

Retraction Notice

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History

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Correction:

- yes, date: yyyy-mm-dd
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Comment:

The paper does not meet the standards of "Journal of Geosciences and Environment Protection".

This article has been retracted to straighten the academic record. In making this decision the Editorial Board follows [COPE's Retraction Guidelines](#). Aim is to promote the circulation of scientific research by offering an ideal research publication platform with due consideration of internationally accepted standards on publication ethics. The Editorial Board would like to extend its sincere apologies for any inconvenience this retraction may have caused.

Editor guiding this retraction: Prof. Valentine Udoh James (EIC of GEP)

Altruism and Willingness to Pay for Environmental Goods: A Contingent Valuation Study

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Abstract

This study aims to reexamine the relationship between altruistic orientation and individuals' willingness to pay (WTP) for environmental goods using contingent valuation. Altruistic motivation is known to be an important determinant of WTP. In the attitudinal scales used in previous research, the context of questions about altruistic motivations is specific to environmental issues. Instead, this study employs other psychological scales that measure altruistic orientation in a more general context, independently from environmental issues. The result is consistent with previous studies, but the impact of altruistic orientation is rather limited. This difference suggests that the context of questions may enhance respondents' consciousness about the environment and bump up the value of their WTP.

Keywords

Contingent Valuation, Altruism, Wetlands

1. Introduction

This study aims to reexamine the relationship between altruistic orientation and individuals' willingness to pay (WTP) for environmental goods using contingent valuation (CV). The CV method traditionally has been used as a powerful tool to estimate the value of environmental resources [1], with considerable past research focused on wetlands (e.g., Stevens *et al.* [2]; Blomquist and Whitehead [3]; Morrison *et al.* [4]; Spash [5]; Hammitt *et al.* [6])¹. In the CV approach, respondents are asked how much they would be willing to pay to protect the environmental good in question.

¹For a summary and meta-analysis of CV studies of wetlands, see Brouwer *et al.* [7] and Brander *et al.* [8].

A growing pool of results from CV surveys has started to suggest that not only socio-economic characteristics, but also motivational variables on environmental goods, such as biospheric or egoistic variables, have the potential to influence estimated WTP (e.g., Diamond and Hausman [9]).

One of the most prominent and typical motivational variables is “altruism”, which reflects the extent to which an individual exhibits voluntary behavior intended to benefit others². As pioneering works, Spash [11] and Ojea and Loureiro [12] used attitudinal scales to incorporate altruistic variables into their CV estimates of WTP³. Their results showed that altruistic motivations are an important determinant of WTP. In the attitudinal scales used in their survey, the context of questions about altruistic motivations is specific to environmental issues.

An overlooked point within this method is that questions directly linked to environmental concern themselves might affect respondents’ beliefs (e.g., how they should behave toward the environment in question), and thereby respondents’ responses to subsequent questions about their WTP, or vice versa. To illustrate this possibility, differently from previous research, this study employs other psychological scales that measure altruistic orientation in a more general context independently from environmental issues. It is based on a survey we undertook at a scenic lake in Japan to obtain the data needed for CV analysis.

2. Survey Design

2.1. Study Site Description

The study was conducted at Mikatagoko, which means “a group of five lakes” in Japanese, one of the most popular scenic sites in Japan’s Wakasa Bay Quasi-National Park in Fukui Prefecture. In 2005, the lakes were registered as wetlands of international importance under the Ramsar Convention. Each lake’s waters exhibit different characteristics, being freshwater, saltwater, or brackish, and therefore, they host different species of fish. In addition, the lakes play an important role as wintering habitats for more than 10,000 water birds, including Steller’s and white-tailed sea eagles.

2.2. Sampling Procedures

The field survey was conducted at Mikatagoko in July 2013. Of the 630 participants, 33% were residents in Fukui Prefecture, and the remaining 67% were tourists from other prefectures.

A common CV study format was used to elicit individuals’ WTP to protect threatened lakes. Respondents were presented with a hypothetical scenario in which a lacustrine landscape was degraded and then, were asked two yes/no questions. The first question was “Would you be willing to pay X yen per year to protect the landscape of the lakes?” If the individual answered “yes” (“no”) to the first question,

²Another representative motivation is “warm glow”, that is, the moral satisfaction derived from the act of giving. Nunes and Schokkaert [10] investigated the influence of warm glow and succeeded in computing a “cold” WTP by excluding its effect.

³Liu *et al.* [13] included altruism in their estimation of mothers’ WTP to protect themselves and their children from minor illnesses.

he or she was then asked a second question about his/her willingness to pay a higher (lower) amount. That is, the follow-up question depended on the answer to the first question, and the method elicited two answers for each individual.

Three payment schemes were prepared, as shown in **Table 1**. In each scheme, T_1 is the first amount offered, and T_2 (T_3) is the amount offered after an individual answered “yes” (“no”) to the first offer.

2.3. Measuring Altruistic Orientation

Altruistic orientation was measured using psychological scales based on Rushton *et al.*'s [14] scales. The scales were based around the depiction of a man, who was described within the context of Japanese culture. The scales ranged from 10 to 50, with a higher score indicating that a person has a more altruistic orientation.

3. Results

Table 2 lists the independent variables used to estimate the WTP, along with their values. *Gender* and *Employment* are dummy variables, and *Income* is a categorical variable. **Table 3** summarizes the results of the maximum likelihood estimation⁴. The mean WTP for protecting the lakes was estimated at approximately 1704 yen, based on the independent variables' mean values.

As shown in **Table 3**, the altruistic orientation score represented by the psychological scales was significant at the 1% level. In other words, in a more general sense, the more altruistic a person is, the more he/she appreciates the value of the lakes. This result is consistent with previous studies, in which altruism is defined in the context of environmental issues. However, in spite of the strong significance found in this study, the impact of altruistic orientation is rather limited

Table 1. Payment schedule.

Number	T_1	T_2	T_3
1	800	1000	500
2	1000	2000	800
3	2000	3000	1000

Table 2. Independent variables used in the estimation.

Independent variable	Value
Age	Numerical variable ranging from 20 to 82
Gender	1 if male; 0 if female
Employment	1 if full-time; 0 otherwise
Income	Categorical variable representing income, in million yen per year (categories: 2<, 2 - 3.99, 4 - 5.99, 6 - 7.99, 8 - 9.99, 10 - 11.99, 12 - 14.99, 15 - 19.99, 20≤)
Altruistic orientation	Numerical variable ranging from 10 to 50

⁴For the estimation of double-bounded models, see Hanemann *et al.* [15].

Table 3. Results of maximum likelihood estimation.

Independent variable	Coefficient	Standard error
Age	8.067	6.085
Gender	-362.126*	188.916
Employment	456.181**	198.802
Income	-27.095	57.434
Altruistic orientation	35.970***	12.258
Constant	626.832	426.917
Mean WTP	1704.156***	106.238
Log likelihood	-692.627	
Chi-square	17.16***	
Number of observations	630	

Note: *denotes significance at the 10% level. **denotes significance at the 5% level. ***denotes significance at the 1% level.

compared with the previous literature, the coefficient is 35.970. This difference suggests that the context of questions may enhance respondents' consciousness about the environment and bump up the value of their WTP.

As for the other independent variables, the gender variable was significant at the 10% level and the coefficient is negative, suggesting that women are more willing to pay for environmental goods than men are. This is a frequently observed result, not only in our survey (e.g., Dupont [16]). In addition, the employment variable was significant at the 5% level and its coefficient was approximately 456, which is relatively large based on the mean WTP value estimated. That is, having a financially secure profession can be a boundary for highly valuing environmental goods.

4. Concluding Remarks

This study confirmed a strong positive correlation between altruistic orientation, as represented by psychological scales, and individuals' WTP for environmental goods. Unlike past surveys, respondents' altruistic orientation was measured in a more general context, not defined in the context of environmental issues. The result of the positive effect of altruistic orientation is consistent with Spash [11] and Ojea and Loureiro [12]. However, in our survey, its impact on the WTP value was more limited, suggesting the possibility that the context of questions may affect respondents' consciousness about the environment and raise the value of their WTP.

Since we did not rigidly investigate how the context of questionnaires influences respondents' belief formation and therefore, their WTP for environmental goods, a systematic investigation of this remains as the next research agenda.

A second important topic for research on environmental evaluation is gender differences in WTP for environmental goods, as observed in the present survey. While Dupont [16] suggested that women are willing to pay more to avoid environmental health risks for their children, some economic experiments (e.g.,

Andreoni and Vesterlund [17]) suggested that women are more cooperative than men are and tend to value equal outcomes more. Motivational research might provide a clue for figuring out gender differences.

Finally, since the sample size is insufficient to represent the full population of the study site, these results might reflect only the preferences of a particular group of people⁵. Future research should seek to increase the sample size and thereby verify the robustness of the results.

Acknowledgements

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⁵For a discussion on representativeness—*i.e.*, the extent to which people are involved in the issue and which groups should be included within the sample population—see Carson *et al.* [18].

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