

## **1. Ecosystem services' values and improved revenue collection for regional protected areas**

### **Abstract**

The management of conservation areas is a costly enterprise, especially vulnerable to budget cutting when austerity measures are being considered. Optimal spatial taxation dictates that tax-payers contribute proportionally to the benefits they receive. This paper provides a framework to derive spatially varied benefit estimates for ecosystem services produced in Natura 2000 protected areas of Lombardy (Italy). These may be used as a framework for spatially optimised taxation to improve the efficiency of public funding. In the process we used non-market valuation techniques, as well as benefit functions' transfer.

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### **Introduction and policy background**

Protected areas are aimed to conserve ecosystem integrity, safeguard ecological assets and maintain ecosystem services (ES) (Eastwood et al., 2016). However, their public management is a costly enterprise, vulnerable to budget cutting when austerity measures are being considered. In order to improve management efficiency, specific spatially-targeted policies can be developed, to avoid that lack of spatial differentiation in the targeting mechanisms leads to efficiency losses.

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### **Material and methods**

The ES under scrutiny, as produced by these protected areas, possess neither a proper market nor a related market for a weakly complementary good. Economic valuation must hence require non-market methods. To develop a value framework for the application of any non-market valuation method, it is necessary to hinge the practice on a theory of value consistent with individual utility theory. In our case the objective was to estimate the economic value to the Lombardy residents derived from changes.

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### **Discussion, limitations and further research**

The economic rationale behind investing in protected natural areas, including Natura 2000 sites, has given place to a participated debate in Europe (Hoyos et al., 2012). Since management costs for the Euwise Natura 2000 network are expected to increase (Gantioler et al., 2014), motivating the financing of such investments represents a key political issue. Equitable and efficient taxation schemes must implement the beneficiary pays principle, and hence crucially depend on accurate estimates.

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### **Conclusions**

Conservation areas can be managed to produce different levels of flows of valuable ES in the form of local public goods, which are valued by residents in a manner that varies across the land and according to individual preferences. This poses a challenge to raising funds to finance such policies in an optimal manner. This paper makes a first empirical attempt at dealing with the issue of economic valuation of ES generated from two areas of conservation within the Natura 2000 network.