

## REVIEW OF TREMOVE DATA, PARAMETERS AND METHODOLOGY

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**CLIENT:** *TMLeuven for the European Commission*

**YEAR:** 2007

### DESCRIPTION OF ACTIVITIES

#### *Objective of the study*

As part of the activities for the further improvement and application of the transport and environment TREMOVE model, TMLeuven asked TRT to address some specific issues concerning the validation and the development of the demand module of the model.

#### *Content of the study*

The study was articulated into three different tasks.

- The first task concerned the identification of additional sources of data which could provide input to the TREMOVE demand module for the new EU members Bulgaria and Romania as well as for candidate countries Croatia and Turkey.
- The second task consisted of comparing cost elasticities extracted from the TREMOVE demand module against literature values.
- The third task addressed the issue of how the demand module of the TREMOVE model could be revised in order to overcome some of its limitations.

#### *Key findings*

As far as data for new EU members Bulgaria and Romania and for candidate countries Croatia and Turkey is concerned, a very limited amount of additional data has been found and it was concluded that the TREMOVE model already included the existing available information. Some studies have been identified as possible promising sources of additional data in the

next future as they were not finalised at the time of the survey.

After a review of elasticities values from the literature, it was concluded that the TREMOVE cost elasticities are generally high when compared to the elasticity values. At the same time, some justifications of this in overestimation have been identified, making reference in particular to the different methodology used to estimate elasticities within the TREMOVE model than in the literature studies used as comparison.

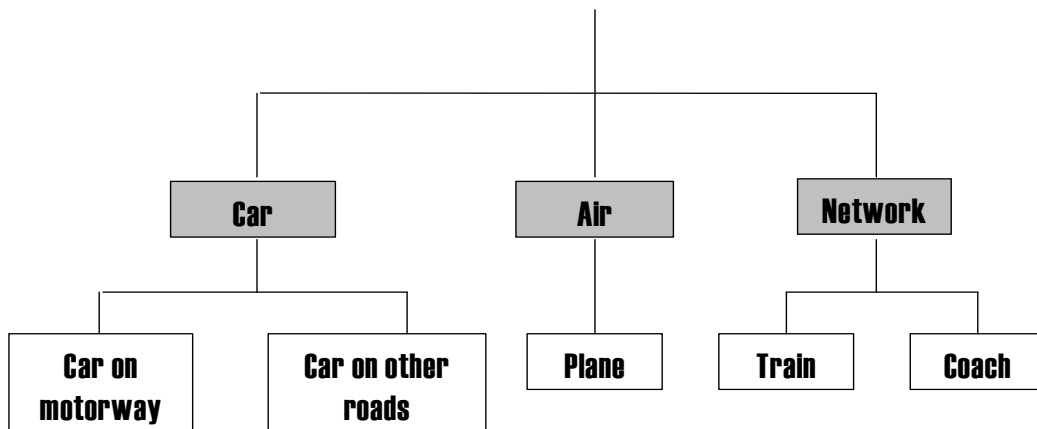
Within the third task, concerning the revision of the demand module, three were developed:

- a) The first alternative consisted of a relatively limited change of the demand model structure, i.e. using the nested logit model instead of the Constant Elasticity of Substitution (CES) functions
- b) the second proposed alternative involved a deeper modification of the module structure, in order to transform TREMOVE into an autonomous forecasting model, not dependent on exogenous input demand data;
- c) the third elaborated approach suggested to not develop a different demand module within TREMOVE but to plug some TREMOVE modules into another European transport model, TRANS-TOOLS, where a sophisticated demand module exists.

The advantages and disadvantages of the three alternatives were presented and discussed also in the final Contact Group meeting of the TREMOVE project.

**4<sup>th</sup> level: choice of mode**

**(Total: 16 Nested logit models, each with a specific set of alternatives)**



**Composite Alternative**

**Elementary Alternative**

**Nested Logit for Non-urban long**