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The Role of Economic Valuation in the Conservation of Tropical Nature

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Economic valuation of tropical nature can play an important role in the conservation of biodiversity in developing countries. It can be described as the first part of a strategy, nicely elaborated by the late David Pearce, that involves the "demonstration and capture" of the value of tropical biodiversity (Pearce 1996). In Pearce's case, he was referring especially to the demonstration of global (i.e., developed country) values for tropical forests, but the principle applies equally to the harnessing of local environmental values to serve conservation purposes. Pearce's two-pronged approach suggested using valuation methods to demonstrate that the environment has important value to at least some people, and then developing the appropriate institutions that would allow this value to be "captured" by those who make land-use decisions and who do not currently factor in (social) benefits obtained through conservation.

Here, after a brief recap of how economic valuation can aid in conservation, I elaborate on some of the issues surrounding the utility of economic valuation as a tool to promote environmental conservation among decision makers and the general public in the tropics. These include retaining credibility, the distribution of benefits, methodological issues, and the tension between science and advocacy for conservation.

How Can Economic Valuation Benefit Conservation?

The rationale for economic valuation of the environment has been put forth on numerous occasions (Odling-Smee 2005; Randall 1991) and generally enjoys widespread and increasing recognition as a powerful tool to be used in analyses of environmental conservation. Economic valuation can serve at least two useful purposes for conservation. First, valuation can provide information that can directly inform conservation policies, such as payment levels for payments for environmental services (PES) policies, or entrance fees for protected areas (Chase et al.

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1998). Second, and perhaps more important, valuation studies can be used in a general sense to demonstrate that the conservation of nature can result in tangible economic benefits to people. The resulting values can either be directly compared to other potential uses of land through cost-benefit analysis (Pearce 1998) or can simply serve to raise awareness among policy makers or the general public of the heretofore unrecognized economic benefits of conservation.

In both cases, the power of valuation lies in translating "hidden" benefits of the environment into a monetary measure, which is a currency that policy makers and the general public can obviously and easily relate to. In a situation where an overt or implicit cost-benefit analysis determines resulting land-use policies, valuation of the conservation benefits turns a zero column into some positive number. And, since only a small subset of all benefits can typically be valued, given imperfect scientific knowledge of ecosystem goods and service provision, the value will generally be a lower bound estimate that will rise as we learn more about the relationship between conservation and the benefits that natural systems provide to people.

In addition, conservation policy in the tropics is increasingly being driven by economic arguments. Extreme poverty in these areas means that ethical or aesthetic arguments for the conservation of nature do not resonate with developing country politicians as well as economic arguments do.

Local communities are increasingly being consulted and involved in decisions surrounding the gazettement of protected areas; these groups need to see tangible benefits from conservation in order to support it, and valuation studies can help in providing that evidence to them. In my work at the World Wildlife Fund (WWF), I have seen a tremendous increase in the interest and demand for valuation studies of ecosystem services in our priority areas for conservation, most of which are in developing countries. Organization-wide surveys suggest that research and technical assistance on the economic benefits of conservation are at the top of the priority list for most WWF field programs, and publications on the economic values of wetlands and forest watersheds have been among the most downloaded of all reports that WWF has produced (e.g., Dudley and Stolton 2003).

Despite these positives, there are still a number of issues associated with the use of economic valuation for conservation in the tropics and elsewhere, which I explore below.

Retaining Credibility and Managing Expectations

When contemplating a valuation study of some kind, there often seems to be the expectation on the part of the requesting agent that "if only we can do the science, this will demonstrate that nature has a huge value that outweighs any benefits of development." This concern extends to the current heavy emphasis on ecosystem services among large conservation non-governmental organization (NGOs), which, worryingly, may present as fact the implicit, but largely untested, "win-win" assumption that conserving nature also benefits people *more* than other uses of land would do. Perhaps this has been fuelled by the well-known studies that have shown enormous values of ecosystem goods and services at the global level. However, valuation is a double-edged sword. In some cases, a valuation exercise might demonstrate that conservation provides only modest economic benefits, as opposed to large monetary values associated with agricultural or industrial development. If expectations surrounding the value of ecosystem services from conservation have been hyped before the science has been done, resulting values may be disappointing to conservationists. More importantly, if expectations have not been carefully managed, valuation studies may alienate decision makers and lower the credibility of conservation groups who have excessively touted the economic benefits of conservation.

Whose Values and Who Benefits?

Another issue that arises with the results of economic valuation studies is a lack of understanding (or lack of a clear presentation) of the difference between private and social values of conservation. In many valuation case studies, the largest economic values are the most difficult to capture (e.g., carbon), whereas private values associated with conservation or sustainable management pale in comparison to conversion (Balmford et al. 2002; Naidoo and Ricketts 2006). Social values of nature dominate private values in the current market context, hence the imperative of PES and direct payment schemes to capture these values. However, policy makers with little familiarity of the differences between cost-benefit analysis (using values to society) and financial/cash flow analysis (using private values) may simply see dollar signs when big numbers rise out of a valuation study. How can valuation analysts communicate results to decision makers in a way that is understandable, yet also make clear the subtleties, limitations, and applicability of valuation results? How can the results of valuation studies with large social values be used to further conservation, when developing country policy makers are primarily interested in generating hard cash from conservation? These are major hurdles that are especially pertinent in developing countries, where the capacity of policy makers and

stakeholders will challenge economists to present results clearly and at a level that can be understood.

The Devil in the Details

In my experience, there is a significant lack of understanding among conservationists (not only in developing counties) of the methods and philosophy behind economic valuation of the environment. This can again result in unrealistic expectations or demands for valuation studies that are inappropriate. For example, conservation groups such as WWF work in enormous geographical areas, and are interested in valuing the economic benefits that would be lost if such areas are not conserved. However, economic techniques are not well-designed to value the loss of large tracts of wilderness, rather they are more appropriate for examining values associated with marginal changes in natural habitats.

Suspicion and lack of understanding of economic techniques can also be an obstacle to using valuation results for conservation. I have been at meetings in developing countries where conservationists have stated that "valuation techniques are only appropriate where markets exist," and "hypothetical willingness-to-pay methods should not be used in valuation." And, despite the trend in conservation towards quantifying ecosystem services, there is still a certain segment of the conservation community that is fundamentally opposed to the economic valuation of nature (e.g., McCauley 2006). Given this, it is critical to ensure that valuation studies are credible and that we do not oversell the economic value of nature. Doing so is not only poor science, but could eventually undermine biodiversity conservation by turning off conservationists from using economic methods in support of their mission.

The "Right" Result with the "Wrong" Science

Those of us who are economists or scientists of other types are often also conservationists. How do we trade off our desire as conservationists to conserve tropical nature, but our professional reputation and credibility as scientists by providing the most scientifically defensible answer, regardless of the conservation outcome? This is a particular issue for those of us who are scientists working at conservation NGOs. It is also especially relevant to valuation studies, since several high profile, global-level studies have arguably made major contributions to conservation by highlighting the value of nature's ecosystem goods and services, while

employing techniques that most economists regard as inappropriate. Should we stretch the bounds of economic methodology if it means that conservation will be advanced?[1]

Setting aside the obvious intellectual dishonesty of doing such a thing, I think there are two additional reasons why this should not happen. In the first instance, there will be many cases when economic valuation using conventional, conservative methodologies will reveal significant economic values associated with conservation that had previously been hidden from policy makers and the general public. Even modest numbers can be striking because of the assumed zero value of nature that still exists in the minds of many. Second, inflating estimates of the economic values of nature will ultimate do more harm than good to the conservation movement, for if policies are enacted on such a basis but then do not result in the promised high levels of benefits, the backlash is likely to be severe and diminish prospects for both the use of valuation for conservation and, more importantly, conservation in general.

Conclusion

There are strong and convincing reasons to deploy economic valuation techniques when analyzing the costs and benefits (writ broadly) of environmental conservation. Nevertheless, we must acknowledge the potential barriers to doing so, which include a lack of understanding of economic methods, the allure of indiscriminate valuation that blatantly favors conservation, and the danger of overselling the potential value of nature to stakeholders whose expectations may crash when presented with smaller-than-expected valuation results. Despite these pitfalls, thoughtful, reasoned, and impartial valuation analyses can still contribute to positive conservation results, both by highlighting the benefits of conservation where they exceed those of alternative land uses and by clearly illustrating the tradeoffs where they do not.

[1] Note that I am not referring here to the development of new valuation methodologies for conservation, which of course should be encouraged. Rather, I am referring to the borderline (or fully!) inappropriate use of valuation techniques in support of conservation.

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