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The provision of public goods by agriculture: Critical questions for effective and efficient policy making

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ABSTRACT

Agriculture produces both marketable and public goods. However, the provision of public goods seems to fluctuate in time and location and is not always adjusted to what is needed by society. This divergence indicates possible market failures that policy interventions might be able to correct. Effective and efficient policy interventions require a detailed knowledge of the supply and demand of public goods together with the effects and costs of the various policy options. This paper aims to formulate the most important questions concerning supply and demand for public goods and provides directions for answering them. The paper concludes that answering these questions is an important ingredient for achieving more efficient and effective policies to provide the desired level of public goods. However, knowledge limitations, inherent uncertainties and political influence are all reasons why policies will never be able to perfectly match supply and demand of public goods. Still, by taking a pragmatic approach, more policy-relevant information can be generated that would enable a better informed discussion.

1. Introduction

The idea that farmers can simultaneously produce both marketable goods and public goods is broadly acknowledged in science (Abler, 2004; Latacz-Lohmann and Van Der Hamsvoort, 1997; Vatn, 2002) and the policy domain (European Commission, 1997; IAASTD, 2008; OECD, 2001). Examples of these public goods are agricultural landscapes, farmland biodiversity, domestic food security and drinking water (Abler, 2004; Cooper et al., 2010). In many cases, farmers inherently produce these public goods while farming. However, production levels of certain public goods may differ widely between farms and regions, and the actual provision of public goods by agriculture in certain regions might be lower than the level desired by society; the latter of which is considered a market failure (Brunstad et al., 1995; OECD, 2001). There may also be cases where current delivery of public goods is at a satisfactory level, but with clear risks of the future provision being lower (Piorr et al., 2009; Verburg et al., 2006). If present markets fail to provide the desired level of public goods or are expected to fail in the near future, various policy interventions (e.g. awareness raising, regulation or payments) may ensure a better provision (Engel et al., 2008; Latacz-Lohmann and Van Der Hamsvoort, 1997; OECD, 2003). Raising awareness amongst farmers would be an option when improved provision would not be very costly for farmers. Also, citizens could be involved; for example, for the maintenance of hedgerows. If delivery costs are relatively high, regulation or (targeted) payments may be more effective options. In case of public goods, regulation is considered as less justifiable by both farmers and policy-makers, as this would handicap farmers with ample opportunities to produce these public goods. Because the delivery of public goods is seen as a positive contribution to general welfare, payments are often promoted as the most effective and fair policy instrument. Especially the OECD argues that

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policy measures should be targeted to the delivery of public good (the non-commodity output) and should be decoupled from the level of commodity production (OECD, 2001).

In the EU, especially, there is on-going debate on how agriculture could produce more public goods. There is pressure from interest groups, as some policy goals are not being met (BirdLife International et al., 2009). An example is the continued loss of biodiversity in Europe's agricultural landscapes, in spite of policy objectives to halt this loss (European Commission, 2006; EEA, 2009; Robinson and Sutherland, 2002). The proposals for the Common Agricultural Policy 2014–2020 now state the policy objective 'to guarantee sustainable production practices and secure the enhanced provision of environmental public goods' (European Commission, 2011a).

The term (environmental) public goods is widely used to describe a number of non-commodity outputs of agriculture that are valued by society. As these goods, such as farmland biodiversity, traditional landscapes and clean water, are non-rival and non-exclusive, they are considered to be *public* goods (OECD, 2001). Partly overlapping concepts are (positive) externalities and ecosystem goods and services. A positive externality is defined by Anderson (2000) as 'a non-marketed net benefit that farmers bestow on the rest of society'. This concept seems to be wider than the term 'public good', as not all net benefits are appreciated by society. Ecosystem services are 'the benefits people obtain from ecosystems' (MA, 2005). These are divided into provisioning services such as food, regulating services such as water regulation, supporting services such as soil formation, and cultural services such as recreational and other non-material benefits. Public goods roughly can be seen as a combination of regulating and cultural services. Some of the ecosystem services are exclusive and, for example, related to land ownership. Furthermore, the term 'environmental public goods' is mainly used in relation to agricultural activities, whereas ecosystem services refer to more types of land use.

The theoretical background of the provision of public goods by agriculture and how this provision could be stimulated by policy measures is widely described in policy reports (OECD, 2001, 2003) and scientific literature (Abler, 2004; Brunstad et al., 1995; Engel et al., 2008; Hall et al., 2004; Harvey, 2003; Latacz-Lohmann and Van Der Hamsvoort, 1997; Potter and Tilzey, 2007). An example of current EU measures is that of the payments for public goods through agri-environmental schemes, as included in Pillar 2 of the CAP. But also the Pillar 1 payments for Less Favoured Areas (LFAs) can partly be seen as indirect payment for public goods, as they sometimes stimulate farming practices which are valued by the general public, such as extensive livestock production systems. Within the EU, some Member States as well as interest groups want to further stimulate the provision of public goods (Birdlife International, 2007; HM Treasury, 2005; LNV, 2008).

Currently, EU-wide consistent information is lacking on the present and projected future delivery of public goods, as well as on the public demand for public goods and the costs of improved delivery of public goods.

The objective of this paper is to support the discussion on whether and which policy interventions are needed to guarantee a sustained or higher level of provision of public goods by farmers and other land managers in rural areas. The central purpose of the paper is to put forward a number of policy-relevant questions about both the actual and the desired level of public goods and, in the case of under-provision, about how policies could bridge the gap between the two. It also provides a number of related considerations relevant for answering these questions. This approach of emphasising the most critical questions might fuel both the scientific and the policy debate on the possible role and design of policies in the provision of public goods in rural areas. In our view, there are five critical questions, which this paper elaborates on. The first two questions concern the present and projected future supply of public goods. The third question is related to the demand for public goods, followed by the question about whether demand matches supply. The fifth question looks at possible policy instruments in case of undersupply. The questions raised in this paper are:

1. Which public goods are currently provided by agriculture, and what is the dimension of the provision of the various public goods?
2. What would be the futural provision of these public goods by agriculture, under current policy conditions, and taking potential changes in economic and technological conditions into account?
3. What are the present and future societal demands for public goods by agriculture?
4. In case of underprovision: What are the costs for stimulating the provision of public goods?
5. Which policy instruments would be best suited to stimulate the provision of public goods by agriculture?

2. Exploring the questions

Below, this paper addresses two main aspects related to each of the questions raised above: Why do we see this question as relevant for further policy development, and: How could these questions be answered in a scientifically sound, but also pragmatic manner?

2.1. *Which public goods are currently provided by agriculture?*

The rationale of this question is that decision makers should have a good picture of the present provision of public goods, in order to be able to take informed decisions. This insight into the present and projected future provision of public goods, in combination with the demand for public goods, gives information about their actual provision and possible under-provision. The information on the present provision should be quantified and made spatially explicit. The current situation around these public goods should be the starting point for the decision-making process.

2.1.1. *How to answer this question?*

To date, no precise, spatially explicit inventory has been made of the actual supply of the different public goods by agriculture in the EU-27. In our view, this is caused by three main reasons.