



What drives farmers' participation in EU agri-environmental schemes?: Results from a qualitative meta-analysis



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ABSTRACT

A better understanding of why EU farmers choose to join agri-environmental schemes (AESs) is vital to help policy makers design programmes that would be more attractive to participants. This paper identifies the key factors influencing farmers' participation in AESs through a qualitative meta-analysis of papers published in peer-reviewed journals between 2000 and 2013. A range of empirical studies that explored factors influencing farmers' willingness to participate in such schemes were selected and systematically analysed. The meta-analysis reveals several key drivers for participation in AESs including fair payments, lower household dependency on agricultural incomes, age and education levels, the presence of a successor and the ability to make progressive rather than step changes to agricultural activities. Of particular importance is the finding that the design of agri-environmental policy is not the only relevant factor influencing uptake but other policies which impact on the farm household and the rural community can also encourage or discourage participation in an AES.

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1. Introduction

Over the last 40 years, the development of agri-environmental policy in the European Union (EU) has been 'tightly bound' to the development and reform of the Common Agricultural Policy (CAP) (Gorton et al., 2009). In the 1980s, agri-environment schemes (AESs) were a separate policy domain operating alongside CAP measures, and their implementation was optional for Member States (Ducos et al., 2009). Their role was strengthened in the 1990s when they were made compulsory as an "accompanying measure", following MacSharry's CAP reform, and significantly reinforced (as a policy in itself) under the Agenda 2000 reforms, when provisions for AESs were introduced into EU rural development policy (Axis 2 of CAP Pillar 2) (European Commission, 2005; Ducos et al., 2009; European Court of Auditors, 2011).

Typically, AESs are implemented through a contract made between a public body in the Member States and a beneficiary (farmer or land manager) for a given period, usually 5–10 years (European Court of Auditors, 2011). The resulting agreements

require farmers to modify their farming practices in exchange for a per-hectare payment (Espinosa-Goded et al., 2010). Farmers commit to implement one or more of the following farming practices on their land: organic farming; integrated production; other extensification of farming systems (input reduction and extensification of livestock farming); crop rotation, maintenance of set-aside areas; action to prevent or reduce soil erosion; genetic resources preservation; biodiversity conservation and enhancement actions; upkeep of the landscape, conservation of historical features on agricultural land and public access; and, water-related actions such as buffer strips, field margins, wetland management and reduction strategies (European Commission, 2005; European Court of Auditors, 2011).

The level of payment made to the farmer depends on the activities undertaken and the agricultural capacity of the land and is calculated by taking into account income forgone and the additional costs associated with the requirements of the scheme (Espinosa-Goded et al., 2010). Over the period 2007–2013, EU Member States were allocated over €22 billion to cover AES payments (European Court of Auditors, 2011). These high levels of public expenditure have motivated a large number of studies that seek to evaluate and improve the performance of AESs (Espinosa-Goded et al., 2010). However, to the best of authors' knowledge no systematic review has been conducted to better understand why EU farmers are participating in these schemes.

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Against this background, the objective of this paper is to identify the key factors that influence EU farmers' willingness to participate in an AES by conducting a systematic qualitative meta-analysis of empirical studies carried out between 2000 and 2013. By doing so, the paper aims to contribute to a better understanding of why farmers choose to join agri-environment schemes which in turn should help policy makers to design and implement programmes/schemes that would be more attractive to potential participants. Moreover, such programmes may deliver positive externalities beyond the benefits to farmers and the environment per se. The paper is structured as follows: Section 2 presents a literature review of farmers' behaviour related to the voluntary aspects of AESs. Section 3 describes the methodology and Section 4 discusses findings based on the meta-analysis, with some conclusions reported in the final section.

2. The importance of the voluntary nature of AESs on farmers' participation

According to Council Regulation (EC) No. 1698/2005, the purpose of AES payments is to "further encourage farmers and other land managers to serve society as a whole by introducing or continuing to apply agricultural production methods compatible with the protection and improvement of the environment, the landscape and its features, natural resources, the soil and genetic diversity" (European Court of Auditors, 2011). Therefore farmers and landowners have been identified as the agents who will deliver these particular CAP goals and it is expected that they will modify their behaviour to achieve the desired environmental changes (Falconer, 2000).

A basic principle of AESs is that participation is voluntary (European Commission, 2005; European Court of Auditors, 2011). Thus, farmers' willingness to participate in an AES is central to achieving policy objectives (Wilson, 1996; Espinosa-Goded et al., 2010). Clearly, adequate participation is a key indicator of success, and the closer AESs get to achieving their target levels of participation, the greater the probability that they will accomplish their aims (Wilson and Hart, 2000). In addition, the voluntary nature of the schemes tends to encourage farmers to adopt a cooperative and positive attitude towards the environment (European Commission, 2005). Current evidence, however, seems to suggest that the voluntary nature of AESs may not necessarily be effective in inducing permanent changes to farmers' attitudes and behaviour with respect to sustainable environmental management (Burton et al., 2008; Burton and Paragahawewa, 2011).

Farmers who voluntarily participate in AESs are compensated for adopting farming practices designed to achieve environmental benefits. Such practices tend to be more restrictive than those required to qualify for support payments under Pillar 1 of the CAP (e.g. direct payments and cross-compliance) (Ducos et al., 2009). In addition, payment levels have to be set so that they are sufficiently attractive to farmers when compared to the actions required to comply with the scheme and their associated costs, any income forgone, and related administrative costs while at the same time avoiding over-compensation (European Commission, 2005; European Court of Auditors, 2011).

Research into why farmers choose to participate in AESs should be a key tool for agri-environmental policy development (Wilson and Hart, 2000; Falconer, 2000; Guillem and Barnes, 2013). Early work on factors influencing farmers to adopt AESs, focused on socio-economic and structural characteristics, while some more recent work on farmers' behaviour has been based on principles of social psychology and notions of social capital (Beedell and Rehman, 2000; Falconer, 2000; Defrancesco et al., 2008). It has been argued that conservation management cannot be ensured by adequate payment levels alone, and that for agri-environmental

policies to be successful, participants must achieve some level of cultural understanding around the need for management (Wynne-Jones, 2013). This recognises that farmers, like most people, may not simply prioritise financial gain above all other factors but may gain equal or greater utility from other actions that may benefit the environment or society (Wynne-Jones, 2013). Emery and Franks (2012) suggest that taking better account of farmers' preferences should be the main approach to enhancing cultural sustainability and maintaining the long-term trust of farmers enrolled in schemes, a view that is endorsed by Whittingham (2011).

The main factors identified in the literature as influencing farmers' willingness to participate in an AES can be classified into the following categories: financial incentives (Wilson and Hart, 2000; Ruto and Garrod, 2009); the fit between scheme prescriptions and farming systems (Wynn et al., 2001; Sattler and Nagel, 2010; Wilson and Hart, 2000); farmers' characteristics, attitudes, and preferences (Wilson, 1996; Wynn et al., 2001; Sattler and Nagel, 2010; Wilson and Hart, 2000); the underlying financial, geographic and regulatory context (Sattler and Nagel, 2010); and farm characteristics (Wilson and Hart, 2000; Wynn et al., 2001).

3. Methodology

This study is based on a systematic review of the literature on factors that affect EU farmers' willingness to participate in AESs, which then forms the basis of a qualitative meta-analysis. More specifically, the analysis concentrates on those studies using binary logit or probit models to investigate the factors underlying farmers' willingness to participate in such schemes. The criteria for determining the inclusion of a study in the meta-analysis are: (1) studies that analysed agri-environmental measures; (2) studies that were geographically restricted to the Europe Union; (3) studies of factors affecting farmers' willingness to participate in an AES based on the empirical analysis of primary data; and (4) studies that developed a logit or probit model of the decision to participate in such a scheme.

Qualitative meta-analysis was selected as the approach for this study as it permits a more comprehensive understanding of the findings from a diverse set of studies, allowing them to be synthesised into one explanatory interpretative end product, not only aggregating the findings but also interpreting them (Paterson et al., 2001). This technique is useful for assessing the causality in findings across the studies included in the review (Onwuegbuzie et al., 2012). Based on this premise, a group of empirical studies that explored factors influencing farmers' willingness to participate in AES were systematically selected and analysed. Similarities and differences across the studies were reviewed and compared to allow connections to be made across selected key research themes. The resulting analysis identified several key drivers for farmers' participation in AESs.

Here the qualitative meta-analysis is underpinned by a focus on studies that use a common analytical approach to investigating farmers' participation in AESs. Logit and probit models are commonly used in qualitative data analysis for estimating the probability that an event occurs or not by predicting a binary dependent outcome from a set of independent variables. The use of these binary dependent variable models is a common characteristic of the empirical studies reviewed here and in this research the relevant dependent variable is whether or not a farmer decides to participate in an AES.

The overall analysis consists of five major steps: (1) a literature search on AESs across the EU; (2) the identification of empirical studies where preferences and attitudes towards AESs are examined; (3) the selection of studies that use a logit or probit model to explore farmers' willingness to participate in an AES; (4) the identification of factors influencing farmers' willingness to

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