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Environmental Economics and Environmental Policy
No. 11

Part 3: Economic Evaluation on Environmental Policy and Project

In this part, we will discuss policy evaluation and economic evaluation of environmental policy, focusing on Cost of Illness (COI), Stated Preference (SP), and Revealed Preference (RP).

1. Contingent Valuation Method (CVM) and Travel Cost Method (TCM)

1.1 SP: Stated Preference: evaluation of Total Environmental Value

CVM: Contingent Valuation Method

1947: Ciriacy-Wantrups

1958: National Park Service, recreation value of Delaware River

1989: Exxon Valdez Oil Spill

CJ: Conjoint Method

Market Rresearch method

Questionnaire Design

Questionnaire Survey Method

　Design bias

　Strategic bias

　Operational bias

　Hypothetical bias

NOAA Guidelines (1995)

CVM User's Guide (Carson 1999) etc.

Reliability

　　　Scope sensitivity

Validity: Social Context

　Cost of Stated preference method

　Meta Analysis

　Benefit Transfer

1.2 RP: Revealed Preference Method

TCM: evaluation of Indirect Use Value

1947: National Park Service

1949: Hotelling

Hedonic Price Methods

1928: Waugh

2. References

Kochi, I., S. Matsuoka, M. A. Memon, and H. Shirakawa (2001), "Cost benefit analysis of the sulfur dioxide emissions control policy in Japan", *Environmental Economics and Policy Studies*, 4(4), pp.219-233 http://www.f.waseda.jp/smatsu/

Memon, A. M. and S. Matsuoka (2002), "Validity of contingent valuation estimates from developing countries: scope sensitivity analysis", *Environmental Economics and Policy Studies*, 5(1), pp.39-61

Vassanadumrongdee, S., S. Matsuoka, and H. Shirakawa(2004), Meta-analysis of contingent Valuation Studies on air pollution-related morbidity risks, *Environmental Economics and Policy Studies*, 6(2), pp.11-47.

3. Schedule of Course Work

1. Introduction: Theory and practice of Environmental Economics and Environmental Policy (9/28)

Part 1: Historical Development of Environmental Policies

    We will review the history of pollution and combating against pollution in Japan.

2. Air Pollution and Policy (10/5), (10/12 will be closed)

3. Water Pollution and Policy (10/19)

4. * Students have to make a short report and presentation about the situation of major pollution issues (air and water) and ambient standards in your home country. (10/26)

Part 2: Theory of Environmental Policies

    We will see three basic types of environmental policies, Command and Control (CAC), Market Based Instruments (MBIs), and Voluntary Approach (VA) and their efficiency.

5. CAC and MBIs and the comparison of their efficiency　(1)　11/2

6. CAC and MBIs and the comparison of their efficiency　(2) 11/9

7. Voluntary Approaches and theory of Policy Mix 11/16

8. Climate Change Policy 11/30

9. * Students have to a short report and presentation about the pollution control policy (air, water and climate) in your home country. 12/7

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    In this part, we will discuss policy evaluation and economic evaluation of environmental policy, focusing on Cost of Illness (COI), Stated Preference (SP), and Revealed Preference (RP).

10. PDCA Cycle and Policy Evaluation 12/14

11. Cost Benefit analysis in Environmental Policy 12/21

12. Economic Valuation on Environmental Policy-COI, SP and RP 1/11

13. Contingent Valuation Method (CVM) and Travel Cost Method (TCM) 1/18

14. The Design of Environmental Policy 1/25

15. * Students have to a short report and presentation about Policy Evaluation of the pollution control policy (air, water or climate) in your home country. Concluding remarks 1/25

Table 1. Adoptability of various guidelines to implement the contingent valuation survey

Guidelines	Procedures adopted for implementing CVM in the case study of rural Sindh (Pakistan)
NOAA guidelines (quoted in Griffin et al. 1995)	
1. Interview in person rather than on the telephone	In-person and detailed interviews
2. Future rather than historical event	Change in water fee in the future
3. Referendum format (in contrast to open-ended)	Bidding game
4. Start with describing accurate scenario	Introductory statement and also detailed semistructured interview before starting CV survey
5. Reminder for an effect of WTP on consumption	Yes, reminding of impact on their spending pattern
6. Reminder for substitutes	Discussing alternatives for avoiding/curing diseases
7. Follow-up questions/debriefing questions	Informal discussion at the end of interview
CV: a user's guide (Carson 1999)	
1. Introductory section to set general context	Yes (same as NOAA)
2. Detailed description of goods to be offered	Yes, water quality and quantity will be improved
3. Institutional setting for providing goods	Yes, through village development association
4. Manner in which goods will be paid for	House connections
5. Survey method (open-ended is less in priority)	Bidding game (same as NOAA)
6. Debriefing questions to know the reliability	Yes (same as NOAA)
7. Relevant characteristics (demographic, attitudes)	Yes, household characteristics and water use pattern
8. Focus groups: outputs, language, pilot studies	Water supply Sindhi and Urdu: one pilot study
9. Population sample for public good	Proportionate sample to cover whole community
10. Data: bigger sample for continuous variable	About 30%–40% of whole community was covered
11. Mode of survey: in-person survey (NOAA)	In-person (same as NOAA)
12. Nonrespondents: treatment	Not applicable
13. Professional interviewers	A team of professionals conducted survey (sociologist, economist, doctor, engineer)
14. Payment vehicles: one time vs. utility bills	Continuous payment through water fee
15. WTA questions: difficult to make these understood	WTP questionnaire only
16. WTP (function): plausible variable coefficients	Most of results are plausible
17. Outliers: protest zeros or few high values (open-ended) and spike in distribution at zero (discrete)	No protest zeros and high values in comparison to income/affordability
18. Distribution of per capita economic values	
Guidelines for WTP studies (WASH 1988)	
1. Household characteristics	Yes (same as Carson 1999)
2. Avoiding biases	Precautions for strategic, information, and sampling biases
3. Bidding game: turning from upward to downward slope then take mid-point ($1.0 Y and $1.5 N; then WTP is $1.25)	
4. Team building to cover major aspects	Yes (same as Carson 1999)
CV surveys in developing countries (Whittington 1998)	
1. Explaining what a contingent study is all about	Prior to formal CV questionnaire, during participatory survey, respondents understood the nature, process, and type of answers required from them
2. Interpreting responses to contingent valuation questions	Debriefing session (same as NOAA guidelines and Carson 1999)
3. Setting referendum prices (90%–95% rejection for highest price)	Though our study is based on iterative bidding, the highest bid was proposed by hardly 10% of respondents. The range between minimum and maximum bid was also quite wide
4. Constructing joint public-private CV scenarios	Village development associations (VDAs) are prime stakeholders, and they operate and maintain the water supply system. This aspect is also covered in the participatory survey
5. Ethical problems in conducting contingent valuation surveys	
(a) When is the use of a referendum elicitation procedure unethical?	There was no split-type survey in the same community and respondents' confidence building was done during participatory survey
(b) How honest should one be about the institutional regimen contemplated for delivering the "hypothetical" goods or services	As mentioned, VDA is the main actor for delivering the goods. After sustainable delivery of the goods and democratic setup of the VDA, the respondents had confidence that the WTP values are only required to know whether delivery of the goods can be sustained over time within the same setup
Scope sensitivity test (Smith and Osborne 1996)	
1. Statistically significant	Yes
2. Plausibly responsive	Yes

WTP. willingness to pay; CV, contingent valuation; CVM, contingent valuation method; WTA. willingness to accept

Source: Memon, A. M. and S. Matsuoka (2002)