

Contingent valuation method

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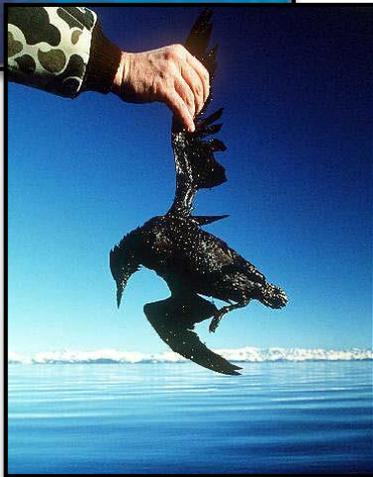
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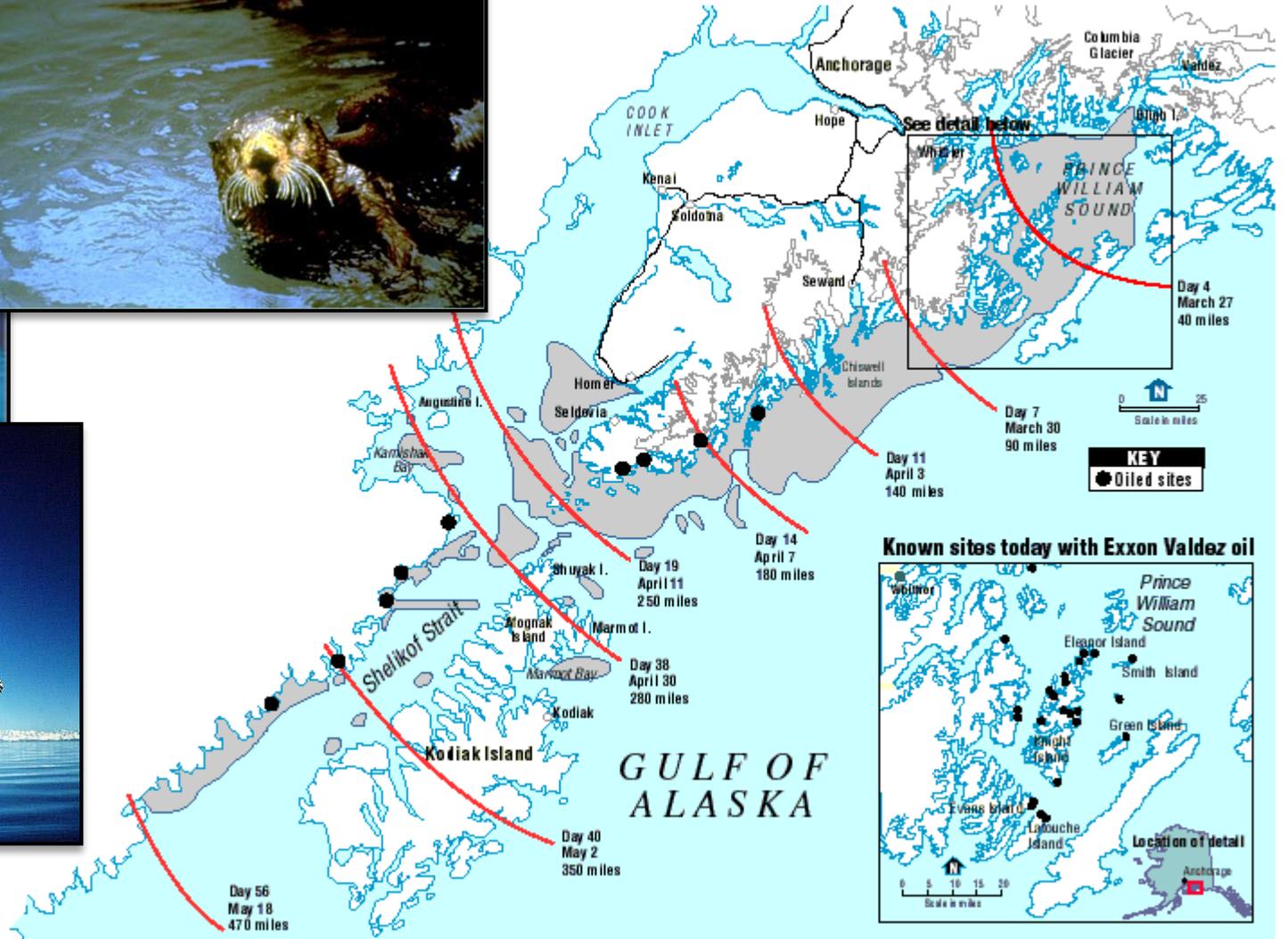
Contingent valuation

- Several non-market valuation techniques have been developed in recent times but CV remains the most popular
- Flexibility
- Ability to measure passive use value
- Inclusion of passive use values has changed the game when it comes to environmental cost benefit analysis.
- Many economists (myself included!) have a bias on favour of estimates that are inferred from observed actions, as opposed to stated preferences, but recent developments in CV design have alleviated many of the concerns people have with this approach

Alaskan Exxon Valdez Oil Spill



Spread of oil from the Exxon Valdez



Source: Alaska Department of Environmental Conservation, National Marine Fisheries Service

RON ENGSTROM / Anchorage Daily News

Contingent Valuation: An introduction

CVM is a **direct method** that can be used for **estimating market AND non-market values** associated with environmental goods and services

- a *sample* of the relevant population are asked (directly) to **state** their willingness to pay (**WTP**) for an environmental improvement, or the minimum compensation they would be willing to accept (**WTA**) in recompense for environmental degradation
- ‘contingent’ valuation because the WTP or WTA response is ‘contingent upon’ a **hypothetical scenario** (description of the situation) which is put to the respondents
- CVM is a **stated preference** method
- used to quantify values arising from changes in the level of provision of
- public goods/bads, especially environmental goods/services

Contingent valuation method

- 1. Setting up a hypothetical market:** Framing the environmental good by describing exactly what is at stake. Must make the situation as real as possible for respondents, emphasise budget constraints and perhaps make them aware of the tendency for people to over-report their WTP in hypothetical markets in the expectation that this will in turn make them less likely to over-estimate their WTP (this will be discussed more in the next couple of lectures)
- 2. Obtaining bids:** e.g. what individuals would be willing to pay in the form of higher taxation – must be a realistic payment mechanism
- 3. Estimate WTP or WTA**
- 4. Aggregating the data:** Convert the mean bids for the sample population into a population total figure
- 5. Carrying out validity checks:** Several validity checks are carried out to ascertain the robustness of the WTP figure obtained

Valuing Environmental Goods

- WTA or WTP?:
 - **Property rights:** If one has the property right to an environmental good, then the appropriate concept is WTA. If one does not have the property rights then use WTP. Many environmental goods are public goods, sometimes current allocation is taken as the property rights, that is improvements in environmental quality is measured as WTP and reductions in environmental quality is measured as WTA.

Criticisms of the approach

- Why bother with non-use (passive use) value?

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- Why bother with non-use (passive) value?
 - Consider this thought experiment: Imagine a policy choice between making an area into a wildlife sanctuary for endangered species that would not be open to visitation by the public and leasing the area for coal strip mining

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- Is familiarity, i.e. experience of a good necessary for 'meaningful' responses?

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- Is familiarity, i.e. experience of a good necessary for ‘meaningful’ responses?
- Personal familiarity is only one factor in decision-making process
- Consumers make use of reviews, advertising etc. and many new products become available each year creating completely new markets for good in which people have no prior experience
- Often citizens spend 20-40 minutes familiarizing themselves with the good in question in CV surveys. Compare that to many other decisions involve similar sums of money that we make

Hypothetical bias in stated preference surveys

The hypothetical nature of stated preference surveys – in both payment and provision of the good in question – can result in responses that are significantly greater than actual payments. This difference between stated and revealed values is often referred to as **hypothetical bias**.

- This is arguably the **biggest hurdle to overcome** in order to get realistic and meaningful valuations when using this approach.
- Recent research has focused on designs of stated preference questionnaires that might directly induce subjects to provide responses to hypothetical valuation questions that correspond with responses observed when actual cash payments are involved

Cheap talk

- One method aimed at reducing hypothetical bias is the incorporation of a cheap talk script that explains the problem of hypothetical bias to study participants prior to administration of a survey question
- The premise behind this technique is that one might be able to reduce or eliminate hypothetical bias by simply making respondents aware of it regardless of its underlying causes
- The cheap talk script: (i) *describes hypothetical bias and provides an example*; (ii) *reviews possible explanations for such bias*; and (iii) *encourages subjects to vote as if the valuation question were real (i.e. had real economic consequences)*

Cheap talk

Cummings and Taylor (1999) Two sets of referenda are conducted

- 1. A real referendum where subjects vote on a proposition that requires payment of money if the referendum passes
 - *'you will vote' and 'all of you will pay if 50 % or more vote yes'* (decision is binding)
- 2. A hypothetical referenda where different subjects vote on the same proposition but payment for and provision of the good is hypothetical
 - *'suppose we were to have a secret vote'* (decision is not binding)
- 3. Same as 2 above but a cheap talk script is integrated into the CV questionnaire
- Number of different types of goods were examined (e.g. vote on a referendum requiring all students to pay \$10 to a nature conservancy program if the referendum passes)
- Cheap talk script was found to eliminate hypothetical bias, i.e. probability of a respondent voting yes was the same in number 1 and 3 (real and cheap talk), but significantly less than hypothetical.

Cheap talk script: Cummings and Taylor (1999)

- In a recent study, several different groups of people voted on a referendum just like the one you are about to vote on. Payment was hypothetical for these groups, as it will be for you. No one had to pay money if the referendum passed. The results of these studies were that on average, across the groups, 38 percent of them voted "yes." With another set of groups with similar people voting on the same referendum as you will vote on here, but where payment was real and people really did have to pay money if the referendum passed, the results on average across the groups were that 25 percent voted yes. That's quite a difference, isn't it? We call this a "hypothetical bias." Hypothetical bias is the difference that we continually see in the way people respond to hypothetical referenda as compared to real referenda..
- How can we get people to think about their vote in a hypothetical referendum like they think in a real referendum, where if enough people vote "yes," they'll really have to pay money? How do we get them to think about what it means to really dig into their pocket and pay money, if in fact they really aren't going to have to do it? Let me tell you why I think that we continually see this hypothetical bias, why people behave differently in a hypothetical referendum than they do when the referendum is real. I think that when we hear about a referendum that involves doing something that is basically good-helping people in need, improving environmental quality, or anything else-our basic reaction in a hypothetical situation is to think: sure, I would do this. I really would vote "yes" to spend the money.... But when the referendum is real, and we would actually have to spend our money if it passes, we think a different way. We basically still would like to see good things happen, but when we are faced with the possibility of having to spend money, we think about our options: if I spend money on this, that's money I don't have to spend on other things... we vote in a way that takes into account the limited amount of money we have.... This is just my opinion, of course, but it's what I think may be going on in hypothetical referenda. So if I were in your shoes ... I would ask myself: if this were a real referendum, and I had to pay \$10.00 if the referendum passed: do I really want to spend my money this way? If I really did, I would vote yes; if I didn't, I would vote no In any case, I ask you to vote just exactly as you would vote if you were really going to face the consequences of your vote: which is to pay money if the proposition passes. Please keep this in mind in our referendum.

Example of a Cheap Talk script (short version):

“The experience from previous similar surveys is that people often respond in one way but act differently. It is particularly common that one states a higher willingness to pay than what one actually is willing to pay for the good. We believe this is due to the fact that one does not really consider how big an impact an extra cost actually has to the family budget. It is easy to be generous when one does not really need to actually make the payment. Please provide your responses with this in mind.”

Cheap talk

- Critics might contend that a cheap talk script does not eliminate or even alleviate hypothetical bias but simply places a downward pressure on WTP estimates
- Evidence is somewhat mixed but there is an increasing body of work to suggest that cheap talk (long version – Cummings and Taylor) can be effective in reducing or even eliminating hypothetical bias

Consequentialism

- Consequentialism's idea is that subjects are more likely to reveal true preferences if they expect their responses to influence policy
- If respondents feel that the experiment is real then they are more likely to truthfully reveal their preferences
- Respondents in the survey are reminded that their responses will be important for policymaking and will serve as a guide for 'real' action. Often it is useful provide respondents previous examples where the results from these types of studies were used to inform and change policy.

Is it hypothetical or more correctly social desirability bias?

- Many commentators argue that hypothetical bias stems predominantly from ‘social desirability bias’
 - **desire to look good**
- Provide responses that they think will please the interviewer or be consistent with societal norms
 - generally take the form of over- reporting good behavior or underreporting bad behavior.”
- **Relationship between the level of anonymity and WTP estimates**
- **Two reasons for Social Desirability Bias:**
 - You want to impress
 - You think and genuinely believe that you’re better

Self presentation effects

- **Misrepresent preferences out of concern of how they look to others, i.e. the interviewer.**
 - over-report good behaviour and under-report bad behavior
- Personal interest in pretending to behave more in accordance with social norms than we actually do
- - CBS news poll on interest in Bill Clintons affair (50% reported themselves as completely disinterested but thought only 18% of others were completely disinterested)
- **Social norms of behaviour:** Studies have found that individuals are likely to misrepresent their voter participation, body weight, the amount of time they spend reading to children, drug use, number of sexual partners, alcohol use, support for a minority candidate and of environmental related behaviours
- What do these have in common?

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- What do these have in common? Goods with normative attributes.

Self image effects

- The great contradiction: **The average person believes he is better than the average person**
 - People on average think they are more charitable, cooperative, considerate, fair, kind, loyal and sincere than the typical person but less belligerent, deceitful, gullible, lazy, impolite, mean and unethical –just to make a few.
- People gain utility from having a positive self image and so interpret reality in a fashion that maintains that positive self-image

Indirect questioning as a potential solution?

- Ask individuals to make inferences about how they think the other individuals (often the average person) feel about a particular good or service
 - - e.g. how much do you think the average person in society would be willing to pay
- Take the **spotlight** away from individuals
 - **Don't feel like you're being judged**
 - **No need to impress**
- Used extensively by psychologists and in marketing since the 1950s.
- Essentially this indirect questioning approach frees respondents from the belief that they are being judged

Are people overly favourable of themselves or overly cynical of others?

Often a large difference between indirect and direct questioning so which prediction is the error?

- Example:- Epley and Dunning (2000)
 - Buying a daffodil flower as a contribution to the annual campus day charity (H - 83% P - 56% NH - 43%)
 - Donation to the three charities (The Salvation Army, The American Red Cross, or The Society for the Prevention of Cruelty to Animals) (H – \$2.44 P – \$1.66 NH - \$1.43)
- Fisher (1993) conducted several studies with student subjects asking questions about goods subject to what he calls social influence and more socially neutral variables (*I will versus the typical student will*)
 - Fisher (1993) found that responses related to goods that were socially neutral were not influenced by whether the direct or indirect questioning formatted was utilised but that indirect questioning yielded significantly different results than direct questioning for goods with normative attributes
- **Lusk and Norwood (2009)** The results showed that when it came to predicting purchasing behaviour for goods with normative attributes (e.g. organic beef, organic flour, and environmentally friendly dishwashing liquid) individual's predictions of others shopping behaviour more accurately predicted actual sales than what people reported as their own purchasing behaviour

Other approaches

- A number of scales have been developed to measure the tendency of respondents to respond in a socially desirable manner – e.g. Crowne and Marlowe scale
- In 1960, Crowne and Marlowe identified a set of behaviors that are perceived by society to be exemplary, but enacted only infrequently (e.g. Before voting I thoroughly investigate the qualifications of all the candidates)
- Scales such as these have been used in analytical models to adjust for any potential social desirability bias
- http://www.cengage.com/resource_uploads/downloads/0495092746_63626.pdf
- <http://www.psych-it.com.au/Psychlopedia/article.asp?id=229>

Contingent valuation – final thoughts

- CVM can estimate (and is the most widely accepted method for estimating) the TEV of environmental goods and services.
- A lot of care should be taken while designing CV surveys and analysing data, however it is not a difficult method.
- CV has been widely used, and a great deal of research is being conducted to improve the methodology, make results more valid and reliable, and better understand its strengths and limitations.
- CV is enormously flexible in that it can be used to estimate the economic value of virtually anything

Extra reading – see VLE for additional material

- Kling, Catherine L., Daniel J. Phaneuf, and Jinhua Zhao. 2012. From Exxon to BP: Has some number become better than no number? *Journal of Economic Perspectives* 26:3–26
- Carson, R.T., Flores, N.E., Meade, N.F. (2001). “Contingent valuation: controversies and evidence”. *Environmental and Resource Economics* 19, 173–210.