

**University of Rome Tor Vergata**

**Spring Semester 2022**

**PROJECT APPRAISAL - THEORY, TECHNIQUES AND APPLICATIONS**

**Enrico Mazzoli**

**COURSE OBJECTIVE:** In a fast-changing global economy, international organizations and societies are called to make efficient and effective use of increasingly limited financial and natural resources. Investment decisions and policy options inevitably entail difficult trade-offs. For instance, when Governments commit public resources to reducing malnutrition or improving education, they automatically exclude using those resources for other purposes, including policies or investments plans addressing similar objectives. Project appraisals specifically account for these trade-offs, considering whether and under which circumstances identified solutions (investments and policy actions) are effectively meeting their primary objectives. Informed and evidence-based decision-making processes are increasingly used to support policy and investment decisions around the world. Conducting project appraisal as well as understanding the advantages and limitations of different evaluation methods, is an important skill that future professionals will require.

This module provides students with theoretical foundations and practical techniques used in project appraisal at international level. The course will teach how to estimate impacts and outcomes that are not easily measured in monetary terms (e.g. environmental services, economic consequences of climate change, etc.). Great emphasis will be on practice and hands-on exercises with real-world applications and students will learn how to design a study, obtain and analyse relevant data, evaluate results and present evidence. Several practical examples are based on the instructors' own research and work, permitting practical insights and concrete discussion about trade-offs, challenges, and ad-hoc solutions in design, data collection and analysis.

**COURSE OUTCOMES:**

- Critical understanding of development assistance architecture and rationale of project appraisal and evaluation
- Knowledge of specific tools and methods for project identification and design, including logical framework analysis, monitor and evaluation system, and theory of change
- Critical review of the advantages and the limitations of various valuation techniques used in project appraisal (Cost-Benefit, Cost-effectiveness, Contingent evaluation, Multi-Criteria Analysis)
- Capacity to selectively apply key concepts in project analysis, including investment criteria and the valuation of costs and benefits over time (discounted cash flow analysis, profitability indicators, sensitivity analysis)
- Practical use of spreadsheet analysis for investment appraisal and risk analysis

**TEST MODALITIES:** Students will be evaluated through a virtual interview of about 15-20 minutes. During the interview each candidate will be asked to respond to three questions, concerning the studying material. Each question has a maximum scoring of 10 points.

**MAIN TEXTBOOKS & ADDITIONAL READINGS (\*):**

Boardman, A. E., Greenberg, D., Vining, A. R. and Weimer, D. L., 2014. "Cost-Benefit Analysis – Concepts and Practice", International (4th) Edition, Pearson.

- Gittinger, J.P. 1995. "Economic Analysis of Agricultural Projects". 2nd edition. The Johns Hopkins University Press, Baltimore and London
- Jenkins, G. P., Harberger, A. C., & Kuo, C.Y. (2011). "Cost Benefit Analysis for investment decisions". Development discussion papers.
- (\* Agrawala, S. et al., 2010. "Plan or React? Analysis of Adaptation Costs and Benefits Using Integrated Assessment Models", OECD Environment Working Papers, No. 23, OECD Publishing.
- (\* Agrawala, S. et al., 2008. "Economic aspects of adaptation to climate change: costs, benefits and policy instruments". Paris: OECD.
- (\* Arrow, K.J., et al., 2013. "How Should Benefits and Costs Be Discounted in an Intergenerational Context?" RFF discussion paper 12-53.
- (\* Belli, P., 2001. Economic analysis of investment operations: analytical tools and practical applications. Washington, D.C: World Bank.
- (\* Bureau, D., Quinet, A., & Schubert, K. (2021). Benefit-Cost Analysis for Climate Action. Journal of Benefit-Cost Analysis, 12(3), 494-517. doi:10.1017/bca.2021.11
- (\* Campos, J.,T., Serebrisky, A. Suárez-Alemán, 2015. "Time Goes By: Recent Developments on the Theory and Practice of the Discount Rate." Infrastructure and Environment Sector technical Note No. IDB-TB-862. Inter-American Development Bank, Washington DC.
- (\* De Villalobos, E., and Mazzoli, E., 2015. "Internal Guidelines for Economic and Financial Analysis on Rural Investment Project at IFAD – Minimum requirements and practical examples", Vol. II, Rome: IFAD.
- (\* De Villalobos, E., Mazzoli, E., Vallet, J. et al., 2016. "Internal Guidelines for Economic and Financial Analysis on Rural Investment Project at IFAD - Case studies and practical examples", Vol. III, Rome: IFAD.
- (\* De Villalobos, E., and Mazzoli, E., 2015. "Internal Guidelines for Economic and Financial Analysis on Rural Investment Project at IFAD - Basic concepts and rationale", Vol. I, Rome: IFAD.
- (\* Diamond, P. A. and Hausman, J. A., 1994. "Contingent Valuation: Is Some Number Better than No Number?" Journal of Economic Perspectives 8 (Fall 1994): 45-64.
- (\* FAO, 2016. "Cost Benefit Analysis (CBA) of Climate Change Adaptation and Prioritization in Agriculture, Environment and Water Sectors in Uganda". CBA Case Studies Report. Le Groupe-Conseil Baastel. March 11th, 2016.
- (\* FAO & UNDP. 2020. "Assessing agroforestry practices and soil and water conservation for climate change adaptation in Kenya: A cost-benefit analysis". Rome, FAO.
- (\* FAO & UNDP, 2020. "Conservation agriculture for climate change adaptation in Zambia: A cost-benefit analysis". Rome, FAO.
- (\* Flyvbjerg, B., & Bester, D. (2021). The Cost-Benefit Fallacy: Why Cost-Benefit Analysis Is Broken and How to Fix It. Journal of Benefit-Cost Analysis, 12(3), 395-419. doi:10.1017/bca.2021.9
- (\* Gollier, C., 2002. "Time Horizon and the Discount Rate." Journal of Public Economics, 85, 463–473.
- (\* Gunatilake, H. M., 2013. "Cost-benefit analysis for development: a practical guide". Mandaluyong City, Metro Manila, Philippines: Asian Development Bank.

- (\*) Hallegatte, S., 2009. "Strategies to adapt to an uncertain climate change". *Global Environmental Change* 19 (2), 240-247.
- (\*) Hanley, N. and Barbier, E.B., 2009. "Pricing Nature: Cost-Benefit Analysis and Environmental Policy". Edward Elgar, Cheltenham, UK.
- (\*) Pindyck, R. S., 2007. "Uncertainty in environmental economics". *Review of Environmental Economics and Policy* 1 (1), 45-65.
- (\*) Thunström, L., Newbold, S., Finnoff, D., Ashworth, M., & Shogren, J. (2020). The Benefits and Costs of Using Social Distancing to Flatten the Curve for COVID-19. *Journal of Benefit-Cost Analysis*, 11(2), 179-195. doi:10.1017/bca.2020.12
- (\*) UNFCCC, 2011. "Assessing the costs and benefits of adaptation options: an overview of approaches. The Nairobi Work Programme on Impacts, Vulnerability and Adaptation to Climate Change, 2011.
- (\*) Weitzman, M.L. 1998. "Why the Far-Distant Future Should be Discounted at Its Lowest Possible Rate." *Journal of Environmental Economics and Management*, 36: 201–208.
- (\*) World Bank, 2015. "Discounting Costs and Benefits in Economic Analysis of World Bank Projects". The World Bank, Washington DC.

## DETAILED SYLLABUS

<b>Unit 1   Investment Appraisal - Introduction</b>	<b>Reference</b>
1.1 Introduction	Boardman - Ch. 2-3
1.2 Economic foundation of CBA	Jenkins - Ch. 2
1.3 Project cycle and design	
1.4 Relevance of project appraisal as decision-making tool	
1.5 Appraisal Techniques and analysis perspective (public VS private)	
1.6 Summary and Conclusions	
<b>Unit 2   Investment Appraisal - The basics of financial analysis</b>	
2.1 Introduction	Jenkins - Ch. 3-4
2.2 Main project benefits and cost	Boardman - Ch. 6
2.3 Net Cash Flow and the Working Capital	
2.4 Mutually Exclusive Projects and Other Issues	
2.5 Profitability indicators	
2.6 Time preferences, inflation and discounting	
2.7 Summary and Conclusions	
2.8 In-class exercise #1	
<b>Unit 3   Economic Analysis of investment programmes</b>	
3.1 Introduction	Gittinger Ch. 7-8
3.2 Theoretical Basis of Social Cost-Benefit Analysis	Boardman Ch. 10
3.3 Steps of Economic Analysis	
3.4 Valuation of economic benefits and costs	
3.5 The Social Discount Rate (SDR)	
3.6 Summary and Conclusions	
3.7 In-class exercise #2 + discussion of results of exercise #1	
<b>Unit 4   Valuation Methodologies in Social Cost-Benefit Analysis</b>	

- 4.1 Introduction
- 4.2 Revealed Preference Methods
- 4.3 Stated Preferences – Contingent Valuation
- 4.4 Summary and Review
- 4.5 In-class exercise #3 + discussion of results of exercise #2

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Boardman Ch. 12; 15

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**Unit 5 | Investment decision under uncertainty and Risk**

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- 5.1 Introduction
- 5.2 Risk and Uncertainty
- 5.3 Techniques for Risk Analysis
- 5.5 Risk and Large Projects
- 5.6 Spreadsheet Modelling and Risk Analysis
- 5.7 Summary and Conclusions
- 5.8 In-class exercise #4 + discussion of results of exercise #3

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Boardman Ch. 7  
Jenkins Ch. 6

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**Unit 6 | Sector Analysis and Case Studies**

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- 6.1 Introduction
- 6.2 Transport Projects
- 6.3 Water
- 6.4 Education
- 6.5 Environment
- 6.6 Health Care
- 6.7 Cost-Effectiveness Analysis (CEA)
- 6.8 Summary and Review

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Jenkins Ch. 15-16-17  
Gittinger Ch. A.7

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**Unit 7 | Distributive analysis and Social Cost-Benefit Analysis**

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- 7.1 Introduction
- 7.2 Analysing the Distribution of Costs and Benefits
- 7.3 Displaying Distributional Impacts
- 7.4 Distributional Weighting
- 7.5 Multi-Criteria Analysis (MCA)
- 7.7 Summary and Conclusions

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Boardman Ch. 18-19  
Jenkins Ch. 14

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**Unit 8 | Critique and Reflection**

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- 8.1 Introduction
- 8.2 Benefit Analysis
- 8.3 The Strengths and Limitations of Social Cost-Benefit Analysis
- 8.4 SCBA in Developing Countries
- Preparation for the Examination

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Boardman Ch. 20