

# Detecting non-politically driven location probability of large-scale inland transport networks

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*This paper builds an exogenous probability for a location to attract large-scale inland transport networks such as railways. Our probability measure reflects the complex non-linearities between the underlying cost morphology, topological centrality, and network structure. Such a measure can prove useful to detect local deviations of a railway network from an exogenous scenario (i.e., a hypothetical network with cities having equal political influence to gain direct access to the railway network). After laying out the construction and features of the probability measure by mean of toy examples, the paper presents simulations to show how our measure can be employed as an instrumental variable to deal with the endogeneity of actual railway paths and, hence, complement the well-known and classical least cost paths (LCPs) approach*