



## EU's rural development policy at the regional level—Are expenditures for natural capital linked with territorial needs?



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### ABSTRACT

The restoration and improvement of natural capital (NC) in rural areas represents one of the main objectives of the EU's rural development policy (RDP). In addition to creating environmental and biodiversity benefits, NC represents an important territorial asset and a basis to generate socio-economic second-order effects for economic competitiveness and rural viability. However, the regional capability to valorise NC depends on the specific regional context, needs and potentials, as well as targeted policy support. It has therefore been questioned whether RDP sufficiently considers territorial aspects. Based on a previous study, which distinguished RDP (2007–2013) funding priorities and regional expenditure patterns, this paper focusses on European regions (NUTS2/3) characterised by above-average relative expenditures for measures related to NC support.

Building upon the hypothesis that priority setting in regional RDP programming and expenditures depends on the regional context, this study aimed to improve the understanding of priority setting in NC support in relationship to other RD objectives by taking a closer look at the conditions of regions and their communalities. By analysing the variances and spatial dependencies of regional socio-economic, environmental and agricultural framework conditions and applying statistical logit models, this study found that the probability to adopt specific NC-oriented expenditure patterns in a region can only be partly explained by these factors. While environmental variables, such as designated areas and High Nature Value (HNV) farmland, do not drive high NC expenditures, factors representing agricultural structures and conditions seem to have a larger influence. Regional RDP expenditure pattern showed an additional strong dependency from spatial association factors.

## 1. Introduction

### 1.1. Natural capital as regional asset

The notion of natural capital (NC) has been introduced as an important approach to economically value the contribution of natural resources to the provision of ecosystem services (ES), a key factor for human well-being (Costanza and Daly, 1992; Daily et al., 2009; Haines-Young and Potschin, 2010). NC is not only provided by natural ecosystems but also by agricultural landscapes, depending on their structure and on the composition of ecosystem patches (Ungaro et al., 2014; van Zanten et al., 2014). Due to the expansion and intensification of anthropogenic use, many ecosystems, including agricultural landscapes, have seen tremendous natural resource depletion and a degradation in their capability to contribute to biodiversity, climate or natural resource conservation objectives (MEA, 2005; Tschardt et al., 2005). Therefore, the restoration and improvement of NC, e.g., through the protection of ecologically sensitive landscapes, such as High Nature

Value (HNV) farmland, water catchments or the Natura 2000 network, enhances ecosystem integrity and the ES provision (Uthes and Matzdorf, 2013).

Beyond environmental goals, investments in nature and landscape are increasingly understood in a more integrative way as resources for the ecological modernisation of the rural economy (Kitchen and Marsden, 2009) and as contributions to rural development in a socio-economic sense by improving rural competitiveness and human well-being (Häfner et al., forthcoming; Manrique et al., 2015; Schaller et al., forthcoming). In this sense, various narratives and rural development options have been distinguished, mainly around ecological conservation, agriculture-based development and post-productive commodification, including tourism, diversification and quality production (Ghazoul et al., 2009; Lange et al., 2013). In addition, for the farming activity itself, NC investments and improvements to environmental sustainability, e.g., through agri-environmental measures (AEM) or afforestation, represent a value. NC enhancement provides ES, such as water and nutrient cycles, pollination and the prevention of soil

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erosion. Agriculture is herewith not only a provider of ES but also a direct beneficiary of ES (Small et al., 2017).

### 1.2. Natural capital funding, rural development and territorial demands

The European Union (EU) has acknowledged the importance of NC as a territorial asset and public good, as it represents a major objective of the EU's Rural Development Policy (RDP). (EC, 2005, 2017). The EU regulation on support for rural development (EC, 2005) requires at least 25% of the budget at the programming level to be spent on agri-environmental schemes (AES). Despite the primary environmental targets to improve landscape and natural conditions, these investments may have additional socio-economic second-order effects, which are usually not considered in the policies' objectives (Schaller et al., forthcoming). These often occur without the explicit targeting or consideration of the regional capacities to valorise NC. Previous studies have highlighted the relevance of an integrated place-based approach to rural development that accounts for regional characteristics, incl. strengths, weaknesses and development potentials and capabilities (Copus et al., 2011; OECD, 2006; Wilson, 2009; Zasada et al., 2017).

The regional socio-economic situation, such as regional economic performance, social welfare or proximity to urban markets, can serve as a trigger for rural development and the valorisation of NC (Lange et al., 2013; Zasada et al., 2013). On the other hand, depopulation, demographic change and the social and economic marginalisation of peripheral rural areas hamper the ability to valorise natural assets (Pinto-Correia and Carvalho-Ribeiro, 2012). The natural and environmental conditions and/or the prevalence of ecologically valued areas, such as Natura 2000 areas or HNV farmland, determine the potential to target rural development policies towards nature conservation or rural tourism (van Berkel and Verburg, 2011). Rooted in agricultural policy, the RDP is strongly linked to the primary sector. Especially modernisation and diversification but also environmental measures mainly address agriculture and forestry directly and therefore take the specific land use, i.e., arable land or grassland, the intensity of production and farm household and business structures, closely into consideration (Dalgaard et al., 2007; Viaggi et al., 2013).

Although a widespread acknowledgement of the diversity of European regions with different territorial potentials and challenges exists (ESPON and Nordregio, 2010), this territorial variability is only weakly reflected by the RDP (mainly through less-favoured area (LFA) schemes). Most other measures are horizontal in their spatial effect and are not targeted to specific territorial needs (Copus and Dax, 2010; Dax and Copus, 2016). As analysed by Copus and Dax (2010), throughout all its reforms, the CAP (and with it the RDP) has not seriously considered territorial aspects in its policy design, despite the strong territorial agenda of European spatial policies (EC, 1999, 2007). A number of reasons, such as path dependency and the lock-in of policy-making (Dax, 2015), the voluntary nature of measure implementation (Piorr and Viaggi, 2015), the disintegration of rural, regional and cohesion policies (Copus et al., 2013) or the effects of a limited information basis and corporate clientelism (Marsden, 2003, p.118 ff.), have led to RDP designs, which lack compliance with the regional situation.

Previous analyses of RDP spending data in the EU at the regional level have revealed that a large intra-regional heterogeneity of spending priorities is observable in many European regions (Copus and Dax, 2010; Zasada et al., 2015). A number of studies have aimed to spatially link RDP implementation with regional socio-economic and environmental performances. Focussing on regional labour effects, Bonfiglio et al. (2016) and Smit et al. (2015) analysed policy effects at the NUTS3 and NUTS2 levels, respectively, while also considering spill-over effects from neighbouring regions. Others, such as Desjeux et al. (2015) or Marconi et al. (2015) applied spatial econometrics methods to assess the effects of AEM on the environmental performance, i.e., HNV farmland indicators and nitrogen fertilisation at national and regional scales. Aiming for a broader approach to the analysis of the

regional performance of the RDP, with its multiple and complex objective settings, Uthes et al. (2017) differentiated region types based on their RDP expenditure pattern, and, either focussing on competitiveness, the environment, rural viability or equal spending, applied the objective and context-related CMEF (Common Monitoring and Evaluation Framework) indicators at the NUTS2 level. Despite these efforts, a broad-based assessment of the matches or mismatches between regional demands and potentials and policy spending patterns is missing.

### 1.3. Objective

In this study, a regional typology of RDP funding priorities, which was previously developed by Zasada et al. (2015), is applied, focussing on regions with high NC funding. The main objective of the paper is to analyse the extent to which region types (RTs) representing a certain RDP funding pattern can be associated with the regional agricultural, environmental and socio-economic situation. This objective is addressed by investigating the following research questions: (i) How do regional contexts, potentials and development needs vary between regions with high and low shares of NC expenditures? To what extent do variations exist among different joint valorisation approaches of high NC-spending regions? (ii) Can the assignment of regions to specific funding types be explained by regional characteristics, and to what extent can the objective regional targeting of RDPs be observed? (iii) Are regional RDP expenditure patterns subject to spatial dependencies, either through macro-scale locations or through local neighbourhood association?

## 2. Datasets and methodology

### 2.1. RDP expenditures in 2007–2011 at the NUTS3 level

The analysis in this paper is based on a previous study of Zasada et al. (2015), which developed a typology of EU27 regions using factor and cluster analysis that featured similar RDP support priorities. The approach considered six funding categories and emphasized the differentiation between policy measures for the investment in territorial capital and measures for the investment in capacity building to enhance the region's ability to effectively use these assets. Both strategies demonstrate valorisation approaches to socio-economic development and are considered two complementary cornerstones of a place-based approach to rural development.

Among the territorial assets, natural capital (NC) has been addressed by the RDP, along with physical and human capital. Mainly, AES, afforestation and Natura 2000 payments are grouped under the umbrella of NC investments. Within capacity building measures, three valorisation strategies are distinguished: the 'stabilisation', 'modernisation' and 'restructuring' of rural economies. 'Restructuring' covers measures for added value creation, diversification and tourism development. 'Modernisation' refers to investment in farm holdings enhancing agricultural specialisation and competitiveness, and 'stabilisation' addresses rural areas with disadvantaged conditions aiming at the continuation of agricultural activity as a main pillar of the rural economy (Rivalori et al., 2017; Zasada et al., 2015).

The 'stabilisation' approach includes funding themes, such as payments for LFA and for adaptation to European Community standards; the 'modernisation' approach includes farm modernisation, cooperation for the implementation of new products, processes and technologies, and LEADER activities strengthening competitiveness; and the 'restructuring' approach includes support for producer groups, food quality schemes and diversification into non-agricultural activities, including LEADER diversification support (Zasada et al., 2015).

Regional expenditure data of the European Agricultural Fund for Rural Development (EAFRD) and the Temporary Rural Development Instrument (TRDI) funds for the years 2007–2011, which were obtained from the Clearance of Audit Trail System (CATS) of the European

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