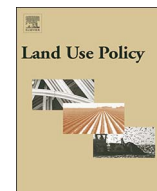




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Assessing the economic marginality of agricultural lands in Italy to support land use planning

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ABSTRACT

Agricultural marginality is a multifaceted issue, being related to place-specific socioeconomic contexts and highly-variable technological conditions. The coexistence of different classification systems of these variables makes hard any attempt to have a general definition of agricultural marginality. Moreover, the spatially explicit identification of marginal lands is still challenging mostly due to the lack of reliable data sources at both country and regional scale. Accordingly, this paper evaluates the degree of economic marginality of agricultural land, using Italy as a representative case study for southern Europe. A spatial analysis of farmland profitability and constraints for agricultural activities (topography and biodiversity conservation) is proposed to identify three classes of agricultural land, namely ‘unsuitable’, ‘supramarginal’ and ‘marginal’ lands. Results show that almost 39% of agricultural land in Italy can be classified as ‘marginal’; its spatial distribution and characteristics are also analyzed and discussed in relation to different background conditions. The proposed approach provides a valuable methodology supporting land-use planning and decision-making under restricted geo-spatial data availability.

1. Introduction

Although the notion of “marginal land” is frequently used by policy makers, practitioners and researchers, there is not a common, clear and unambiguous definition of marginality (e.g. Dauber et al., 2012). Marginal lands are sometimes intended as a synonym for unused, degraded, abandoned, under-used, fallow and free land, often stimulating an animated linguistic debate and possible misunderstanding (Shortall, 2013). As a matter of fact, the definition of marginal land varies according to the aim for which this term is used and to the given background context to which it is operationally applied (Edrisi and Abhilash, 2016).

There are at least two groups of definitions for ‘marginal land’: those related to biophysical aspects and those based on socioeconomic conditions which turn out to be constraints for agricultural activity (e.g., Edrisi and Abhilash, 2016). Looking at the biophysical aspects, marginal land features poor and badly drained soils, restricted nutrient and water availability and steep slopes, affecting (more or less intensively) the overall productivity level (Lewis and Kelly, 2014). This notion is

consistent with what was proposed by Peterson and Galbraith (1932), which define marginal lands as the “margins of cultivation”, where revenues are equal to (or lower than) the costs of production. Additional definitions have been provided by Rabbinge (1993) and Van Orshoven et al. (2013), respectively based on crop growth and biophysical constraints for agriculture. Land capability has also been used by earlier studies to identify and characterize marginal lands (Lewis and Kelly, 2014). FAO and UNEP (2010) have classified land supporting a yield of up to 40 percent of its crop potential as marginal. This implies a crop-specific definition of marginality. In addition, the distinctiveness of marginal land from degraded land was emphasized, the latter specifically referring to land/soil degradation phenomena (Salvati and Zitti, 2005) defined as “(...) any decline in ecosystem function and services over an extended period (...)” (MEA, 2005).

From a socioeconomic perspective, marginal lands are considered areas where “cost-effective production is not possible under given conditions, cultivation techniques, agriculture policies as well as macro-economic and legal settings” (Dauber et al., 2012). More precisely, earlier studies have provided a rigorous definition referring to

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