



LECTURE OBJECTIVES

This lecture will outline the approaches behind different techniques of environmental valuation. The assumptions these approaches are based on will then be highlighted. Finally, two methods, the contingent valuation method and the travel cost method, will be explained in more detail.

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1 | TECHNIQUES OF ENVIRONMENTAL VALUATION: AN OVERVIEW

INTRODUCTION

The objective of environmental valuation techniques is to reveal individuals’ preferences by making use of a real or hypothetical environmental market. Some valuation techniques are direct and question individuals using surveys. These methods include the **Contingent Valuation Method** or the use of auctions. Other techniques are more indirect, that is they use other preference revelation methods, for instance the price of goods in a market that has links to environmental amenities. An example of this is the **Travel Cost Method** which uses the amount people are willing to pay, transport wise, to have access to a heritage site or a natural reserve.

DIRECT AND INDIRECT APPROACHES

The **direct approach** is based on the observation of behaviour in a real market (through voting, parallel markets or consumer surplus) or of behaviour in a hypothetical market (contingent valuation surveys reveal a person’s willingness to pay for an improvement in environmental quality).

Table I: Direct and Indirect Approaches

Market	Direct Approaches	Indirect Approaches
Observation of behaviour in a real market	<ul style="list-style-type: none"> • Voting • Consumer surplus 	<ul style="list-style-type: none"> • Hedonic prices • Travel costs • Surrogate expenses • Replacement cost • Dose-response (then pricing)
Behaviour inferred from a hypothetical market	<ul style="list-style-type: none"> • Contingent valuation (WTP, WTA) • Contingent ranking 	<ul style="list-style-type: none"> • Allocating a budget

The **indirect method** rests on the behaviour inferred from the observation of real markets. For instance, environmental preferences can be surmised from the differences in the price of lands that have different environmental attributes.

ASSUMPTIONS

D'Arge underlined the **assumptions** that these approaches are based on:

- if consumers are rational, we can assume that they will behave in the same way in relation to non market goods (environmental amenities) than when dealing with market goods;
- if a “green” market existed for these goods and services, we would observe the same prices for these goods regardless of the environmental valuation method used;
- environmental goods and services already have an implicit price. Environmental valuation techniques are merely revealing that price;
- all consumers are capable of correctly and identically identifying market and non-market goods.

Even if these assumptions hold for all environmental valuation techniques, the approaches have different levels of validity and may not all be politically acceptable. These different attributes are summarized in table II. For instance, indirect methods are more likely to be politically acceptable than direct approaches as they are based on “real” markets.

Table II: Levels of Validity

Criteria	Direct Approaches (e.g., CVM)	Indirect Approaches (e.g., Travel Costs)
Scope of elaboration	◆◆◆	◆◆◆
Impacts	◆◆◆	◆◆
Facility	◆◆◆	◆◆
Validity	◆◆◆	◆◆◆
Future	◆◆◆	◆◆◆
Acceptability	◆	◆◆◆

2 | CONTINGENT VALUATION & TRAVEL COST METHODS: DETAILS

The **contingent valuation method** is a direct approach using a hypothetical market. It uses surveys and questionnaires with open-ended or dichotomous questions to reveal an individual's willingness to accept or willingness to pay for a change in the quality of an environmental amenity. It is the only environmental valuation technique that takes into account non-use values (see lecture 6 on TEV). However, using this method can lead to potential biases (values can be under or over estimated). There are also high costs involved as it is expensive to interview people individually.

The **travel cost method** is an indirect approach based on a real market. The characteristics of a site are evaluated as are the costs (time and money) involved in reaching that site. It is also useful for estimating time costs and their impact on the choice of transport mode. In practice, sample households' travel costs to a site are surveyed. The problem with this method is that it does not take into account multi-purpose travel (i.e. that individuals will visit multiple sites on a single trip).

ADDITIONAL REFERENCES

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