

## SUMMARY

# Effects of transport infrastructure and transportation costs on the development of European regions – Outline of a qualitative assessment tool

a study on behalf of IPTS – Institute for Prospective Technological Studies, Sevilla

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### The issue

Limited financial resources, environmental problems, technological developments and persisting differences in the development between different European regions require a reconsideration of priorities in European transport policy. Improving infrastructure and lowering transport costs have been considered very high priorities in order to foster economic development. The conventional hypotheses underlying these strategies can be summarised as follows:

- Better infrastructure brings economic development
- Lower transport costs foster economic development
- Higher transport costs increase disadvantages for peripheral regions
- Improving inter-regional links is most important for peripheral European regions

Practical examples and theoretical considerations have raised increasing doubts whether this is always the case. In a number of cases better accessibility in terms of time and costs had even adverse effects on local development. Critics mainly raise three points of concern:

- The objectives of growth and cohesion may not in all cases be attained by these approaches.
- Other objectives of regional development – mainly social and environmental ones – may suffer from these policies
- Structural changes may call for other priorities

The consequences are:

- a differentiated approach to specific regional conditions is necessary
- a broader assessment framework is required

- a differentiated analysis of change impacts on different sectors is important

## **Objectives of the study**

The general objectives of the preliminary study undertaken on behalf of IPTS were the following:

- to understand the importance of different aspects of transport for regional development in different kinds of regions on the background of considerable changes in economic structure, European and global markets, society, and technology.
- to develop a framework for a preliminary assessment of the impact of European transport policy measures – mainly Infrastructure investment and internalisation of external costs – on the relative development of different kinds of regions and on the cohesion of the EU.
- to test the framework and to deepen the understanding of the relationship between transport policy and regional development in two case studies

Given the complexity of the issue and the difficulty of access to relevant data, a generic assessment of CTP impacts on different kinds of regions was not yet possible in the frame of this preliminary study.

## **State of the art**

Especially since the early nineties a scientific debate has developed concerning the role of transport infrastructures and transport costs for economic development. Especially in the context of the planning and the ex-ante evaluation of the Trans European Networks since 1995, more and more arguments have emerged against the widely believed simple assumption that more infrastructure and lower transport costs will in any case result in more development. The most important arguments challenging conventional hypotheses are the following:

- The envisaged TEN network increases the differences in accessibility. TENS improve the competitiveness of Europe as a whole, however they do not necessarily improve cohesion
- Most easy to be financed are those links which promise most traffic – and which reinforce the already privileged regions
- Differences in accessibility have rather different impacts on various sectors. Their consequences will therefore not be the same for different regional structures.
- A general indicator of accessibility makes no sense since different aspects of accessibility (destinations, time required, frequency, costs, comfort/handling) do not have the same importance for different groups of users
- Improvements of accessibility can expose weaker structures (production, labour market, trade) in peripheral areas to a destructive competition with much stronger competitors
- cost reductions through transport infrastructure improvement are marginal for most industries, other measures would be much more effective in reducing overall costs.
- the present structural change leads to considerable changes in the use of transport services. Telecommunication should be considered in the same framework.
- Different regional economic structures lead to different transport intensities. Differences in transport intensity between countries show considerable opportunities for policies aiming at decoupling transport growth from economic development

Two important European documents published in 1999 reflect these sceptical arguments up to a certain degree: the European Spatial Development Perspective (ESDP) and the “Sixth Periodic Report on the Social and Economic Situation and Development of Regions in the European Union”

There is a growing consensus that approaches are needed which allow for much more sectoral and spatial differentiation. However, the literature review has shown that ready-to-use models and tools which allow to appraise the impact of transport policy on regional development are widely missing, especially when regional development is understood as including economic, social and environmental aspects.

### **Challenges for a simple assessment methodology**

A large consensus has been reached about the necessity of a sustainable development reconciling economic, environmental, social and cultural dimensions. Sustainable development has become a most important objective of EU policies. As a consequence, regional development cannot anymore be defined exclusively in economic terms. For assessing development progress, a larger framework has to be found than those usually adopted in transport research.

The accelerated structural change will have increasing and substantial impacts on the transport sector. The growing importance of flows of mere information leads tendentially to a declining importance of material flows in the advanced service economies and it changes the role of the transport sector. Acceleration in production processes, material flows, innovation and information processing is strongly transforming the structure of transport demands. The creation of European wide markets leads to the development of logistics and information systems on the same scale and triggers on the other hand an increased interest in specific regional structures, habits and markets. Different branches are concerned by these changes in very different ways. The impact of these trends will therefore strongly depend on the specific structure and the development strategies of a region.

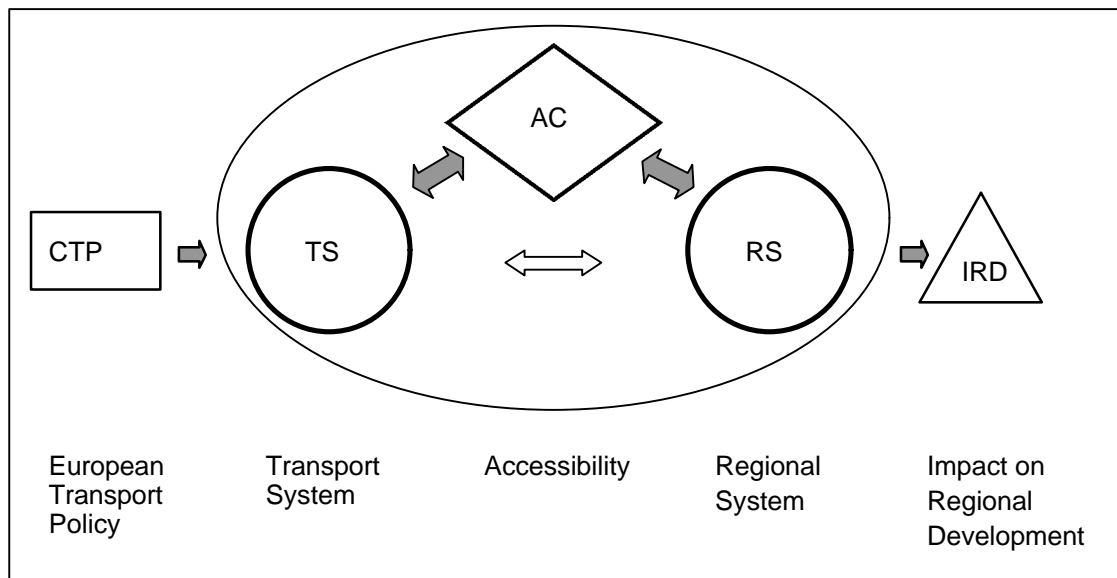
Information and communication technologies deeply change the role of materials and material flows in our economies. They lead to a decreasing importance of spatial distances in many businesses and to a reorganisation of the production process. They offer new opportunities for completely new ways of organising transport chains and allow for considerable gains in cost efficiency.

### **Outline of a qualitative model**

As a consequence of the foregoing considerations, the construction of the assessment tool has been based on the following ideas:

- Use a broad framework of objectives for assessment
- Consider passenger, freight *and* information transport
- Analyse specific transport needs of sectors and population groups
- Don't try do calculate all, use qualitative expert estimates
- Use policy packages for dealing with complex systems
- Use scenarios for dealing with uncertain developments

The model for analysing the impact of European Transport Policies on Regional Development is composed of three elements: the Transport System, the Accessibility and the Regional System. The assessment is based on an iterative procedure considering the links between these elements, it has an input – Changes in the Common Transport Policy, and an output – the impact on regional development



The transport system (TS) comprises the whole complex of hard- and software that produces accessibility: Infrastructure, Transport equipment, Transport companies, Transport Policy.

The accessibility (AC) distinguishes between freight, passenger and information transport, different groups of users, service qualities and distance categories.

The regional system (RS) includes a general description of the regional structure and an appraisal of the qualities of the regional system.

The description of the input (CTP) and of the transport system (TS) is based on the conceptual framework developed in the POSSUM project (Policy scenarios for sustainable mobility, DG VII). The description of the regional system (RS) and of the output of the assessment, the impact on regional development (IRS), is based on the framework developed in the INSURED project (Instruments for Sustainable Regional Development, DG XII) which includes 10 dimensions.

### The assessment procedure

The assessment is on one hand based on objective facts and on the other hand on subjective appraisals of impacts. In order to keep the tool simple, extensive investigations have to be avoided. Therefore, the approach relies on two main sources of information: standardised statistical data from EUROSTAT and local experts. Local experts also play a central role in making the subjective appraisals.

Data from the EUROSTAT REGIO database are used to produce some basic information concerning the Transport System TS and the Regional System RS of the regions, however pertinence and availability of data is limited. Other standardised European data sources, e.g. concerning aspects of accessibility, should be further exploited.

The knowledge and the experience of local experts are made available through questionnaires and workshops. Their contribution is three-fold: 1) to fill the gaps in available quantitative data;

2) to provide qualitative information (e.g. concerning decision-making in the transport system or regional development strategies); 3) most important: to give their qualified estimate of the response of the transport system to specific policy packages and of the regional system to changes in accessibilities.

### **Preliminary case studies**

Two preliminary case studies have been carried out, one in Tuscany and one in Andalusia. Because of limited resources the case studies did not use the full envisaged methodology: Data from EUROSTAT have not yet been fully exploited, one single preliminary questionnaire has been used, the number of local experts was very small, there were no workshops. This first experience has shown that the role of local experts is crucial. Improved questionnaires, workshops and a larger number of experts will be essential in order to obtain meaningful results.

### **Conclusions**

- The literature review has shown that regional development is increasingly understood as a very complex phenomenon in which different kinds of transport play a multifaceted role. Different development models imply a different role of various kinds of transport.
- Present models and their overall concepts of accessibility do not reflect this complexity and have partly lead to misleading conclusions. Much more differentiation is needed concerning regional structures, regional development models, regional transport systems, user groups, different kinds of transport (including information transport) and time horizons.
- The present structural change deeply changes the roles of different kinds of transport. A differentiated understanding of these implications is missing – also because concepts for analysing them have not yet been developed. Information transport is increasingly substituting passenger and freight transport but also creates new transport needs by changing interaction patterns and increasing the reach.
- Based on concepts stemming from different lines of thinking, a general framework for assessing the impact of European Transport policies has been developed in this study. It consists of a relatively simple regional model, descriptors for describing elements of this model and an assessment procedure for establishing the relationships between the elements with the help of regional experts.
- The descriptor sets, the access to standardised quantitative data, the procedures for qualitative appraisals and the methods for carrying out assessments need to be further improved.
- The preliminary case studies have shown that the proposed model and assessment methodology point into the right direction. However, considerable improvements are necessary in order to reach the goal of a rather simple assessment tool that can be used by decision makers at European and regional levels.
- Limitations in completeness and reliability of generally available and regularly updated statistical information are more serious than initially expected. They may be partially compensated by combining data and “patterns” derived from case studies and more complex models.
- Questionnaires for collecting qualitative inputs to the regional models have been developed and tested. They do not yet cover all relevant issues but have shown the degree of precision and the amount of information that can be reached by this instrument in this context.

- The assessment procedure of policy packages with the help of a validated regional model has been outlined. A framework of precise assessment questions has still to be formulated based on more elaborated descriptors of the model. Given the complexity of regional systems, assessment workshops with regional experts should be carried out in the framework of regional case studies.
- The two very preliminary case studies have shown considerable differences in regional structures, regional development models, transport issues and transport policies. They have strengthened the impression that a differentiated analysis tool would be very helpful.
- The preliminary study has shown that further elaboration could result in a methodological tool that delivers useful answers with a reasonable effort. Carrying out a good regional case study could take about 10 working days for a researcher plus two days for six regional experts. The result would not only be the test of CTP policy packages but also a validated regional model on these issues and possibly a shared view of the participating decision makers. Rough estimates for other regions could be provided on the basis of a series of case studies and a statistics-based typology of regions.
- An actual assessment of different CTP policies was not yet possible in the framework of this preliminary study. Two basic policy packages for testing basic alternatives in CTP have been proposed. A typology of regions will be feasible only after having completed, formalised and tested the complete assessment framework.