

Prospects for utilitarian decision analysis

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Outline

- The need for judgments of utility
- Avoiding range effects (insensitivity to magnitude/scope)
- Avoiding biases of irrelevant factors (cost, act/omission, distribution)
- Taking fairness into account
- Conclusions and further thoughts

The need for judgments

Utilitarian decision analysis based on utilities, not money, but money has utility.

If it works, it maximizes good, and anything else must make someone worse off without sufficient compensating benefits to others.

Like cost-effectiveness analysis in medicine (QALYs), but can also look at utility of costs as a function of who pays them (e.g., Sunstein's discussion of arsenic rules)

Thus, tradeoffs with money (like CV) are just one possible tradeoff judgment among many.

To implement this, we need **judgments**. We cannot use market data alone, even when they are available.

Conflict with democracy?

Decision analysis (including CBA) is a second opinion. Can be wrong, but should be different. It may even require using experts as subjects rather than real people.

Trust may develop over time if institutions work. Democracy often fails to maximize utility.

To elicit judgments, we may need to abstract the essentials, removing realistic context that can lead to biases, such as whether an outcome is caused by nature or human activity. (But we can also include emotions as outcomes.)

This may mean giving our subjects LESS information when they make judgments for us.

Avoiding scope/range effect: conjoint analysis

Decrease in number of lakes with fish consumption bans: 20 (10%)

Respiratory cases decrease: 5,000 (0.03%)

Increase in monthly electric bill: 40%

Ask about strength of preference relative to status-quo (Johnson et al., 1995).

May still suffer from range and attention effects. But these may be reduced by using only 2 dimensions (Beattie and Baron - similar to risk/risk).

Avoiding scope/range effect: unit-price WTP

Suppose there are small amounts of a cancer-causing chemical in your drinking water. The type of cancer has a 50% cure rate. The chemical can be removed by a filter, which must be replaced once a year.

How much would you pay per year *for each cancer case prevented out of 1,000,000* for a filter that removes the chemical if the rate of cancer caused by the chemical is 10 per million people who drink the water?

How much would you pay per year for a filter that removes the chemical if the rate of cancer caused by the chemical is 1 per million people who drink the water?

Complete sensitivity to quantity ([Baron and Greene, 1996](#)).

Contamination of benefit judgments by costs

In CV studies, people ask "How much do [double hulled tankers] cost"?

Baron and Maxwell: reduction in the rate of violent crime on campus from 50 to 25 crimes per year, for 50,000 students.

Increase police from 50 to 100: geom. mean WTP \$169

Increase police from 50 to 200: geom. mean WTP \$247

An easy way to avoid this is to leave out information about how it is done.

Avoiding omission bias: minimalism (cba5)

Treatment A cures 50 people out of 100 who come in with condition X each week, and it leads to no other conditions.

Treatment B cures 80 of the people with condition X, but it leads to condition Y (randomly) in 20 of the 100 patients. X and Y are equally serious.

In other words, treatment A leads to 50 people with condition X and nobody with any other condition, and treatment B leads to 20 people with condition X and 20 people with condition Y (which is equally serious).

Reduced bias, and seen as fair summary by most subjects.

Would work better if minimal version presented first. (Fair summary is crucial.)

Avoiding inequality as a bias

A condition has two forms. Each week, 100 people come in with form X, and 100 with form Y. [One treatment must be chosen for everyone; we cannot wait for a diagnosis.]

Treatment A cures 80 of the 100 with form X and 40 of the 100 with form Y.

Treatment B cures 50 of the 100 with form X and 50 of the 100 with form Y.

In other words, treatment A cures 120 people with the condition and treatment B cures 100 people with the condition.

How to take inequality into account

John is single and lives in lower Manhattan. He makes \$200,000/year and his 2-bedroom apartment has 15,000 square feet, and a garage for his car.

Jake, also single, lives on the outskirts of Capetown, South Africa, in a house with 2 rooms and 5,000 square feet. His job pays \$5,000/year (at the current exchange rate), which enables him to have a TV and refrigerator, something many of his neighbors lack.

Suppose you had to divide an extra \$10,000 between the two, so that the benefits would be the same. How would you do it?

Conclusions and further thoughts

Value elicitation, including for money, is sometimes necessary.

It may require direct judgments of utility differences (like last example).

Problems may have solutions:

- We can eliminate biases by stripping away what is normatively irrelevant.
- The methods of decision analysis (with fewer subjects and more use of consistency checks) may be more reliable than mass surveys with poor methods.
- Getting the order of magnitude right might be a great improvement (e.g., responses to climate change).
- Likewise, improvements can result from greater consistency alone.

