

## **Hedonic pricing (HPM)**

# Table of Contents

<b>Hedonic Pricing Methods</b> .....	<b>1/2</b>
<u>1. Introduction</u> .....	1/2
<u>2. Methodology</u> .....	1/2
<u>3. Process</u> .....	1/2
<u>4. Review</u> .....	2/2
<u>4.1 Evaluation results</u> .....	2/2
<u>4.2 Experiences</u> .....	2/2
<u>4.3 Combinations</u> .....	2/2
<u>4.4 Strengths and weaknesses</u> .....	2/2
<u>4.5 Further work</u> .....	2/2
<u>4.6 References</u> .....	2/2

# Hedonic Pricing Methods

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## 1 Introduction

The hedonic pricing method infers the value of environmental features from the prices of traded goods. It is applicable in those cases where the prices of a good is directly influenced by environmental factors. The most frequently used example is the housing market, where the value of two otherwise comparable properties or apartments will differ depending on the environmental amenities in the vicinity of each site. Thus, if the proximity to a hazardous waste site leads to a measurable drop in the property price (compared to equivalent houses in other locations), this difference in prices gives an indication of the external cost of the waste site. Hedonic pricing can also be applied to the valuation of external benefits, e.g. if properties in the vicinity of an undisturbed river or lake command a higher price than comparable properties elsewhere.

## 2 Methodology

Hedonic property value models assert that individuals perceive housing units as bundles of attributes and derive different levels of utility from different combinations of these attributes. When transactions are made, individuals make tradeoffs between money and attributes that reveal that marginal values of these attributes. To estimate these marginal values, one gathers data about property values by using individual property sales in real estate markets. The price of a parcel or a house is then the dependent variable in a regression on the structural characteristics of the house, neighbourhood characteristics, and environmental quality.

The coefficients on the attributes allow the analysts to recover the marginal values of those attributes. The hedonic housing price method has been used to place a value on environmental quality, climate change, and urban policies, such as traffic calming and pedestrian zone schemes.

In theory, all of the effects of a policy—health effects, aesthetics, amenities, wildlife benefits, benefits of open space, etc.—should be subsumed into the changes in property values. Hedonic pricing methods are examples of revealed preference studies, because they rely on actual transactions.

## 3 Process

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## 4 Review

### 4.1 Evaluation results

Not described yet.

### 4.2 Experiences

The hedonic property pricing method has been used to derive the value of a statistical life in an air pollution context (Portney, 1981), the value of avoiding a statistical case of cancer in the proximity of contaminated sites (Gayer et al., 2000), and the benefits of open space policies, among others. In the UK, the method has been used to find out how individuals value a clean vs. a contaminated river or lake, as well as benefits that people gain from a waterside location.

### 4.3 Combinations

The tool provides input for: Cost-benefit Analysis, regulatory impact analysis, multicriteria analysis. The tool can be used with other non-market valuation methods. Alternative tools are other non-market valuation methods.

### 4.4 Strengths and weaknesses

Strengths:

- allows one to examine multiple environmental and policy stressors
- based on market data

Weaknesses:

- difficulties exist with correlation
- very sensitive to the choice of functional form
- very sensitive to the definition of the extent of the market
- suffer from econometric identification problems

### 4.5 Further work

Not described yet.

### 4.6 References

Not described yet.