

Willingness to Pay for Rural Landscape Preservation

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Abstract: In this paper we present welfare estimates from a contingent valuation (CV) study, which investigates the potential benefits derived by tourists from the implementation of a programme aimed at preserving the traditional agricultural landscape in the Protected Landscape Area Bílé Karpaty. This area belongs to the most species-rich of the Central Europe. Since 1996 Bílé Karpaty has been a biosphere reserve. Our hypothesis is that the agricultural working landscape is a visual resource that is an important attraction to tourists. Here due to the current market conditions arises a danger, that farming activities will be gradually abandoned. The supply of traditional agricultural landscape, which is characteristic for this area, generates economic benefits for which farmers receive little if any remuneration. Any policy aimed at correcting this market failure and providing a socially optimal level of landscape supply needs to be informed about the social demand for this peculiar public good. In this study we estimate the value of rural landscape in the area of Bílé Karpaty for tourism. The magnitude of this form of social benefits turns out to be sizeable and would probably justify – at least in part – a conservation policy aimed at correcting current market tendencies which cause the abandonment of traditional farming practices.

INTRODUCTION

In the recent years, there has been a steady and marked growth of interest in the contribution of farming to the supply of positive externalities. In this category of agricultural outputs the provision of valuable landscapes appear to assume a particular connotation, especially when these are representing values linked to cultural heritage and regional identities that are threatened to disappear under current market conditions. In the OECD countries one of the main sources of interest in rural landscape preservation has certainly been the deep and relatively quick transformation of the countryside that took place in the post war period. As a consequence the agricultural landscape was also under transformation in this period. In the Czech Republic traditional shape of rural countryside was changed drastically due to collectivisation of agriculture. After market liberalisation in the 1990s, as a consequence of decrease of profitability of agriculture, arises danger of progressive abandonment of agricultural land in economically marginal areas, most of which are characteristic by their high value of landscape. In the recent years the attention of the general public toward the issue of rural landscape preservation has increased and generated an intense policy debate. In Europe it has been fuelled by the reform of CAP that recognised the importance of the European agriculture as a producer of positive externalities (environmental, cultural, historical and scenic). In the Czech Republic the conservation of nature is

governed by the Nature and Landscape Conservation Act (No. 114/1992).

This creates the need for rural landscape studies aimed at deriving estimates of social benefits from selected agricultural landscapes in various countries. In a cost-benefit analysis should be compared with the estimated cost of supporting preservation by means of public programmes to inform public decision-making with regard to the issue of economic efficiency.

Our study presented in this paper contributes to this discussion by supplying some results from a contingent valuation (CV) survey, which investigates tourists' willingness to pay (WTP) for landscape preservation in the typical extensive rural area of the Landscape Protected Area Bílé Karpaty. In the CV scenario respondents were proposed to contribute to the special fund – exclusively destined to support those agricultural activities contributing to landscape preservation. As an alternative to this scenario respondents were proposed the landscape resulting from abandonment of the traditional agricultural activity in the Landscape Protected Area. Analysing the observed sample responses derives estimates of expected willingness to pay (WTP). From these estimates we infer the magnitude of benefits to the population of tourists in the Landscape Protected Area produced by the existing level of provision of agricultural landscape.

CHARACTERISTICS AND THE ROLE OF AGRICULTURE IN STUDY AREA

Protected Landscape Areas (PLA) are extensive areas with harmonically formed landscapes. There are 23 PLAs in the Czech Republic. Altogether they cover 13% of the territory. The conservation of nature and landscape is governed by the Nature and Landscape Conservation Act. It is implemented:

- by performing special state administration in combination with assessment activities (this gives the opportunity to make decisions in the spheres that involve landscape and nature of the area);
- by dividing the area into zones of differentiated conservation (this makes it possible to distinguish between the regime of each zone);
- by the management plan of the PLA, which formulates the actual conservation strategy and is a basis for land planning, forest management plans and other planning documents;
- programmes funded by the state (Programme for Landscape Management, River System Revitalisation Programme).

International Importance of the study area is given by the fact, that Bílé Karpaty is one of five PLA included in the world network of biosphere reserves of the MAB Programme of UNESCO. It is also included in the concept European Ecological Network as one of core areas in this network (Administration of the Protected Landscape Areas of the Czech Republic).

LPA Bílé Karpaty covers area of 715 km² (forest 42%, grassland 21%, arable land 28%, water land 1,2%).

The most beautiful and characteristic elements of Bílé Karpaty are flower meadows with orchids, solitary oaks and shrubs. It belongs to the most species-rich of central Europe. The picturesque landscape of Kopanice with sparse settlements in a patchwork of fields, meadows, orchards and woods is unique.

Although from the private viewpoint farming is at the margin of economic performance, it still has an important role from the social viewpoint in terms of ration of actively farmed area over the total territory of the LPA. Environmental activities of farmers considered essential for the prosperity of tourism include mowing grassland (important for protection of orchids), care for rural trail along rivers and brooks, care for pastures, preservation of species through diversified arrangement of groups of trees, hedgerows and brushwood and maintaining of typical settlements surrounded by fields and orchards. Through these activities the agricultural sector provides intermediate goods for the tourism sector, for which they are not always being compensated (Hackl and Pruckner, 1997).

HYPOTHESIS AND OBJECTIVES

Our hypothesis is that the agricultural landscape is a visual resource that is important attraction to tourists. For the purposes of this study, "agricultural landscape" is defined as a land that is currently in use for farming. This is landscape that has been shaped by agricultural activities and includes the pattern of cultivated fields and pastures, interspersed with farmsteads and woodlands that is typical for the area of Bílé Karpaty.

Our objectives are to

- assess the importance to tourists of the landscape scenery in this area;
- identify the elements of the agricultural landscape and their importance for tourists;
- tourist willingness to pay (WTP) for the conservation of agricultural landscape;
- comparison of CVM results with TCM study conducted for assessment of validity of results.

METHODOLOGY

A variety of methods have been employed in the assessment of the recreational or user benefits derived from protected rural environments. In this paper we apply two of these – the contingent valuation method (CVM) and the travel cost method (TCM). As the CVM and TCM estimates reported are the pilot systematic evaluation of this particular site, they are important for the further study.

The logic of CV studies is that of inferring the distribution of economic benefits in a target population from statements of willingness to pay elicited from a random sample of respondents. These are asked to compare and choose hypothetical landscape scenarios described in the survey instrument. In the CV scenarios respondents were proposed to choose from two alternatives:

- to contribute to the special fund – exclusively destined to support those agricultural activities contributing to landscape preservation as to ensure the conservation of the current cultivated landscape;
- the alternative scenario is associated with the inevitably degraded landscape that will ensue from the abandonment of the agricultural activity.

As conducted study is a pilot study for further broader study of amenity benefits of agriculture in LPA Bílé Karpaty, open-ended format of WTP question was employed. Although the most popular referendum format is recommended, there has been a revival of open-ended CV studies (Bohara et al., 1998).

For the purposes of a comparison, the parallel TCM based study was conducted. As a part of the survey respondents were asked:

- - the distance they have been travel in order to access the LPA;

- - their perception of travel cost to LPA Bílé Karpaty;
- - number of visits per year and purpose of their visit.

By converting these into monetary equivalents we are able to derive alternative measures of consumer surplus.

SURVEY DESIGN, DATA COLLECTION AND ANALYSIS

The collection of primary data through surveys of Bílé Karpaty tourists and data analysis using Contingent Valuation Method (CVM) and Travel Cost Method is used for the purpose of comparison.

Survey was designed to collect these types of information:

A trip characteristics (residence, number of visits, primary purpose and estimation of cost of this trip) – Appendix – Table 2;

B value and perception information (importance of agricultural landscape elements Appendix – Table 4 and willingness to pay to conserve agricultural landscape Table 1);

C socio-demographic information (such as age, education, household income, farm background and type and place of residence) – Appendix – Table 3.

In the summer 2001 a random sample of 120 tourists was randomly selected and survey was administered in person while visiting the LPA, producing 92 useful responses. The questionnaire employed as the survey instrument was designed on the basis of information from discussion with administrators of LPA. As this was a pilot survey, other purposes were employed (improving survey draft in terms of scenario perception and communication, ascertaining the credibility of payment vehicle), to be used in the subsequent full-scale survey.

After entering the data and running initial analysis we removed cases that were from residents and business travellers Table 1 provides summary of results for the final 92 responses in our pilot sample.

CONCLUSIONS

We confirmed that landscape scenery of Bílé Karpaty is an important reason for the visits of tourists to the area: 71,74% indicated it as their

main purpose of the visit. When assessing characteristics of landscape scenery, each identified landscape element was indicated to have high importance for visitors. The most valued are all types of forests (scored more than 8 point from 10) and special elements of landscape of Bílé Karpaty, which tourists cannot easily substitute. Agricultural working landscape elements were evaluated also very highly (over 7 points from 10). Estimated visitor benefit derived from this pilot CVM study is 267,99 CZK (8,11 EURO) per year. If we compare user benefit estimated from TCM study 249,10CZK (7,54 EURO) per visitor per year, this supports credibility of our estimate.

However we identified a number of problems – conceptual and practical:

- Stated travel cost should include the appropriate treating of time cost. Here we assumed time spend by travelling as a part of recreation so we did not count for it.
- The dependence between number of visit per person per year and travel cost was not significant. One of possible reasons for it is location of spa in this area, which is not that easy substitutable. This needs further study.
- Need to redesign the perception travel cost value question, as respondents included in their estimates also the cost of stay in this area.

The main problem is that we are not aggregating our results to the population of tourists to this area at this pilot stage of our study. The reason is, that we identified the lack of information about number of visitors to area of LPA Bílé Karpaty. This indicates the need to monitor tourists flow.

FURTHER STUDY

Visitors are only one group of beneficiaries from visual attractiveness of agricultural working landscape in the area of PLA Bílé Karpaty. This pilot study provides us with basic information, which we will use in our full-scale study. Here we will measure the benefits to three groups: visitors, local residents and the general public. As the benefit measurement technique we will use the Contingent Valuation Method, which allows the estimation of both use and non-use values. In addition, a small experimental Stated Preference study will be undertaken, in order to measure the relative importance to people of the different attributes of the landscape.

Variables	Mean	Standard deviation	Median
Travel cost	249,10 CZK (7,54 EURO)	167,64	189
Distance	149,83 km	100,76	105
WTP	267,99 CZK (8,11 EURO)	173,88	200

1 EURO = 33,025 CZK

Table 1: Value of agricultural landscape for 1 visitor per year, N = 92

However provision of landscape is only one of many unremunerated activities provided by farmers so more research should be aimed at valuing public goods produced by farming in recreationally valuable areas and elsewhere.

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APPENDIX

N = 92

<i>Residence</i>	Percent
Uherské Hradiště	11,96
Olomouc	9,78
Prostějov	9,78
Praha	7,61
Zlín	6,52
Kroměříž	5,43
Brno	4,35
Vsetín	4,35
Přerov	4,35
Others	43,48
Travel distance	
< 50 km	23,91
51 - 100	23,91
101 - 150	23,91
> 150	28,27
Means of transport	
Car	81,52
Bus	3,26
Train	14,13
Trip characteristics	
One-purpose trip to BK	73,91
Multi-purpose trip	26,09
Primary purpose of visit	
Landscape	71,74
Spa	11,96
Other purposes	16,30
Number of visits per year	
One	22,83
Two	6,52
three	9,78
Five	5,43
Six or more	3,27
No answer or less then one per a year	52,17

Table 2: Statistics of Trip characteristics

Average Annual household income	18030 CZK (546 EURO)
Average Age	38,3 years
Number of persons in household	
One	10,87
Two	21,74
Three	25,00
Four	32,61
Five and more	9,78
No answer	0,50
Countryside background	47,83
Gender	
male	57,61
female	42,39
Education	
Basic	7,61
Secondary	60,92
Universities	26,72
Unanswered	4,45
Place of residence	
Number of inhabitants	
< 2 000	7,61
2 001 – 7 000	36,96
7 001 – 20 000	23,96
20 001 – 25 000	10,42
> 25 001	16,30
Type of residence	
Family house	44,57
Flat	51,09
No answer	4,34

Table 3: Socio-demographic characteristics

Landscape element evaluation	Average assessment (points from scale 1-10)	Standard deviation
Mixed forest	8,49	1,67
Conifer forest	8,29	2,00
Green vegetation next to water	8,23	2,10
Log wall of hayloft	8,16	1,88
Broadleaves forest	8,04	2,10
Sparse settlements in a patchwork of fields	7,82	2,38
Flower meadows	7,80	2,12
Solitary oaks and shrubs	7,64	2,28
Country roads	7,62	2,36
Lines and colours of fields	7,62	2,41
Pastures with livestock	7,6	2,34
Orchards	7,07	2,52

Table 4: The importance of agricultural landscape elements