

Public Expenditure Analysis (90-774/90-474), taught by Professor Robert Strauss each Spring at the Heinz College, is a 12 unit course designed to deal with the expenditure side of the public sector budget in a series of modules. It has been conceptualized as a blending of private finance and public expenditure principles. The former provides a systematic framework, capital budgeting, for the evaluation of private-sector capital projects, while the latter builds on the former, and introduces issues of externality, the social rate of discount, and incomplete markets through the mechanism of shadow pricing. Public Expenditure Analysis prepares those Heinz and other CMU students seeking careers in the public sector, or those parts of the private sector that routinely deal with the public sector's capital budgeting decisions. It answers such questions as "when *should* a community build a bridge?"

Public Expenditure Analysis is divided into 4 modules. In Module 1, the course develops the essential techniques of private sector evaluation principles for short-term and long-term capital projects. In Module 2, special problems which arise in the evaluation of public sector capital projects are discussed; a variety of evaluation techniques and applications especially suited to public sector projects are then examined. In Module 3, actual cost-benefit studies in the policy areas of education, environment, health, criminal justice, transportation and recreation are examined. In Module 4, evaluation at a high level of aggregation is dealt with through the use of generational accounting models. These models are examples of *aggregate* long and short-term public evaluation problem areas typically dealt with by national governments. Also during Module 4 groups of students perform and report a critical review of a cost-benefit study they have chosen. Throughout the course, similarities and differences between the public sector and private sector are emphasized, and examples from the real world are discussed in class.

The course presumes that the student has had courses in microeconomics and economic statistics, owns a calculator capable of doing $x^{a/b}$ or $x^{1.361}$, and is familiar with the use of spreadsheet packages on a personal computer.

There are two required texts for the course:

1. Private sector evaluation principles are found in Ross, Westerfield, and Jaffe *Corporate Finance, Eighth Edition, 2008*. (McGraw-Hill Publishing ISBN 0-07-333718-0).
2. Public Sector principles of evaluation are contained in *Cost-Benefit Analysis: Concepts and Practice Fifth Edition (2018)*. (ISBN 978-1-108-40129-6: Paperback Cambridge University Press), by A.E. Boardman, D.H. Greenberg, A.R. Vining, and D.L. Weimer

Evaluation is based on performance in 5 problem sets, a group project and presentation due at the end of the course, a 1.5 hour midterm exam, and 3 hour final exam, and classroom performance.

The group project is the cost-benefit analysis derived or based on an earlier cost-benefit analysis performed on a public policy initiative, typically, but not always a public capital project. Engineering studies are a common source as are "evaluations" performed by consultants, often accounting firms. The purpose of doing this is to bring together the technical discounting skills developed in the first part of the course, the conceptualization of public cost benefit analysis from the second part of the course and the "plug-ins" available from the CBA textbook, experience and knowledge gained from doing course problem sets, and the demonstration of professional presentation and writing skills. The project thus is intended to tie the course together for each student by "doing it." Former students of PEA and occasionally interested faculty with expertise are invited to attend in person and virtually, and invited to participate in audience commentaries on the veracity of estimated benefits and costs.

Due to the Pandemic, the course will be taught using Zoom and its recording facility.

¹ For example, the Casio fx 260 SolarII-S-I-H is a nice little, affordable calculator; it lists for about \$8.47 at Amazon. https://www.amazon.com/Casio-Scientific-Calculator-FX-260-SOLARII-S-IH/dp/B071R3H9WB/ref=sr_1_7?dchild=1&keywords=Casio+fx-300H&qid=1606392500&sr=8-7

The Course Sessions are:

Session	Topic
1	Course Overview
2	Overview of CBA
3	Corporate Finance & Accounting Statements
4	Accounting Statements & Financial Planning
5	Net Present Value 1
6	Net Present Value 2
7	Valuing Debt & Equity I
8	Valuing Debt & Equity II
9	Alternative Investment Rules
10	NPV / Capital Budgeting 1
11	Capital Budgeting 2
12	Capital Budgeting & Strategy
13	Long-Term Debt, Sinking Funds
14	Cash Management, Lease vs. Buy
15	REVIEW
16	MIDTERM EXAM
17	Micro Foundations of CBA
18	Valuing Impacts with Demand Curves
19	Valuing Impacts in Output Markets
20	Valuing Impacts in Factor Markets
21	Valuing Impacts in Secondary Markets
22	Valuing Impacts using Indirect Methods
23	Constructing Shadow Prices
24	Risk and Uncertainty
25	Uncertainty and Social Discount rate
26	Option Value & Existence Value
27	CE and Distribution
28	Micro CBA Case Studies: Education; Sports Stadiums
29	Micro CBA Case Studies: Crime
30	Micro CBA Case Studies: Elderly Driving, Environmental Issues
31	Macro CBA : Generational Analysis
32	Group Presentations
33	Review
34	FINAL EXAM (Final Report Due) TBA

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