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Contingent valuation of urban public space: A case study of Ljubljanica riverbanks

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ABSTRACT

The article presents an economic valuation of the Ljubljanica riverbanks area, which is an urban cultural landscape with distinct qualities of international importance. For this purpose, we combined a classical contingent valuation with a closed-form version of discrete choice method, where the protest responses have been removed. By using econometric analysis, we obtained the willingness-to-pay (WTP) value and established its determinants. It was ascertained that residents derived more utility from implementation of the targeted development scenario than visitors. Thus, a discriminatory contribution scheme similar to the one with respect to the mean WTP could supply substantial revenue for further targeted development, while still providing ample consumer surplus for both residents and visitors. The present analysis represents one of the method's very few applications to urban landscape in Central and Eastern European countries.

1. Introduction

Landscape as defined by the European Landscape Convention is "an area as perceived by local people or visitors, whose visual features and character are the result of the action of natural and/or cultural factors" (Council of Europe, 2000). In this paper, we focus on urban landscape that encompasses urban open space with urban cultural heritage. The services provided by the urban landscape are recognised to have a variety of public good characteristics, when their consumption is both non-excludable and non-rivalrous (Hanley et al., 2009). The subject of our research is urban landscape or urban spatial goods that contain elements of public goods. Recently, the increasing demand for landscape services to urban population, such as opportunities for recreation, relaxation, education, environmental functions and aesthetic enjoyment, leads to rapid landscape changes (Brander and Koetse, 2011). These changes can be under- or overrated in the decision-making process. It is thus important that the impacts are evaluated in their monetary value and the spatial and environmental impacts are given appropriate weights in the decision-making process. However, the market fails to place an adequate value on landscape quality, when it is considered as a public good, which encompass both use and non-use values, and in this case non-market valuation techniques are used to estimate the monetary value of a landscape change (Garrod and Willis, 1999).

In this article, the spatial impact of the targeted development of the Ljubljanica riverbanks area is evaluated, together with its cultural and natural amenities. This is an urban area with distinct qualities of international importance in Ljubljana, the capital of Slovenia and the European Green Capital of 2016. The purpose of the study was to evaluate the overall value of urban spatial goods, i.e. the use value and the non-use value of urban open space and cultural heritage for residents and visitors to the area. For this purpose, the contingent valuation method was selected; mainly due to significant non-use values and many public goods in this area. Only stated preference methods, such as the contingent valuation method, can be used to estimate environmental and cultural values like landscape appearance, biodiversity, ecosystem services, preservation of cultural and art collections, artefacts and monuments, and features of old towns and villages (*cf.* Whittington, 1998; Garrod and Willis, 1999; Nunes et al., 2003; Bateman et al., 2002; Alberini and Kahn, 2006; Carson and Hanemann, 2005).

Contingent valuation surveys were first proposed in theory by Ciriacy-Wantrup (1947) as a method for eliciting the market valuation of a non-market good. The first practical application of the

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technique was made by Davis (1963) on the economic value of recreation in the Maine woods. A review of the theoretical and empirical basis of contingent valuation is presented in Mitchell and Carson (1989), Arrow et al. (1993) and, more recently, in Moons (2003), Venkatachalam (2004), Schläpfer (2006), Hoyos (2010), Noonan (2003), and Brander and Koetse (2011). Nowadays, the method is widely used in cost-benefit analysis and environmental impact assessment. In environmental economics, contingent valuation has also been extensively used to identify the economic values of natural landscape amenities. When the natural landscape area is of distinct quality or international importance and perceived non-use values are significant, contingent valuation is again preferred method among non-market valuation methods. However, as presented by D'Acci (2013), "the impact estimated for the same factor can vary widely from one research to another" and the reason is probably in using different variables, or differ in different sites, different times etc. Therefore, transferability of the results – estimation of monetized impacts for the same factor in time and space is limited. Recent applications relevant to our study include Hadker et al. (1997), Lindsey and Knaap (1999), Loomis et al. (2000), Navrud and Ready (2002), Laitila and Paulrud (2006), Bateman et al. (2006), Oueslati et al. (2008), Rulleau, et al. (2012), Soltani et al. (2015), and Vollmer et al. (2015).

The main concept of the contingent valuation method is to model individuals' responses in specific hypothetical situations. In *ex ante* analysis in the case of spatial evaluation, questions relate to the highest sum individuals are prepared to pay for a change (improvement or purchase) in spatial goods (willingness to pay – WTP). Changes in the level of spatial goods can then be described by a number of different development scenarios. Two development scenarios were drawn up for the purpose of this evaluation. In this article, we combine classical contingent valuation with a closed-form version of the discrete choice method, where the protest responses are removed. The present analysis represents one of the method's relatively few applications to urban cultural landscapes, compared to more common applications to rural or natural landscapes and environmental issues, and certainly one of its very few applications to Central and Eastern European countries (CEECs) in general. Among the scarce analyses available for CEECs, one should consult Tošovská (1996), Fomenko et al. (1997), Kluvánková (1999), Markowska and Żylicz (1999), Švejdarová and Mišovič (2001), Visintin (2004), De Groot (2006), Marangon and Visintin (2007), Verbič and Slabe-Erker (2009), Stejskal and Hájek (2015), Bartczak (2015), Sieber and Melichar (2014), and Grazhdani (2015).

The paper is structured as follows. In Section 2, the Ljubljanica riverbanks area is presented in brief. In Section 3, the process of forming the scenarios and questionnaire are described. In Sections 4 and 5, the article offers an analysis of the stated willingness to pay and an analysis of the 'true' willingness to pay, respectively. Section 6 refers to calculation of the aggregate annual revenue and consumer surplus under alternative contribution schemes. The article concludes in Section 7 by outlining the key findings and implications for policy and practice.

2. The riverbanks of the Ljubljanica

The area of the Ljubljanica riverbanks is located in the old town of the Slovenian capital city of Ljubljana (see Fig. 1 for the city centre area that is covered in this study). It is one of Ljubljana's most notable landmarks. In addition to the river itself, the area includes the riverbanks and the Grubar channel, stretching over a distance of two kilometres. The river is a hydrological and geomorphologic natural asset of national importance. Likewise, the shoreline is natural heritage. The quality of the natural landscape is based on numerous wetlands, rare plants and animal species.

The life along the river connects the 5000-year-old cultural heritage of pile dwellings, which is on the UNESCO World Heritage List of prehistoric pile dwellings of the Alpine region. Throughout history, the river has been an important traffic route for transporting goods. However, navigation on the river ceased after the Southern Railway to Trieste was constructed (1857). In the 18th century, the Grubar channel was excavated with the aim to improve the drainage of excess water and in the 1990s, boat tour rides on the river were revived.

The area is primarily known for its exceptional urban cultural landscape with several cultural heritage monuments designed by the architect Jože Plečnik. Plečnik originally intended to connect the two sides of the embankment with bridges and footbridges. The area was partly regulated in the 1930s in accordance with his ideas, but the overall ambitious vision was never realised. The bridges do not just connect the riverbanks, they connect people as well. People can take a walk by the river and enjoy the nature, as well as the metropolitan riverside cafe culture. However in the 1990s, the trend of neglecting the area by parking along the entire river reached the peak. The riverbanks were poorly maintained. The river traffic was unregulated. What was once a popular point of Ljubljana had become unattractive due to the insufficient spatial arrangement of municipal infrastructure (CCCB, 2011).

In 2006, the Municipality of Ljubljana started arranging and revitalising the riverbanks with the aim to support green mobility on and along the river, and to introduce a network of paths for relaxation, education and recreation on the riverbanks. The architects of the project "Ljubljanica river banks renovation" won the European Prize for Urban Public Space in 2012. So far, many new bridges have been built. A series of ports for tourist boats, the majority of embankments, and the walking trails along the river were newly decorated and refurbished. The completion of this comprehensive planning regime represents the wider area of Špica. This vision was used to design a scenario of targeted development for the purposes of evaluating the area.

3. Description of the procedures of formulating the questionnaire and scenarios

Two development scenarios were constructed for evaluating the area. An unplanned development scenario was drawn up as an extrapolation of the 1990s' state of affairs and tendencies in the area, while the scenario is based on targeted development and corresponds to a potentially optimal sustainable city. The final form of the scenarios and the scheme for presenting them took into account the findings from prior testing on a target group.

3.1. Description of the development scenarios

In the unplanned development scenario, the area has the image of an urban landscape from the late 20th century. The tendency of expanding the city by moving residents to the periphery is in progress. The attraction of the old city centre is being lost and economic effects are negative due to the reduced economic activity in the centre. Moreover, the area is neglected and unregulated in terms of infrastructure and transport. The riverbanks are difficult to access and are not connected; very little space is reserved exclusively for pedestrians. The area, once a popular point of Ljubljana, has become unattractive due to the lack of spatial regimes and poor quality of the social programme (see e.g. the Gruden embankment in the left side of Fig. 2). The Ljubljanica is losing the spirit of the architect Plečnik, and is becoming deprived of its leading role in the urban public space.