

Farm management indicators and farm typologies as a basis for assessments in a changing policy environment

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Received 30 October 2004; received in revised form 10 April 2006; accepted 27 April 2006

Abstract

This paper focuses on the assessment of farm management indicators and argues that typologies are a necessary tool for comprehensive environmental assessments. In the paper Andersen et al., [(2004a). Farming and the Environment in the European Community—using agricultural statistics to provide farm management indicators. Paper presented at OECD Expert meeting, March 2004, New Zealand. <[http://webdomino1.oecd.org/comnet/agr/farvind.nsf/viewHtml/index/\\$FILE/Anderson_et_al.PDF](http://webdomino1.oecd.org/comnet/agr/farvind.nsf/viewHtml/index/$FILE/Anderson_et_al.PDF)> (1st of February 2006).] presented at the OECD expert meeting on farm management indicators in New Zealand in March 2004, a set of farm management indicators was presented in the framework of a typology of grazing livestock farming systems in the EU-15 (includes all Member States of the European Union before 2004). The present paper presents new results on farm management indicators within the framework of an extended typology for all farming sectors. It presents an environmentally oriented extension to the EU typology of farms currently used for assessing the situation of farming within the European Union. The extended typology is tested in relation to emerging policy issues such as environmental sustainability and rural viability by analysing some of the farm management indicators suggested in Andersen et al., [(2004a). Farming and the Environment in the European Community—using agricultural statistics to provide farm management indicators. Paper presented at OECD Expert meeting, March 2004, New Zealand. <[http://webdomino1.oecd.org/comnet/agr/farvind.nsf/viewHtml/index/\\$FILE/Anderson_et_al.PDF](http://webdomino1.oecd.org/comnet/agr/farvind.nsf/viewHtml/index/$FILE/Anderson_et_al.PDF)> (1st of February 2006).]. Finally, recommendations in relation to the next generation EU farm typology are given.

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Keywords: Farm management indicators; Farm typologies; Environmental assessment; European Union

1. Introduction

Though farm management indicators always aim to be simple statements of a complex reality, the assessment of a wide range of indicators can actually be quite complicated. Farm typologies offer a tool for synthesising the assessment of the farm management indicators. The starting point of this paper is therefore that a farm typology approach is essential when assessing farm management indicators within an agricultural policy context. With a farm typology we refer to a stratification of farms that is homogeneous according to specific criteria relevant to

policy such as environmental performance and farm management practices. There are several arguments for creating such a typology, all stemming from the fact that the farm is the key level at which decisions are made in relation to the management of farmland and natural resources in cultural landscapes. A typology offers a tool to assess the farm management indicators as an integrated set rather than as single indicators, thus highlighting linkages between the different indicators. Furthermore, this also allows for a better understanding of the underlying drivers behind the farm management indicators. After all, it is often economic considerations triggered by agricultural policy changes that drive the changes in farm management practices which in turn may have important environmental implications. Farm type specific assessments

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can therefore give a first indication of what drives the changes in the values of the farm management indicators. Finally, a typology approach offers a tool for assessing and designing more differentiated farming policies taking into account the wide range of differences in farm management between different farm types (Andersen et al., 2004a).

Farm typologies are not a new concept. In the European Union the presentation and analyses of agricultural statistics have been linked to a common typology for several decades. However, the rationale behind this EU farm typology is exclusively economic. The main criterion for the division of the farms into different types is the relative distribution of the farm income coming from different production sources (field crops, dairy cattle, etc.). This reflects that the typology was decided upon in a period when the main goals of the agricultural policies were related to production and economy. However, today the objectives of the agricultural policies have been broadened more strongly towards environment, landscape and rural viability. This has recently been reinforced in the reform of the Common Agricultural Policy (Commission of the European Community, 2003). The support has been further decoupled from production, cross compliance with a range of EU policies and standards for good farming practices has been enforced and a larger share of the support will be targeted to rural development.

With these policy changes the EU farm typology needs to be re-assessed as an instrument for policy assessment and monitoring. In addition an environmentally based extension should be developed to allow the typology to serve as a tool for EU wide assessment of the new policy instruments. The extended typology should therefore aim to classify farms in groups that are more homogeneous in their environmental performance than the present EU farm typology. It should provide a first basis for evaluation of the pressures of farming on the environment, but also a good base for assessing the economic performance of farms in connection to their environmental performance.

In the first part of this paper we present the EU farm typology that is currently used to present and assess the situation in the agricultural sector in the European Union. This is followed by a suggestion for an extension of this typology. This implies that no new typology is introduced, but new stratifying variables are introduced to further specify the EU farm typology into classes that are more meaningful from an EU policy perspective. In the third part of the paper the extended typology is tested using data from the Farm Accountancy Data Network (FADN), the common EU farm level database on agricultural economics. The relevance of the extension is assessed to determine whether the further stratification results in groups of farms that are more homogeneous in terms of pressures on the environment and farm management indicators. Finally, the results are discussed targeting the use of the extension of the EU farm typology as a tool to interpret farm management indicators and to provide insight into the

environmental performance of farm types across the territory of the European Union.

2. Methodology

Firstly, the economically based EU farm typology currently used in FADN is presented. Secondly, an alternative approach based on an extension of the EU farm typology with environmental criteria is presented. Both the approaches are based on the FADN dataset. The most important advantage of using this dataset is that it includes information on the intensity of farming that cannot be found in other EU wide datasets. At a more general level, the fact that the dataset is based on a common framework across the Member States of the EU and updated yearly facilitates the use of it for continuous monitoring. On the other hand there are also disadvantages connected to using the FADN dataset as a common basis. Firstly, only professional farms are included, which in some areas leaves a large share of the agricultural area uncovered. Secondly, in relation to environmental assessments it can also be problematic that many of the variables are expressed in economic terms only, e.g. in Euro instead of kilograms. Finally, a general disadvantage of working with existing datasets is that the resulting typology always will be a trade off between what theoretically is the most optimal stratifying variable and which data is available.

The environmental relevance of both the EU farm typology and the suggested extension is tested using selected environmental pressure and farm management indicators. To do this the results are presented for two selected EU farm types, namely the cropping farms and the dairy cattle farms. The selected farm management indicators vary between the two types of farms, as different indicators are relevant. In relation to agri-environment the selected indicators are indicators in the narrow sense of the word: Variables that give a general picture of the farm management which may, positively or negatively, influence the environmental performance of a farm. The indicators thus describe the pressure from farming on the environment and not (necessarily) the resulting state of the environment. In spite of this these pressure indicators can be quite meaningful as in time it has become clear that intensification has had an overall negative impact on the state of the farmed environment in the European Union in terms of pollution of soil, water and air and damage done to certain eco-systems (e.g., Poiret, 1999; Pau Vall and Vidal, 1999). It is clear that also in the last decades increased food production in Europe has caused many negative impacts on the environment because of further intensification of land use (e.g., Wadsworth et al., 2003; Boatman et al., 1999; MAFF, 1998; Pretty, 1998; Campbell and Cooke, 1997). This went together with a loss of very large areas of permanent grassland, dry steppe grasslands and wetlands, landscape elements, field edges, hedges which were replaced by arable agriculture with a huge loss of biodiversity (Vickery et al., 2004; Asher et al., 2001; Donald et al., 2001, 2002;

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