Predicting mode choice for multi-modal trips and sub-trips

using random effects decision trees

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Abstract

Decision trees have proven themselves to be valuable machine learning models, both delivering high interpretation and predictive performance. The non-parametric nature of the algorithm relaxes the (usually parametric) functional form of the conditional variables. The downside however, is that traditionally the decision tree does not allow for the estimation of random effects when dealing with panel data. The mixed logit model here offers an advantage, at the cost of lower ease of interpretation and lower predictive performance. We propose a method to combine the strengths of both methods, and estimate decision trees while accounting for the grouping structures of repeated choices, in this case mode choice. The result is a generalized mixed effects decision tree; currently we are testing its performance compared to the plain decision tree. For more information on this work, you can email to: p.labee@tue.nl"

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