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Preferences of tourists with regard to changes of the landscape of the Tatra National Park in Slovakia

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ABSTRACT

The alpine landscape of the Tatra National Park has changed significantly over the past few decades, especially as a result of the development of tourism (i.e. hotels, ski slopes) which are likely to impede the effective management of nature conservation.

This study presents the results of a survey to ascertain the preferences and the perception of visitors to the Tatra National Park and its landscape. Scenarios of tourism development and landscape changes were presented to respondents verbally and by means of manipulated photos in order to visualize potential threats to the current appearance of the landscape. The data that this survey revealed and the statements made by the respondents with regard to the frequency of their trips to the National Park were combined to assess the effects of landscape changes on the recreation benefits of visitors. Furthermore, the willingness-to-pay, in terms of a hypothetical admission fee to prevent a further degradation of the ecological quality, was also ascertained.

The results show that the frequency of trips is significantly reduced if one of the scenarios were to become a fact. Annual recreation benefits (measured by the consumer surplus) currently amount to approximately EUR 1,040 per person, while the loss of recreation benefits, as a consequence of further changes to the landscape considered to be unfavourable by the respondents, would amount to EUR 329 to 475 per person. In addition, visitors stated an annual willingness to pay from EUR 23 to EUR 26 to prevent further negative developments. The conclusions that were drawn refer especially to the effectiveness of management in the Tatra National Park, to the combination of revealed and stated behaviour data, and the willingness-to-pay of the visitors.

1. Introduction and background

Within Central Europe, Slovakia is still a country rich in biodiversity where otherwise rare or extinct species, such as bears, wolves, chamois and eagles, can be found. The accession of Slovakia to the European Union has led to a significant economic development especially in terms of industrial production and tourism, of which the latter has particularly affected the Slovakian natural heritage. The current system of protected areas in Slovakia includes 9 national parks and numerous Natura 2000 sites which are conserved under the Birds and Habitats Directives issued by the EU; in total, approximately 29% of the land area is currently under some form of nature protection (European Commission, 2015).

Studies (e.g. WWF, 2004) have revealed that the current governance system of nature conservation is partially lacking in management effectiveness. In particular, the system lacks a zoning strategy, a strategy for research, and effective monitoring of protected and indicator species. Furthermore, management plans and efficient instruments for co-operation with the landowners and land-users within protected areas still have to be developed (Švajda and Fenichel, 2011; Crofts et al., 2005).

Historically, most of the Slovakian national parks have evolved from protected landscape areas (corresponding to the IUCN's management category V; cf. Dudley, 2008). Although the legislative mandate (governance) of Slovakian national parks corresponds to the IUCN criteria for national parks (category II), most of the parks continue to suffer from the extractive exploitation of natural resources, such as timber, within the park boundaries, and from insufficient investment in environmentally and culturally compat-

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ible, scientific, educational, and recreational programs (cf. Louette et al., 2011). The most significant pressures and threats to the Slovakian national parks – and especially to the Tatra National Park (TANAP) – are forestry, excessive tourism and recreation, infrastructure development, agriculture, hunting and poaching (Crofts et al., 2005). Unlike the Slovakian region of the Tatra mountains, the Polish region is managed more effectively in terms of Nature conservation and the benefits for the local economy (Getzner, 2010).

The current policies of developing tourist facilities in the Tatra National Park have led to substantial losses in biological diversity and to the disruption of natural processes (Crofts et al., 2005; Kopecka, 2011), although the highest priority according to the Slovakian Nature Conservation Law should be their protection. In many cases the relevant authorities (particularly in the process of Environmental Impact Assessment, EIA) fail to effectively prevent these losses and disruptions. Over the past two decades, the infrastructure for tourism has been developed both inside and outside the boundaries of the Tatra National Park. While subject to environmental impact assessments (EIA) according to the Slovakian Act No. 24/2006 on EIA, such assessments have failed to prevent developments, such as the construction of new ski resorts and infrastructure (TANAP, 2012). For instance, the ski resorts near the villages of Štrbské Pleso and Tatranská Lomnica will most likely cause irreversible damage to habitats of Community Importance (CI).

Against this background, the aim of this paper is to shed more light on the visitors' perspectives and perceptions of the landscape that has partially been changed from a pristine forest and alpine mountain area to a touristic landscape with hotels, the corresponding infrastructure for tourists, as well as ski lifts and ski slopes. In particular, the purpose of this paper is to find answers to the following questions:

- How do visitors to the Tatra National Park value the changes in the landscape with regard to its appearance, and the management of the national park?
- To what extent do visitors change their travel behaviour as a consequence of changes in the landscape?
- How much are visitors willing to pay to prevent (or to promote) the development of tourism in the national park?
- Would visitors accept it if access to ecologically sensitive areas of the park were prohibited?

The paper assesses these questions empirically by presenting the results of a survey of visitors at the Tatra National Park. Visitors were asked to state how frequently they make a trip to the national park, and if and how they would reduce or increase their visits if the landscape were to be altered as described in two tourism development scenarios. These scenarios were described both verbally and visually by means of manipulated photos of the area. The detailed answers in response to a questionnaire indicated that the visitors would significantly reduce the frequency of their visits, and this would lead to a loss of consumer surplus amongst today's visitors. The visitors also indicated a significant willingness-to-pay (WTP) for the prevention of the development of such scenarios. The paper thus adds an important aspect to the literature on the evaluation of the recreational functions of national parks based on the assessment of contingent behaviour. In addition, the consumer-citizen dichotomy of respondents in a survey can clearly be detected by the results of the case study.

The structure of the paper is as follows: in Section 2, there is a brief overview of former studies on contingent behaviour which presented respondents (visitors) with different scenarios and registered their reaction in terms of changes in the frequency of their trips to a recreational site. In Section 3, the Tatra National Park (TANAP), the site selected for this study, and the survey (including the different scenarios presented to the visitors) are described. In Section 4.1, the descriptive results of the study are discussed, and in Section 4.2, the econometric results with respect to the determinants of the frequency of trips to the national park are presented. In Section 4.3, the determinants of WTP are highlighted. Finally, in Section 5, the results are summarized and conclusions are drawn.

2. A brief overview of empirical studies on contingent behaviour (travelling)

The combination of revealed and stated preference data has been widely discussed in the literature (e.g. Englin and Cameron, 1996; Grijalva et al., 2002; Whitehead et al., 2000). More recently, Whitehead et al. (2008) presented an overview of the methodological issues dealing with the estimation of models of this kind, and the benefits and problems involved in combining data. The benefits lie especially in the exploitation and validity testing of both the revealed and stated preferences, and the larger samples that such studies involve. However, there are many particularities in estimating combined models, for instance, the issue whether revealed and stated preference data may be pooled, or whether panel estimations are considered more reliable. Recently, Hoyos and Riera (2013) presented a review of recreation studies combining revealed and stated preference data in which they show that there is currently no generally recognized approach with respect to including non-participants of the (on-site) survey, the econometric treatment, the chosen model, nor the exploration of the distributional assumptions and convergent validity (cf. also Jeon and Herriges, 2010).

Whereas the combined approach is one of the most frequently used methods for the purpose of evaluation in transport and health economics, contingent valuation and contingent behaviour are the two most commonly used environmental valuation methods. There are many different methods used in the environmental sciences through which the behaviour of individuals is revealed, such as the frequency of trips to a protected area, or to a recreational site. However, the quality of the environment may be rather stable, or may differ between sites only to a small extent. Thus, empirical research concentrates on the hypothetical variation of environmental quality (or other attributes) of the site. Visitors to a certain site are typically asked to state the frequency of their trips and their travel costs, and then for their hypothetical behaviour (trip frequency) contingent upon different states of the environment.

Changes in the quality of the environment may involve climate change scenarios, changes in the quality of water, or a different appearance of the landscape. Richardson and Loomis (2004) have tested the behaviour of visitors to the Rocky Mountains National Park contingent upon different scenarios involving, e.g. weather conditions. They show that the frequency of visits is significantly affected by a changing climate, and they forecast that the frequency of visits to the park will depend on such scenarios (cf. Simões et al., 2013; on the combined quality and price changes in a national forest; and Scott et al., 2007; as well as on the effects of climate and environmental change in the Canadian Rocky Mountains).

To the authors' knowledge, the combined approach is most often used for evaluating water resources. Loomis (2002) quantifies recreation use values obtained by removing dams and thus restoring free-flowing rivers in Washington State. The author pools the data on actual and contingent trips, and estimates the travel cost model by means of count data estimation. A similar approach is also used, for instance, by Prayaga et al. (2010) on valuing recreational fishing at the Great Barrier Reef (Australia), by Morgan and Huth (2011) on the value of cave diving in Florida, and by Hanley et al. (2003) on the benefits of costal water quality improvements. The surveys on which these studies are based include verbal