Case 2.6 How much should we protect our natural environment?

Summary

This case study shows how methods of measuring wellbeing (that is, consumer surplus and producer surplus measures) can be applied to evaluate the effects of major government policies; for example, in this case study the decision about whether to allow mining at Kakadu national park.

Suggested answers

1 What are some other examples of types of goods or services for which you might need to apply a CV method in order to estimate willingness to pay?

Generally, what respondents are asked to value in a contingent valuation survey is a hypothetical good, service or program – that is, it is a good that is not currently produced or a service not currently provided. The main use of the contingent valuation method has been to obtain valuations of goods, services or programs that will not be or cannot be traded on markets, such as public goods. Within this category of non-market commodities, the primary application of the method has been to value features of the natural environment, or programs that would improve the state of the natural environment. For example, in Australia some applications of the contingent valuation method have been to value the Kakadu Conservation Zone, assess the costs of the professional beam trawling industry in Queensland, and to value the South Eastern forest zone (see Carson et al., 1994, Campbell and Reid, 2000, and Bennett and Carter, 1993).

What do you think might be some of the main criticisms of the CV method?

A first criticism is the impossibility of external validation. In many situations the contingent valuation method is used because it is the only feasible method of valuing some non-market good, service or program. This means that it is not possible to check the robustness of the findings from the contingent valuation method, by comparing those findings with valuations obtained using an alternative method. The impossibility of external validation is significant, given economists’ traditional mistrust of indirect valuation methods. In general, economists have a strong preference for direct valuation methods – such as where the action of a consumer in choosing to buy or not buy an item at a particular price in an actual market environment reveals their preferences.

A second criticism is that results from contingent valuation studies are inconsistent with findings using alternative valuation methods. In some circumstances it has been possible to compare findings on valuations of a good, service or program obtained using the contingent valuation method with findings from alternative valuation methods. In some cases, this has been done through experimental studies that have had the objective of making such a comparison. Critics of the contingent valuation method argue that the disparity in valuations between the different methods found in these studies is sufficiently large to cast significant doubt on the validity of the method. Supporters of the contingent valuation method argue that in many circumstances any disparity can be explained by the methodology of the contingent valuation studies. An appropriate test of the validity of the contingent valuation method must involve a comparison between that method and alternative methods in situations where economic theory predicts that all methods will elicit the same (truthful) valuation of an item from respondents. In these circumstances it is argued that the alternative methods do produce similar estimates.

A third type of criticism is to raise general problems that it is claimed exist with the contingent valuation methodology. The common underlying theme is that each of these problems would mean that respondents’ valuations of a good, service or program in a contingent valuation study would not match with their consumption decisions if a market for the item existed. This encompasses a variety of issues or questions:

• Do respondents think about their preferences in terms consistent with the economic theory of preferences and decision-making that underlies the contingent valuation method?

• Can respondents be given sufficient information/time so that survey response replicates a decision that would be made in a market environment?

• Are respondents sufficiently familiar with the type of decision-making that is required?

• Is decision-making affected by the interviewer?

A general point underlying these questions is that preferences are likely to be ‘constructive’. That is, preferences of survey respondents for the item being valued should be assumed to be context-dependent, and will be developed by respondents during the interview process. This has the important implication that valuations of items derived from contingent valuation studies are likely to vary with design of the survey instrument, and with the respondent’s degree of familiarity with the item that is the subject of the study.

2 There are five potential suppliers of a car wash service. Sally, Simon, Sonia, Stewart and Sam are each willing to provide one car wash. Their respective opportunity costs are $1, $3, $5, $7 and $9. There are five potential consumers of the car wash service. Cate, Colin, Chloe, Chris and Cassie are each willing to purchase one car wash. The respective amounts they are willing to pay are $16, $13, $10, $7 and $4. Trade of car washes occurs in a perfectly competitive market. What will be the consumer surplus and producer surplus in the perfectly competitive market equilibrium?

At the perfectly competitive market equilibrium, P\* = $7 and Q\* = 4 car washes (derived from intersection of demand and supply curves).

1

16

1

2

3

4

7

Demand

Supply

Q car washes

Producer surplus

Consumer surplus

5

Hence consumer surplus will be $18, and producer surplus will be $12.

|  |  |  |  |
| --- | --- | --- | --- |
| Buyers | Willingness to pay ($) | Price ($) | Net gain ($) |
| Cate | 16 | 7 | 9 |
| Colin | 13 | 7 | 6 |
| Chloe | 10 | 7 | 3 |
| Chris | 7 | 7 | 0 |
| Cassie | 4 | 7 | X |
|  |  | Consumer surplus | $18 |
| Suppliers | Price ($) | Opportunity cost ($) | Net gain ($) |
| Sally | 7 | 1 | 6 |
| Simon | 7 | 3 | 4 |
| Sonia | 7 | 5 | 2 |
| Stewart | 7 | 7 | 0 |
| Sam | 7 | 9 | X |
|  |  | Producer surplus | $12 |

3 Use the concepts of consumer surplus and producer surplus to describe how the creation of kidney exchange markets (case study 1.5) has improved wellbeing of participants in those markets.

In the kidney exchange market, we can think of the consumer as being the patient who receives the kidney transplant; and the producer as the donor of the kidney to that patient.

For the patient, we can regard the benefit they receive as the improvement in their wellbeing and life satisfaction, whereas the price they pay is the impact on their family member who is donating a kidney in order for the exchange to occur. Consumer surplus is the difference between these amounts.

For the donor, the cost of supply is the impact on them from giving up a kidney, and the price they receive is the benefit that their family member who receives a kidney thereby obtains. Producer surplus is the difference between these amounts. As participation in the kidney exchange market is voluntary, we can regard both the patient and donor as being made better off by the exchange. That is, both consumer surplus and producer surplus are greater than zero.