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Current issues in the Dutch CBA practice

(Preliminary results)

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Abstract:

In the Netherlands a guideline for carrying out a CBA for infrastructure projects (the so-called OEI-manual) was constructed in the year 2000. Since then a CBA in line with the OEI-manual became compulsory in the decision making process for all large infrastructure national projects. The aim of this research is to define the main problems in the current Dutch practice as experienced by three different groups: scientists, consultants, policymakers. Using semi-structured interviews 72 respondents were asked to discuss the five most important substantive problems they experience with CBA. In addition the respondents were asked to elaborate on the main advantages and disadvantages they experience with the use of CBA in the appraisal of spatial-infrastructural projects. Next they were asked to outweigh the advantages and the disadvantages. The main finding of this research is that both the majority of scientists, consultants and policymakers evaluate the use of CBA as an 'ex ante' analysis of spatial-infrastructure projects positive. In spite of this positive overall evaluation, the respondents experience 68 different categories of problems. This paper elaborates on the 68 problems. The paper also focuses on the differences between the three groups in relation to the problems they experience. The relation between 'the number of respondents that mention a problem that can be assigned to a main category of problems' and 'group of respondents (consultant / scientist / policymaker)' is tested. This relation is significant for the categories 'Problems with welfare economics as fundamental theory of 'ex ante' evaluation instrument' and 'Problems with presenting conclusions'. Relatively few consultants and relatively many policymakers mention that they experience problems with welfare economics as fundamental theory of an 'ex ante' evaluation instrument and the number of consultants that experience problems with presenting conclusions is relatively low compared to policymakers and scientists.

1. Introduction

Many countries utilize variations of CBA in evaluating transportation projects (Hayashi & Morisugi, 2000). In a CBA effects of a project are monetized and the sum of all monetized impacts is evaluated. Whilst many countries use CBA in the decision-making process concerning transportation projects there are both theoretical and practical problems with the use of the instrument in the decision making process. Literature regarding important problems and debates is abundant (e.g., Adler, 2002; Adler, 2006; Annema et al., 2007; Grant-Muller et al. 2001; Mackie and Kelly, 2007; Niemeyer and Spash, 2001; Nussbaum 2000; van Wee, 2007). However, to the best of the authors' knowledge a thorough analysis concerning the problems that are perceived by different actors in the CBA practice has not been executed. This research aims to fill this gap.

The aim of this paper is to analyse the main problems in the current Dutch CBA practice as experienced by three different groups: scientists / employees of the Dutch planning bureaus (further: scientists), policymakers / representatives of interest groups (further: policymakers) and consultants. By analysing in depth the problems as experienced by different groups involved in the CBA practice, we are able to list and prioritize improvements. In this paper we only focus on the problem analysis. The results in this paper are preliminary because we have not fulfilled all requirements related to reliability and validity (see section 3).

This paper is about substantive problems regarding the use of CBA in the decision making process. Process related problems are studied in a parallel research line (Beukers, 2011)[1]. Problems regarding the way CBA results are presented in CBA-reports are defined as substantive problems. In Dutch practice CBA is used in the decision making process for both infrastructure projects as well as spatial-infrastructure projects. Therefore the problem analysis in this paper focuses on problems with the use of CBA in the decision making process regarding both types of projects. Moreover, the main advantages and disadvantages the three groups experience with the use of CBA in the 'ex ante' evaluation process of spatial-infrastructure projects are evaluated.

In this paper we present the quantitative results of the problem evaluation. In section 2, we describe the Dutch CBA practice over the last decades. Section 3 describes the methodology that is used in order to execute the research. In section 4 we present the results. Section 5 concludes.

2. Dutch CBA practice

In the Netherlands historically a mixture of CBA and multi-criteria analysis was used to evaluate new infrastructure (Bristow & Nellthorp, 2000). Before the year 2000 the results of research on wider economic effects of infrastructure varied strongly. Eager consultants were prone to estimate large effects, which were sometimes as big as a multiple of the direct transport benefits. On the other hand, hard-nosed traditional macro-economists, using linear models, assumed that all markets are perfect and concluded that all wider economic effects only represent distributional effects

[1] Els Beukers (University of Amsterdam) and Niek Mouter (TU Delft) work together in the so-called OBRRI project. Els Beukers focuses on the problems with the use of CBA in the decision making process, Niek Mouter focuses on the substantive problems.

(Koopmans & Oosterhaven, 2011). This led, amongst others, to so-called 'report wars', which confused Dutch Parliament (House of Representatives, 2004). In reaction to this experience, in 2000 a standardized cost-benefit analysis approach (the so-called OEI-manual) was prescribed by the national government as a standard method for large projects (CPB & NEI, 2000; see Annema et al., 2007 for an analysis of the experience with this standardized method for the period 2000 to 2007). A CBA in line with the OEI-manual as an 'ex ante' analysis became compulsory in the decision making process for all large infrastructure national projects since 2000. In the year 2008 carrying out a CBA as an 'ex ante' analysis became also required in the decision making process for smaller spatial-infrastructure projects. In the first decade of use, mainly in the first three years, the OEI-manual is improved based on input of independent consultants that use the OEI-manual, scientists that reflect on the method and employees of Dutch national economic and environmental assessment bureaus: CPB (Netherlands Bureau for economic policy analysis) and PBL (Netherlands Environmental Assessment Agency). However, in spite of the improvements both scientists employees of the assessment bureaus and consultants still mention substantive problems regarding the use of CBAs as an 'ex ante' evaluation instrument in the decision making process concerning spatial-infrastructure projects. Another group that experiences problems with CBAs are the users: the group of policymakers and representatives of interest groups.

3. Methodology

The aim of this research is to analyse the problems in the current Dutch practice as experienced by three different groups: scientists / employees of planning bureaus, consultants and policymakers / representatives of interest groups. The research method that was used in order to discover the perceptions regarding substantive problems with CBA was qualitative semi-structured interviews. The 72 interviews held were analysed with the method content-analysis.

3.1 Selection of respondents

The selection of the respondents for this research was based on two objectives. The first objective was saturation of problems that were mentioned by the respondents. The interviewer did not stop with interviewing respondents until saturation was reached (no new problems were mentioned). The second objective was to be as complete as possible regarding respondents. The aim of the research was to interview all the main persons who were active in Dutch CBA debates in the last decade.

The selection of respondents for this research was carried out in two steps. First, 10 consultants that executed a number of important CBAs, 10 scientist / employees of assessment bureau's that reflected on important CBAs and 10 policymakers / representatives of interest groups that use important CBAs were interviewed. The 30 respondents were asked which persons they recommend to interview to have a complete Dutch CBA problem analysis. If possible, both advocates and criticasters of CBA.

After the first 30 interviews the authors concluded that there was clearly no saturation regarding the problems that were mentioned by the respondents. Thus, we decided to interview all the respondents that were mentioned by at least two respondents in the first round of interviews. Furthermore, we decided to interview all the persons that were mentioned as being outspoken advocates and criticasters of CBA. In this second round 42 persons were interviewed. These 42

respondents were asked which persons they recommend to interview to have a complete Dutch CBA problem analysis as well. After 72 interviews all people that were mentioned by at least two respondents were interviewed. As a consequence we believe that we have reached the objective of completeness. However, we will check this in further steps of our research. After 72 interviews saturation clearly was reached. Finally 19 consultants, 25 policymakers and 28 scientists[2] were interviewed.

3.2 Structure of the interviews

During the interviews, respondents were asked to mention the five most important substantive problems they experience with CBA. After answering this first question, respondents were asked by the interviewer (the first author of this paper) to elaborate on each individual problem. This was the first phase of the interview. In the second phase of the interview, the interviewer asked some (critical) questions regarding the five problems and elaborations mentioned by the respondents. Moreover, the interviewer tried to challenge the statements the respondent made with statements made by other respondents. In the third phase of the interviews the respondents were asked to elaborate on the main advantages and disadvantages they experience with the use of CBA in the appraisal of spatial-infrastructural projects. Finally, respondents were asked to outweigh the advantages and the disadvantages. The average duration of an interview was one hour.

The authors are aware of the fact that it is inevitable that respondents in the second phase of the interview were influenced by the questions that were asked and the statements of other respondents that were discussed. The interviewer tried to formulate all questions as neutral as possible in order to reduce the influence on the respondent. Furthermore, the authors are aware of the fact that the quality of the questions that were asked in the first interview is lower compared to the questions that were asked in the later interviews, because the interviewer learned during the 72 interviews. This reduces the objectivity in the data. Nevertheless, in our view the approach of the semi-structured qualitative interviews resulted in a very rich insight in the problems as currently experienced in the Dutch CBA practice. This richness would be lower if a more structured and formal method had been applied, in our view.

3.3 Analysis of the data

The method used to analyse the data is content analysis. Content analysis has been defined as a systematic, replicable technique for compressing many words of text into fewer content categories based on explicit rules of coding (Berelson, 1952; GAO, 1996; Krippendorff, 1980; and Weber, 1990). First, the perceptions that were mentioned by the respondents regarding substantive problems with CBA were coded. When we thought that it was probable that a problem was mentioned because of a suggestive question of the interviewer, the problem was not coded. Secondly, the different codes were grouped into categories. For instance, problem A from respondent 1 is that '*there are problems with transport models in the way they estimate transport effects for the project area'*. Problem B from respondent 2 is that '*there are problems with transport models in the way they estimate*

[2] From the 28 scientists that were interviewed 4 work part time as scientist and part time as consultant. Because all 4 scientists are professors, we categorized these 4 respondents as scientists

transport effects outside the project area'. Both problems are categorised in the category 'problems with estimating transport effects'. During the categorising process it became clear that the majority of respondents mention problems that could be classified in more than five categories of problems. For instance, a respondent mentions problems with constructing a reference case (1), problems with estimating transport effects (2), problems with estimating agglomeration effects (3), problems with cost estimations (4), problems with estimating the effect on biodiversity (5) and problems with the discount rate (6). Thus, (s)he mentions problems in six different problem categories, while (s)he was asked to mention a maximum of five problems. We decided to take into account all the problems that were mentioned during the interviews because the object of this research is to make a thorough substantive problem analysis regarding the use of CBA in the decision making process concerning spatial-infrastructure projects.

There is no such thing as a 'best' method of coding. The process of coding and categorising implies a series of interrelated choices (Hosti, 1969). However, the process of coding and categorising is executed in accordance with rules of thumb that are described in the literature. A first rule of thumb is that 'a category must be a group of words with similar meaning or connotation' (Weber, 1990). A second rule of thumb is that 'categories must be mutually exclusive and exhaustive' (GAO, 1996). Mutually exclusive categories exist when no unit falls between two categories, and each unit is represented by only one category.

The approach of coding that is chosen in this research is a combination of *emergent coding* (Haney et al.) and *a priori* coding (Weber, 1990). Before starting with the interviews we made a list of categories of problems based on the literature. Constructing categories before interviewing respondents (data collection) and coding data is in line with the *a priori* approach. Next some categories were added during preliminary analysis of the data. When a problem that was mentioned by a respondent did not fit into a category that was determined *a priori*, the authors discussed whether or not a new category needed to be added. Adding categories during analysis or preliminary analysis of data is in line with the *emergent coding* approach.

3.4 Reliability and Validity

The authors are aware of the fact that there are some reliability and validity problems in this research. There are reliability problems because the largest part of the coding and categorizing process in this stage of the research has been done by the first author in consultation with the second author. The condition for a reliable content analysis is that 'different people should code the same text in the same way' (Weber, 1990). This condition is not yet fulfilled in this study. Moreover, there are validity problems, because the inferences in this study are made on the basis of data from one analytic approach (Erlandson et al., 1993).

In order to improve the reliability all the interviews will be coded for a second time by someone else than the first author. In order to improve the validity of the study, another method will be used to analyze the substantive problems the respondents experience with the use of CBA in the decision making process. The use of another method to improve the validity of a study is called triangulation (Erlandson et al., 1993). When the reliability of the coding process is sufficient, a questionnaire will be constructed. In this questionnaire, respondents will be asked to score the importance of every

category of problems that is mentioned in this research on a Likert scale. They could score a problem as ‘very important’, ‘not an important problem’, no problem, and so forth.

4. Results

This section presents the results. Section 4.1 starts with presenting the results regarding the perceptions of advantages and disadvantages of the use of CBA in the decision-making process. Section 4.2 elaborates on the perceptions of respondents regarding substantive problems with the use of CBA in the decision making process regarding spatial-infrastructure projects. Sections 4.3, 4.4 and 4.5 discuss the main categories ‘Problems with estimation of physical effects’, ‘Problems with monetizing effects’ and ‘Problems with presenting conclusions’.

4.1 Perceptions advantages and disadvantages of the use of CBA

Respondents were asked to mention the main advantage and disadvantage they experience with the use of CBA in the decision-making process regarding spatial-infrastructure projects. The following advantages and disadvantages were mentioned by more than 10 respondents. The number between brackets represents the amount of respondents who mentioned the specific advantage or disadvantage.

Advantages:

1. CBA brings rationality in the discussion **(29)**
2. Information is presented in a systematic and objective way **(26)**
3. With the help of a CBA it is possible to improve the project **(18)**
4. A CBA is helpful in the process of selecting the best project alternative **(16)**
5. As a result of the use of CBA the probability to build a project with a negative effect on the welfare of the country is reduced **(13)**

Disadvantages:

1. Use of CBA in ‘ex ante’ evaluation implicates that there is less attention for values and effects that are difficult to monetize in ‘ex ante’ evaluation **(21)**
2. Actors that participate in the decision making process overestimate the importance of the CBA **score** in the decision making process **(19)**
3. The CBA is used in a strategic way by actors that participate in the decision making process **(11)**

Furthermore respondents were asked to outweigh the advantages and disadvantages of the use of CBA in the decision making process regarding spatial-infrastructure projects. Figure 1 presents the results.

Figure 1: weighting of advantages and disadvantages regarding use of CBA

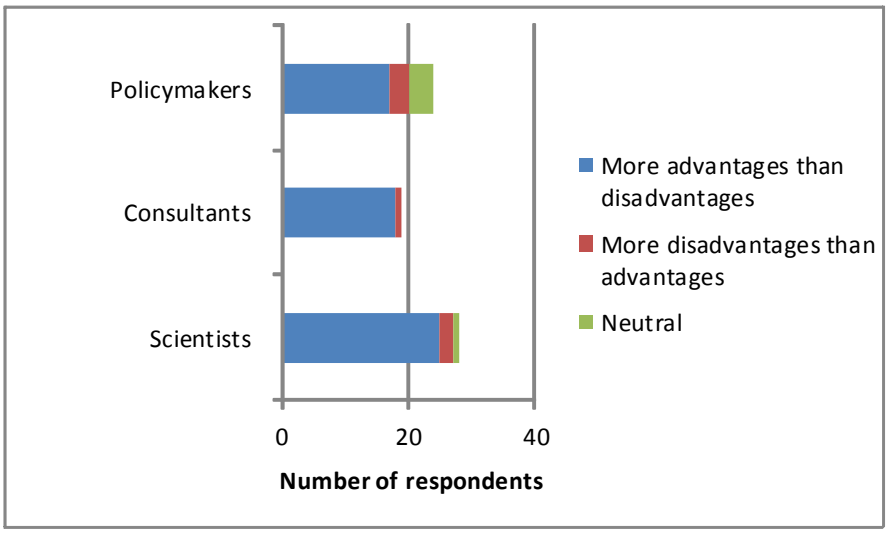


Figure 1 shows that policymakers, consultants and scientists perceive that the advantages of the use of CBA in the decision making process outweight the disadvantages. It also shows that consultants and scientists that were interviewed in this study evaluate the use of CBA in the decision making process more positive than policymakers.

4.2 Substantive problem analysis

In spite of this positive overall evaluation, respondents perceive many problems with CBA. We classified 86 problems that were mentioned by the respondents. Clustered into the so-called six 'CBA steps' (see figure 2). After the problem analysis (step 1), one has to construct the reference case and the project alternatives (step 2). By comparing the project alternatives with the reference case one could estimate the physical effects of the project alternatives (step 3). In order to make the analysis a Cost-Benefit Analysis, one should try to transfer the physical project effects into monetary terms (step 4) and discount the cash flows to one base year (step 5). Finally, the results are presented in the CBA report (step 6).

Four categories in Figure 2 need some further explanation.

- Category 0; 'Rejecting the use of welfare economics as the fundamental theory of an 'ex ante' evaluation method'. When a respondent perceives problems with welfare economics in general the problem is assigned to this category.

- Category 3B; 'Deduce the different possible impacts out of primary physical effects'. For some effects it is not possible to transfer the primary physical effect directly into monetary terms. It is necessary to know more about the potential different impacts of the primary physical effect before monetizing. This is for instance the case for transport-related air pollution (Damart & Roy, 2009). First, it is difficult to estimate the extra air pollution (primary physical effect) that is directly attributable to the transport project. Second, it is difficult to measure the different impacts of air pollution. Air pollution has an impact on human health; on the capacity of industrial and agricultural production; it may deteriorate nature and

sometimes it produces unpleasant odours (Damart & Roy, 2009). Problems with estimating the different impacts of the primary physical effect are assigned to this category.

- Category 6B; 'Presenting distributional effects'. When a positive welfare effect as a result of a project in region '1' in country A is accompanied with an equal negative welfare effect in region '2' in country A, the net welfare effect for country A is zero. This effect is called a distributional effect. In a pure CBA, distributional effects are not taken into account. Nevertheless some respondents think it is important to have insight into these distributional effects for political reasons. When a respondent thinks that it is a problem that the CBA-report does not pay enough attention to the distributional effects, the problem is assigned to this category.

- Category 7; 'Problems with uncertainty in CBAs. The actor who constructs the CBA has to deal with uncertainty. Both the reference case, the primary physical effects, the different impacts of the primary physical effects, monetizing of the impacts of the primary effects and the discounting of cash flows are uncertain. Some respondents experience problems with the way the present Dutch CBAs deal with uncertainty. These perceptions are assigned to this category.

Figure 2: number of problems mentioned by main category of problems

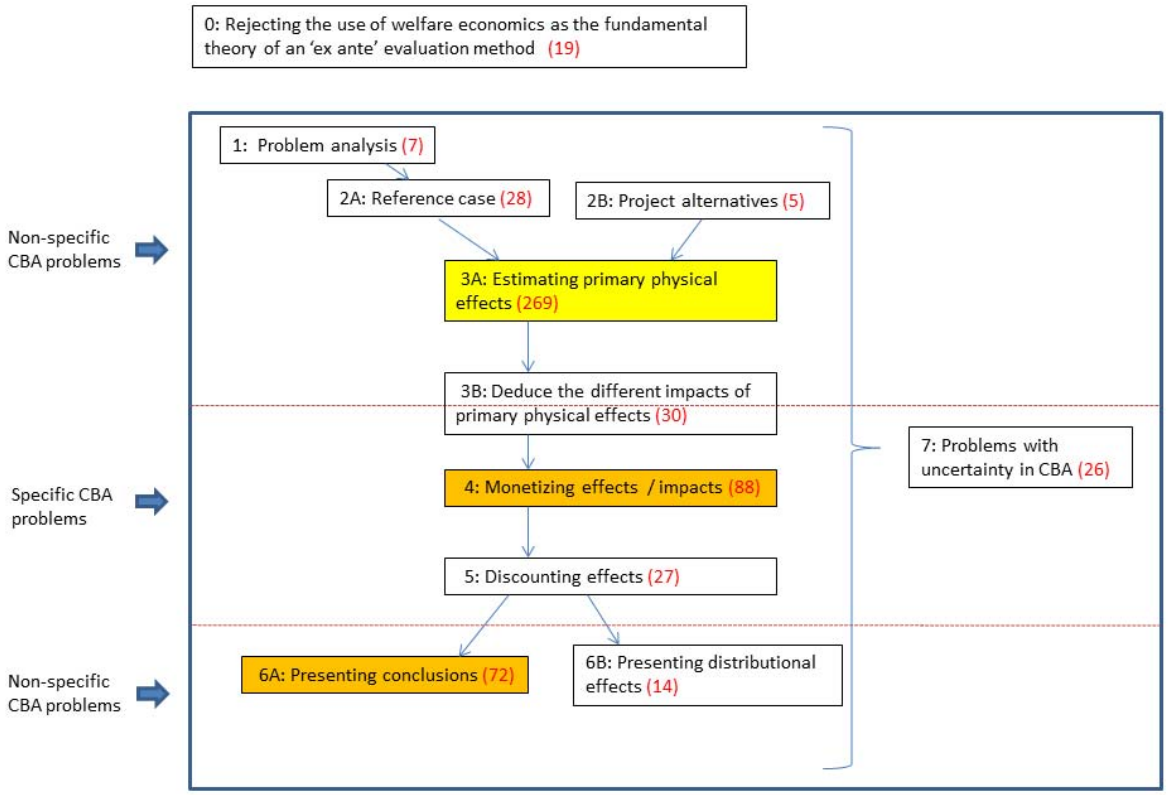


Figure 2 shows that the majority of problems that were mentioned can be assigned to the step 3A 'Estimating primary physical effects'. More than 70 problems can be assigned to steps 4 and 6A

'Monetizing effects / impacts' and 'Presenting conclusions', respectively. Sections 4.3, section 4.4 and section 4.5 will elaborate on problems related to steps 3A, 4 and 6A.

In Table 1 the problems that were mentioned by the respondents during the interviews are distinguished by both 'group of respondents (consultants, scientists, policymakers)' and the main CBA problem categories.

Table 1: number of times a main category of CBA problems is mentioned by group of respondents

Main categories of problems	**Consultant (19)**	**Scientist (28)**	**Policymaker (25)**	**Total (72)**
(0.) Problems with welfare economics as fundamental theory of 'ex ante' evaluation instrument	2	6	11	19
(1.) Problems with Problem analysis	3	3	1	7
(2A.) Problems with reference case	8	14	6	28
(2B.) Problems with project alternatives	1	2	2	5
(3A.) Problems with estimating primary physical effects	80	97	92	269
(3B.) Problems with estimating different impacts of physical effects	10	12	8	30
(4.) Problems with monetizing effects / impacts	23	40	22	85
(5.) Problems with discounting	4	13	10	27
(6A.) Problems with presenting conclusions	11	33	28	72
(6B.) Problems with presenting distributional effects	5	5	4	14
(7.) Problems with uncertainty in CBA	9	13	4	26
Total	**156**	**238**	**188**	**582**

Table 2 presents the number of respondents from each group of respondents that mentioned a problems category.

Table 2: number of respondents that mentioned a main problem category by group of respondents

Main categories of problems	**Consultant (19)**	**Scientist (28)**	**Policymaker (25)**	**Total (72)**
(0.) Problems with welfare economics as fundamental theory of 'ex ante' evaluation instrument	1	3	9	13
(2.) Problems with Problem analysis	3	3	1	7
(2A.) Problems with reference case	8	14	6	28
(2B.) Problems with project alternatives	1	2	2	5
(3A.) Problems with estimating primary physical effects	19	26	24	69
(3B.) Problems with estimating different impacts of physical effects	7	11	6	24
(4.) Problems with monetizing effects / impacts	12	23	16	51
(5.) Problems with discounting	3	10	7	20
(6A.) Problems with presenting conclusions	9	21	20	50
(6B.) Problems with presenting distributional effects	5	5	4	14
(7.) Problems with uncertainty in CBA	8	10	4	22

The following results presented in Table 1 and Table 2 are noteworthy:

- 69 out of 72 respondents (96%) mentioned a problem that can be assigned to the category 'Problems with estimating primary physical effects is mentioned by' (category 3A).

- All the 19 consultants that were interviewed mention a problem that can be assigned to the category 'Problems with estimating primary physical effects' (category 3A). On average a consultant mentioned more than 4 problems that can be assigned to this category. The 19 consultants that were interviewed mentioned 80 problems that can be assigned to this category.

- The relation between the number of respondents that mention a problem that can be assigned to the main category 'Problems with welfare economics as fundamental theory of 'ex ante' evaluation instrument' and 'group of respondents' (Consultant / Scientist / Policymaker) is significant on a confidence level of 5%[3]. Table 2 shows that relatively few consultants and relatively many policymakers mention that they experience problems with welfare economics as fundamental theory of an 'ex ante' evaluation instrument. An explanation for this outcome might be that consultants in general just fulfill the assignment to construct a CBA based on welfare economics while policymakers have to deal with the problems related to applying welfare applying economics in their daily work.

- The relation between the number of respondents that mention a problem that can be assigned to the main category 'Problems with presenting conclusions' and 'group of respondents' (Consultant / Scientist / Policymaker) is significant on a confidence level of 5%. Table 2 shows that the number of consultants that mention a problem with presenting conclusions is relatively low compared to policymakers and scientists. Thus, the group who is responsible for a good presentation of the conclusions seems to be not (enough) aware of the presentation problems as experienced by the actors that use the CBA report (policymakers) and the actors that reflect on the CBA (scientists). However, we believe that the problem is relatively easy to solve.

4.3 Problems with estimating primary physical effects

'Problems with estimating primary physical effects' (related to step 3A) is the category of problems that is mentioned most frequently as a problem by the respondents. This section will elaborate on this main category of problems. First of all, 'problems with estimating primary physical effects' can be divided into three sub-groups; 'General problems with estimating primary physical effects', 'Problems with estimating tangible effects' and 'Problems with estimating intangible effects'. An effect is defined as intangible when it complies with the following conditions (and defined as a tangible effect when the opposite is true):

[3] The relation between 'the number of respondents that mention a problem that can be assigned to a main category of problems' and 'group of respondents (Consultant / Scientist / Policymaker)' is tested with a Chi-Square test.

1. Absence of consensus under actors[4] whether or not the effect will occur as a result of a spatial-infrastructure project.

2. Difficult to determine (both 'ex ante' and 'ex post') causality between project and effect.

3. If the effect occurs, it is difficult to determine whether the effect is an additional welfare effect for the country or a distributional effect

An example of an effect that complies with the three conditions is the often claimed effect of spatial-infrastructure projects being positive for 'business climate':

- There is no consensus under actors whether the effect results from the spatial-infrastructure project that is evaluated or not.

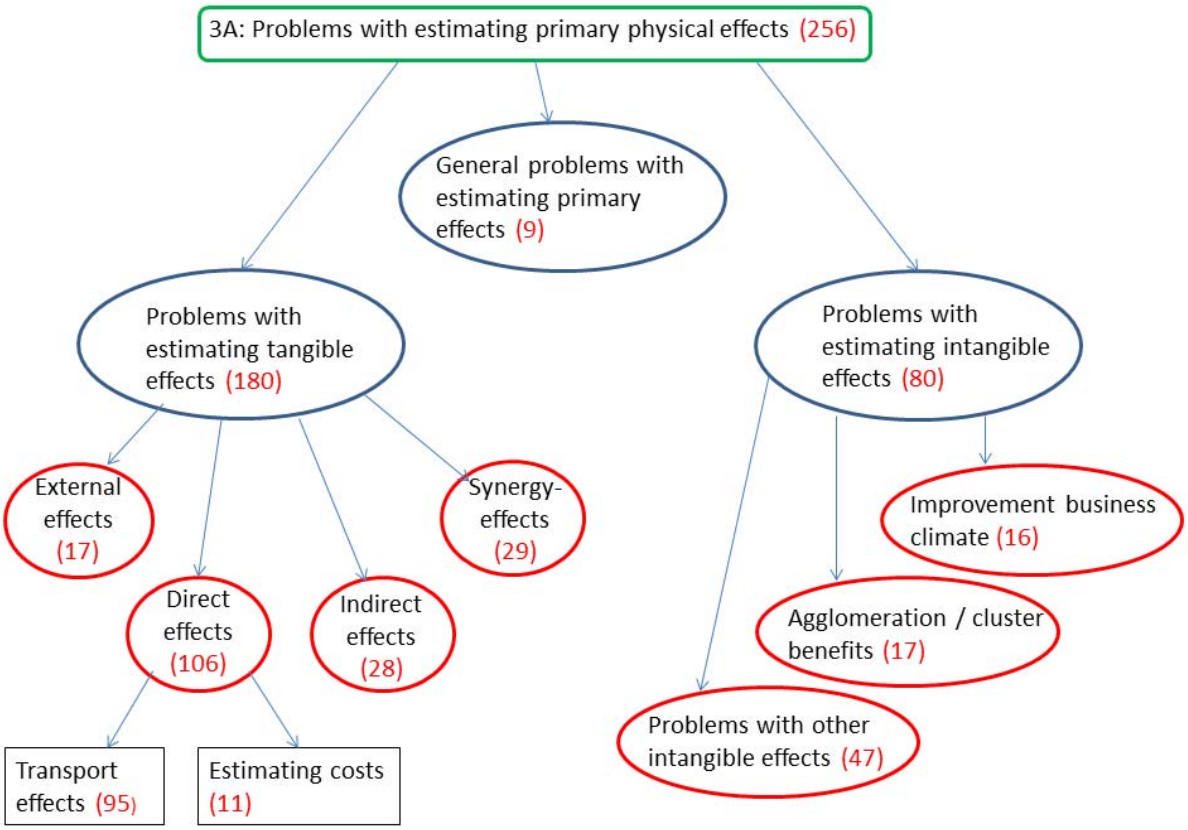
- Because 'high quality infrastructure' is only one of the aspects of a good 'business climate', it is very difficult to determine 'ex post' whether or not an actual improvement of the business climate is caused by the new spatial-infrastructure project or by an improvement of another aspect that influences the 'business climate'. An 'ex ante' attributing such effects to the project under consideration, is even more complicated.

- If the effect arises and region '1' in country A attracts extra business, because of the new infrastructure project, it is difficult to determine whether or not this is an extra welfare effect for country A. When the extra business is attracted from region '2' in country A, there is no welfare effect for country A. When the extra business comes from abroad, but would have settled in region '3' in country A in the reference case, there is also no welfare effect for the country. Only when the extra business in region '1' would have been settled in region '4' in country B in the reference case, there could be a potential welfare effect for country A.

As is depicted in Figure 3, the 'problems with estimating intangible effects' cover approximately one quarter of the 'problems with estimation of primary physical effects'. Furthermore, Figure 3 shows that 'the problems with estimating tangible effects' could be divided into three groups. 'Problems with measuring direct effects on the transport market', 'Problems with indirect effects on other markets than the transport market', 'non-market / external effects' and 'synergy-effects when the project consists out of several sub-projects (Mouter & Annema, 2010)'.

[4] Actors that frequently disagree concerning the possible occurrence of an effect as a result of a spatial-infrastructure project are the initiators of the spatial-infrastructure project (who expect that the effect will occur as a result of the spatial-infrastructure project) and the employees of the assessment of Dutch national economic and environmental assessment bureaus (who expect that the effect will not occur as a result of the spatial-infrastructure project)

Figure 3: main category 'problems with estimation of physical effects' divided into sub-groups

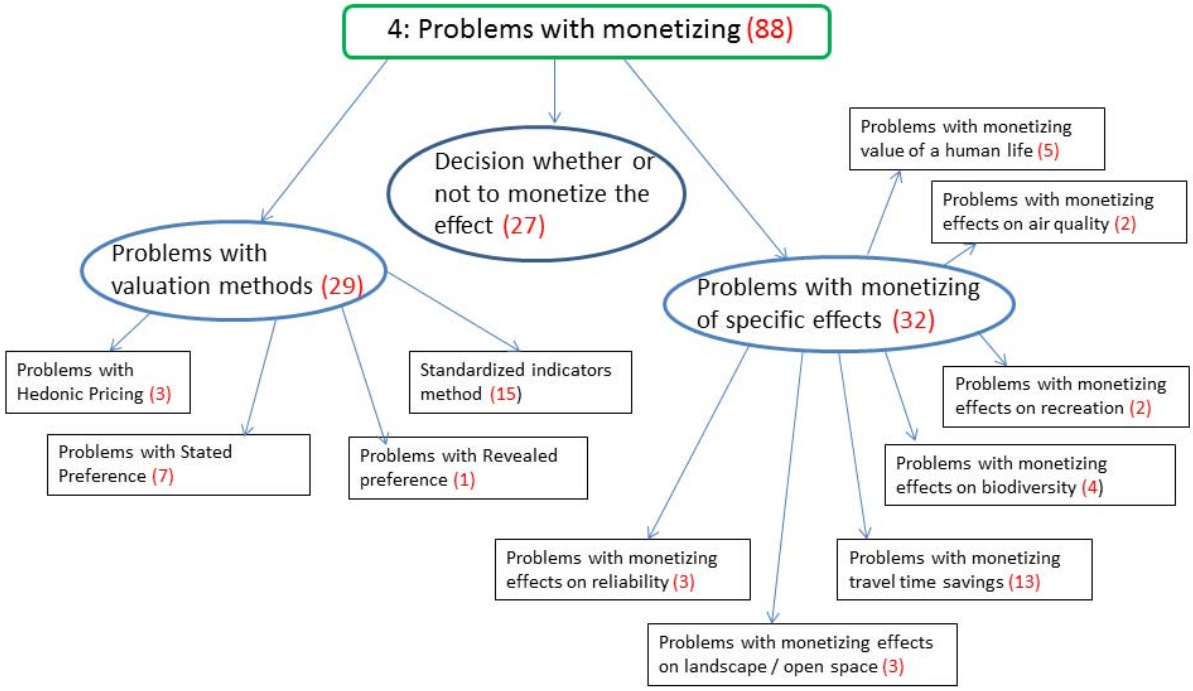


The sub-category 'experienced problems with direct effects' can be divided into two groups of problems. 'Problems with estimating transport effects' and 'Problems with estimating costs'. That the estimation of costs is experienced by such few respondents as a problem is interesting, because literature proves that costs of infrastructure projects are systematically underestimated (Flyvbjerg, Holm and Buhl, 2003).

4.4 Problems with monetizing

The category 'Problems with monetizing effects / impacts' is the second most mentioned problem category. As is depicted in Figure 4 the category can be divided into three sub-categories: 'Problems regarding the decision whether or not to monetize the effect', 'Problems with valuation methods', and 'Problems with monetizing of specific effects'. When a respondent mentions that in his opinion in present CBAs effects are monetized that should not be monetized, or effects are not monetized that should be monetized, the perception of the respondent is assigned to the category 'Problems regarding the decision whether or not to monetize the effect'. When the person that constructs the CBA decides to transfer the physical effect into monetary terms, a valuation method must be selected. As is depicted in Figure 4, respondents mention problems with the different valuation methods. In Figure 4 the category 'Problems with monetizing of specific effects' is divided into seven groups. Specific problems with monetizing travel time savings is the largest sub group.

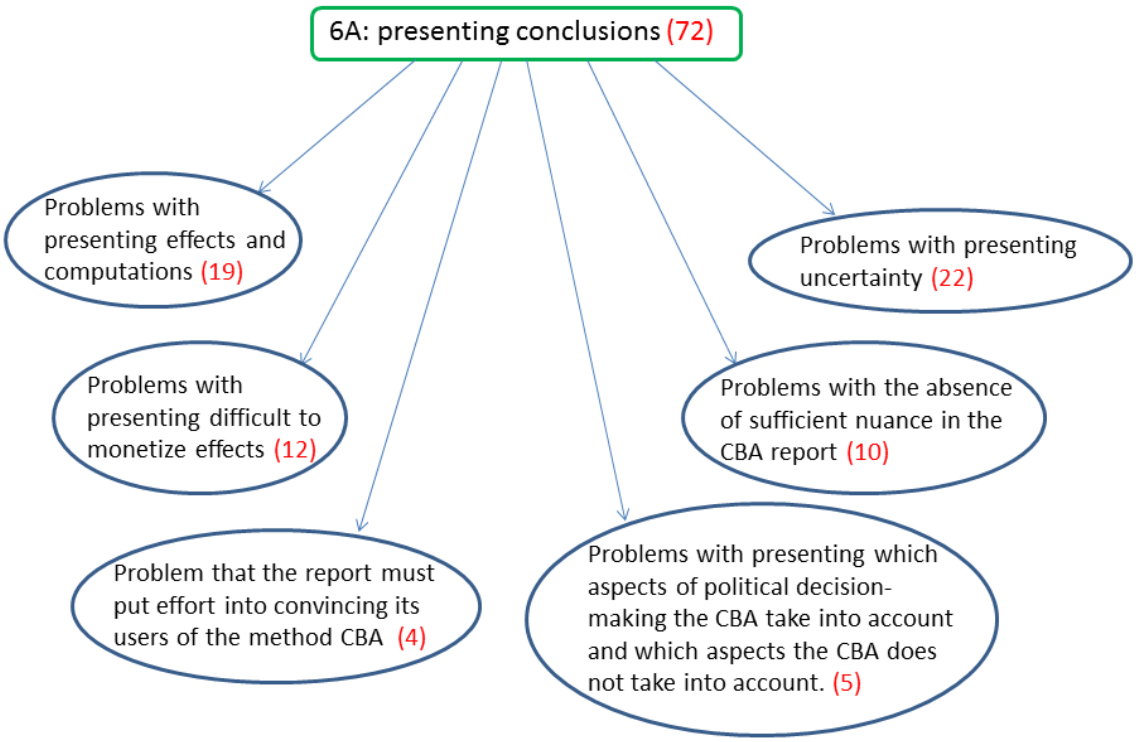
Figure 4: main category 'Problems with monetizing' divided into sub-groups



4.5 Problems with presenting conclusions

The category 'Problems with presenting conclusions' is the third most mentioned category. As is shown in Figure 5 this main category can be divided into 6 sub-categories. The sub-category that is mentioned most frequently is the sub-category 'Problems with presenting uncertainty'. When respondents mention that in their opinion uncertainty is presented insufficiently or in an incorrect way, this remark is assigned to this category.

Figure 5: main category 'Problems with presenting conclusions' divided into sub-groups



5. Conclusions

The first conclusion is that after more than 10 years of Dutch experience with a standardized CBA approach the majority of people involved in the CBA practice by far still think that advantages of using CBA in decision making process are larger compared to the disadvantages. However, at the same time the 10 years of experience has not resulted in a smooth and undisputable practice. A bit to our own surprise Dutch respondents experience 86 different categories of problems related to every aspect of the CBA. It can be concluded that the majority of substantive problems (269 (46%) of 682) with CBA that were mentioned during the interviews are problems related to estimates of primary physical effect. We did not expect this to be the largest problem category beforehand. The reason is that this problem category could be regarded as a non-specific CBA problem, because other 'ex ante' impact evaluation studies (e.g., multi criteria analysis, environmental impact assessment) face this problem. In our view it is important that this finding is taken into account in debates about improving the practice of CBA. In these debates much attention goes to 'real' CBA issues such as monetization and discounting but it seems that there is also much to gain from 'simply' improving methods (and models) to assess the effects of new infrastructure and/or spatial projects in their own non-monetized units. Moreover, the relation between 'the number of respondents that mention a problem that can be assigned to a main category of problems' and 'the groups of respondents (Consultant / Scientist / Policymaker)' is tested on a confidence level of 5%. This relation was significant for the category 'Problems with welfare economics as fundamental theory of 'ex ante'

evaluation instrument'. Relatively few consultants and relatively many policymakers mention that they experience problems with welfare economics as fundamental theory of an 'ex ante' evaluation instrument. This relation is also significant for the category 'Problems with presenting conclusions'. The number of consultants that experience problems with presenting conclusions is relatively low compared to policymakers and scientists. Thus, the group who is responsible for a good presentation of the conclusions seems to be not (enough) aware of the presentation problems as experienced by the actors that use the CBA report (policymakers) and the actors that reflect on the CBA (scientists).

6. Literature

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