

CULTURAL DIFFERENCES IN A CONTINGENT VALUATION
SURVEY OF TURTLE PROTECTION

EILEEN E. ALICEA
MAF 502
NOVEMBER 19, 1997

CULTURAL DIFFERENCES IN A CONTINGENT VALUATION SURVEY OF TURTLE PROTECTION

Legislative mandates like the National Environmental Policy Act of 1969 and the Superfund law of 1980 (CERCLA) encouraged government to focus more attention on methods that place economic value on natural resources.¹ The problem of placing monetary values on public goods that are not traded in the market has been a controversial one due to the challenge of placing a price on the existence value of a natural resource. Currently, the most accepted method for valuation of environmental goods is the Contingent Valuation (C.V.) method. According to Mitchell and Carson, the C.V. "... method represents the most promising approach yet developed for determining the public's willingness to pay for public goods"² The authors go on to explain that the method uses fewer assumptions and can measure benefits that other approaches can only do with difficulty. It has further been stated that "(i)t is the only method that has any hope of measuring 'existence value', i.e., the value that individuals place on simply knowing the natural resource exists in an improved state."³

The C.V. method involves the presentation of a survey that describes a hypothetical market and contains questions designed to elicit the respondent's preference and willingness to pay for a natural resource. It has been reported by Jakobson and Dragun that "(t)he conservation of endangered flora and fauna is one of the areas in which few attempts have been made to evaluate the costs and benefits in monetary terms."⁴ The authors go on to explain how valuation of flora and fauna can contribute towards the formation of social policy and allocation of resources and priorities in conservation programs.

In this study, a C.V. survey was conducted using a split sample approach to determine the mean willingness to pay (WTP) for endangered marine turtle protection. The purpose was to determine whether there would be a significant difference in WTP between monolingual Spanish speakers and English speaking persons that included bilingual speakers. The hypothesis was that monolingual Spanish speaking respondents would be less willing to pay for protection of endangered species due to the lower income and educational status associated with non-English speakers in the US.

DESIGN AND METHODOLOGY

A survey of 13 structured questions with discrete choices was prepared in Spanish and English. It first elicited information about demographics including zip code, age range and whether the person owned or rented housing. Lastly, the turtle protection question inquired about willingness to see part of Hobie beach closed for an endangered sea turtle nesting site, particularly the Loggerhead and Kemp Ridley turtles. The C.V. question presented a range of amounts for WTP for such a nesting site (See Appendix 1 & 2).

The population to be sampled included all the Florida residents and tourists who visit Hobie Beach along the Rickenbacker Causeway in Miami. The survey was presented to 111 of these persons: 40 monolingual Spanish speakers and 71 bilingual and English speakers. Respondents were interviewed in person at the beach site. The interviews were conducted on two weekend days and three weekdays to obtain a representative sample of beach users. Each third person or group of persons who was settled on the beach was approached. The respondents were initially addressed in English to determine their response to the English language survey. If they indicated

lack of comprehension, the survey was conducted in Spanish. There were two surveys that were started in English and finished in Spanish because the respondents were not able to understand the crucial C.V. questions in English. These surveys were counted in the monolingual Spanish group. Fourteen English language respondents filled out the surveys independently. The zip code information was used to obtain the median⁵ household income' of each geographic area represented in the sample, except for the two European tourists in the English language sample.

RESULTS

The hypothesis of this study was the following: given the historically lower socioeconomic and educational status of monolingual Spanish speakers in the US, it was expected that this group would have a lower support for endangered species protection and WTP for that protection. It was assumed that lower educational level included a lower environmental educational status that would affect their appreciation of natural resources and, therefore, their decision about protecting such resources. Analysis of the results proved the contrary. At first glance, it can be observed in Graphs 1 and 2 that the Spanish and English language groups demonstrated very close percentages for the **Yes** response for turtle protection (85% for Spanish group; 80% for English group). In fact, Spanish speaking persons demonstrated a slightly larger preference for turtle protection. The C.V. question also revealed, at a glance (Graphs 3 & 4), that percentages of the samples' WTP less than \$1.00 were close (30% for Spanish group; 33.8% for English group). The WTP \$1-2 was also close (42.5% for Spanish group; 38.03% for English group).

The **t test** is a statistical method of assessing significance of differences between two means obtained for the same variable. A **t critical two tail test** at the 5% confidence level was applied to the differences between the means for the Yes/No responses and for the C.V. responses. **Table 1** shows the t critical value of **1.98** obtained for both sets of means. These values reveal no significant difference between the means of the responses given by the Spanish and English language groups.

Table 1-Critical two tail test at 5% confidence level

	English Sample 71 respondents	Spanish Sample 40 respondents	Critical t value
Yes/No response to Turtle Protection	Mean=1.197	Mean=1.128	1.98
C.V. Question 1=<\$1 2=\$1-2 3=\$2-3 4=\$3-5 5=\$5-10 6=\$10+	Mean=2.08	Mean=2.05	1.98

It should be noted that the age distribution of both groups were different (Graphs 5 & 6). The younger population (16-35 years old: 55% of total sample) was more represented in the English language group, and the older population (46-55+ years: 37% of total sample) was more represented in the Spanish language group. Another difference found in between groups pertained to income levels (Graphs 7 & 8). It is clear that the larger English language group demonstrated more of a normal distribution curve for income with most of the respondents (39%) falling between \$25-35,000/yr. median income. There were also more persons in the highest income levels of \$35-62,000 in the English language group, which created the need for an extra income category. The median income graph for the Spanish language group demonstrated peaks at different income

levels with large representation at the lower levels (\$9-20,000/yr.) and at the middle levels (\$25-30,000/yr.).

The last comparison analyzed was median income categories as related to Yes/No responses for turtle protection and WTP for the protection. **Graph 9** reveals a generally positive response for most income levels of the Spanish group. Within the English language responses, the graph reveals a more positive response in the two lower income levels. It was surprising to see how the highest income levels of the English group provided the most negative responses. On **Graph 10**, we can observe the percentage of respondents of different income levels in relation to WTP categories. The \$1-2 response was the most common overall. However, it was noted that the lowest income group had a higher willingness to pay the \$2-3 price more often than most of the other income groups. The highest income group did not go higher than the \$2-3 price.

Graph 11 shows the WTP in relation to income levels for the Spanish language groups. Overall, the <\$1 and the \$1-2 responses were the most selected categories. However, it was noted that there were more \$2-3 selections in the lower income levels than in the higher income levels. The high income level did not even have a category of \$2-3. Overall, the patterns of choices for most income levels were very similar for both groups.

DISCUSSION AND CONCLUSION

Overall results of this C.V. study revealed that the original hypothesis was disproved: language differences and income levels did not result in less valuation of turtle protection in terms of willingness to provide for their protection as well as WTP for that protection. It had been assumed that monolingual Spanish language status and income differences

implied lesser WTP for endangered species. In this case, it could also be stated that an assumed low general and environmental education level did not affect the willingness to protect and pay for the species. Monolingual Spanish language respondents accepted turtle protection and were willing to pay for it at the same rate as English speakers (including bilinguals). Income level was also not found to correlate with willingness to protect the species and WTP. The vast majority of all categories of income of both language groups responded positively to turtle protection. The WTP pattern for income levels was generally similar in both groups, although, the lower income groups contained respondents willing to pay the higher than average amount of \$2-3 more often than upper income level respondents.

There can be many reasons, not related to educational and income levels, why monolingual Spanish speaking respondents would support protection of endangered species at the same rate as other samples of the population that visits Hobie Beach. The vast majority of the respondents, although unfamiliar with the specific marine turtle species names, revealed immediate concern about the species' right to exist. Comments like "Of course, they also have a right to live" were common. This could be due to an environmental sensitivity developed in their native countries prior to arriving at the United States. It is possible that some of the respondents lived in coastal cultures or were aware of the arrival of marine turtles in their country. Marine turtle arrivals are very common in Mexico, Central America and the Caribbean. The assumption that environmental education does not reach Spanish language media may have been disproved. Spanish television programs, specially true to life programs, may be more common than originally thought and may increase sensibility towards animal species. It is not known how much

religious beliefs influenced the responses. Religion plays an influential role in the daily lives of most Hispanics and good will toward animal species could be considered part of those religious beliefs. There is always some possibility that the respondents were providing the answers that they thought would be expected from the interviewer. It is very difficult to determine if persons are giving the answers they would actually put into practice but this determination was not within the scope of this study. This interviewer presented the questions in a uniform and objective manner and was able to determine the respondents' sincerity through their attitudes and nonverbal behaviors.

There can be many reasons for the lower income persons offering the higher than average amount of \$2-3 more often than the higher income groups of both languages. These reasons involve speculation and could include a lesser attachment to material things simply because not many are owned; a greater appreciation for natural resources because they are inexpensive, easily available and fall within their limited budgets; and, possibly, a lack of understanding of the question itself. They may have thought they were being asked how much **it would take** to preserve the area instead of simply giving the amount they were **willing** to spend. Simply stated, throughout this interviewer's life work and experience, a great generosity has generally been observed among lower income persons.

There are several cautions that should be considered in this study. There is the possibility that the mostly younger English language sample was being inappropriately matched with mostly older Spanish language respondents. Both groups would be expected to be less willing to spend than the middle aged and more economically established persons. The reason for the uneven distribution of median income in the Spanish language sample remains undetermined. The large number of Hobie beach users

in the low income end could simply be due to the inexpensive nature of attending the site since the only expenses are essentially for the gas and the toll fee.

RECOMMENDATIONS

The following recommendations are provided for any future C.V. studies in the Virginia Key and Key Biscayne areas.

- 1) The C.V. question should be reworded to say "**If there was** such a nesting site, how much more would you be willing to spend for parking or beach entrance (not toll) in support of the site?" It is unclear if the present question is asking WTP if there was a site set already or WTP after they agree to set apart a site. The interviewer should be explained that the toll fee is not included as "beach entrance". The toll issue and its increases across time were negative issues that brought complaints from respondents and could affect results if it is mixed with WTP for endangered species.
- 2) Both English and Spanish language results should be compared with results obtained at the other Key Biscayne sites of Crandon Park and Bill Baggs State Park. It would be interesting to observe if there would be a difference between Hobie beach Spanish and English language respondents and English language respondents at other sites.
- 3) It would be interesting to conduct closer analysis of WTP as related to age.
- 4) Provide the opportunity to begin the field study much earlier in the semester.

ENDNOTES

¹ Lipton, D. and Wellman K. June 1995. Economic Valuation of Natural Resources: A Handbook for Coastal Resource Policy Makers. p. 5

² Mitchell, R.C. and Carson, R.T. 1989. Using Surveys to Value Public Goods: The Contingent Valuation Method. p. 2.

³ See Supra, note 1. p. 53.

⁴ Jakobson, K.M. and Dragun, A.K. 1996. Contingent Valuation and Endangered Species: Methodological Issues and Applications. p. 4.

⁵ Dept. of Commerce. "Income of all members 15 years old and over in each family." 1990 Census of Population: Social and Economic Characteristics. Florida. Section 3, p. B-16.