This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike License. Your use of this material constitutes acceptance of that license and the conditions of use of materials on this site.

Copyright 2007, The Johns Hopkins University and Kevin Frick. All rights reserved. Use of these materials permitted only in accordance with license rights granted. Materials provided “AS IS”; no representations or warranties provided. User assumes all responsibility for use, and all liability related thereto, and must independently review all materials for accuracy and efficacy. May contain materials owned by others. User is responsible for obtaining permissions for use from third parties as needed.

CONTINGENT MARKET VALUATION

Lecture 7

Kevin Frick

Problem

What is being able to be on the beautiful mountain worth to this family?

By ladyiconoclast. Some rights reserved.

Health Evaluation Problem

- What is it worth to this child and his family for him to be healthy?

Economic Approach

- Economists like to observe behaviors
  - What do people pay for admission to a park?
  - What do people pay for physicians' office visits?
- Some things don't have a market or are priced in a way that doesn't reflect economic efficiency

What is an economist to do?

- Learn about contingent market valuation

Contingent Market Valuation

- Suppose that we want to value healthy days for a stay at home parent
  - Assume a positive marginal utility
- Ask “How much would you be WTP for a change from X healthy days to Y healthy days?”
  - Assumptions
    - Respondent understands alternative (Y)
    - Respondent understands endowment point (X)
    - Respondent answers accurately

To Operationalize CMV

- Supply information to respondents
- Ask the respondent what the change is worth to them?
  - Remember, this is the most money the respondent would be willing to give up, receive the positive outcome, and be just as happy as they were before they gave up money or received the positive outcome
- Even with understanding, lots of potential biases and errors in the answers

Hypothetical Bias

- Does the respondent take the contingent market seriously?
  - What might not be taken seriously?
    - Existence of product
      - *Anti-Alzheimer's vaccine*
    - Overall resource constraints
      - *Asking a person in a rural village in sub-Saharan Africa*
    - Need to continue to purchase other goods and services
  - May exaggerate
  - May refuse to participate

Strategic bias

- Does the respondent believe that the response will be correlated with a policy that is made that affects the individual?
  - If respondent believes that the value given will be used to set a price, will respond with a value that will lead to setting a favorable price
  - If respondent believes that the value given will be used to make a decision on implementation but not affect the price the individual must pay, will respond with a value favoring the policy desired
- Ex: How much money would you need to receive in order to accept a power plant in your community?

Starting point bias

- People may respond with a value that is close to the first value asked about
- Reasoning
  - Respondents may try to respond with a WTP they believe is correct in the view of the interviewer
  - Respondents have limited patience
  - If either is true, starting point may matter
- No theory suggests a particular starting point
  - If survey procedure creates bias, it may be best to choose starting point that is close to the expected mean WTP
  - Another alternative
    - Have multiple versions of survey using different starting points

Vehicle bias

- Respondent may be sensitive to the method of payment for the proposed intervention
- Tension
  - Phrase question in a way that avoids vehicle bias without being so vague that it ends up suffering from hypothetical bias
- Example
  - “Taxes” may have a stigma
  - In this case, WTP questions may be measuring true WTP plus value of stigma

Information bias

- Respondent may not fully understand the current situation
- Respondent may not fully understand implications of choice
- Example
  - Related to question of whether the value that should be considered is the individuals' value or society's value

Neutrality Bias

- Items must be presented as neutral
  - In other words, don’t phrase a question about placing a new power plant in a way that

Judgment bias

- Lack of rational decision in a non-market context
- Small changes in probabilities of low probability but catastrophic events

Non-commitment bias

- People say willing to pay more than actually are because they do not have to follow through on stated WTP

Other Situational Difficulties with Contingent Market Valuation

- Order effects
  - Matters whether ask about lung cancer and then bladder cancer or vice-versa
- Embedding
  - Reason for not much difference between small effects and large effects
  - Small effects are a subset of larger effects

Is There Such a Thing as Willingness to Accept?

- Willingness to accept a loss of a good should be similar to willingness to pay for obtaining a good
  - Lose some positive outcome and gain some money
- WTA much higher on average
  - This seems to go away with practice in answering questions

CMV Results

- Get WTP for a large number of individuals
  - Analogy to market demand
    - For (X* - 0) will get a range of WTP's
    - Horizontal addition
    - Note that all individuals who are WTP Y are also WTP Y-1 and so the number of people who are only WTP Y-1 is a marginal addition and leads to the construction of something that looks like a demand curve

Theoretical Consistency of CMV

- WTP values appear to have theoretical consistency
  - Positively related to income
  - Negatively related to the availability of substitutes
  - WTP > COI
  - Diminishing marginal WTP for larger health improvements
- Depends on use of good methodology
  - For example, starting point matters

Consistency and Accuracy

- Consistency doesn’t guarantee accuracy
- Want to have consistency with accuracy but accuracy is difficult to assess since we don’t know the true value

CMV Methodology

- Use iterative bidding
- Example with cold symptoms
  - How much would respondent be willing to pay to avoid 1 day of coughing and sneezing?
    - Would respondent be willing to pay at least $2?
    - No➔stop
    - Yes➔Ask about $2.10
    - If no, could ask about $1.90 and go down in 10 cent increments

Iterative Bidding

- Need to balance aspects of methodology
  - Increments that are too large create bias
  - Increments that are too small create greater respondent burden
- Other methods
  - Open ended
  - Dichotomous choice
  - Ranges on payment cards

What About CMV Outliers?

- People WTP exorbitant amounts and people not willing to pay anything (or negative WTP) for clear benefits
- Do outliers represent true WTP or just bias?
  - No clear answers
  - Some respondents may effectively refuse to participate by giving unrealistic responses
  - Theory is not a guide
  - In practice, use judgment to suggest prior beliefs about the range of believable values

Actions on Outliers

- Censor or throw out
- Past studies have used interviewer comments to suggest/identify "protestors"
  - Highly subjective
- Alternative is right and left censoring
  - Cut off bidding process at predetermined upper and lower realistic limits

Example with Outliers

- One day of relief from cold symptoms
  - Prior determination that no one in the relevant group would be WTP more than $500 or less than $0.25.
  - True distribution may include values outside these limits, but WTP values outside this range are much more likely to be false
  - Right censoring would cut off bidding at $500
    - Problem with outliers to the right is that they tend to skew the distribution, pushing the mean well above the median
  - Left censoring would cut off bidding at $0.25
  - Report number censored

Interpretation of Outliers

- To the extent that the mean is a useful summary statistic reported (uncensored) WTP values will tend to bias the mean upward
- Could use median but “true” distribution probably is skewed, so median would underweight (true) WTP values
- Censoring is a compromise between the extremes of using reported values and using just “reasonable” values

Endowment and CMV

- The status quo for each individual to which the intervention is being compared
- Endowment is important because it determines respondent interpretation of the questions
- Does WTP for 1 day of relief from cold symptoms differ depending on whether the person has a cold or does not have a cold?

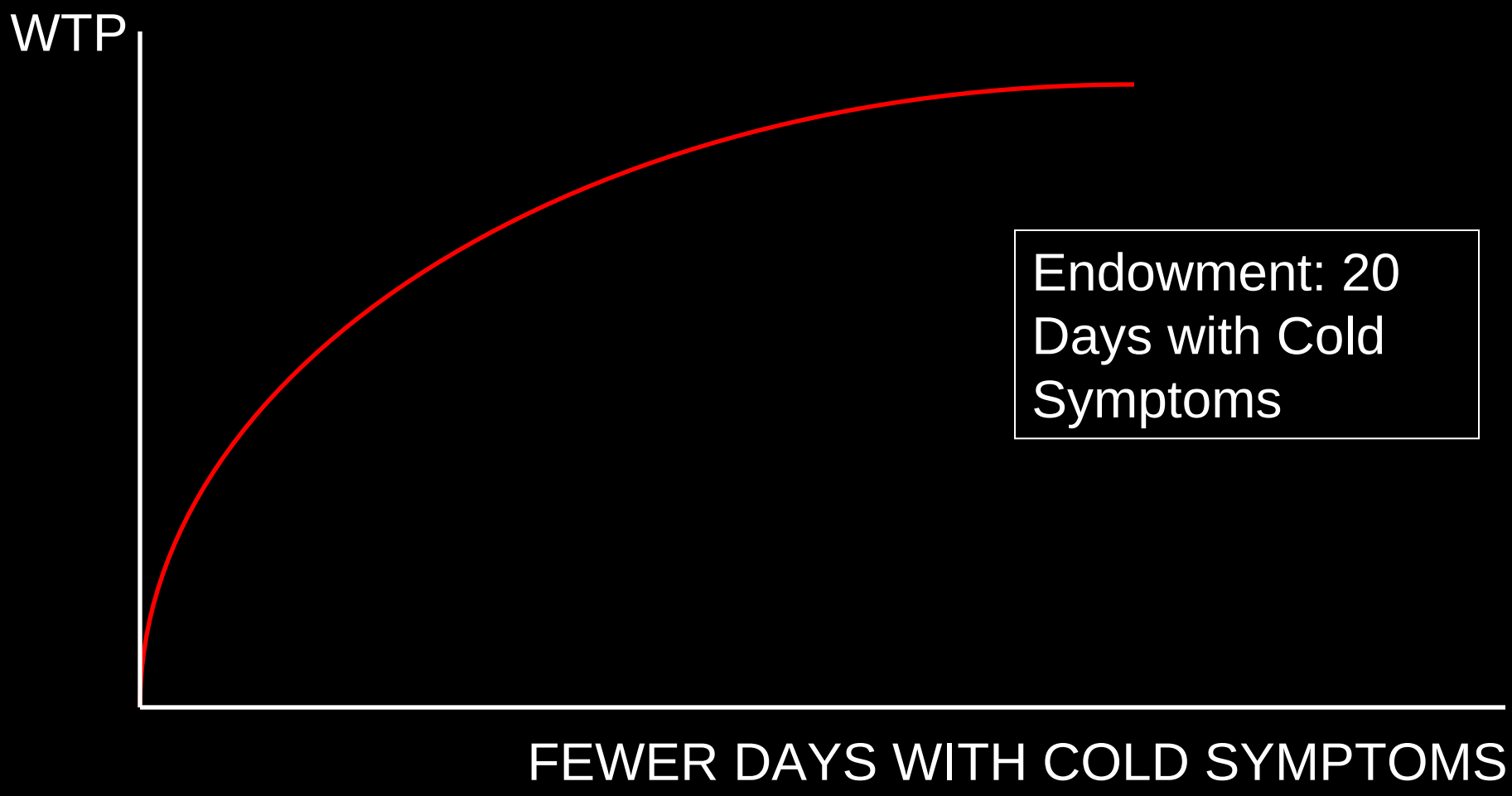
Theory and Endowment

- What does economic theory predict?
  - Theory says that marginal WTP for health should be declining
    - The lower the level of endowed health the greater should be the marginal WTP.

Example with Different Endowments

- Either 20 or 10 days of cold symptoms
  - Marginal WTP for relief from the first of 20 days is higher than MWTP for relief from the first of 10 days
  - Endowment point should be emphasized in the survey instrument
    - Correct phrasing “Given that you will be ill for 20 days, how much would you be WTP for…”

WTP for Varying Levels of Relief



Criteria for Good CMV Instrument

- Respondents should understand and be familiar with the good being valued
- Respondents should have/be given experience in both valuation and choice procedure
- Little uncertainty about details of alternative
- Use WTP rather than WTA
- Avoid anchoring (do not change with new information) and starting point bias