

The Effects of X on Y : a Microeconomic Analysis

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Introduction

Submerged maritime cultural resources (i.e., historic shipwrecks) can be valuable archaeological sites with information that helps to understand past societies and the development of maritime activities throughout the world. In contrast, the market value of a historic shipwreck is the price of the artifacts salvaged from a shipwreck as determined through auction or direct sale. Contemporary salvors (i.e., treasure hunters) find profit by salvaging abandoned ships or ships in distress, a practice rooted in ancient law.

Another market value related to historic shipwrecks is the expenditures made by visitors to maritime museums, historic ship replicas, and decommissioned ships. The creation of museums and exhibits protects historic shipwrecks but they still entail the removal of the wreck and its contents from underwater. Such a venture is not economically viable for all wrecks. The cost of excavation and conservation of shipwrecks is high. Most archaeologists, historians, and even the general public would not want all shipwrecks disturbed in this manner. Ships considered tombs to those who died there, ships with historical significance, and ships too fragile to safely excavate could be maintained as underwater preserves.

In contrast to salvage value and tourism expenditures, the non-market value of shipwrecks includes the use and non-use value of the services of historic shipwrecks. Use value includes the benefits to recreational divers who enjoy historic shipwrecks as destinations. Non-use value includes the benefits to people who enjoy knowing about historic shipwrecks without on-site use. Non-users of shipwrecks might include tourists who gain knowledge by visiting coastal areas, waterfronts, maritime museums and ship memorials. The knowledge can also be obtained through reading and watching television programs.

Nevertheless, salvage is usually the only economic value typically considered when

investigating the value of shipwrecks. In this context, Kaoru and Hoagland (1994) suggest that application of the contingent valuation method is the preferred methodology to obtain estimates of the value of shipwreck protection in order to balance the competing demands of shipwrecks. In one related application, Vrana (1992) estimates use value by asking respondents about willingness to pay for permits to dive in a hypothetical Great Lakes park that includes historic shipwrecks.

Critics of the contingent valuation method argue that willingness to pay, and especially non-use value, is insensitive to scope (e.g., Diamond and Hausman, 1994). Scope insensitivity exists if willingness to pay estimates for a public good and a public good of greater quality or quantity are not significantly different. The critics argue that scope insensitivity renders the contingent valuation method invalid for policy analysis. Others argue that findings of sensitivity to scope are common (e.g., Hanemann, 1994) and that the scope test is not a critical test of the validity of the contingent valuation method (Randall, 1998). In fact, the only theoretical requirement is that willingness to pay should be *non-decreasing* in scope (Whitehead, Haab, and Huang, 1998). In their review of the cultural resource valuation literature, Navrud and Ready (2002) find that no contingent valuation of culture study to date has tested for scope effects. In this paper we provide the first application that considers whether willingness to pay for cultural resources are sensitive to scope.

We use both single-bound and double-bounded willingness to pay questions. Double-bounded willingness to pay questions are prone to incentive incompatibility (Alberini, Kanninen, and Carson, 1997). Incentive incompatibility exists if respondents use different decision rules when answering the first and second willingness to pay questions. For example, respondents who vote for the project may perceive that government is wasting money when they are confronted

with a higher tax amount. Respondents who vote against the project may perceive that the project will be of lower quality when confronted with a lower tax amount. In both cases there are incentives to vote against the project in the second question, regardless of true willingness to pay, and the second willingness to pay amount may shift downward. We adopt a suggestion made by Alberini, Kanninen, and Carson (1997) in an attempt to minimize incentive incompatibility.

The primary purpose of this paper is to determine whether there are potentially significant non-market values for managing historic shipwrecks as submerged maritime cultural resources rather than as salvageable market commodities. We use the contingent valuation method to estimate this value and consider the issues of scope and incentive incompatibility with double-bounded valuation questions. In the next section we provide a description of the survey and the responses. Next we describe the willingness to pay models. Then we present the empirical results. Finally, we offer some conclusions.