

Utilization of information on costs and effects

Summary

In decision making, information about the costs and effects of road safety measures is only used to a limited extent. European research shows that about 35% of civil servants and politicians use this type of information. Furthermore, there are great differences between northern countries (58%) and central and southern countries (15%). The following barriers to the use of cost-benefit analyses (CBAs) and cost-effect analyses (CEAs) are important:

- There is a difference in vision between researchers and policy makers on the use of CBAs/CEAs. Policy makers sometimes reject the economic welfare principles behind the CBA/CEA, and make decisions based on more arguments than only the results of a cost-benefit analysis.
- The timing of a CBA or CEA in the decision making process often is not correct: information does not arrive on time, but is either too early or too late.
- The presentation of the results of a CBA or CEA sometimes does not fit the wishes and knowledge of the users. Policy makers sometimes regard CBAs as hard to read and difficult to understand.
- Policy makers often see CBAs/CEAs as a black box. It is not clear to them which choices have been made, whether an independent quality control has taken place, or whether uncertainties have been taken into account.
- Sometimes there is insufficient uniform knowledge about the effects of measures.

The following improvements are possible to stimulate the use of cost-benefit and cost-effect analyses:

- Better timing and presentation by introducing a professional code for contacts between policy makers and researchers.
- Independent quality control, either by a separate institute or by certification. A methodology manual can also contribute to better CBAs/CEAs.
- A European database of the effects of measures in order to stimulate the use of uniform and valid data.

Background and content

This fact sheet describes the extent to which policy makers commission a study of costs and effects, or use this type of results when deciding about road safety measures. Next it examines which barriers there are to the use of this information, and how these barriers can be overcome. A separate SWOV Fact sheet [The use of road safety knowledge by policy makers](#) discusses the use of road safety knowledge in general, and the possible barriers to the use of that knowledge.

Calculations of costs and effects of measures can be made in a cost-benefit analysis (CBA) and a cost-effect analysis (CEA) (see also SWOV fact sheet [Cost-benefit analysis of road safety measures](#)). A CBA examines all effects of a measure and these effects are expressed in Euros. In a CEA only one effect of a measure is examined, e.g. that on road safety, and is expressed in a unit other than money, e.g. the number of casualties. This fact sheet discusses both types of analysis. When, because of readability, only the term CBA is used, we also refer to the CEA.

Which studies have been made of CBA use?

Various studies of the use of CBAs in the decision making process have been performed. They indicate that there are a number of barriers to using CBA information. Three recent studies are directly relevant.

In 2002 the use of the OEI guideline, a Dutch manual for CBAs of large infrastructural projects, was assessed. The assessment indicated which barriers there are to the use of the results of the OEI (Buck Consultants, 2002). They resulted in a number of recommendations and in additions to the OEI guideline (Ministry of Transport, 2004a and 2004b). In the guideline (CPB & NEI, 2000) OEI is the abbreviation of Overview Effects Infrastructure. An OEI is a document which, in addition to the costs of construction and maintenance, also reports on the effects of infrastructure on accessibility, the

economy, safety, and the environment. These effects are mostly expressed in a monetary value. An OEI is compulsory in decision making about large national infrastructural projects, the so-called megaprojects.

Between November 2002 and September 2005, a thematic network of the European Union called [ROSEBUD](#) was operative. Among other things, the ROSEBUD network has conducted research into the barriers and stimulants to the use of this type of information, including CBAs, in road safety policy making (Elvik & Veisten, 2004; Hakkert & Wesemann, 2005). In addition to SWOV, thirteen renowned research institutes from different countries participated in the network.

Recently SWOV studied the use of cost and effect information in twelve Dutch provinces (Bax & Jagtman, 2008).

How often are CBAs used and what could be their effect?

International

The ROSEBUD study (Elvik & Veisten, 2004) carried out a survey among 83 subjects in 7 European countries and found that approximately 35% of the policy makers and politicians at a national and local level use knowledge from CBAs of road safety measures or commission them themselves. A striking difference was found between the more northern countries (Norway, the Netherlands and Germany) and the central and southern countries (Czechia, Hungary, Italy and Israel). The northern countries used a CBA or commissioned one considerably more frequently (about 58%) than the central and southern countries (15%).

Regional

A SWOV study (Bax & Jagtman, 2008) indicates that approximately half of the provinces reports having an idea of the costs and effects of road safety measures on 80 km/h roads. Provinces indicate that they have a better idea of the costs than of the effects. Two thirds state that cost and effect information to some extent plays a role in the decision making, even if the information does not offer them a complete picture. Most provinces derive their knowledge about the effects of measures from their own crash studies. To a lesser extent they use literature from sources outside their organization.

Why are CBAs often not used?

Different barriers to using CBAs in decision making can be distinguished in the various studies that were introduced above.

In infrastructure policy

Although the participants in the OEI assessment, mainly public servants and researchers, are positive about the guideline, there are some points of criticism. For example, a CBA is not considered to be the ultimate answer to policy questions; other considerations also play an important role. Policy makers and politicians often have insufficient knowledge of CBAs, which results in shortcomings in the interpretation of the data. In addition, the choices regarding methods, scenarios, and assumptions that are made in a CBA are often obscure for policy makers and politicians, as are the uncertainties that go with these choices. As a result a CBA is often regarded as a black box. The monetary effects are too dominant in comparison with the qualitative aspects of a policy problem.

In road safety policy

International

In 2003, the ROSEBUD project investigated which barriers are encountered by civil servants concerned with road safety when using information about costs and benefits of road safety measures (Elvik & Veisten, 2004). This questionnaire study was carried out among policy makers at the EU level, the national and the local level. A list of possible barriers was based on Elvik (2001). The list distinguished between four groups of barriers: 1) fundamental barriers, e.g. rejection of CBA, 2) institutional barriers, e.g. the way the decision making is organized, 3) technical barriers, e.g. technical shortcomings of the CBA method, and 4) implementation barriers, e.g. not having the authority to implement the measures. The reactions of 83 subjects from 7 countries showed the following important barriers against using CBAs:

- rejection of the economic welfare principle for road safety measures;
- incorrect timing of the CBA: results become available at the wrong moment;
- insufficient means to conduct a CBA;
- lack of knowledge about effects of measures.

These points were regarded as barriers by more than 50% of the subjects. 40% experienced some other important barriers:

- too little knowledge of the CBA principle among civil servants;
- the uncertainty in the calculations is not correctly and/or not clearly included;
- the form in which the CBA information is presented;
- origin of the CBA information: lack of unbiased quality control.

Regional

In the SWOV study (Bax & Jagtman, 2008) the twelve Dutch provinces indicated which barriers they had experienced in converting cost and effect information into concrete measures for their 80 km/h roads. Remarkably, the conclusions do not agree entirely with previous studies like the European ROSEBUD study which was mentioned above. The most important barriers that were found in that EU study, rejection of the economic welfare principle and wrong timing, are not found here. For wrong timing this is probably the case because the study is not concerned with once-only measures, but with measures that are taken at several locations during a longer time span. Rejection of the economic welfare principle probably is not a barrier due to the scope of the study. Because a previous study showed that the investigated provinces used cost-effect analyses instead of cost-benefit analyses, the study focused on cost-effect analyses. These analyses do not attach a monetary value to a human life, which is the most debatable issue in cost-benefit analyses. Therefore, the cost-effect analyses did not evoke resistance.

The most important barriers are not directly related to the actual information about costs and effects: data is often in conflict with other policy, citizens have objections, or measures are found to be too expensive. Finally, it is remarkable that provinces frequently indicate that certain crashes occur rarely or not at all, while the official crash data says otherwise. In his study, Elvik (2003) finds the same barriers: citizen support and cost and effect information about road safety being in conflict with other policy and other arguments.

How can we stimulate the use of CBAs?

The ROSEBUD study (Hakkert & Wesemann, 2005) recommended the following improvements to the EU:

- Formulate guidelines especially for the methods and techniques for CBAs of road safety measures; best practice examples can be included. The guidelines do not need to have a formal status.
- Design and maintain an EU-wide database of effects of road safety measures in order to stimulate the use of uniform and valid data. The database should contain general effects and provide handles for comparison with the local situation. The database should be available for a European expert network.
- Develop a system of independent quality control. This can for instance be done by appointing a separate advisory board. CBA quality can also be increased by stimulating the competition between institutes conducting CBAs, or by certifying them when they are highly specialized in these analyses.
- Structuralize and support cooperation between policy makers and researchers by the introduction of an informal professional code for researchers: a checklist with points of consultation and knowledge exchange. Policy makers need to be taught to read CBAs and how to use them. In addition, 'tips and tricks' should be provided to enable researchers to write more readable and comprehensible reports about CBAs.

Publications and sources [SWOV reports have a summary in English]

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Elvik, R. (2001). [Cost-benefit analysis of road safety measures: applicability and controversies](#). In: Accident Analysis and Prevention, vol. 33, nr. 1. p. 9-17.

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