are essentially required to actually spread the demand across the time and space. In this study, an attempt has been made to identify the potential Transport Demand Management tools applicable to Urban Rail Transportation systems with a special focus on differential pricing. A conceptual price elasticity model has been developed to analyse the effect of various combinations of peak and nonpeak hoursfares on demands. The elasticity values for peak hour, nonpeak hour and cross elasticity have been assumed from the relevant literature available in the field. The conceptual price elasticity model so developed is based on assumptions which need to be validated with actual values of elasticities for different segments of passengers. Once validated, the model can be used to determine the peak and nonpeak hour fares with an objective to increase overall ridership, revenue, demand levelling and optimal utilisation of assets<em>.</em>

**Keywords :** urban transport, differential fares, congestion, transport demand management, elasticity

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