FUNDING

Funding Infrastructure: Guidelines for Europe

Funding: European (6th RTD Framework Programme)
Duration: Jul 2005 - Dec 2007
Status: Complete with results
Total project cost: €1,276,514
EU contribution: €1,178,556

Call for proposal: FP6-2003-TREN-2
CORDIS RCN : 87906

Background & policy context:
The trans-European transport network (TEN-T) included 30 priority projects, with an estimated total cost of € 225 billion. The White Paper ‘European Transport Policy for 2010: Time to Decide’ raised the difficulty of mobilising capital as one of the main obstacles to carrying out infrastructure projects. EU research projects in the past covered optimal pricing of existing infrastructure and good use of transport revenue in the presence of social marginal cost pricing.

Objectives:
The main objective of the FUNDING proposal was to develop a scientifically sound approach to determine optimal charging and investment in the EU member states and the accession countries.

Thus, the project aims were as follows:

- the use of state-of-the-art research to assess revenues from pricing and to identify the financing gap per mode, per region and per period of time for the EU Member States and the accession countries.

- to contribute to the development of a methodology for mark-ups to marginal cost pricing that is applicable to all modes as well as links and nodes. The analysis includes a more detailed analysis of network aspects, the division of power between several governments and operators, quality aspects as well as uncertainty issues.

- to develop and test a methodology for a European multi-infrastructure fund, taking into account the equity and efficiency effects. The possible structures of such a fund, the decision criteria, acceptability, efficiency and spatial equity effects will be studied in the project. A spatial computable general equilibrium model will be used to compare a selection of pricing and revenue use strategies, including different infrastructure fund structures. It allows calculating the economic impacts of these measures as well as the distribution of these impacts for a large number of regions for the EU member states and the accession countries.

- to demonstrate the methodology for selected scenarios and geographical coverage. The analysis by the spatial computable general equilibrium model will be complemented by more detailed network models for the different modes (road, rail and air). These include models with a European-wide and a more regional coverage.

Methodology:
The economics of infrastructure funds and the mark up method were first explored conceptually. The conceptual phase led to the formulation of a limited number of alternative scenarios for a European infrastructure fund and for the use of mark-ups. These scenarios were adjusted as a function of the financing gaps that are calculated for the horizon 2020 by mode and country given the accepted TEN investments. The financing gap was computed using the SCENES - TREMOVE baseline 1995-2020.
Two models were used to test the performance of the alternative infrastructure fund and mark-up scenarios: a multi-modal spatial general equilibrium model of the EU; and a multi-modal pricing and investment assessment model (MOLINO II), which was applied to five important 'TEN' infrastructure projects. This case study approach would enable the effect of infrastructure fund scenarios on each of the investment projects to be examined in terms of financial structure, advancing or delaying the investment decisions, the pricing decisions and on welfare.

**Parent Programmes:**  
FP6-SUSTDEV-2 - Sustainable Surface Transport

**Institute type:** Public institution  
**Institute name:** European Commission  
**Funding type:** Public (EU)

### Lead Organisation:

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| Transport & Mobility Leuven                     | Tervuursevest 54 bus 4
LEUVEN
Belgium                                           | €0                                                                         |
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Austria                                         | €0                                                                         |
| Tampereen Teknillinen Yliopisto                 | KORKEAKOULUNKATU 10
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| Aristotelio Panepistimio Thessalonikis          | KEDEA BUILDING, TRITIS SEPEMVRIOU, ARISTOTE UNIV CAMPUS
54636 THESSALONIKI
Greece                                           | €0                                                                         |
| Christian-Albrechts-Universitaet Zu Kiel        | OLSHAUSENSTRASSE 40
KIEL
Germany                                         | €0                                                                         |
| The Hebrew University Of Jerusalem              | Mt Scopus campus
JERUSALEM
Israel                                         | €0                                                                         |
| Buro Fur Raumforschung, Raumplanung Und Geoinformation | Eichenweg 16
OLDENBURG I.H.
Germany                                        | €0                                                                         |
Key Results:

The main achievements and results of the project were as follows:

1. A review of the existing literature on the economics of infrastructure funding and mark-up methods has been carried out.

2. The development of scenarios to address the problems of the current funding framework for large European transport infrastructures. These scenarios were developed using three 'dimensions' (which are: a) how to spend the money; b) how to raise the money; c) the organisational structure), and range from heavy reliance on a European fund and low mark-ups on user prices for the new infrastructure to a small reliance on the European fund and an important role of the internal funding of investments via mark-ups.

3. Computation of revenues and financial gaps. Firstly, revenues from pricing and possible financing gaps per mode and per country were calculated for the EU transport baseline scenario developed with SCENES-TREMOVE II (TREMOVE is a transport and emissions simulation model developed for the European Commission). This gives an idea of the financing gaps with respect to the TEN-T investments and also the ability of a given mode to sustain additional taxation.

4. Computation of the effects on revenue streams and welfare of additional transport taxes. The overall conclusion is that more tax revenues can be raised in the transport sector at a limited welfare cost.

5. Testing of the EU-wide equity and efficiency effects of alternative pricing and revenue use scenarios. A methodology has been developed which provides a useful 'benefit distribution' rule for determining whether transport infrastructure projects generate European added value and should therefore be subsidised by the EU. Using this methodology, the impacts of the priority projects for the regions of the European Union have been assessed, comparing the scenarios with and without EU subsidies. The conclusions are that: a) not all projects have significant benefit spill-overs; b) the rate of return of many projects is low; c) when there are benefit spillovers (so that the project receives EU funding), the rate of return increases significantly but this is often insufficient to adopt the project; d) the proposed EU subsidy scheme does not appear to systematically hurt poorer countries.

6. Taxes and marginal external costs have been compared to gain insight into the most efficient application of taxes on the transport sector. The analysis was differentiated by vehicle type, time period, type of infrastructure and country,

Policy implications

1. P1: EU should be involved in infrastructure decisions when there are significant spillovers between the provision of a piece of infrastructure in one country and costs and benefits in neighbouring countries.

2. P2: Given that it is costly to gather extra tax revenues from general income taxes, an increase of taxes on road use in the EU may be the best way to generate extra revenues. This can take the form of a small additional excise on motor fuel.

3. P3: There is no generally accepted cost benefit guide for assessing transport infrastructure projects in the EU. This means that there is a large risk of a positive bias in project assessments. Therefore, there is a clear need for models that can help to form a second opinion on projects that apply for EU funding.

Documents:

Deliverable 2: Scenarios for EU Infrastructure Fund and Mark-ups (Other project deliverable)
STRIA Roadmaps: Infrastructure
Transport mode: Multimodal transport
Transport sectors: Passenger transport, Freight transport
Transport policies: Societal/Economic issues
Geo-spatial type: Network corridors