OVERVIEW

This seminar-style course provides an introduction to the use of cost-benefit and cost-effectiveness analysis in health care. We examine both the underlying theory and the practical application of these techniques, using studies from the literature and issues discussed by students in class. The focus is on applications in health care, which differ from those used in contexts of public decision-making. A key focus will be on the extent to which this type of analysis assembles information which decision-makers do or should find helpful, especially in the context of public and private insurance.

COURSE FORMAT AND REQUIREMENTS

Class participation. The class format is lecture/discussion. We will take a break at about 4:15. Students are expected to read the required readings before each session and come prepared to participate in class discussion.

Short midterm paper. Students will be asked to write a short (10 page) paper critiquing and commenting upon the relevance of the methods and the conclusions of published studies,
either on colon cancer or cervical cancer screening. Critiques should concentrate on the fundamental ideas in cost-benefit and cost-effectiveness analysis. They should also deal both with the extent to which these studies meet the criteria recently proposed by the Consensus Conference on Guidelines on Economic Modeling in Health Technology Assessment (PharmacoEconomics, May 2000), and the extent to which they provide useful information for relevant decision-makers. Due date October 13 (30%).

Three-quarter quiz. This is a closed book, in-class test, administered after completion of the formal analysis material. It will cover the main principles and methods that have been covered in the readings and lectures (30%).

Term project. Each student will develop a term project in the form of a decision-maker’s question and a CB or CE analysis which would answer it (on a topic of your choice, subject to approval). An outline of the topic and proposed approach will be due on November 3. The term project will be presented orally, with written supplementation (40%).

CLASS OUTLINE AND READINGS

Below is a list of required and supplementary textbooks. All other required reading (journal articles, etc.) will be posted on the Wharton webCafé e-Room for this course. Readings that are optional are indicated in the reading list with an asterisk; they may be referred to in class.

Required (available at Penn Bookstore)


Additional Texts (available at Penn Bookstore)


Basic Cost-Benefit Texts (not required)

Mishan, Ezra J. Cost-Benefit Analysis.

Session 1: Introduction to Concepts

September 8

Key Concepts

• CEA and CBA
• Incremental analysis
• Decision analysis

Drummond et al., Chapters 1-3.

Neumann, Chapter 1.


Stokey and Zeckhauser, A Primer for Public Policy, Chapter 9.


Brown, Brown, and Sharma, Evidence-Based to Value-Based Medicine, Chapter 1.

Session 2: Welfare Economic and Other Foundations of Cost-benefit and Cost-Effectiveness Analysis (DP/MP)

September 15

Part I: Examples of CE Analysis

• Important!! Read these four articles and be prepared to discuss (and eventually write about) how they illustrate (or confuse) methods and models in CE and CB analysis!!


Multicentre Aneurysm Screening Study Group, “Multicentre Aneurysm Screening Study (MASS): Cost Effectiveness Analysis of Screening for Abdominal Aortic Aneurysms Based on Four Year Results from Randomised Controlled Trial,” BMJ 325 (16 November 2002).

**Part II: Key Concepts**

- Efficiency; market failure
- First theorem of welfare economics
- Private vs. social measurement of cost and benefit
- Equity vs. efficiency
- Consumers’ surplus; opportunity cost; transfer payments
- External effects; altruism


Weisbrod, Test and Stein, “Alternatives to Mental Hospital Treatment,” Arch Gen Psychiatry (1980).


*Mishan, Cost-Benefit Analysis (Chapter 7: Consumer Surplus; Opportunity Cost 11; Transfer Payments and Double Counting 12; Second Best 15).

Davis MM, “Varicella Vaccine, Cost-effectiveness Analyses, and
Vaccination Policy,” Editorial in *JAMA* 294, no. 7 (August 17, 2005).

Session 3: Welfare Economics II; Costs in Welfare Economics and CBA (MP) September 22

**Key Concepts**
- Direct and Indirect Costs
- Incidence
- Relevance to Societal and Employer Perspectives
- Measurement

*Remaining Readings from Session 2*


Drummond et al., Chapter 4


Session 4: Introduction to CE Analysis and Decision Analysis (HG) September 29

**Key Concepts**
- Introduction to CE Analysis: What question does it answer?
- What is Quality of Life (QOL)
- How does QOL relate to other quality measures?
- Instruments for measuring QOL (validity, reliability, etc.)
- Examples of QOL studies

Drummond et al., Chapter 5.


Session 5: QALYs, QOL* and Cost-utility Approaches (HG) October 6

**Key Concepts**
- Values vs. Utilities

* May be skipped.
- Methods of measuring preferences (other than willingness to pay)
- Defining and measuring QALY weights
- Healthy Year Equivalents: the controversy
- Disability-adjusted life years


Keeney and Raiffa, Decisions with Multiple Objectives: Preferences and Value Tradeoffs, Chapters 3 and 5.

Session 6: October 13
Cost-utility II (HG);
Measuring Benefits in Money I (DP)
Short paper due

**Key Concepts**
- Approaches to valuing health in monetary terms (Ch. 7)
  - Human Capital (Linnerooth)
- Revealed prices in market (Viscusi)
- Direct measures / contingent valuation (O’Brien)
- Contingent Valuation: empirical issues
  - Measurement (Hanley, Smith, Olsen)
  - Validity (Sloan, Brookshire, Jacobs)
  - Application (Lee)

Drummond et al., Chapter 7, “Cost-benefit Analysis.”


Session 7:  **Measuring Benefits in Money II (DP);**
October 20  Intro. to Cost Measurement: Theory and Practice (MP);

**Key Concepts**
- Opportunity cost; sunk costs, overhead costs; marginal costs
- Defining and measuring MSOC: the cost of a drug
- Allocation of joint and/or overhead costs
- Accounting approaches to cost estimation
- Enumeration approaches to cost estimation
- Econometric approaches to cost estimation
- Puzzles in cost estimation: volunteer time, monopoly prices
- Discounting I

Drummond et al., Chapter 4, “Cost Analysis” (pp. 69-73).

Dranove, “Measuring Costs” (in Sloan).


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Session 8:  Costs Measurement II (MP)

October 27

Session 9:  Can CB and CE Be Linked? (DP)

November 3

**Key Concepts**
- Economic Foundations of CEA (Garber, Garber and Phelps, Meltzer)
- Debate: CEA vs. CBA (Pauly, Brouwer)
- Bridging the gap between CEA and CBA (Hirth, Dolan)


Session 10: Quiz (half-session); Statistical Issues in CEA and CBA I (HG)

November 10

Key Concepts

• Implementation
• Analysis
• Validity


Session 11: Statistical Issues II (HG)

November 17
Session 12: Economic Analysis of Clinical Trials (HG); Bridging Articles; Policy Uses of CBI/CE Analysis


Neumann, Chapters 3-7, 9

Session 13: Student Presentations

Session 14: Student Presentations

*(If needed)*