

## COURSE CONTENT

<b>Course Coordinator</b>	Euston Quah
<b>Course Code</b>	HE4041
<b>Course Title</b>	Cost-Benefit Analysis
<b>Pre-requisites</b>	HE3001 Microeconomics III or HE5092 Economic Theory
<b>No of AUs</b>	4
<b>Contact Hours</b>	3 hours seminar per week

### Course Aims

Cost benefit analysis is concerned with the theory and application of criteria for public investment decision-making. The purpose of this course is to develop an understanding of the principles of cost benefit analysis and to indicate the usefulness and limitations of the method by way of project evaluations and other varied examples on its implementation.

Questions such as what costs and benefits are to be counted, what alternative investment decision criteria exist besides the popular discounted cash flow method, how do we appraise projects under conditions of uncertainty, and what could be done about distributional considerations? The problem of including non-market goods and their valuation is also highlighted and discussed in this course. Commodities such as scenic views, human life, time, environmental externalities, and recreation which are not exchanged explicitly in the market require shadow-efficiency prices for inclusion into cost benefit analysis.

Exercises and cases involving real and simulated cost benefit studies will be given where appropriate.

### Intended Learning Outcomes (ILO)

By the end of this course, you (as a student) would be able to:

1. Explain the CBA framework, the underlying welfare economics foundation
2. Differentiate CBA from other policy impact analysis tools, such as cost effectiveness analysis
3. Select and adopt an appropriate accounting stance
4. Measure and estimate the benefits and costs
5. Apply valuation techniques for intangible and non-market goods
6. Support the choice of discount rate adopted
7. Recognize equity impacts of policies, making adjustments where necessary
8. Identify uncertainties in future cost benefit stream, making adjustments where necessary
9. Choosing the right investment decision criterion
10. Evaluate the feasibility of projects using net present value, benefit cost ratio and internal rate of return where appropriate

11. Modify the application of CBA in specific contexts, including in developing countries, for specific sectors such as public health and transport
12. Apply CBA to policy in question

**Course Content**

- Introduction to and history of cost-benefit analysis, distinction from cost effectiveness analysis and other policy impact analysis tools
- Welfare economics and foundations of cost-benefit analysis: Kaldor-Hick criterion, Little criterion, Scitovsky paradox
- Accounting stance, dealing with double counting and transfer payments
- Measures of benefits and costs: Consumer surplus, producer surplus, producer rents, compensating variation, equivalent variation
- Valuation techniques: Revealed preference approaches, stated preference approaches, pairwise comparison
- Choosing discount rates
- Adjusting for uncertainty and equity
- Calculating and interpreting investment decision criteria: net present value, benefit cost ratio, internal rate of return
- Other contemporary topics: CBA in developing countries, CBA in transport and public health, other case studies.

**Assessment (includes both continuous and summative assessment)**

1. CA (Class Participation)	:	10%
2. CA (Group Project)	:	30%
3. Final Exam	:	50%
4. CA (Presentation)	:	10%

**Total** : 100%

**Reading and References**

Mishan E.J. and Quah E. (2020, 2007) Cost-Benefit Analysis 6<sup>th</sup> edition (forthcoming) and 5th edition.

Quah E. and Toh R. (2012) Cost-Benefit Analysis: Cases and Materials. United Kingdom: Routledge

**Course Instructors**

Instructor	Office Location	Email
Euston QUAH	SHHK-04-86	ecsquahe@ntu.edu.sg

### Planned Weekly Schedule

Week	Topic	Course LO	Readings/ Activities
1	Introduction to CBA, Overview	1, 2	M&Q Appendix 1, Chapters 1, 2
2	Welfare economics and foundations of CBA	1, 2	M&Q Appendix 3, Chapters 10-15
3	Accounting stance, measures of benefits and costs	1, 3, 4	M&Q Chapters 4-9
4	Valuation techniques: Revealed preference approaches	4, 5	Quah & Tan, Valuing the Environment
5	Valuation techniques: Stated preference approaches	4, 5	Quah & Tan, Valuing the Environment
6	Valuation techniques: Pairwise comparison, others Choice of discount rates	4, 5, 6	Quah & Tan, Valuing the Environment
7	Adjusting for uncertainty and equity	7, 8	M&Q Chapters 3,37-43
<b>Recess Week</b>			
8	Presentation of Group project proposals, assessment and feedback	1-12	Nil
9	Investment Decision Criteria	9, 10	M&Q Chapters 21-27
10	CBA in developing countries, other contemporary issues	9, 10	Q&T Chapter 10
11	CBA and public health, pollution	11	Q&T Chapters 6-8
12	CBA in transport, cross-island line, other case studies	11	Q&T Chapters 11-25
13	Group project presentations, assessment, discussion and feedback	1-12	Nil