Introduction: transport project evaluation in a complex European and institutional environment

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INTRODUCTION

As society has evolved over time, it has increasingly become more complex. This complexity affects all aspects of society and has a particular relevance for public decision-making, especially regarding decisions with a substantial budgetary impact. For example, with respect to large transport infrastructure investments, stakeholders are also evaluating the economic and social return expected to arise from these investments and, as a result, stakeholders are becoming a more demanding and active group. Hence, transport project appraisal is becoming more complex as well.

Incomplete information on, for example, the environmental impact of certain investments, uncertainty of exact traffic evolutions and pay-offs, an increasing set of regulations and regulatory bodies and controversy on the methodology to be used for the valuation of environmental and social impacts are just a few of the aspects that complicate the investment decision-making process for transport infrastructure.

Decision-makers are confronted with the difficult problem of evaluating potential outcomes and choosing policies to achieve the desired outcomes in the presence of this intense complexity. Decisions that are well intended can lead to losses in social welfare as a result of unexpected outcomes, or outcomes with unexpected consequences. Decision-makers therefore have a great need for a framework that structures information in such a way that the complexity is more manageable, but still takes into account the implications of the complexity and the need for incorporating the different views of stakeholders involved in a particular transport investment project.

At the same time that society has become increasingly complex (and perhaps because society has become increasingly complex), policy-making has entered an era in which social benefits of governmental actions are increasingly questioned. As society has evolved and fears for unintended

outcomes and unexpected consequences resulting from public policy have appeared, there has been an increased call to subject all important infrastructure investment decisions to a rigid evaluation process. Here, a systematic comparison of the value of outcomes with the value of resources achieving the outcomes is required, including all involved stakeholders and their views. Hence, a legitimate basis for investment decisions would be created.

This book describes how transport project evaluation has recently evolved towards a comprehensive evaluation framework. This framework takes into account the complex institutional environment and views of multiple and diversified stakeholders involved in, for example, transport infrastructure investment decision-making. Moreover, the book includes a number of empirical cases on transport project evaluations in Europe and provides insights into the institutional drivers and impediments related to project assessment.

The contributors are state-of-the-art experts on project evaluation methodologies and share in this book their latest research on the complexity of transport project appraisal in theory and practice. Although the chapters in this book concentrate more on theoretical views and empirical exercises within the transport and port sector, the concepts and ideas put forward in this book are also useful for other research domains or empirical settings. Here, it is indicated that the concepts proposed in this book can also be used for overall project evaluation, outside the context of traditional transport project evaluation. Further, the different terms which are used in the book to depict evaluation, that is project evaluation, transport project evaluation and project assessment or appraisal, have to be considered as synonyms.

The aim of the book is twofold:

- to share the result of recent research efforts on project evaluation methodologies in the light of a very complex environment such as an increasing environmental awareness, restricted public funds, the need for legitimacy of decisions towards multiple stakeholders, incomplete information, uncertainty, and so on;
- to indicate in what way project evaluation is carried out in practice and how an integrated 'system approach' could be useful for transport project appraisals and decision-making, that is based on project outcomes or results.

AIPE (the Association for Institutional and Political Economy) strongly supports the integration of institutional aspects, influencing the complex environment, into economic decision-making. As such, this book is the

result of the discussions that took place during their annual meeting and conference in Antwerp (26 November, 2004).

TOWARDS AN INCREASED NEED FOR TRANSPORT INFRASTRUCTURE POLICY AND EVALUATION GUIDELINES

Decision-making on infrastructural projects is a political and administrative process. Despite the complex environment, important construction decisions have to be taken. These decisions are sometimes associated with great risks due to uncertainty over future developments and effects. The great responsibility associated with these decisions encourages policy-makers and public agents to ascertain for themselves the best available information and techniques as an input to the decision-making process.

The demand for transport has dramatically increased over recent years and several studies suggest that traffic will continue to grow exponentially during the next two decades. Especially with regard to maritime container traffic in major seaports, even the most careful forecasts by internationally renowned experts indicate a tremendous cargo growth, which is substantially higher than what can be expected from GDP evolutions or industrial production trends. Given the restricted means and limited investment budget of, for example, EU governments today, it is unlikely that infrastructure investments will be undertaken at the same pace as transport growth. The possible imbalance between cargo handling capacity and cargo demand stresses the importance of sound, careful and just-in-time investment decisions. In the case of port investment projects, timing is crucial and anticipating maritime transport developments is necessary for a port to be able to cope with the fierce competition in the industry. This explains why, for example, ports take every available opportunity to influence or accelerate government action or public funding.

Indeed, the nature of large infrastructural projects necessitates and justifies active government intervention, public involvement and public policy. A public policy aiming to allocate limited public resources is efficient if it maximizes the absolute total net benefits available to society. Here, potential Pareto improvements are often used by economists as the criterion that determines the welfare impact on society as a whole. Government policy also aims to improve equity among members of society. Improving equity implies determining whether costs and benefits are systematically reallocated in ways that do not discriminate between groups. In other words, public policy should guarantee a fair distribution of net benefits among all members of society. Taking these two objectives of public policy

into account, it can be concluded that the evaluation of the desirability of large infrastructure projects encompasses more than a simple economic assessment.

In the context of an increased need for well-founded investment decisions, the Dutch and Flemish governments¹, but also French authorities, for example, have paid special attention to creating project evaluation guidelines and regulation of the selection criteria and techniques that should lead to solid investment decisions. These techniques should take into account long-term consequences, and need to include the point of view of a large set of stakeholders. Hence, investment decisions need not be based on short-term political compromises, but should fit within a long-term strategic transport infrastructure vision.

THE EVOLUTION OF TRANSPORT PROJECT EVALUATION: SOCIAL COST-BENEFIT ANALYSIS AND OTHER EVALUATION TECHNIQUES

Decision-making in transport infrastructure projects in the EU and the methods used to underpin these decisions have changed remarkably in recent years. In the 1980s, cost-benefit analysis (CBA) was used most frequently for transport project evaluation. The instrument is based upon perfect markets in which market prices reflect the marginal willingness-to-pay of society for a certain good or service. In reality, however, substantial market failures do exist and need to be included in a project evaluation instrument. During the 1990s, both academics and practitioners in policy analysis claimed that the traditional policy analysis methods were 'out of fashion' because of their prime focus on economic efficiency and the lack of adaptability to the requirements of multi-actor settings of integrating different stakeholder opinions or choices. However, CBA has experienced a sudden resurgence since the year 2000, in the form of a renewed version of the well-known CBA method, also called social cost-benefit analysis (SCBA), for example as a result of the Dutch OEEI guideline (see note 1). Despite all the theoretical studies performed on the types of information policy-makers can process, the need for transparency and for an active multi-actor involvement in the evaluation and decision process has become politically essential and explains why SCBA became successful.

Theoretical and practical contributions in this book analyse social cost-benefit analysis more in depth. Social cost-benefit analysis can be summarized as a systematic means to include all benefits and costs, much like a private sector investment. Because this type of evaluation instrument deals with issues of public policy, it should consider types of benefits and

costs that go beyond business decisions, focusing merely on net profit maximization.

To a certain degree, CBA can potentially identify a number of imbalances in the distribution of costs and benefits. However, CBA cannot measure multi-dimensional aspects of project desirability, such as sustainability, ethics and other social values. As a result, CBA provides information for the decision-making process, but it does not provide sufficient information to take decisions that necessitate multi-actor views. Therefore, the most efficient project from an economic point of view (determined by a CBA) should not automatically be pursued, without considering other important criteria that can affect overall social desirability.

In recent literature, it is recognized that formal economic evaluation analyses (based on net present values such as cost–benefit analysis) tend to be inadequate, for example for public expenditure analyses, as the anticipated objectives (for example generation of employment) are often broader than pure economic or market concerns. Social cost–benefit analysis, together with some extensions suggested in this book, is the approach which enables these additional (often non-market) goals and effects to be quantified. It is often considered as the public expenditure equivalent of the net present value methods when evaluating private investments. Besides economic and financial appraisal, social appraisal is one of the three main components of SCBA. This component examines both the distributional consequences of project choices over a period of time, and concerns between groups in society at a specific point in time. Including this element is essential in a multi-actor setting.

Social CBA could well serve a decision-maker during the analytical phase of the process. Multi-criteria analysis could then complement a CBA in the decision phase, as it better takes into account the political feasibility and social acceptability consensus. Here, it is important to mention that the methodology used should enable analysis as well as synthesis. Results should be represented in such a way that the decision-maker is perfectly informed and transparency is realized. Contrary to many transport project evaluation studies in the past, a sound, clear and policy-relevant conclusion or synthesis should also be part of the proposed method of transport infrastructure evaluation.

EMPIRICAL EVIDENCE FROM EVALUATION TECHNIQUES

Next to theoretical propositions for an optimal transport policy evaluation, throughout the book several case studies on transport evaluation are

described that provide practical evidence for the use of different evaluation techniques.

A large number of cases indicate the necessity of a multi-actor approach. Indeed, the major shortcoming is the neglect of societal and environmentally based elements in the conventional project appraisal techniques.

Only by the explicit integration of the objectives of relevant stakeholders involved and by allowing the stakeholders (be they representatives of business firms or governmental agencies) to reflect their ideas and views, can an overall and successful evaluation procedure be created.

THE 'INTEGRATED SYSTEM APPROACH' FOR TRANSPORT PROJECT EVALUATION

The different contributions in this book indicate that most traditional CBA methods are both too limited in scope and too partial in nature to reflect the necessities of modern economy. Vickerman (see Chapter 2) argues in this respect: 'we need to identify clearly what factors are included and what not, to be able to interpret the outcome (. . .). The development of a more appropriate and full CBA can be seen as a set of step-changes'. Here, an important distinction can be made between the theoretically optimal CBA and a best practice CBA such as an extended SCBA. Including a multi-actor approach in CBA evaluations enhances the effectiveness and efficiency of the government action and as such increases societal benefits in favour of specific stakeholders. Different strategically positioned stakeholders may try to get an advantage over other parties and influence project evaluation and decision-making. Here, government should act as a party that neutralizes the excessive bargaining strength of powerful, strategically positioned stakeholders.

Throughout the book it is indicated that a number of shortcomings in traditional CBA techniques exist. An 'integrated system approach' to transport project evaluation or an extended SCBA will attempt to overcome these problems. This includes a number of new evaluation procedures but also the integration of additional participation techniques to include all relevant points of view of stakeholders in the decision-making process. Only in this way can the evaluation techniques match the increased complexity and institutional change of society.

The described analyses can never replace the political decision-making itself. However, the evaluation procedure can try to ensure that political decisions are taken on the basis of complete and relevant information, using unequivocal terms and a solid and reliable base for evaluations.

This position is clearly represented by Musso, Sanguineti and Sillig (Chapter 4):

Some degree of participation should be introduced in order to be aware of the cultural and institutional context in which the project is to be implemented, and to relate its evaluation to that context as much as possible, so that the final project, if implemented, can match the real needs and will of the people for whom it has been planned. This can be made possible only if all stakeholders take part in the process.

In addition, the ‘integrated system approach’ that is developed in this book in the framework of large transport projects, can, in principle, also be used for the analysis of large and small projects in other economic domains.

STRUCTURE OF THE BOOK

This book provides an overview of a wide array of aspects related to transport project appraisal and can be considered as a benchmark in the transport project evaluation literature. The book is structured along the systematic application of socio-economic evaluation instruments for assessing the design, effects and implementation of investment projects.

Two major parts can be distinguished in the book. The first part concentrates on general perspectives for evaluation procedures and transport project appraisal methodologies. The second part provides an overview of a number of empirical applications and case studies of transport evaluation in practice.

The methodological part of the book consists of six chapters. Saitua and De Brucker and Verbeke, in Chapters 1 and 3 respectively, provide the institutional drivers of transport infrastructure evaluation and analyse the characteristics of social cost–benefit analysis as a tool for decision-making, together with alternative multi-criteria-based instruments. Vickerman provides a critical examination of the evaluation of transport projects in Chapter 2. Emphasis is put on transport appraisal in the UK. Chapter 4, by Musso, Sanguineti and Sillig, focuses on socio-economic impact assessment and its relation to institutional aspects, and discusses some of the institutional and socio-economic limits of most common evaluation tools. This chapter also describes the negative consequences of the fact that these techniques fail to consider institutional aspects properly. In Chapter 5, Macharis builds on elements of former chapters and describes in what way multi-criteria analysis can be used as a tool to include multiple stakeholders in project evaluation. Finally, part 1 of the book is concluded by Van Hooydonk in Chapter 6. This author stresses the limits of traditional legislative procedures for transport infrastructure evaluation. It is argued that transport development is benefited often by an ad hoc procedure that is project-specific but also in line with the public interest and importance of the proposed project.

Part 2 of the book consists of four chapters. The examples and cases in this part are mostly of Belgian, Dutch, German and Danish origin. Chapter 7 concentrates on the use of social cost–benefit analysis for transport infrastructure investments in the Netherlands. More in particular, it examines the reasons for implementing a new guideline for *ex ante* evaluation of large infrastructural projects. In Chapter 8, Coeck and Tessier describe evidence and experiences of the Deurganckdock case in the port of Antwerp. The procedures used for evaluating this major port container project reveal a number of shortcomings. Chapter 8 provides a number of possible opportunities for adapting port project evaluation in this respect. In Chapter 9 Dooms, Macharis and Verbeke describe an application of stakeholder analysis to infrastructural development and the use of multi-criteria analysis in the DHL project. Here, they analyse what kind of stakeholders should be included, in the decision-making process. Chapter 9 also discusses the different steps that need to be taken in the decision-making process. Finally, Chapter 10 provides an expert valuation of the various institutional structures for infrastructure decisions in Denmark, Germany and the Netherlands. This chapter concentrates on a search towards the ideal structure for decision-making on transport infrastructure.

Coeck and Haezendonck conclude the book and suggest that transport project appraisal is evolving towards an integrated systems approach and that important extensions to SCBA are considered necessary for sound and legitimate transport investment decisions.

NOTE

1. In 1998, a research programme on the economic effects of infrastructure (named 'OEEI', Overview of Economic Effects of Infrastructure) was commissioned by the Dutch Ministry of Transport, Public Works and Water Management and the Ministry of Economic Affairs. The results of several studies within this programme have led to a comprehensive guide including definitions and methodologies for appraising infrastructure projects in the Netherlands. The guide (appraisal system and recommendations) was approved by the Dutch Cabinet in 2000 and positively evaluated in 2002. Following the Dutch initiative, the Flemish government introduced a project in 2005 for developing a standard method for project appraisal and investment decisions (named 'Standaard Methodiek MKBA'). This project reflects the Flemish need for an integrated appraisal framework.