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Analysis

The Environmental Behaviour of Farmers – Capturing the Diversity of Perspectives with a Q Methodological Approach☆

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ABSTRACT

The aim of this investigation is to understand more deeply farmers' attitudes and behaviour towards multifunctional agricultural ecosystems and sustainable production. By discovering and describing these viewpoints in relation to a wider societal discourse, we are adding to a holistic picture of what role influencing factors play in farmers' viewpoints towards natural resources. Consequently, we make use of a Q methodological approach which offers a way of identifying and describing the diversity of farmers' viewpoints. Based on data from 30 farmers in Lower Austria we identify the *Diversity-maintaining*, the *Context-depending*, the *Economic Aspects-emphasising* and the *Change-promoting* viewpoints. To our knowledge, especially the *Context-depending* viewpoint in particular is not yet described in the scientific literature and, therefore, they allow a novel approach to treating environmental problems. Based on these markedly different notions, there are reasonable grounds for questioning a blanket approach from agricultural policies which does not take into account the specific differences of farmers' mindsets. It can, instead, be argued that taking this diversity of mindsets into consideration when trying to alter behaviour can contribute to a more stable environmental performance, since specifics of various farmer-groups can be tackled with more accuracy.

1. Introduction

To create an enduring sustainable agricultural system – that is, one which takes into consideration economic, environmental, social and health aspects – is a pivotal aim for European agricultural policy (DG Agri, 2013; Webster, 1999). As a result, the crucial role of farmers in shaping and preserving multifunctional agro-ecosystems, as well as natural resources, has been highlighted by agricultural scientists over the past decades (Kapfer et al., 2015; Krebs et al., 1999; OECD, 2008; Tilman et al., 2001). Ilbery and Bowler (1998) link the emphasis upon the productivity paradigm to an increased pressure on natural resources, resulting in external cost which society has finally to bear. Therefore, there is still the need to foster the sustainable development of agriculture and particularly to reduce the external cost (Donald et al., 2001; FAO, 2002; Krebs et al., 1999; Richardson et al., 2004; Tilman et al., 2002; Tilman et al., 2001).

In order to reach these goals, besides other strategies, specific portfolios of institutional mechanisms in the agricultural sector have been designed to enhance environmentally benign production and to reduce environmental harm; these have been implemented in the member states of the European Union and other countries. Agri-environmental programmes (AEPs) are basically designed to alter the behaviour of farmers through economic incentives, either via amplifying behaviour which leads to positive externalities or by restricting behaviour which leads to negative externalities (Ahnström, 2009; Baylis et al., 2008; Blackstock et al., 2010; BMLFUW, 2014; McMichael et al., 2007; Potter, 1998; Schur, 1990; Wissman et al., 2013).

However, policy measures and instruments which are mainly built on the assumptions of neoclassical economics have been criticised lately, since the analysis of the validity, testability and predictive power of neoclassical economic theories has uncovered their shortcomings (Blackstock et al., 2010; Gintis, 2000; Gowdy, 2008; Howley et al., 2015; Keen, 2010). In fact, AEPs come under criticism because their possible positive effects on biodiversity or landscape, for instance, cannot be verified. However, they do have the potential to be beneficial, if designed and implemented in the right way (BMLFUW, 2010; Kleijn et al., 2001; Kleijn and Sutherland, 2003; Ponce et al., 2014; Probstl-Haider et al., 2016; Zechmeister et al., 2003).

With regard to environmentally benign production, the mindset of farmers is seen as highly relevant. Hence, a profound and holistic knowledge of farmers' attitudes and behaviour, especially towards sustainability and ecosystem service criteria, provides a solid basis for

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reaching sustainability goals (DEFRA, 2008; Gowdy, 2008; OECD, 2012). Striving for a holistic inquiry into the issue can be seen as a way of tackling that issue. This also means including the surroundings in which the actual behaviour takes place (Kollmuss and Agyeman, 2002). Hence, in order to understand the environmental viewpoints and resulting behaviour of farmers and to alter them or adjust the circumstances in which agricultural production is taking place, it is important to build on adequate and accurate behavioural models (Burton, 2004; Feola and Binder, 2010; Öhlmér et al., 1998). Limiting the explanation of any given behaviour to merely economic considerations (i.e. cost-benefit) may be too narrow; only if the role of other aims and especially external drivers is appropriately reflected can a thorough understanding be achieved (Brekke and Johansson-Stenman, 2008; Mattison and Norris, 2005).

The aim of this investigation is to understand more deeply farmers' attitudes and behaviour towards multifunctional agricultural ecosystems and a sustainable production of food, fibre and fuel. Discovering and describing these viewpoints in relation to a wider societal discourse, we are adding to a holistic picture of influencing factors on farmers' viewpoints towards natural resources.[1] Consequently, we make use of a Q methodological approach which offers a way of identifying and describing the diversity of farmers' viewpoints and comparing and contrasting them. The novelty of our approach is twofold. First and foremost, the initial research phase actively involves interest groups from such divergent areas as environmental NGOs and the Chamber of Agriculture. Thus, we have been able to widen the realm of statements far beyond the core farming population. In this way, farmers were not only confronted with their own viewpoints but were also required to relate their attitudes to a wider societal discourse. Moreover, the sampling of farmers is guided by criteria found to be significantly correlated with environment-friendly agriculture. (See the "Method" chapter for further details).

The structure of the article is as follows. The next section reviews the literature on farmer typologies connected to environmental attitudes and behaviour. The data, as well as the analysis, are presented in detail in Section 3. The subsequent "Results" section describes the four extracted groups of shared viewpoints among farmers, as well as their similarities and differences. We compare and contrast them with each other and reach conclusions based on this compilation of viewpoints. The advantages and shortcomings of Q methodology and our specific usage are debated in the "Discussion" section, where we also relate our results to previous studies in the field. The paper finishes with concluding remarks, which relate our work to recent agri-environmental policies at Austrian and European levels.

2. Farmer Typologies and Environmental Behaviour

Farmer typologies are promising when it comes to enhancing environmental performance, since they take into account variety and heterogeneity among farmers. Hence they offer a basis for describing, understanding and subsequently altering behaviour to make it more environmentally benign (DEFRA, 2008). There is a long history of, and lengthy experience in, agricultural policy and advisories on farm typologies (Landais, 1998) and in structuring farms based on such parameters as size, output and production focus. However, the classification of farmers and subsequently using these abstract models has not been given significant prominence so far. This is especially unfortunate since farmer typologies, although also criticised (Guillem et al., 2012), offer ways of tailoring specific programmes and other instruments of agricultural and rural policy (Emtage et al., 2006, 2007). Building on the seminal work of Van der Ploeg's (1994) concept of farming styles, a specific way of how farming should be done or "cultural repertoire" found within a region, numerous structuring and classification endeavours shed light on the different attitudes of farmers, decision-making concepts, values and behaviour. Classification studies share the common goal of overcoming the limitations of considering farmers as predominantly homogeneous mass of agents. Indeed, DEFRA (2008, p 13) points out that: "To be most effective, policy should be designed with a clear specification of target groups (not a one size fits all) and an understanding of value systems […]".

With regard to the studies on farmers' environmental behaviour, one noticeable aspect is that they either emphasise an agent or less often a systems explanatory approach. Burton (2004), for example, remarks that a large share of studies approach farmers' behaviour merely from an attitudinal vantage point, without considering social or cultural factors. According to the theoretical framework of Ajzen (1991), one predictor of behaviour might be the social norm, which is shaped by the social surroundings of a person. Howley et al. (2014) for instance, emphasise the importance of congruence between farmers' and the general public's environmental concerns.

The structuring of farmers, however, follows different rationales for which the classification is undertaken, although they might overlap or be used interchangeably. These concepts range from goals, values and motives to attitudes to behaviour. Barnes et al. (2011) as well as Morrison et al. (2012) base their classification on values and attitudes using cluster analysis to extract farmer types in Scotland and in Australia respectively. The former describe a multifunctionalist type which strongly adheres to environmental attitudes alongside a more efficiency- and economy-driven stance. The latter extract three divergent segments of landholders inclined towards the management of natural resources, who take part in specific public programmes and who run their properties to make a living. Similarly, using mainly values to classify, Maybery et al. (2005) extract three segments using PCA. Moreover, using a qualitative approach to construct a typology of graziers, Bohnet et al. (2011) find three different types based on their values and motives.

Focusing rather on the decision-making process and attitudes Pedersen et al. (2012), who use cluster analysis to structure a large farmer survey, demonstrate that some farmers tend towards a more productivist stance and might opt to forgo some profits. Darnhofer et al. (2005) use qualitative interviews to gain insights into conversion to organic farming, which is generally believed to be more environment-friendly. They find five types based on their decision-making processes but the distinction between primarily economically driven and primarily environment- and health-driven types can also be observed in both farming systems. Furthermore, Sutherland et al. (2011) use factor analysis to classify a sample of Scottish farmers based on their attitudes and decision-making strategies. They also find the dichotomy between an environmental and a business-orientated type.

The application of a Q methodological approach can also be found in studies to classify farmers with respect to their environmental viewpoints. For instance, Davies and Hodge (2007), as well as Brodt et al. (2006), find evidence for either an environmental or a business viewpoint (besides others). Although these two studies use Q methodology, they do not explicitly incorporate an outsider's view into their statements. This means that only a very limited environmental discourse is covered and hence farmers are not given the opportunity to reflect sufficiently upon societal demands. Moreover, it is not clear whether the participant samples are based on attributes which are positively or negatively correlated with environmentally benign behaviour.

Linking these attitudinal and behavioural results (i.e. farming styles) with data on agro-biodiversity yields an enhanced picture of landholders. For instance, O'Rourke et al. (2012) and Schmitzberger et al. (2005) describe a dichotomy between a traditionalist-modern, a productive-multifunctional or an environment-business farming style.

[1] The term "attitude" or similar expressions (like "perspective", "mindset" or "viewpoint") are used as defined by Eagly, A.H., Chaiken, S., 1993. The Psychology of Attitudes. Harcourt Brace Jovanovich College Publishers, Orlando, Florida: "*Attitude is a psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour*".