



Current use of impact models for agri-environment schemes and potential for improvements of policy design and assessment

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ABSTRACT

Agri-Environment Schemes (AES) to maintain or promote environmentally-friendly farming practices were implemented on about 25% of all agricultural land in the EU by 2002. This article analyses and discusses the actual and potential use of impact models in supporting the design, implementation and evaluation of AES. Impact models identify and establish the causal relationships between policy objectives and policy outcomes. We review and discuss the role of impact models at different stages in the AES policy process, and present results from a survey of impact models underlying 60 agri-environmental schemes in seven EU member states. We distinguished among three categories of impact models (quantitative, qualitative or common sense), depending on the degree of evidence in the formal scheme description, additional documents, or key person interviews. The categories of impact models used mainly depended on whether scheme objectives were related to natural resources, biodiversity or landscape. A higher proportion of schemes dealing with natural resources (primarily water) were based on quantitative impact models, compared to those concerned with biodiversity or landscape. Schemes explicitly targeted either on particular parts of individual farms or specific areas tended to be based more on quantitative impact models compared to whole-farm schemes and broad, horizontal schemes. We conclude that increased and better use of impact models has significant potential to improve efficiency and effectiveness of AES.

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1. Introduction

Policy interventions are founded on assumptions about how an intervention affects human behaviour (attitudes, decisions and actions). The description and documentation of relationships between the objectives of a policy and its instruments on the one hand, and the effects on human behaviour and consequently on an issue e.g. environmental, social on the other, is termed an 'impact model' in this paper. The validity of an impact model is crucial for the successful design, implementation, evaluation and iterative development of a policy process (Rossi and Freeman, 1993). This is especially true for policies dealing with complex relationships, such as agri-environment schemes (AESs) promoting environmentally-friendly farming.

The introduction of AES in the 1980s resulted in several measures for initiating or maintaining environmentally-friendly farming in EU member states. The number of participating farmers and land covered by AES measures has increased, especially since 1992 when it became mandatory for member states to implement them (Baldock and Lowe, 1996; Buller et al., 2000; EEA, 2006). As part of the 1999 reform of the Common Agricultural Policy (CAP), AES became an integrated part of the Rural Development Programmes (RDP) and by 2002 about 25% of all agricultural land in EU was under AES agreements (EEA, 2005a,b). Agri-environment schemes have been questioned on the grounds of possible violation of the 'polluter-pays' principle and/or because of their unclear or imprecise environmental objectives (Bartolini et al., 2005; Finn et al., 2007; Hodge, 2001; Primdahl et al., 2003). In addition, some studies show that AES evaluations often fail to document whether environmental objectives were delivered (Kleijn and Sutherland, 2003; Kleijn et al., 2001, 2006). Other criticisms include charges of insufficient value-for-money from AESs and failure to stimulate entrepreneurship (Hodge, 2001).

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Agri-environment schemes are designed to address protection, maintenance, and enhancement of natural resources (water and soil), biodiversity (species and habitats) as well as landscape values. As mentioned above AESs have developed within the context of the CAP regulations and for this reason (in combination with more principal reasons concerning difficulties with ‘paying’ directly for a clean and diverse environment) payments are not linked directly to environmental outcomes. Instead the agreement holder is compensated for income forgone and/or increased costs incurred (including non-productive investment and transaction costs) due to agri-environmental obligations, provided these go beyond good agricultural practice (GAP) (Court of Auditors, 2000; European Commission, 2003, 2005; Grossman, 2003).

This article discusses the utility and the actual use of impact models in AES policy design, implementation and evaluation. Based on a literature review, we discuss the concept of an impact model, describe the role of impact models in different stages of the AES policy process and present results from a survey of impact models from 60 agri-environment schemes in seven EU member states: Denmark, Finland, Germany, Greece, Hungary, Ireland and the UK.

1.1. The concept of impact model

The term ‘impact model’ has been introduced by Rossi and Freeman (1993). Impact models identify the causal relationships between policy objectives and policy outcomes, and provide a framework to include better opportunities for evaluation and scheme improvements. Other approaches to policy evaluation include causality, though the term ‘impact model’ is not used (Leeuw, 2003; Weiss, 1997). Due to the diversity and variety of AES (reflecting environmental, agronomic and administrative variations within the member states and regions) it is a complex task to identify causal relationships and to predict their environmental outcomes. The conceptual contribution of impact models is to assist in establishing such relationships between measures and outcomes in AES and help clarify how this type of policy is functioning. According to Rossi and Freeman (1993, p. 120): “An impact model takes the form of a statement about the expected relationships between a programme and its goal, setting forth the strategy for closing the gap between the objectives set during the planning process and existing behaviour or condition.” In an AES context, an impact model deals with the relationships between agri-environmental problems/issues, AES objectives, AES obligations, farmers’ land use and management practices, and the environmental outcomes of these practices (see also Carey et al., 2002, 2003). A general impact model with links to *ex ante* policy assessment and *ex post* policy evaluation is shown in Fig. 1.

1.2. The AES policy elements and impact models

Prior to the formulation of policy objectives, clarity about critical agri-environmental problems and visions is needed. Such agri-environmental ‘issues’ may be regarded by the general public in various ways and be put on the political agenda from different perspectives (Buller et al., 2000; Huylenbroeck and Whitby, 1999; Lowe et al., 1997; Park et al., 2004).

The AES objectives (used for the forthcoming analysis) are the objectives of individual measures as stated in the policy documents approved by the EU Commission. Objectives vary considerably within and among the different national/regional AES (Andersen et al., 1999; European Parliament, 1998; Huylenbroeck and Whitby, 1999). Objectives do not necessarily affect farmers’ behaviour; ‘agreement obligations’ play that role. The obligations prescribe what farmers must do or refrain from doing as part of the agreement, and how the actions exceed the requirements of regulatory measures. The link between the objectives and the obligations is a central part of the impact model. However, in a number of AESs, agreements are strongly customised as the farmers may select among a list of obligations. If there are substantial variations in the composition of obligations among the agreements within the same AES, this must be taken into account when the impact model is outlined. In addition, agreements with identical obligations may have different effects on the practices of different farmers (Primdahl et al., 2003). Thus the very same AES that is targeted (for instance) at a grassland type may cause one farmer to stop spraying, another (who may have never sprayed) to stop applying fertilizer and another farmer to reintroduce extensive grazing.

Several targeting approaches are implemented in AESs (Andersen and Primdahl, 1999; Buller et al., 2000; European Commission, 1998; Huylenbroeck and Whitby, 1999). Schemes may be applied horizontally to all agricultural land within a member state or a region, or may be limited to designated areas. Two common approaches are often identified: ‘wide and shallow’ and ‘deep and narrow’ (European Commission, 1998). Targeting may further be achieved by part-farm as opposed to whole-farm approaches. The different approaches have their specific advantages and drawbacks and the 1998 AES Evaluation report concluded that no single targeting approach can be generally recommended, although an integrated local area approach (‘landscape approach’) may be preferable in the future (European Commission, 1998). The hypothesis that impact models underlying more specific and targeted AESs are more developed in detail (and therefore more likely to deliver the intended outcomes) than those underlying less targeted schemes (Horst, 2007; Haaren and Bathke, 2008), is tested in the empirical analyses presented in Section 3.

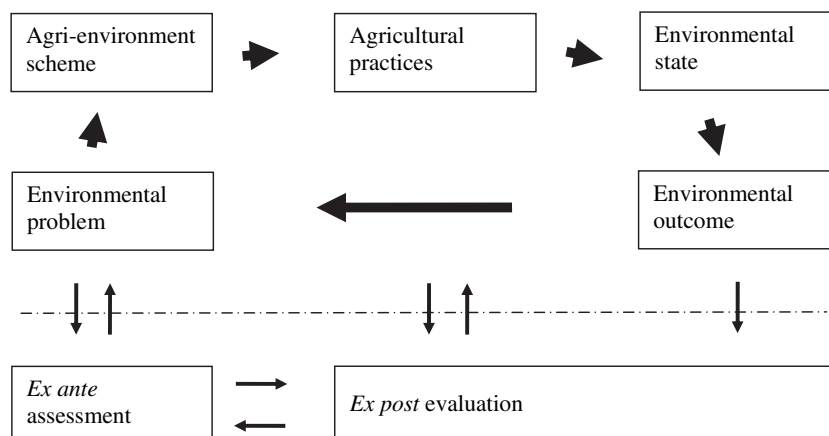


Fig. 1. Impact model relating the implementation and effects of agri-environment schemes, and design, implementation and evaluation processes.

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