Department for Transport

Transport Investment and Economic Performance:

Peer Reviews

December 2014

The Department for Transport has actively considered the needs of blind and partially sighted people in accessing this document. The text will be made available in full on the Department's website. The text may be freely downloaded and translated by individuals or organisations for conversion into other accessible formats. If you have other needs in this regard please contact the Department.

Department for Transport
Great Minster House
33 Horseferry Road
London SW1P 4DR
Telephone 0300 330 3000
Website www.gov.uk/dft
General enquiries https://forms.dft.gov.uk

Contents

Introduction

The Transport Investment and Economic Performance Report, written by Professor Tony Venables, Dr James Laird and Professor Henry Overman, examines the latest evidence to determine how transport affects the economy and recommends improvements to the Department's approach to appraise these impacts.

In order to assure the quality of this work, the Department sought the opinions of three eminent academics: Professor Gilles Duranton, Professor Peter Mackie and Professor Roger Vickerman.

Within this document are the independent academic peer reviews. These have not been edited in any way, save formatting.

1. Gilles Duranton, Wharton School, University of Pennsylvania

1.1 This is an excellent report making important suggestions regarding how to improve the evaluation of transport projects. Rather than quibble with the authors on some minor aspects of their work, I would like to use this short comment to elaborate on a first-order point that appears implicitly several times in the report.

1.2 There are two types of evaluation: ex ante evaluation to decide whether a project should be implemented and ex post evaluation to assess the effects of a project after implementation. My first observation is that there are often considerably more resources devoted by government agencies to ex ante evaluation than ex post evaluation. For instance, the French government is currently devoting significant resources to the ex ante evaluation of a new set of subway lines around Paris. More than a dozen studies have been completed and many more are on the way. I very much doubt the French government will finance a similar research effort in 50 years to assess the effects of this subway system ex post. While serious ex ante evaluations are obviously needed, ex post evaluations are more important in the long run and should receive more attention and more resources.

1.3 Ex post evaluations come in two different types. First, there is the traditional ex post economic evaluation that pursues the same objectives as the ex ante evaluation but takes place after the facts instead of before. There is also the retrospect assessment of how the ex ante evaluation fared ex post.

1.4 A first important point is that an ex post economic evaluation is not the "solved" version of the challenges faced by the ex ante evaluation. It is not because we know what the world now looks like that we are able to isolate the causal effects of a particular intervention. Showing for instance that a new port infrastructure was followed by an increase in trade is not enough to show that this infrastructure caused increased trade. To isolate the effect of this infrastructure, we still need to know what would have happened if the infrastructure had not been built.

1.5 Recent research, as the report describes, has developed a number of strategies to solve this identification challenge. One of them is to use information about interventions or parts of an intervention that were supposed to happen but did not for reasons unrelated to the outcomes of the project at hand. For instance, to construct a control group for 19th century Indian cities that were served by railroads, Donaldson (2014)

uses cities that were supposed to be served under alternative railroad plans but ended up not being served. Mayer and Trevien (2014) use a similar idea to assess the effects of suburban rail on firm location choices in Paris. The RER project got jeopardised by the first oil shock. The French government had to downsize this large scale project because of a shortfall in tax revenue. Subject to some caveats, stations that did not get built provide a natural control group for stations that got built.

1.6 Put differently, a good ex post economic evaluation can leverage on potentially useful information associated with how projects were implemented (or not) and for what reason. There are important gains from keeping a lot of information regarding project selection, political interference, etc. In turn, good ex post evaluations will help future ex ante evaluations. Although we cannot expect to get things exactly right today, good ex post evaluations will improve future decisions.

1.7 The second form of ex post evaluations, which confronts past predictions with what really happened, is also extremely useful. Conceptually, this is a much easier endeavour, at least in its initial steps, since it amounts to a comparison between a prediction and a realisation. The report makes clear that much has been learnt from the work of Atkins (2013) on UK road transport projects. The work of Flyjberg et al. (2003), in the same spirit but with a slightly different focus on megaproject, has also been very influential. Unfortunately, this type of work is still rare.

1.8 From these considerations, we can draw two important conclusions to improve decision making in the long run. The first is to devote relatively more resources to ex post evaluations. In the long run, the benefits of better ex post evaluations certainly outweigh at the margin those of a more comprehensive LUTI model today. The second key recommendation is that the ex post evaluation of projects needs to be factored in extremely early in the design of these projects: Any sound project should offer some ways of being meaningfully assessed ex post.

- Atkins (2013) Post Opening Project Evaluation of Major Schemes Meta-analysis 2013: Main Report. Report to the Highways Agency.
- Donaldson, David (2014) Railroads of the Raj: Estimating the impact of transportation infrastructure. American Economic Review, forthcoming.
- Flyvbjerg, Bent, Nils Bruzelius, and Werner Rothengatter. 2003. Megaprojects and risk: An anatomy of ambition. Cambridge: Cambridge University Press.
- Mayer, Thierry and Corentin Trevien. 2013. Urban Public Transportation and Firm Location Choice
- Evidence from the Regional Express Rail of Paris Metropolitan area. Processed, Sciences Po.

2. Peter Mackie, Institute for Transport Studies, University of Leeds

2.1 This is a clear and articulate assessment of the state of the art, the central message of which I largely agree with. Rather like SACTRA (1999) and Eddington (2006), this paper proposes evolution rather than revolution. This basic message is sound and welcome. The paper is like a Rolls Royce—the suspension is so good you don't feel the bumps. But the bumps (i.e. judgements) are there and need to be explored.

Point of strong agreement

2.2 VLO propose (page 5) that there should be 'a closer connection between the strategic and the economic case'. I concur. The strategic case should be the high level context-specific narrative of the overall business case, informed at a more in-depth level by the economic and other cases. This is quite different from the view that the strategic case is one of the five distinct strands of the overall business case. In developing the business case, the process needs to be an iterative one—what is the outline strategic case for the scheme; what linking mechanisms with the wider economy are expected to be activated ; therefore what economic appraisal work is required ; what does the result of that work tell us about the strategic case ; and so on. This is the way to give the strategic case proper technical content and backing.

Points of clarification

2.3 The report says (page 4) 'The DfT appraisal guidelines provide a rigorous framework for appraising projects….'. While I agree with the broad sentiment, which corresponds with the ICTAP report for the Department (ITS 2013), there are some points which need to be made :

- Robustness of the appraisal framework is one thing but robustness of the content is another. WebTAG is a large document with many sections and there are maintenance issues with keeping the evidence base up to date. The values of time and reliability are currently being studied again but to take another example, the safety values are also based on work done many years ago.
- Appraisal needs to morph to meet changes in social problems and policy perspectives. WebTAG says little about the appraisal of resilience measures of all kinds. Yet the value to society of reducing the risk of rare high impact events such as the breach of the sea wall

at Dawlish or the bridge collapse at Workington is clearly an appraisal issue which resonates with social concerns.

2.4 All that is just to say that in a world of finite analytical resources, difficult choices have to be made and the case for improving the treatment of the transport/economy linkages needs to be balanced against needs elsewhere in the appraisal regime.

2.5 With that in mind, I think the least convincing section of the paper is section 4, where the arguments are somewhat overstated :

- Transport as a catalyst for investment and employment is not greatly different from other social infrastructure, so there needs to be commonality of treatment of these effects across sectors. It is primarily for the Treasury and the revised Green Book to set out how these issues should be handled.
- My view is that the assumption of zero structural unemployment made in the 2003 Green Book remains acceptable at national level for the general run of transport appraisals. Therefore, diagnostics are required to identify the exceptional cases but in general it is difficult to improve on a default assumption that transport investment 100% displaces other transport or public investment which has equal net generative effects. Clear exposition of the relevant counterfactual is essential.
- However, particular attention needs to be given to the working of high value mobile sectors of the economy where activity may be transferred across national boundaries as a result of transport investment. This is an issue for a small proportion of projects which tend to be high profile. In my opinion the microeconomic behaviour of multi-location international firms and their response to changes in infrastructure is a knowledge gap which needs to be filled if estimates of net generative effects at national level are to have credibility.

2.6 A particular issue which I feel is unclear in the paper is the authors' attitude to the use of a delta GVA metric as an indicator of national value. Most of the paper seems tacitly to accept the welfare economics framework using some form of CBA metric as the main basis of national appraisal. But then on page 42 we are given some reasons why this should be complemented by a GVA metric. I count myself among those who think those reasons are unconvincing for national level appraisal and would argue 'they should not be included in transport appraisal ' or at least not generally (top p42) . But let us suppose VLO are correct in their judgement. Then it needs to be made much more explicit that if delta GVA at national level is to be 'presented as part of the appraisal process', codification of the rules for doing so and consistent use of those rules is going to be required. Much greater discipline is required if GVA evidence is to have serious analytical weight. The onus should be placed on scheme promoters to explain the sources of the differences between the CBA results and the GVA results for their scheme. There will also need to be guidance for the decision process about how CBA and GVA results should be viewed and weighed. Double counting—whether unintentional or deliberate--- is clearly a major risk.

Challenges for government

2.7 VLO call for a strengthening of analytical capability in various respects and for a greater element of judgement to inform appraisal requirements. They are effectively calling for a change in the blend between a rule based system and a judgement based system. This may be right but needs to be considered carefully against the tensions associated with the following institutional factors :

- The devolution of responsibilities to the HA, NR and the LEPs with most responsibility for scheme promotion now lying far from the DfT.
- The reduction in central resources which DfT can devote to carrying out control functions and assuring the quality of appraisal of all but the mega-projects.

2.8 I am left wondering whether there is an assignment problem. Are we expecting the project appraisal system to do too much? How context-specific do we want appraisal to be—possibly calling into question the standard values approach used in WebTAG? Would the analytical approach proposed by VLO be better undertaken at the programme level? I am not clear in my mind how much there is to be gained from deeper investigation of project A versus project B. Admittedly there is then the question of how programme level studies would link to studies and decisions at project level But I think there might be a lot to be gained from Eddingtonian type studies led by the Department's Strategy Unit of

- The relative marginal social returns, including wider economy impacts, on the main investment programmes for which the Department has lead responsibility
- The relative returns on transport capital and current expenditure programmes including revenue support for bus and rail and asset maintenance programmes.

2.9 To summarise, this is a very useful paper in the tradition of SACTRA and Eddington. There is room for debate on some of the judgements of the VLO paper and some very real implementation challenges for the Department.

References

- The Eddington Transport Study (2006) The Stationery Office, London.
- Mackie P. and Worsley T. (2013) International Comparisons of Transport Appraisal Practice. ITS Leeds report to Department for Transport, London.
- SACTRA (1999) Transport and the Economy. The Stationery Office, London.

22/07/2014

3. Roger Vickerman, Centre for European, Regional and Transport Economics, University of Kent

3.1 This is a valuable and authoritative report on a topic which generates considerable poorly informed opinion and where both rigorous analysis and hard evidence are in scarce supply. The report sets out the factors which relate transport investments to economic performance; it clarifies some of the ambiguities in what is meant by economic performance; and distinguishes clearly the various channels through which improved transport can affect economic performance. An understanding of the messages in this report should provide an improved basis for future appraisal exercises of transport infrastructure and provide a common ground within which promoters and opponents of schemes will need to base their arguments.

3.2 I endorse the basic approach taken by the authors. The division of the, until now, rather amorphous term of wider benefits into the three main components discussed in the second part of chapter 2 (changing quantities and price-cost margins), chapter 3 (economic mass and productivity) and chapter 4 (location, land use and local labour markets) provides a useful way of reducing some of the confusion that exists in this area. The focus on distinguishing net additionality from redistributive effects is important. Figure 1[1] is a valuable way of illustrating these effects, particularly in distinguishing between the drivers and transmission mechanisms and the various outcomes. I would liked to have seen a more substantial discussion of the issues raised by the KPMG approach for HS2; this has been controversial but it raises issues which are only covered briefly in an Appendix.

3.3 I have a number of suggestions for improvement and extension. I remain concerned about the use of the term economic mass and its definition in terms of employment. At the least I would welcome some further discussion of the concept and ways it could be enhanced. I had hoped for some more detailed guidance on how to incorporate some of these concepts into appraisal, perhaps through a more critical presentation of Appendix 3.1 with suggestions for its improvement. I appreciate the need for establishing the rigorous analytical foundation provided here, but there needs to be a clear follow-up programme to incorporate this into

[1] The version in my copy of the paper is not correct compared with the earlier draft – it omits the reference to Chapter 3 and the box on proximity in this quadrant is not complete

the appraisal guidance. The first stage of this is to clarify the criteria by which projects are deemed to need this more detailed attention into their potential productivity and economic performance impacts. Clearly this is not something which can be done on the basis of very simple criteria such as project size, but how to structure the appropriate narrative and the elements it should include would be a valuable addition.

3.4 The evidence used to support the argument in the paper is almost entirely from the UK and US, with one or two exceptions, and entirely in English. There are examples of alternative methods and applications from France, Germany, Spain, Sweden, the Netherlands, Japan and other countries, which could illustrate and support the arguments in chapter 4. Some of these have been using variations of spatial computable general equilibrium models for some time; others have used variations on production function-based models. The very brief review of alternative methods in Appendix 1.1 only scratches the surface of these. Too often opponents of schemes misuse such evidence, which needs careful contextualisation.