

Great Barrier Reef Valuation Concentrated on a Narrow Range of Ecosystem Services

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Abstract

Economists have long recognized that there is a multiplicity of values associated with the environment and have coined terms such as total economic value, direct-use value, indirect-use value, and non-use valued to help describe those concepts. A vast body of literature on different techniques for attempting to derive monetary estimates of those values now exists, and interested readers are directed to getzner. Suffice to say here, none of the valuation methodologies are flawless, and most are surrounded with at least some controversy, the accuracy of final estimates. Each requires different types of information as an input, and produces sometimes subtly different information as output.

Keywords: Ecosystem; Environmental Economics; Total Economic Value; Valuation Methodologies Controversy; Monetary Estimates

Introduction

However, if used correctly, the valuation exercises allow one to explicitly account for goods and services that might otherwise go unrecognized. Multiple classification systems exist for assessments of ecosystem services, and these different approaches are needed. Yet despite the fact that the terminology used by economists in their total economic value framework differs from that of the classification system used in the Millenium ecosystem assessment, it is important to note that the values identified by these frameworks are quite similar. Illustrated, which lists a variety of different values that economists have associated with coral reefs, categorized as direct-use, indirect-use, and non-use values in accordance with the total economic value framework. Each of those values has also been categorized using the Millenium ecosystem assessment framework using colour arrows. Other researchers might well choose to classify the ecosystem services identified in the Millenium ecosystem assessment into different categories. But renaming would not change the main message conveyed by each framework, namely that there are a multiplicity of values that humans derive from the environment. Moreover, renaming would not alter the fact that both frameworks identify similar types of values. For example, many of the provisioning services highlighted in the Millenium ecosystem assessment are also clearly identified within the total economic value frame-work, although in this latter framework they are classified as types of use-value. Similarly, regulating services also appear within the total economic value, although most are referred to as indirect-use values. So too, are the cultural services to which the Millenium ecosystem assessment refers included in the total economic value, although in the latter framework, they are most often referred to as recreational, existence, or bequest values [1-5].

Discussion

The key point to be made here, therefore, is that those interested in valuing the environment or the ecosystem services that an environment provides must consider a range of different factors. It is not sufficient to consider just one or two particular aspects e.g. recreation and fishing. Ecosystem services valuation studies in the Great Barrier Reef The Australian Bureau of Agricultural and Resource Economics has been collecting information on the value of the region's fisheries for more than a quarter of a century. Yet, valuation studies of the Great Barrier Reef arguably began with driml study. Using input-output analysis, driml estimated the financial impact that a range of different

reef-based activities had in the Great Barrier Reef region. Taking a slightly different approach, Fenton and Marshall provided a social and financial profile of harvesters, charter fishing operators, and commercial fishing operators, estimating the gross value of production for these groups in several fishing communities. Although the focus of their study was not on these other industries, or on the trade-offs that might occur between and within them, the fact that non reef- based industries were at least acknowledged in the introductory section of their report was important, their activities clearly have an impact upon the Great Barrier Reef, and hence affect the values of the Great Barrier Reef. Second, the study did not simply attempt to estimate the value of the reef. Instead, it sought to quantify the way in which values might change in this case, in response to the rezoning of the reef. Specifically, they estimated the value of fishing foregone because of the rezoning per annum between few cents per Australian. This heralded the beginning of a new era of research in the Great Barrier Reef, one in which a wider range of values were investigated for a wider variety of scenarios e.g. exploring the way in which values might change in response to other factors, using a wider range of techniques. With regard to the methods used, few studies investigated more than just the expenditure of the tourism and/or fishing industries, although there are three examples using different methodological approaches. First, Hundloe set out to estimate the likely economic impact of the crown of thorns star-fish. In doing so, they used the travel cost model to estimate the consumer surplus associated with recreation, and they also conducted a contingent valuation study of the non-use values associated with vicarious users. They found that the consumer surplus associated with recreation/tourism on Great Barrier Reef was close per annum and that the value of coral sites to vicarious users. Second, Knapman and Stoeckl used the travel cost model to estimate the consumer surplus associated with recreation on Hinchinbrook Island within the Great Barrier Reef, they also looked at the price elasticity of recreation demand, concluding

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that recreation user fees may be both an efficient and an equitable way to raise money. Finally, Watson used simulations to try and estimate the annual yield and landed value of prawns that could be harvested from healthy sea grass beds. These three studies were, however, isolated examples; it was not until the turn of the century that a larger group of researchers began to regularly employ a broader range of methods to investigate a broader range of issues. One of the first of the new wave of studies was that of Carr and Mendelsohn who used a travel cost model to estimate the consumer surplus associated with tourism in the Great Barrier Reef [6-10].

Conclusion

This research was closely followed by that of Windle and Rolfe who used choice modelling to conduct what is probably only the second study of non-use values in the Great Barrier Reef region. Focusing on the Fitzroy estuary, a catchment adjacent to the Great Barrier Reef, they found that people who lived outside the region specifically, Brisbane householders, living approximately km away from the Fitzroy estuary would be willing to pay up per annum for improvement in the environmental health of the estuary. As regards an overall assessment of all ecosystem services values associated with the reef. Perhaps, the first study that sought to comprehensively value a multiplicity of services provided by the Great Barrier Reef. Yet, although these researchers were able to access regionally relevant data on tourism/recreation values, all other estimates of the value of ecosystem services provided by the Great Barrier Reef were created via benefit transfer. Indeed, Asafu did not collect any new, primary data. Consequently, their contribution to the research was not so much an addition of new knowledge, but a new assemblage of existing knowledge.

Acknowledgment

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Conflict of Interest

None

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