Wellington 2
4. Using Choice Modelling in Environmental Decision Making
1. Bio-economic Modelling

- To integrate the bio-physical and social sciences.
- Biophysical model predicts the physical outcomes of alternative resource use management strategies.
- Benefit cost analysis considers society’s preferred management option.
- The two need a linkage.
The link

• CM provides estimates of the values society holds for the physical outcomes.
• A bio-economic model integrates a biophysical model with a valuation model that can include a choice model.
Wetland management

- Alternative management strategies for wetlands in NSW and SA modelled in terms of their bio-physical outcomes.
- These outcomes used to define the attributes for a CM exercise.
- Spreadsheet integration of the models in a benefit cost analytical framework
  - Private and social values of wetlands project.
Sugar cane and remnant vegetation

- Allocation of land between competing uses on the Queensland sugar coast.
- Model of farm profitability given differing land classes matched with a choice model of community preferences for remnant vegetation and wetlands.
- Used to determine land allocation “rules”
- Malawaarachi et al AJARE
2. Resource Use Planning

• Catchment management plans for Victorian Rivers
  – use estimates from Audit project in benefit cost analyses of alternate catchment management options

• Grant assessment
  – Greenhouse Gas Abatement Projects benefit cost analyses of proposals
• Environmental management in Tropical North Queensland.
  – A trade-off between costs of management and the demand for nature-based tourism destinations:
    • Survey tourism operators to establish costs of differing management strategies
    • Survey prospective tourists to establish the impact on demand for destinations with alternative environmental qualities
      – Huybers and Bennett
• Water and electricity supply alternatives
  – Suppliers in NSW, ACT and SA investigating consumer responses to alternative supply attributes, including some environmental ones (such as “green power” and alternative water sources).
Market based instruments

• Growing emphasis on market based instruments for achieving environmental targets at least cost.

• Eg establish property rights over pollutants (permit) and allow trade - SO2, salinity - OR property rights over public goods - biodiversity
Caps

• Need initially to establish the appropriate level of the pollution cap or the biodiversity target.
• This requires an assessment of the marginal costs and benefits involved.
• Many of the values are non-marketed
• Choice modelling can assist
A note on interest groups

• An important role to be played in minimising the potential for interest groups seeking to distort the decision making processes.
• Transparent process for allocating resources.
• BUT the expectation is for non-market valuation to be challenged by interest groups
3. Priority setting

- Attribute values can be used to understand better community preferences for environmental outcomes.
- Where management options are being formulated they can be targeted toward providing outcome attributes that are more highly valued.
- Eg park management choices between recreation and ecosystem protection
Etc etc

• Wherever there are choices to be made…

… there can be a role for Choice Modelling in assisting in the decision making process.
To conclude

• No “magic bullet” BUT
• … dramatically improving levels of confidence in application
• … information on values is directly policy relevant
• … providing a level of scrutiny to natural resource decision making that is being increasingly demanded by the public.
For more information
see:


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