PROJECT

IASON

Integrated Appraisal of Spatial economic and Network effects of transport investments and policies

Funding: European (5th RTD Framework Programme)
Duration: Apr 2001 - Dec 2003
Status: Complete with results

Background & policy context:

A common understanding of rules for the assessment of economic impacts of transport related projects and policies at the EU level is useful in the sense that:

- it helps to make good judgements about alternative transport investment options, both for priority setting and for making good judgements about the rate of return of transport investments;
- it makes trans-border evaluation schemes comparable and can also be used for developing criteria for cross-border investment and compensation schemes;
- it allows to compare policies aimed at stimulating the development in peripheral regions with those alleviating congestion and transit traffic problems in more central located regions of the Community.

The project IASON is designed to take a practical and scientific step into this direction.

Objectives:

The objectives of IASON are as follows:

- To improve existing assessment frameworks by ensuring that direct and indirect impacts are clearly distinguished within the appraisal, and that the incidence of benefits and costs, and sources of additionality and/or double counting are transparent;
- To perform a systematic and quantitative analysis of the network, spatial and socio-economic impacts of transport investments and policy by refining existing EU-level models (a.o. CGEurope, SASI and SCENES) and carrying out scenario simulations;
- To act as discussion platform to
  - provide broad guidance for the usage of the assessment framework within projects of the other sub-tasks of this cluster (TRANSECON and TIPMAC),
  - allow the validation of this framework and tools developed in these subprojects,
  - join assessment experiences from the scientific community and
  - stimulate the discussion of other topics of mutual interest, such as methodological development, comparison of results, linking the macro-level analysis to the micro-level, etc. and
  - to ensure feedback from the policy-makers as to the relevance and usefulness of the IASON approach;
- Finally, to learn from the experience of applying the framework in practical contexts so as to provide recommendations for project analysis of transport investments and policies and for the development of supporting tools and databases.

Methodology:

In order to improve the understanding of the impact of transportation policies on short- and long-term spatial development in the EU, the project has gathered empirical evidence about the linkage between the transportation system for good and for people on the one hand and the dynamics of firm and households location on the other. It has refined and validated existing modelling for assessing short-term welfare effects as well as long-term locational dynamic implications of transport policy scenarios.
Since the start of IASON, they have developed a new model version in a way that allows for calibration with existing data. In particular the following tasks have been carried out:

- sectoral and regional coverage: definition of new sectors and regions;
- model structure: setting up the system of equations describing the multi-sectoral system of the new model;
- travel demand: developing a new approach to model passenger travel behaviour in a microeconomically consistent framework that can consistently be integrated into the equilibrium context;
- calibration: developing a calibration procedure working with a limited database without a full multiregional social accounting matrix.

With the new model, different scenarios were used. The scenarios were based on pricing and infrastructure policy measures:

- implementation of Social Marginal Cost Pricing
- implementation of the Trans European Network.

Then a discussion platform was installed to enable interaction between all the subtasks within the cluster. It looked at the building of the overall frameworks at the first stage of the project. It improved the consistency of the approaches and results. Finally, it has brought together experiences from the supplying (scientific) community as well as the decision-making community for establishing guidelines for the transport project assessment at EU level.

**Parent Programmes:**

**FP5-GROWTH KA2 - Sustainable Mobility and Intermodality**

**Institute type:** Public institution

**Institute name:** European Commission, Directorate-General for Energy and Transport (DG TREN)

**Funding type:** Public (EU)

**Partners:**

- **Austria:** TU Wien (AU)
- **Finland:** VTT (FI)
- **France:** NETR (F)
- **Germany:** Christian-Albrechts University zu Kiel, Institute of Regional Research; IWW of University of Karlsruhe; Spiekerman & Wegener and partners; University of Dortmund (IRPUD)
- **Hungary:** TRANSMAN
- **Poland:** The Polish Academy of Science
- **The Netherlands:** Free University of Amsterdam; NEA Transport Research and Training; University of Groningen; TNO Inro
- **United Kingdom:** Marcial Echenique and Partners (ME&P); University of Leeds, Institute for Transport Studies

**Organisation:** TNO Inro

**Address:** Schoemakerstraat 97PO Box 6041

**Zipcode:** 2600 JA

**City:** Delft

**Contact country:** Netherlands

**Telephone:** +31 15 269 6844

**Fax Number:** +31 15 269 6854

**Key Results:**

With regard to overall economic impact of transport projects and policies, it can be said that socio-economic macro trends have a much stronger impact on regional development than transport policies. If one considers that under normal economic circumstances the long-term growth of regional economies...
is in the range between two and three percent per year, and additional regional economic growth or
less than one or two percent as is observed in Western Europe over twenty years can be considered small.

With respect to indirect effects per se, there is no evidence that transport infrastructure investment is
uniquely or exceptionally highly productive. The additional benefit to the economy which is
supplementary to the benefits in the transport system is an order of magnitude lower than the travel
cost improvements. For specific regions, however, benefits to the economy can be of the same order of
magnitude as the monetized accessibility improvements. Performing a high quality but conventional
transport CBA, therefore, in some instances will only give a limited account of the full benefits for these
regions.

Concerning the effects of specific policies, Social Marginal Cost (SMC) based pricing, relative to the
base, has an effect which can be considered large. It replaces an inefficient tax by an efficient charge,
and thus creates new efficiencies within the economy. Speeding up the TEN-T programme has an effect
on GDP which is relatively small. The test with the different models indicate that the TENs have
relatively strong distributive effects to the economy, affecting in particular the East-West growth
balance and stimulating the rate of cohesion. High-speed rail projects seem to be more effective in
terms of promoting regional economic activity than conventional rail projects, and rail projects seem to
be more effective than road projects. All transport pricing scenarios have negative economic effects but
these can be mitigated by their combination with network scenarios with positive economic effects,
although the net effect depends on the magnitude of the two components. The network scenarios in
general reduce disparities in accessibility, but reduce disparities in GDP per capita only if also the TINA
projects are implemented. Pricing policies are not favourable for the poorer regions. CGEurope shows a
characteristic spatial pattern of pricing scenarios, i.e. disfavouring the peripheral regions. Also, network
effects of transport

Policy implications

The state-of-the-art of appraisal of transport projects and policies is developing rapidly. However, the
TEN-T projects and in particular the opening of Europe to the East poses formidable challenges for
transport appraisal. Better transport infrastructure will link together places with quite different labour
markets, standards of living and access to goods and services. In such conditions the general
conclusions are: for major projects and policies, a good quality transport sector cost-benefit analysis is
vital.

This requires adequate data and modelling of the transport networks to generate the inputs to the
analysis. A wider economy model linked to a transportation model does offer a way forward in modelling
the total effect, including the economic network effects. The outputs of such models include forecast
changes in GDP, employment by region and consumer surplus. Conceptually such models generate the
total economy - wide benefit of a project or policy - an appraisal that is consistent in its treatment of
effects from both national and supranational perspective is capable of dealing with cross-border effects.
The choice of scale and models is important to highlight these effects the relationship between the total
benefit and the benefit measured in a transport-only cost-benefit analysis is understood in principle, but
the size of the difference between them in practical cases is as yet poorly understood.

Markets which are notoriously imperfect, such as land and labour have not yet been fully incorporated
into the wider economy models used within IASON from the perspective of the policy makers, the spatial
pattern of gains and losses is important, and spatial economic models can help to identify these.
Therefore a consistent approach of transport cost-benefit analysis plus spatial economic modelling may
be an attractive combination providing insight into the absolute value, or social rate of return on
investment and the spatial and social distribution of winners and losers.

The project has made available a new set of interconnected instruments that now can be used to assess
the spatial and economic consequences of transport policies. Besides producing broad pictures of the
overall economic impact for the EU, the function of the models is in particular to point the attention of
policy makers to those regions, sectors or policy packages where the indirect impacts of infrastructure
and pricing policies are above average. While the wider economic impacts can be substantial

Related Projects:

- FORESIGHT for TRANSPORT
- IMPRINT EUROPE
- MARETOPE
- MC-ICAM
- PROTRANS
- RECORDIT
- SPECTRUM
- SPRITE
- SULOGTRA
- TRANSECON
- TRANSTALK UNITE

Documents:
- IASON Final Report (Final report)

**STRIA Roadmaps:**  Smart mobility and services
**Transport mode:**  Multimodal transport
**Transport sectors:**  Passenger transport, Freight transport
**Transport policies:**  Societal/Economic issues
**Geo-spatial type:**  Network corridors