ECONOMIC VALUATION OF ENVIRONMENTAL GOODS AND SERVICES

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5. THE METHOD OF HEDONIC VARIABLES

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(A) ECOSYSTEM

TIMBER FOREST PRODUCER

- SIMPLE PRODUCTION PROCESSES

- PRIVATE GOODS

- ANALYTICAL AND SYNTHETIC APPRAISAL

EXAMPLE: A planting of poplars

(B) ECOSYSTEM

TIMBER PRODUCTION AND OTHER WOOD MARKET OUTPUTS

- JOINT PRODUCTION PROCESSES

- PRIVATE GOODS

- MULTIPLE USE

- ANALYTICAL AND SYNTHETIC ASSESSMENT

EXAMPLE: A pine forest with mushrooms use

(C) ECOSYSTEM

A FOREST PRODUCING OUTPUTS WITH MARKETS AND ENVIRONMENTAL GOODS AND SERVICES WITHOUT MARKETS

- JOINT PRODUCTION PROCESSES

- PRIVATE GOODS + PUBLIC GOODS

- MULTIPLE USE

- MULTICRITERIA OPTIMIZATION

- ENVIRONMENTAL ASSESSMENT TECHNIQUES

EXAMPLE: The beech forest Iratí

PRIVATE GOODS

• <u>RIVAL GOODS.</u> THE CONSUMPTION BY INDIVIDUAL i PREVENTS THE CONSUMPTION BY INDIVIDUAL j.

• <u>EXCLUSIVE GOODS.</u> ITS CONSUMPTION IS AVOIDABLE

PUBLIC POSSESSIONS.

• <u>NO-RIVALRY</u>

• <u>NO-EXCLUSION</u>

ENVIRONMENTAL ASSESSMENT

EXPECTATIONS OF BENEFITS AND COSTS ARISING FROM:
USING AN ENVIRONMENTAL ASSET, MAKING AN ENVIRONMENTAL
IMPROVEMENT, SUFFER AN ENVIRONMENTAL DAMAGE.

BENEFIT → WHAT THE PEOPLE WANT, WHAT PEOPLE ARE
WILLING TO PAY.

COST → WHAT PEOPLE DISLIKES , WHAT PEOPLE WOULD
ACCEPT AS COMPENSATION TO SUCH DAMAGE.

FUNCTION OF DEMAND FOR A PRODUCT MEASURES WHAT WE ARE WILLING TO PAY FOR THE PRODUCT OR WHAT WE ARE WILLING TO ACCEPT FOR GIVING UP THE CONSUMPTION OF THE PRODUCT.

AREA ENCLOSED BY THE DEMAND FUNCTION MEASURES THE TOTAL WILLINGNESS TO PAY FOR A PARTICULAR CONSUMPTION LEVEL OR THE TOTAL WIILINGNESS TO RECEIVE AS COMPENSATION FOR THE LOST OF A PARTICULAR CONSUMPTION LEVEL.

CONSUMER SURPLUS= TOTAL WILLINGNESS TO PAY- REAL PAYMENT

PROBLEM 1

NO REAL MARKET FOR MOST OF THE ENVIRONMENTAL GOODS AND DAMAGES.

PROBLEM 2

THE NECCESITY TO INTRODUCE NEW CONCEPTS OF VALUE.

!CONTEMPLATING A LANDSCAPE HAVE A VALUE, BUT HAS NOT A PRICE!

USE VALUE

OPTION VALUE

VALUE ASSOCIATED FOR AND INDIVIDUAL TO AN AN
ENVIRONMENTAL ASSET THAT IS NOT USING, BUT HE/SHE
THINKS CAN USE IN THE FUTURE

EXISTENCE VALUE

VALUE ASSOCIATED FOR AN INDIVIDUAL TO AN ENVIRONMENTAL
ASSEST WHICH HAS NOT BEEN USED OR THINKING USED IN THE
FUTURE. THE SIMPLE EXISTENCE OF THE ASSET HAS A VALUE

TOTAL ECONOMIC VALUE = USE VALUE + F OPTION VALUE+ EXISTENCE VALUE

DIFFERENT VALUES ASSOCIATED WITH THE SHORT OF A FOREST MASS

1. VALUE OF THE TIMBER (OWNER). **EXCHANGE VALUE** (PRICE MARKET).

2. VALUE OF WORK (WOODCUTTER). **EXCHANGE VALUE** (PRICE MARKET).

3. SENTIMENTAL VALUE (OLD VISITORS). **OPTION VALUE, EXISTENCE VALUE**

4. LANDSCAPE VALUE (REAL VISITORS). **USE VALUE.**

5. ECOLOGICAL VALUE (GENERAL SOCIETY). **USE VALUE.**

PROBLEM: ABSENCE OF MARKETS FOR ENVIRONMENTAL DAMAGE AND BENEFITS

A) **INDIRECT METHODS.**

ESTIMATE THE VALUE THROUGH BEHAVIORS REVEALED IN REAL MARKETS.

- THE METHOD OF THE HEDONIC VARIABLES

- THE METHOD OF TRAVEL COST

B) **DIRECT METHODS.**

BUILD AN ARTIFICIAL MARKET WITH THYE USE OF QUESTIONNAIRES

- CONTINGENT VALUATION

CONTINGENT VALUATION

DEMAND → INTERVIEWER

OFFER → PERSON INTERVIEWED

MARKET → QUESTIONNAIRE (CONTINGENT MARKET)

THE SOBIRÀ PALLARS PARK PRODUCE A SATISFACTION BY MAKING USE OF IT, THE SAME THAT CAN PRODUCE MANY OTHER THINGS FOR WHICH WE MUST PAY.

NEXT, WE WILL ASK TO VALUE THE SATISFACTION THAT YOU MONEY HAS PRODUCED THE VISIT TO THIS PARK. YOUR ANSWER DO NOT AFFECT THE DECISION TO ESTABLISH AN ENTRY PRICE. HOWEVER, SHOULD YOUR ASSESSMENT WILL COINCIDE WITH THE AMOUNT YOU ARE WILLING TO PAY FOR THE VISIT DUE TO YOUR CURRENT INCOME

CONTINGENT VALUATION WITH OPEN QUESTION

HOW MUCH WOULD YOU PAY?

WITHOUT ANY QUANTITY

CONTINGENT VALUATION WITH DICHOTOMIC QUESTION

RESPONDENT IS PRESENTED TO AN AMOUNT THAT
MUST ACCEPT OR REJECT (DICHOTOMIC VARIABLE)

THE METHOD OF HEDONIC VARIABLES

ENVIRONMENTAL
ASSETS

HEDONIC
VARIABLE

ENVIRONMENTAL GOOD
(PLEASURE)

ENVIRONMENTAL
ASSETS

HEDONIC
VARIABLE

ENVIRONMENTAL DAMAGE
(PAIN)

TO WHAT MEASURE THE HEDONIC VARIABLE AFFECTS THE PRICE OF A
GOOD WITH A PERFECTLY DEFINED MARKET?

NOISE → PRICE OF HOUSES

P= PRICE OF GOOD WITH MARKET(eg, HOME)
$X_1, X_2...X_n$ = STRUCTURAL VARIABLES
Z= HEDONIC VARIABLE (ENVIRONMENTAL)

GENERAL CASE:
$P=f(X_1,X_2...X_n,Z)$

ADDITIVE CASE:
$P=f (a_1X_1+a_2X_{2+}...+a_nX_n+bz)$

MARGINAL WILLINGNESS TO PAY

$$W = \frac{\partial P}{\partial Z} = b$$

SEPARABILITY OF STRUCTURAL VARIABLES AND HEDONIC VARIABLE .

$P=f_1 (X_1+X_{2+}...+X_n) + f_2(Z)$

MARGINAL WILLINGNESS TO PAY

$$W(Z) = \frac{\partial P}{\partial Z} = \frac{\partial f_2(Z)}{\partial Z}$$

TRAVEL COST METHOD

A MARGINAL WILLINGNESS TO PAY IS ESTIMATED THROUGH THE REVEALED THE COST OF TRAVEL.

COST OF TRAVEL = COST OF ENTRY + COST OF TRAVEL + COST OF OPPORTUNITY

DEMAND FOR RECREATIONAL SERVICES

N= f(C)

N=NUMBER OF VISITS

C= UNIT COST OF THE VISIT

A FINAL THOUGHT

TELEOLOGICAL NATURE OF VALUATION

DISTINCTION BETWEEN VALUE AND PRICE

ASSIGNING VALUES AND PROTECT THE NATURAL ENVIRONMENT.

THE OLD AGE IS NOT SO BAD, IF WE HAVE IN MIND THE ALTERNATIVE

(MAURICE CHEVALIER)

TO BE O NOT TO BE

ABSENCE OF VALUES OR QUESTIONABLE FIGURES

WE KNOW THE PRICE OF EVERYTHING, BUT WE DO NOT KNOW THE VALUE OF NOTHING

(LORD HENRY, "THE PICTURE OF DORIAN GRAY")