EERHPOLICYBRIEF

'Yes we can ...': Using benefit transfer to inform environmental policy making

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The use of economic analysis in environmental and resource policy issues

A number of current policy debates in Australia revolve around natural resource and environmental management issues. In many cases these issues have come to public attention through the efforts of special interest groups. Once such issues are accepted in the political process as requiring attention, policy makers must decide how to respond.

Economic analysis can assist these decisions in three main ways to:

1. provide insights into the reasons why an issue (or problem) may exist at all, helping to identify whether an issue can be categorized as a spillover effect (i.e., externality), underprovided public good, market failure and/or government failure;
2. identify whether a problem is worth fixing by applying cost benefit analysis (CBA) to evaluate whether and how society would be advantaged by a policy change; and,
3. evaluate the impacts of alternative potential policy solutions (such as extension, information and suasion methods, regulations, changing property rights, positive and negative incentives, and market based instruments) to effect the change.

Performing CBA is critical for four key reasons:

1. it evaluates objectively whether a proposed policy change will generate overall net benefits to society,
2. it can provide an independent test of the assertions of special interests or other groups (e.g., that policy changes would benefit society as a whole);
3. it can identify (and quantify) which groups in society may be winners and losers from a policy change; and,
4. it provides much of the underpinning information needed in the following stage of policy and instrument design.

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Despite these uses and advantages, the use of CBA is often ignored or downplayed in Australia. In many cases special interest groups, and the politicians who support them, do not welcome the independent scrutiny CBA provides, particularly when the resulting information might question the wisdom of a favored policy solution. For policy makers, the challenges in applying CBA are that it is often expensive and time consuming. As well, policy makers are sometimes sensitive to critiques made by special interest groups about values estimated for different effects. Although there are some regulatory requirements for CBA as a part of regulatory impact statements and environmental impact statements, this type of economic analysis is often bypassed.

Economic analysis of environmental and natural resource tradeoffs typically requires some assessment of impacts that are reflected in market transactions (e.g. agricultural and tourism products), and impacts that are outside of markets (e.g. recreation, ecosystem service and environmental impacts). To allow these impacts to be considered together in the CBA assessment framework, economists have developed a range of non-market valuation techniques. These techniques, when appropriately applied, provide well-defined measures of economic value for commodities that are not traded in markets.. For convenience and transparency, these non-market values are typically expressed in monetary terms.

When time or expense constraints prevent the use of primary studies to estimate values, benefit transfer can provide an alternative approach. Benefit transfer uses a primary study conducted for another purpose to approximate values for a new site and/or policy for which values are desired but primary study results are unavailable. That is , values from a source study are transferred to other situations with appropriate adjustments. Benefit transfer can make cost-benefit analysis more accessible for policy makers because it reduces the costs and time involved in producing an assessment, and is increasingly used in policy analysis.

Non-market valuation and benefit transfer

The application of non-market valuation techniques has been growing in Australia, with several hundred studies now carried out across a range of issues and non-market valuation techniques. While this is much smaller than the tens of thousands of international studies that are available, it provides an important base. Many studies have been funded through research programs, and show evidence of careful design and testing. There has also been a corresponding development of guides and protocols about minimum requirements needed to generate accurate values.

Applications of benefit transfer are much more limited in Australia. The relatively small amount of research and professional attention given to benefit transfer has meant that to date, understanding about the accuracy of benefit transfer and the development of protocols to guide its use are still limited. While there is much potential for benefit transfer to make cost-benefit analysis more useful to policy makers and more easily assessed by them, more work is needed to provide confidence around processes and results.

Researchers are still cautious about the accuracy of benefit transfer [1]. Yet the technique is beginning to be applied by special interest groups to policy situations of interest. This can be illustrated by two recent examples in Australia.

- The Oxford Consulting Group (Oxford) presented estimates of the value of the Great Barrier Reef [2]. The Oxford report concluded that the present value of the whole GBR was $51.4 billion, and that the cost of total and permanent coral bleaching of the Great Barrier Reef from climate change would be $37.7 billion.

- The Australian Conservation Foundation (ACF) released a report in 2011 entitled 'What's a healthy Murray-Darling Basin worth to Australians' [3]. The key conclusions of the report are that the protection values that Australians hold for improving the health of the Murray-Darling system and the Coorong at the mouth of the Murray have been estimated at $9.8 billion, and that these values substantially outweigh the costs of water reform in the basin.

The authors support the use of economic analysis to assess policy alternatives that have environmental consequences and the appropriate use of benefit transfer in informing such economic analysis. However, benefit transfer studies can be subject to a number of shortcomings. The most common of these are:

- Studies will often attempt to identify total values for an entire environmental asset (which may be close to infinity for large important ones) instead of the policy relevant question of marginal values for clearly specified changes in protection or condition. (Almost all policy issues involve only limited changes in protection or development of resources, and it is this change that should be valued),
- Studies may inaccurately or imprecisely identify the key elements that provide economic value, leading to the potential for double counting or omission of values when elements overlap or do not cover the full scenario of interest.
- Studies may attempt to transfer values between very dissimilar source and target studies. (The benefit transfer literature shows that such practices can lead to very large biases.)
- Studies may rely on source studies that are not robust and do not follow best practice standards. (A benefit transfer can only be as good as the primary study upon which it is based.)
- Studies may attempt to transfer values without adjustment for variations in policy scale or geographic scope. (Benefit transfer research shows that per unit protection values tend to be much higher in small local case studies than regional or national ones, and unit values should not be transferred to larger geographic scopes without adjustments).
- Studies may attempt to transfer values without adjustment for variations in other important factors, such as population differences.
- Studies may attempt to extrapolate values to larger populations than is appropriate, or ignore the fact that values may decline as one moves further from an affected resource or area.
- Studies may ignore the fact that iconic sites or resources will often have greater value than non-iconic sites or resources.

Improving the benefit transfer framework

Debate about the accuracy of benefit transfer estimates has been caused in part by an information vacuum. Governments often fail to invest in economic analysis of key issues, preferring to focus on political, policy and scientific responses. We call for a stronger commitment by government and public sector agencies to more regular, objective and thorough applications of CBA to natural resource issues. This will make the economic consequences of policy decisions more transparent, and provide information that is crucial for good policy decisions. A commitment to high quality, defensible economic analysis will greatly reduce the scope for inaccurate analysis to influence public policy.

Problems with preparing and evaluating benefit transfer applications also occur because there is a limited body of knowledge and few available guidelines in Australia about what constitutes best practice. No handbooks or guidelines are readily available through government finance departments. There is limited guidance available in the academic literature, although it is difficult for policy makers to identify or access.

We recommend that attention be paid to developing appropriate, easily accessed and interpreted guides and frameworks to help ensure that future studies are robust, and policy makers have standards to evaluate them against. Where studies have been offered as contributions to the debate (as with the Oxford and ACF reports), then review processes should be used to confirm their usefulness.

Conclusions

The developing interest in non-market valuation and benefit transfer applications to inform cost benefit analysis in Australia is welcome. There is scope and need for much more systematic use of cost benefit analysis to improve decision making with regard to environmental and resource management.

While there is a well-developed literature and process to guide non-market valuation experiments, the process for benefit transfer applications is still in a nascent stage. This leaves policy issues at some risk of inaccurate applications of benefit transfer being used to capture public attention.

We recommend a number of strategies to reduce the risks of inaccurate benefit transfer applications. These include:

1. The need for benefit transfer and risks of inaccurate studies can be reduced by commissioning more high quality primary valuation studies in key policy areas;
2. Guidelines and best practices for benefit transfer should be published to allow more systematic application in public policy issues; and,
3. Studies should be reviewed by appropriate experts to provide confidence in their results.

References

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