

ANALYSIS

The benefits and costs of riparian analysis habitat preservation: a willingness to accept/willingness to pay contingent valuation approach

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Abstract

The Contingent Valuation Method (CVM) was used to obtain the willingness to pay (WTP) of households in the contiguous area of the Garonne River near Toulouse, France, and the willingness to accept (WTA) of households that currently own land on the banks of the river to provide a strip of riparian land for habitat preservation. Results for the WTP study indicated a relatively large difference in WTP between open and closed ended responses. When corrected for the substantial number of 0 observations, the WTP was reduced by about half. The WTA results were constrained by relatively few positive responses. However, the value given by farmers who indicated a positive WTA appears consistent with revenues generated from crops. Moreover, many farmers who were already providing habitat preservation indicated a zero minimum WTA. Although the small number of WTA responses severely limits the ability to draw definitive conclusions, a comparison of the derived benefits (WTP) and costs (WTA) was made, which appeared to suggest the possibility of a favorable a benefit/cost ratio.

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1. Introduction

The United Nations conference at Rio de Janeiro in 1992 encouraged participating countries to combat environmental problems they face together, including global warming and forest,

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animal and plant preservation. Ecologists agree on the important role played by riparian forests along rivers. Riparian forests mitigate flooding, serve as temporary reservoirs, stock the water surplus the river is unable to evacuate at any given time, prevent bank erosion, improve water quality by filtering nitrates and other compounds from runoff, and preserve habitat for plant and animal species. At approximately the same time as the Rio conference, European Common Agricultural Policy attempted to incorporate environmental issues, such as reduction of pollution associated with farming practices, into policy. The reform was based on a system of direct payments to farmers to either reduce pollutants or to cease production on some land (Bonnieux and Rainelli, 1996). Whitby and Saunders (1996) reported on environmental protection and preservation using various contracting agreements in UK.

In 1997, following the reform, a study was financed by the French Ministry of Environment to evaluate the costs and benefits of preserving riparian habitat on the banks of the Garonne River in the reaches near Toulouse, France (Amigues and Desaignes, 1999a). The wetlands adjacent to the Garonne River are under pressure from agriculture through erosion and irrigation. This area was chosen because it has been extensively studied by ecologists from the national center for scientific research (Descamps, 1987; Descamps et al., 1998).

To our knowledge it is the first attempt to do a full cost–benefit estimation of preserving biodiversity, and more precisely riparian forests. Generally, one can find cost–effectiveness studies of biodiversity management (Ferraro and Simpson, 2000; Wynn, 2001; Whitby and Saunders, 1996; Macmillan et al., 1998), non-use benefits valuations (Garrod and Willis, 1997; Shyamsundar and Kramer, 1996), or studies trying to ‘price’ biodiversity (Montgomery et al., 1999), but not a complete study including losses and benefits for the different parties involved in a biodiversity conservation program.

The contingent valuation method (CVM) was used to determine the willingness to pay (WTP) of local residents for that preservation (Amigues and Desaignes, 1999b). In addition, the same method

was used to estimate the willingness to accept (WTA), or minimum compensation, of households currently owning land on the banks of the river to preserve riparian habitat.

2. Description of the study

2.1. Study area

The Toulouse metropolitan area is located in the South–central portion of France. It contained slightly more than 750 000 residents at the time of the study. The WTP included the entire metropolitan area. The WTA site under study begins north of Toulouse and continues approximately 100 km downstream in the direction of Bordeaux (east). This is mainly a rural zone, except along the outskirts of Toulouse, which contained about 250 000 residents. There were slightly over 400 households who own land along this reach of the river. These households typically sub-lease, farm, or live on the land, or some combination of the three. Often a small strip of land along the river is already left unused. Since the Garonne River is part of France’s ‘Domianial Rivers’ (meaning they are in the State’s eminent domain), owners are legally required to leave an unused 3 m wide strip of land along the river as a right of way. The proposed preservation program in this study suggested a strip of land significantly larger (10–50 m wide). For those who utilize the land to the right of way, any widening of that right of way might represent an important economic loss. Some owners already leave more than 3 m along the river’s edge.

2.2. Willingness to pay

The WTP approach was based on the standard, well-known theory (Bishop and Heberlein, 1979; Hoehn and Randall, 1987, for example). A random sample of households for the WTP questionnaire was selected to be representative of the total population in the study area (Departements Tarn-et-Garonne and Haute-Garonne), based on household data from the Institut National de la Statistiques et des Etudes Economiques (INSEE).

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