

No. 70030

Wed, 10:40-12:10

Ishikawadai Building No.4, Room B04/05

Project Evaluation for Sustainable Infrastructure

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Outline

This course aims to provide the methods necessary to undertake project evaluation and cost benefit analysis for sustainable infrastructure. The methods comprise of microeconomics background, cost benefit analysis, valuing market and non-market goods, and other technical issues. Case studies of various infrastructures are also provided.

Schedule

1. Introduction to Project Evaluation	6 April
2. Basics of Microeconomic Theory	13 April
3. Benefit Estimation of Transport Project	20 April
4. Foundations of Cost Benefit Analysis	27 April
5. Valuing Benefits and Costs in Primary Markets	13 May (Fri)
6. Discounting Benefit and Cost, Existence Value	18 May
7. Valuing Market Goods	25 May
8. Valuing Non-Market Goods: Revealed Preference	1 June
9. Valuing Non-Market Goods: Stated Preference	8 June
10. Cost Effective Analysis	15 June
11. Presentation and Discussion (1) 2hrs	25 June (Sat)
12. Presentation and Discussion (2) 2hrs	29 June
13. Presentation and Discussion (3) 2hrs	6 July
14. Final Examination	13 July

*No class on 4 May and 22 June

Grade

Attendance	10%
Presentation	15%
Report	15%
Final Exam	60%

Text Book and References

Boardman, A. E., Greenberg, D. H., Vining, A. R. and Weimer, D. L. (2006)
Cost Benefit Analysis: Concepts and Practice (3rd Edition), Prentice Hall College.

UNESCAP (2007)

Sustainable Infrastructure in Asia -Overview and Proceedings-.

Victoria Transport Policy Institute:

Transportation Cost and Benefit Analysis: Techniques, Estimates and Implications, Online TDM Encyclopedia, <http://www.vtpi.org/tca/>.

Varian, H.R. (2003)

Intermediate Microeconomics: A Modern Approach 6th Edition, W.W.Norton & Company.

United Nations (2003)

Cost Benefit Analysis of Transport Infrastructure Projects.

Aims of Project Evaluation

To evaluate the feasibility of infrastructure investment project under limited budget.

- to be viable or rejected
- to compare alternatives, priority
- to capture the significant impact
- to support decision-making
- to report the result in a consistent (scientific) form
[Accountability for the public]

What is Cost Benefit Analysis?

Cost Benefit Analysis

- Economic or Social Viewpoint
(Quantifying in monetary terms [Monetizing])

Benefit, Cost, Utility, Efficiency...

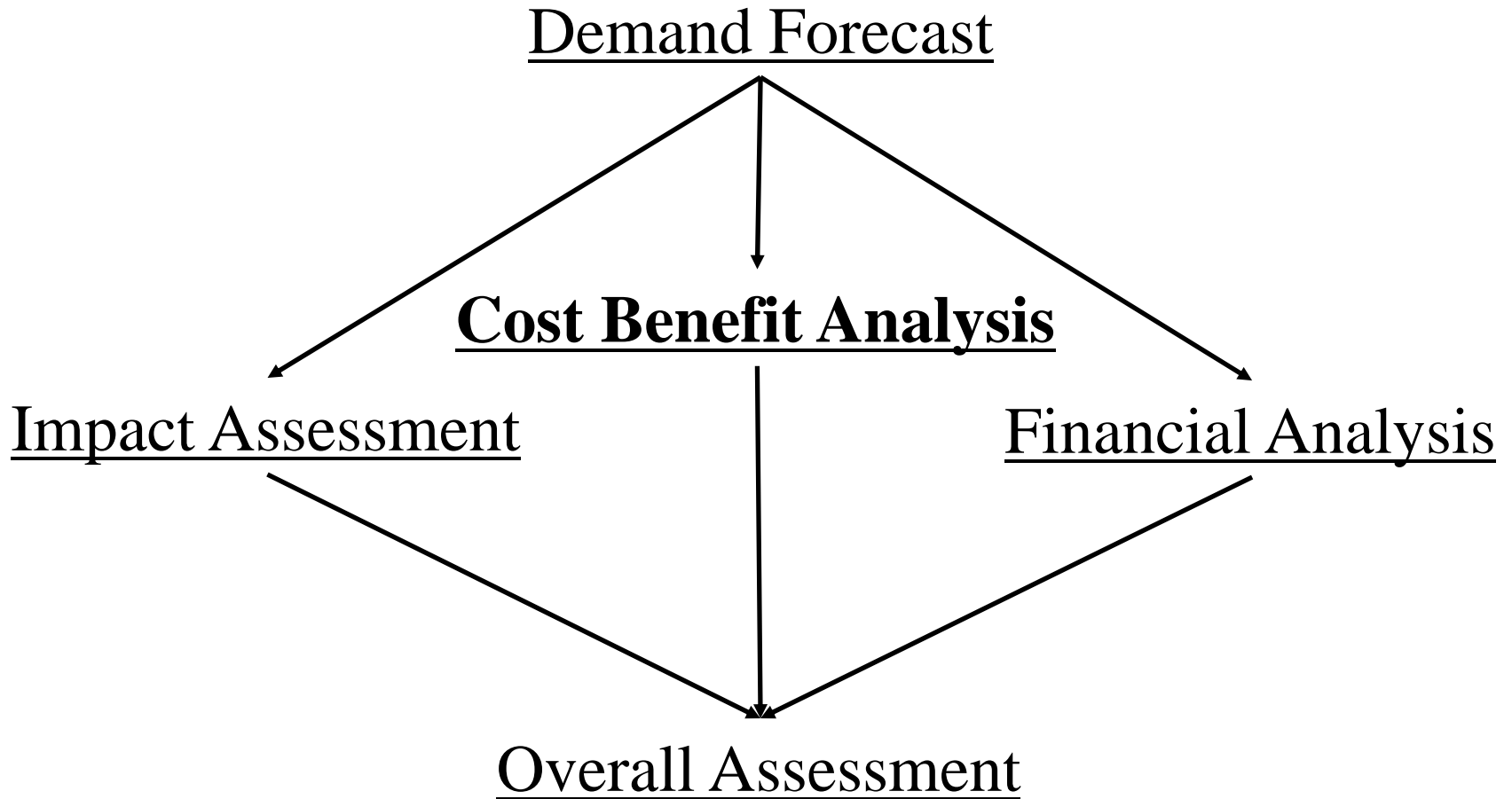
$$NSB \text{ (Net Social Benefit)} = B \text{ (Social Benefit)} - C \text{ (Social Cost)}$$

Financial (Individual) Analysis

- Private Viewpoint

Revenue & Expenditure

Overall Scheme in Transport Infrastructure Projects



Major Steps in CBA

1. Specify the set of alternative projects
2. Decide whose benefits and costs count
3. Catalogue the impacts and select measurement indicators
4. Predicts the impacts quantitatively over the life of the projects
5. Monetize all impacts
6. Discount benefits and costs to obtain present values
7. Compute the net present value of each alternative
8. Perform sensitivity analysis
9. Make a recommendation

Characteristics of Infrastructure

1. Collective Consumption (Non-rivalness)

Consuming same goods and services simultaneously by several consumers

2. Non-excludable (Non-excludability)

Impossible to exclude consumers from use of goods and services.

3. Large-scale investment

Need huge financial source, Risk of investment

4. Long life span Long redemption, Generational burden of cost

5. Requisite Price inelasticity, Monopoly Price

6. External effect Effect to other market

7. Diminishing cost Large fixed cost (initial investment cost), Low marginal cost (operation cost)

Infrastructure is a capital which must be insufficient with required level if it is invested by private entities.