Do CBA results affect project selection? Comparative evidence from Sweden and Norway

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Cost-benefit analysis (CBA) has been an important tool for transport planners for several decades, in particular for evaluating and ranking transport investments. Compared to the considerable efforts to develop better CBA methodology, research is still rather scarce on the role of CBA in the planning process and what impact CBA actually has on transport investment decisions. The purpose of this paper is to study these issues, comparing how CBA results affect selection of national road projects in Sweden and Norway. The two countries are similar in many respects; in particular they have very similar guidelines and frameworks for CBA. Moreover, the planning systems also share many characteristics, with comparatively independent public administrations (the Road Administration in Norway and the Transport Administration in Sweden) preparing a plan proposal for eventual decision by the Government. Both countries also claim to put a large weight on CBA as a criterion for project selection.

The paper is based on data from the preparation of the respective National transport Investment Plans. In both countries, road projects are selected from a list of suggestions, where each suggested project is described by a number of characteristics, including several types of monetized benefits and the benefit-cost ratio of the project. Hence, we can test how cost-efficiency, defined in various ways and for various types of projects, affect the probability that a project is selected for inclusion in the respective National Investment Plan. In the governments' instructions to the Administrations, as well as in Governments' rhetoric, cost-effiency and social profitability is the most important selection criterion for transport investments. In fact, the primary, overarching goal for policies and investments in the Swedish transport sector is that they should be "socially (cost-)efficient". One of the purposes of the paper is to test statistically if the public administrations and the government, respectively, choose projects in a way that is consistent with the rhetoric.

We do this by estimating binary logit models for the probability that a suggested road project is included in the plan, using as explanatory variables e.g. the benefit-cost ratio, the different types of monetized benefits, the investment cost, the size of the project, whether it is an urban or a rural project etc. In both countries, the Investment plans consists of two parts: one with projects selected directly by the government (i.e. politicians), and one part selected by the civil servants at the Transport Administration. Hence, different models are estimated to explore the governments' project selection and the administrations' selection.

A summary of our main results:

- The Swedish Transport Administration's selection of projects is significantly affected by the projects' benefit-cost ratios (BCRs). The importance of the BCR increases the more expensive the project is. There appears to be a "screening threshold" at BCR>1: when the BCR passes this threshold, the probability of inclusion in the plan makes a sudden jump. There is no evidence that the Administration weighs different types of benefit

differently than the implicit weight is the CBA, except for one type of benefit: freight transport costs, which are implicitly weighted much higher than other benefits.

- The Swedish government's project selection is also affected by the BCR, but less so than the Administration's. The selection is not affected by the BCR for the most expensive projects, however, i.e. the opposite to the Administration's selection – the impact of the BCR is only evident for less expensive projects. The government weighs accessibility benefits (e.g. time gains) higher relative to safety benefits than the weights of the CBA imply.
- The Norwegian selection is not affected by the BCR, however – neither the government's, nor the Transport Administration's. Statistically speaking, the Norwegian project selection is essentially random: project selection does not seem to be affected by projects BCRs, costs, traffic volumes, types of benefits or any other characteristic we have access to.
- The fact that the Norwegian selection is, statistically speaking, random, seems to mean that cost-inefficient projects are introduced into the list of project suggestions. In Sweden, however, they seem to have been filtered out at an earlier stage, presumably because the probability that inefficient projects will be selected is so low anyway.
- This means that while the BCR distributions for the "best" project suggestions are very similar in the two countries, the "bad tail" of suggestions is much longer in Norway.
- This, together with the fact that the subsequent selection is statistically random, means that the resulting mean BCR of selected Norwegian projects is considerably lower than the mean BCR of selected Swedish projects.
- We find no support for the common conjecture that "large" projects have a lower BCR than "small" projects.