

13P015

## Cost-Benefit Analysis

Winter Term - 3 ECTS

Mandatory Course

Prof. Pere Riera

### Prerequisites to Enroll

None

### Overview and Objectives

The objective of this course is to familiarize the students with the main methodologies of project evaluation, and particularly with Cost-Benefit Analysis as the most widely accepted evaluation tool in economics. Since the use of values in an evaluation study is one of the most important and time-consuming issues, the course will place some emphasis on the theory and practice of the valuation of non-market goods.

Every topic will be explained in theory and in practice, with actual case studies and class examples to be completed by students. For computation, Excel, Stata and NLogit-Limdep statistical packages will be used. At the end of the course, students should be aware of the principal issues and concepts of project evaluation, and be able to assess evaluation studies.

### Course Outline

1. Conceptual Foundations of Cost-Benefit Analysis and Project Evaluation
  - Introduction
  - Procedure
  - Welfare measures
  - Costs, Benefits, Transfers
  - Social vs. Private
  - Risk and Uncertainty
  - Efficiency and Equity
  - Discounting and Compounding
  - Market and Social Discount Rates
2. Valuation of Externalities and Public Goods
  - Introduction
  - Hedonic Pricing
  - Travel Cost Method
  - Contingent Valuation Method
  - Choice Modeling
  - Alternatives
3. Additional Evaluation Issues
  - Introduction
  - Cost-Benefit Analysis vs. alternative evaluation tools
  - Financial Economic Analysis
  - Cost-Efficiency Analysis
  - Social Choice
  - Impact Analysis
  - Equivalency Analysis

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- Multi-Criteria Decision Analysis
- 4. Equity
  - Introduction
  - Equity criteria
  - Weights
  - Alternatives

### Required Activities

The course will require the completion of homework assignments, mostly of conceptual and applied nature, and readings.

### Evaluation

The overall weighted grade will be the result of a final exam (two thirds), and the required activities (one third).

### Competences

- To (be able to) communicate with determination and in the English Language, the results and implications of the required analytical study using a language that the receiver can relate to.
- To work within a heterogeneous team of researchers as economic analyst using specific group techniques.
- To fit in diverse professional environments and varied types of collaborations in different professional projects.
- To possess and understand the knowledge that provides a basis or opportunity to be original in the development and / or application of ideas, often in a research context.
- That students know how to apply the acquired knowledge and their ability to solve problems in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study.
- That students possess the learning skills that allow them to continue studying in a way that will be largely self-directed or autonomous.
- Understand and apply the Economic Theory and statistical models of the design of the evaluation of public policies.
- Understand and apply the quantitative methods used to solve complex problems of the economy.
- Evaluate, with theoretical and quantitative instruments, complex realities of the economy to understand its functioning.

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### Learning Outcome

- Knows rigorously the economic theory of design and evaluation of public policies.
- Applies the empirical tools of economic analysis to evaluate public policies.
- Knows the institutional frameworks in which public policies are designed and implemented.

### Materials

Arrow, Kenneth, Maureen Cropper, George Eads, Robert Hahn, Lester Lave, Roger Noll, Paul Portney, Milton Russell, Richard Schmalensee, Kerry Smith, and Robert Stavins (1996), Is There a Role for Benefit-Cost Analysis in Environmental, Health, and Safety Regulation? *Science* 272(5259): 221-222.

Arrow, Kenneth, Robert Solow, Paul R. Portney, Edward E. Leamer, Roy Radner, and Howard Schuman (1993), Report of the NOAA Panel on Contingent Valuation Federal Register, US Department of Commerce, 58(10): 4601-4614.

Boardman, Anthony E., David H. Greenberg, Aidan R. Vining, and David L. Weimer (2011), *Cost-Benefit Analysis: Concepts and Practice*. Fourth Edition, Pearson (Prentice Hall), Upper Saddle River, NJ.

Class Notes (to be provided).

Johansson, Per-Olov, and Bengt Kriström (2016), *Cost-Benefit Analysis for Project Appraisal*. Cambridge University Press, Cambridge, UK.

Riera, Pere and Giovanni Signorello (eds.) (2016), *Valuation of forest ecosystem services. A practical guide*. Bokks2Read, Oklahoma, USA.

Sugden, Robert, and Alan Williams (1978), *The Principles of Practical Cost-Benefit Analysis*. Oxford University Press, Oxford, UK.

U.S. Environmental Protection Agency (2000), *Guidelines for Preparing Economic Analyses*. Washington, D.C: U.S. Environmental Protection Agency.