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Ranking the substantive problems in the Dutch Cost–Benefit Analysis practice

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ABSTRACT

This paper investigates the perceptions of key participants in the Dutch Cost–Benefit Analysis (CBA) practice regarding substantive problems when appraising spatial-infrastructure projects with CBA. Two research methods were applied. Firstly, 86 key participants in the Dutch CBA practice were interviewed in-depth in order to obtain an overview and a ranking of perceived substantive problems with CBA in the Netherlands. Secondly, the people interviewed were also asked to fill in a written questionnaire in which they were asked to rank the substantive problems once again, in order to improve the validity of the ranking; 74 of the participants completed this questionnaire. The most important conclusions of this paper are, firstly, that key participants in the Dutch CBA practice consider 'problems with the estimation of the non-monetized project effects' as the most important substantive problem cluster and 'problems with monetizing project effects' as the second most important substantive problem cluster. Secondly, key participants in the Dutch CBA practice consider the 'problem analysis' in a CBA to be a very important substantive problem. Thirdly, there is, in a broad sense, consensus among the different groups in the Dutch CBA practice concerning their perception of the seriousness of problem clusters and the way they rank the problem clusters. Fourthly, a large part of the substantive problems mentioned by the key participants in the Dutch CBA practice are non-specific CBA problems.

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1. Introduction

In most western countries (Social) Cost–Benefit Analysis (CBA) is a widely used ex-ante evaluation tool used to support the decision making process in transport (e.g. Grant-Muller et al., 2001; Hayashi and Morisugi, 2000; Odgaard et al., 2005; Vickerman, 2007). Nevertheless, many process and content related problems with the use of CBA in the decision making process can still be found in scientific literature (see Section 2). To the best of the authors' knowledge, a systematic empirical analysis concerning the perceptions of different participants in a CBA practice on content related problems has not been carried out. A study of participants' perceptions can clarify whether substantive problems discussed in the scientific literature are actually experienced in practice.

In this paper we investigate the perceptions of 86 key participants in the Dutch CBA practice concerning substantive problems that arise when appraising spatial-infrastructure projects using CBA. We define the way welfare effects are estimated and the way the estimations are presented in the CBA reports as substantive problems. We attempt to identify which substantive problems key participants experience and what the relative order of importance of substantive problems is according to 86 key participants. Moreover, we aim to identify the extent to which perceived substantive problems are specific CBA

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problems or just problems related to any ex-ante policy evaluation tool. Finally, we aim to analyze to which extent different groups in the Dutch CBA practice (e.g. consultants, scientists, policy makers) perceive substantive problems differently. Our empirical results can be used as inspiration for CBA research agendas. When researchers take into account the perceptions of key practitioners by the determination of a CBA research agenda, this might enhance the acceptance of the use of the instrument in the decision making process.

The remainder of this contribution is organized as follows. Section 2 positions this paper in CBA-related transport literature. Section 3 discusses the research methodology. Section 4 presents the quantitative results regarding the ranking of substantive problems in the Dutch CBA practice. Section 5 discusses the perceived substantive problems in more detail. Section 6 analyzes the extent to which different groups in the Dutch CBA practice perceive the substantive problems differently. Finally, Section 7 concludes and discusses the results.

2. Transport CBAs: an overview of literature

This section describes seven categories of transport-related CBA literature that we identified in some of the main transport-related journals (Section 2.1). In Section 2.2 we use this literature for clustering the empirical results with regard to the perceptions of key participants in the Dutch CBA practice on substantive problems (see Section 3.3) and discuss the literature on (solutions for) substantive problems in more detail.

2.1. Seven categories of transport-related CBA literature

CBA is a popular research topic in transport literature. In general seven types of CBA literature can be identified. First, some contributions present a CBA of an (innovative) transport project (e.g. Cardell and Dunbar, 1980; Nguyen-Hoang and Yeung, 2010; Rotaris et al., 2010; Saelensminde, 2004). A second category of transport-related CBA literature studies the impact of CBA results on decision making (e.g. Eliasson and Lundberg, 2012; Odeck, 1996; Sager and Ravlum, 2005). Third, some contributions reflect on the merits of CBA compared to other ex-ante evaluation methods (e.g. Sayers et al., 2003; Tsamboulas, 2007; Tudela et al., 2006). A fourth category of transport-related CBA literature compares different CBA practices (e.g. Bristow and Nellthorp, 2000; Hayashi and Morisugi, 2000; Odgaard et al., 2005) or describes a CBA practice (e.g. Lee, 2000; Quinet, 2000; Rothengatter, 2000). A fifth group of transport-related CBA literature reflects on the CBA process itself (Beukers et al., 2012; Damart and Roy, 2009; Gao et al., 2011). Sixth, some contributions discuss general theoretical problems of the CBA method (e.g. Ackerman and Heinzerling, 2002; Hansson, 2007; Hyard, 2012; Naess, 2006; Sen, 2000; van Wee, 2012). Seventh, and finally, there is a wealth of literature on (solutions for) substantive problems.

2.2. Literature on (solutions for) substantive problems

Below, we discuss this seventh category of transport-related CBA literature in more detail. We selected transport-related CBA literature from the period 1995–2012 appearing in some of the main transport-related journals. In addition, contributions published before 1995 that were cited frequently are taken into account in our selection. It is beyond the scope of this paper to provide an exhaustive study of the transport-related CBA literature on (solutions for) substantive problems. Table 1 shows a brief overview of CBA related literature on (solutions for) substantive problems. Table 1 does not present the frequency of the studies that cover a category of substantive problems because the only aim of this overview is to identify which categories of substantive problems are studied in the literature and not which category of substantive problems is studied most frequently.

Table 1 shows that most contributions study (solutions for) a specific substantive problem. A few studies (e.g. Annema et al., 2007; Damart and Roy, 2009; Grant-Muller et al., 2001; van Wee, 2006) describe (solutions for) multiple substantive problems. Most studies base the analysis of (solutions for) substantive problems on analytical thinking or the authors' own experience in a CBA practice. We did not find a study with the same aim as this paper: empirically investigating perceptions of key participants in a CBA practice concerning substantive CBA problems.

3. Research methodology

This paper presents the perceptions of key participants in the Dutch CBA practice with regard to substantive problems. We have chosen the Netherlands for two reasons. First, the Dutch CBA practice is state-of-the-art and can be regarded as representative for many countries that use CBA as an ex-ante evaluation tool in the decision making process for infrastructure projects. Second, it is argued by Odgaard et al. (2005) that, within the European Union, the Dutch CBA practice is – together with the Danish CBA practice – the CBA practice that takes the highest variety of effects into account when constructing a CBA for infrastructure projects.

Two research methods are combined to study the perceptions. Firstly, 86 key participants in the Dutch CBA practice were interviewed in-depth in order to obtain an overview and a ranking of perceived substantive CBA problems in the Netherlands. Secondly, we sent a questionnaire to these 86 key participants, in which they were asked to rank the substantive

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