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## Landscape Economic Value for territorial scenarios of change: an application for the Unesco site of Langhe, Roero and Monferrato

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### Abstract

The present paper focuses on the issues related to the economic value of landscape and the role of indicators and indices systems. The aim of the study is the definition of a synthetic index of Landscape Economic Value (LEV) through a system of economic indicators, to measure the attractiveness of Vineyard Landscape of Langhe-Roero and Monferrato (IT), recently included in the UNESCO World Heritage List (2014). Furthermore, the synthetic index is employed in a dynamic transformation model that works in a cluster system of municipalities, where the Landscape Economic Value acts as an attractor factor generating people flows. The results obtained by the evaluation model might be an innovative proposal to define development territorial scenarios in decisional making-processes.

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### 1. Introduction

Landscape assumes a renewed meaning in comparison with the aesthetic concept belonging to both the cultural and normative scenarios of early years of the twentieth century. The European Landscape Convention revolutionizes the landscape definition, extending it to the whole territory, as perceived by populations, “whose character derived

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from action and interaction of natural and human factors” (ELC, 2000). Nowadays, the territory is conceived as a complex entity, so the adoption of an integrated approach is required to manage sensitive territorial systems.

Literature shows many economic contributions on the subject, despite the fact that they tend not to attribute a monetary value to landscape. The economic definition of value is based on the rationality of users, who choose among a series of alternatives, according to their individual preferences. Such a choice translates into Willingness To Pay (WTP) for an improvement or Willingness To Accept (WTA) as a compensation for the degradation: both are the main measures used in the economic evaluation of landscape (Stellin & Rosato, 1998; Van der Heide & Heijman, 2012). The Economic value of landscape depends on structural components, as well as on the users’ different perceptions, making the empirical measurement more difficult, even if both a multidisciplinary convergence and an integrated approach facilitate the analysis (Cassatella & Peano, 2011).

The aim of the present paper is to define the economic value of the UNESCO site “Vineyard landscape of Piedmont: Langhe-Roero and Monferrato”, employing a system of economic indicators, that comes to a synthetic index of attractiveness. Such synthetic index will be employed in a dynamic transformation model that works in a cluster system of municipalities belonging to the UNESCO site, in order to investigate the trends over time of how attractiveness affects people flows. The integration of the results obtained from both evaluation models might be considered a proposal for decision making processes, aiming to the definition of territorial scenarios future developments.

## **2. Landscape economic indicators**

The economic activities related to the territorial use and transformations generate impacts and effects on landscape. Landscape can be considered as an externality, as a result of favorable and unfavorable effects, brought about by an individual’s production and consumption by the production and consumption on another individual, without any monetary transaction between them, in order to balance costs and benefits of these effects (Marangon & Tempesta, 2008).

For public goods, such as environment and landscape, market prices either do not exist or only capture a small part of the total value. It has been generally agreed that the Total Economic Value (TEV) approach is suitable to dealing with the economic valuation of environmental and landscape goods (Pearce & Turner, 1990). The Total Economic Value (TEV) is the result of the use and non-use values of a good: The use value is the sum of the direct use (revealed preferences), indirect use (stated preferences, hypothetical markets), while the non-use value is given by resources unrelated to a current, future or potential use (existence value and bequest value). Both value components produce the option value, that is the potential for a good to be available in the future (Pearce & Turner, 1990). In economic terms, landscape is a public good available to the whole society in a limited quantity, due to an inefficient resources allocation (Santos, 1998). Estimation tools establish and evaluate the economic value starting from the predictable benefits of use and transformation actions of landscape, as well as the efficiency and efficacy of the public expense for landscape interventions.

Among the methods to estimate the economic value of landscape, a very important role is performed by economic indicators systems (Bottero, 2011). Economic indicators can be divided into monetary and non-monetary: monetary indicators refer to the methods of economic evaluation such as the choice of certain categories related to the maintenance and development costs of landscape (such as costs-opportunities analysis), the demand of the same good, as well as WTP or WTA in terms of use or non-use of landscape; while non-monetary indicators are both quantitative, based on the expert opinion about tangible features of landscape, or qualitative, related to the level of satisfaction of the users about intangible aspects, encouraging the integration with the territorial policies (Marangon & Tempesta, 2008).

## **3. Application**

### *3.1. Case study*

“Vineyard landscapes of Piedmont: Langhe-Roero and Monferrato” is a suggestive context of Southern Piedmont, that covers a territorial surface of 10.789 hectares, between the Po river and the Ligurian Appennines,

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