

The Economic Value of the Cultural Landscape: How to Evaluate the Non-production Services of a Territory

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Outline

Introduction

Landscape functions

Evaluation Methods

Empirical Estimates

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Landscape functions

A systematical description, what services a landscape provides its inhabitants with. The ecological structures and processes are transformed into a limited number of ecosystems functions.

Economic evaluation of landscape functions

An analysis of significance of these functions for human society. Production functions are valued by market, non-production functions are underestimated in the course of land-use planning. Description of the non-market evaluation methods that are suitable for evaluating important non-production landscape functions.

Empirical estimates of landscape quality

A review of professional articles concerned with application of non-market evaluation method in land use. Assessment of which landscape functions are most often evaluated and what means are used for this.

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Landscape functions

Landscape functions by Rudolf de Groot

- (1) Regulation functions
- (2) Habitat functions
- (3) Production functions
- (4) Information functions
- (5) Carrier functions

Landscape functions

(1) Regulation functions

The capacity of natural and semi-natural ecosystems to regulate essential ecological processes and life support systems through biospheric processes. Relevant for landscape planning - e.g. maintenance of clean air, water and soil, prevention of soil erosion and biological control services.

(2) Habitat functions

Refuge and reproduction-habitat to wild plants and animals. The requirements differ for different species group but can be described in terms of the carrying capacity and spatial needs of the natural ecosystem which provide them.

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(3) Production functions

Photosynthesis and nutrient uptake by autotrophs converts energy, carbon dioxide, water and nutrients into a wide variety of living biomass. Many resources for human use, ranging from food and raw materials (fiber, timber, etc.) to energy resources and genetic material.

(4) Information functions

Natural ecosystems provide an essential 'reference function' and contribute to the maintenance of human health by providing opportunities for reflection, spiritual enrichment, cognitive development, recreation and aesthetic experience.

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Most human activities (e.g. cultivation, habitation, transportation) require space and suitable substrate (soil) or medium (water, air) to support the associated infrastructure. The use of carrier functions usually involves permanent conversion of the original ecosystem.

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Evaluation Methods

Some of the above mentioned functions are non-productive ones. It is a problem to compare importance of non-productive services of the landscape with the productive ones.

Wide variety of methods has been developed to overcome this market failure. They are called non-market valuation methods.

They are divided into three main groups. The first group is **cost-side methods**, the next is **demand-side methods** based on **revealed preferences**, and the last group is demand-side methods based on **stated preferences**.

Evaluation Methods

Cost-side methods

The cost-side methods are derived according to the costs that it would theoretically be necessary to invest to renew the destroyed services, to replace them with other means or for removing them to another place.

Replacement costs Constructing a swimming pool when a natural reservoir was polluted.

Restoration costs Chemical treatment of a water body polluted by cyanobacteria to make it suitable for swimming again.

Relocation costs Relocating a threatened habitat to a safe locality.

Government payment Reimbursing the damages caused to fishery industry by protected cormorants.

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Demand-side methods: Revealed preference methods

Travel cost method - TC Appraising the price of a lake according to how far away it is and how many visitors go there.

Hedonic price method - HP An estimate of how the view to a water body or the proximity of a nice lake affects real estate prices.

Averting behaviour - AB Purchasing bottled water when mains water is polluted. Schools in the countryside for children from areas of air pollution.

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Contingent valuation - CV Questioning people how much they would be prepared to contribute for preserving a certain wild species.

Choice experiments - CE People are asked to choose from a hypothetical offer including prices.

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Empirical estimates of landscape quality

This chapter stems from the case studies for economically evaluating various aspects of landscape quality, which were recently published in the following periodicals:

- Land Economics
- Journal of Environmental Economics and Management
- Environmental & Resource Economics.

An overview of articles concerning the evaluation of an environmental attribute connected to landscape services was made.

Empirical estimates of landscape quality

(a) Ecosystem services (E)

biodiversity, protected landscape areas. With regards to the large proportion of non-use values the contingent valuation method predominates.

(b) Recreation (R)

the use of the landscape for various recreational activities. Very often it concerns sport fishing, skiing or visiting a national park. The travel costs method best captures the benefits to society.

(c) Socioeconomic and cultural benefits (S)

the effect environmental quality has on the social structure of the locality's population, on the residents' behaviour and on their feeling of wellbeing. The value people attribute to the cultural components of the landscape, e.g. historical buildings. These values are well quantified by the hedonic pricing method.

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Group	Journal	CV	TC	HP	Oth	Tot
Ecosystem	E - total	22			6	28
	Land Economics	8			3	11
	J. Env. Econ. Mangm.	3			1	4
	Env. & Res.Econ.	11			2	13
Recreation	R - total	12	20	7	5	44
	Land Economics	3	4	5	2	14
	J. Env. Econ. Mangm.	5	11	2		18
	Env. & Res.Econ.	4	5		3	12
Socecon	S - total	12	1	26	3	42
	Land Economics	6		18	2	26
	J. Env. Econ. Mangm.	3	1	6	1	11
	Env. & Res.Econ.	3		2		5

Conclusions

In spatial planning non-production services of a landscape are underestimated.

Non-market valuation methods have been developed to overcome the market failure during the allocation of a territory.

These methods are being tested and improved intensively.

It is essential that the ecological, socio-cultural and economic values of landscape be fully taken into account in planning and decision-making.

Non-market valuation methods can help to put the market and non-market services of the landscape on the same level when selecting an optimal land-use plan.