

A Linear Systems Approach to Transportation Modelling Part I: Travel Demand Modelling in a Linear System

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Abstract: *In the Capital Region of Trinidad and Tobago, there exists no distinct pattern of zonal stratification from a transportation/land use viewpoint. It is necessary to develop a system of continuous travel demand modelling to replace discrete (zonal) modelling in this region. Such a modelling system was developed using gravity and opportunities models as basic tools. In this paper, the proposed linear system models represent the first stage of this exercise. These models were calibrated in Northern Trinidad, using 1973 and 1978 data, and conclusions were drawn about the models and model constants obtained. R^2 tests indicated significance Levels of 99.9% for calibrated models (R^2 of 40% to 92%). Actual model constants were found to be related to both the mean trip length and the aggregation level observed in input data. It was concluded that the models suggested the desirability of extending the linear system technique to more diverse land use patterns in an attempt to produce a practical and relatively cheap method of travel demand modelling.*

Keywords: *Travel demand, transportation, land use patterns, linear system, modelling*