

Public Affairs 881: Cost-Benefit Analysis
Fall 2009

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Class Meetings: Mondays/Wednesdays
8:30 to 9:45 a.m.
Ingraham 224

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Mondays, 4:00 pm to 5:00 pm, 215 North Hall

Course Objectives: Cost-benefit analysis (CBA) has both narrow and broad applications. In its narrow application, it serves as a decision rule for selecting policies for maximizing economic efficiency. In its broader application, it provides concepts, techniques, and conventions for assessing economic efficiency, or components of economic efficiency, when efficiency is only one of the social goals relevant to policy choice. This course provides the conceptual foundations and craft skills to prepare you to be sophisticated consumers and producers of CBA.

Prerequisites: Some familiarity with the basic concepts of microeconomics and statistics is assumed. Those taking the course should have completed Public Affairs 880 and Public Affairs 818, or their equivalents.

Course Requirements and Grades: Four requirements promote the course objectives:

First, I expect active participation in class and diligence in the completion of problem sets and other assignments. Our class time will be split between lectures and discussion. If this format is to be effective for both you as an individual and your classmates, then you must be prepared to participate in discussion. Sometimes discussion will be around assigned problems, including some that require reading about topics not yet covered in lecture. It is important that you put effort into these problems so that you can fully participate in their discussion. The effort will also reward itself in terms of the depth of your understanding of course material. *Fifteen percent* of your course grade will be based on class participation and assignments.

Second, an in-class midterm examination (**October 28**) will give you an opportunity to demonstrate your mastery of the basic concepts of CBA. *Twenty-five percent* of your course grade will be based on your performance on the midterm examination.

Third, although the theory of CBA can be easily learned in the classroom, the craft for actually doing it in a complex world, with inevitable limitations on the availability time, data, and expertise, probably cannot. To get practice in actually doing CBA, you will participate in a team

project on a real issue for an actual client. The teams and projects will be randomly assigned. During the semester, each team will make several oral and written progress reports. A complete report is due on **December 4**. December 7, 8, and 14 will be devoted to presentation of the projects. A revised draft is due **December 18** in PDF format. As most policy analysts work in teams, you should view your participation in the project as an important part of your development as policy analysts. I expect teams to be professional in interacting with their clients as well as among themselves. I also expect each team member to be fully engaged with the project, and I reserve the right to penalize individuals who are not fully familiar with their teams' products. I will ask each team member to evaluate the effort and contributions of other team members, and I will consider the responses in assigning individual grades. *Forty percent* of your course grade will be based on the team project. I cannot overemphasize the importance of the effort you put into the project for your future ability to do cost-benefit analysis.

Fourth, there will be a take-home final examination **distributed December 18 and due December 21 at noon**. *Twenty percent* of your course grade will be based on the final examination. If class attendance after the midterm is regular (almost everyone attending each class), and a majority of the class wishes, I will waive the final and allocate its grade percentage to the final project.

Textbook: We will make extensive use of the following text (BGVW):

Anthony E. Boardman, David H. Greenberg, Aidan R. Vining, and David L. Weimer, *Cost-Benefit Analysis: Concepts and Practice*, 3rd edition (Upper Saddle River, New Jersey: Prentice Hall, 2006).

Copies are available in the bookstore and a copy is on reserve in the College Library. Other readings and class materials will be made available on learn@UW.

Team Projects: The topics for team projects are as follows:

1. Recovery high schools provide supportive transitions between drug treatment and regular high school for adolescents recovering from substance abuse. Recovery high schools are intended to isolate their students from the drug culture and give them skills helpful for remaining abstinent when they return to regular high schools. University of Wisconsin researchers are preparing a grant proposal that would enable them to conduct a quasi-experimental evaluation of the recovery high school model. *By October 1*, the research team requires a short statement for inclusion in the grant proposal that sketches how a cost-benefit analysis will be done following completion of the evaluation. The remaining task for the team is to prepare detailed guidelines for doing the cost-benefit analysis and demonstrating their application with the best information now available. Client: Dr. Paul Moberg, Deputy Director, UW Population Health Institute, dpmoberg@wisc.edu.

2. The Consumer Assistance to Recycle and Save Act of 2009 (PL 111-32) created the “cash for clunkers” program. The National Highway Traffic and Safety Administration discussed the costs and benefits of the program in the *Federal Register* on July 29, 2009. Using the best available data and evidence, conduct a cost-benefit analysis of the program. When it is completed will it have produced positive net benefits? Also, to the extent feasible, identify the distributional impacts of the program. An appendix to the report should propose a specific longer-term study that could potentially reduce the uncertainty about net benefits. Client: Dr. Michael Stegman, Director of Policy and Housing, The John D. and Catherine T. MacArthur Foundation, mstegman@macfound.org.

3. Child maltreatment is a significant public health problem in Wisconsin. In 2007 there were 55,895 reports of alleged child abuse or neglect and 25,632 child victims of substantiated child abuse or neglect in Wisconsin. Child maltreatment imposes an enormous toll on society and results in costs associated with utilization of administrative services and systems (e.g., child protective services, foster care, judicial system), child treatment services (e.g., healthcare, mental health, educational systems), long-term impact (e.g., psychological and health problems in adulthood), and next generation victimization. An increasing number of policy-makers and practitioners are turning toward the field of prevention of child maltreatment to provide solutions. Nominal resources are currently allocated to the prevention of maltreatment in Wisconsin, but more needs to be done in order to make significant impacts statewide. Triple P—Positive Parenting Program is an evidenced-based parenting program with cost information relating to its cost-effectiveness. [See Cathrine Mihalopoulos et al. (2007) “Does the Triple P-Positive Parenting Program Provide Value for Money? *Australian and New Zealand Journal of Psychiatry* 41(3), 230-246.] Triple P has been shown to strengthen parenting, reduce the prevalence of conduct problems with children, and reduce coercive parenting practices. Currently, Triple P does not exist in Wisconsin. Conduct a cost-benefit analysis to determine if the benefits of these programs outweigh the costs and predict the total net gain to Wisconsin if this program were implemented statewide. Estimate the net benefits of the full Triple P program and, to the extent feasible, the net benefits of its five major components. Client: Anne Medeiros, Department of Children and Families, Division of Prevention and Service Integration, anne.medeiros@wisconsin.gov.

4. Across Wisconsin, local agencies provide home visitation services using a variety of models. Home visitation programs are provided to pregnant mothers and families with new babies and young children to address a variety of child and family issues. Although there are a variety of programs currently being implemented, there are three models that have been evaluated and are currently operating in several sites across the state: (1) Parents as Teachers; (2) Healthy Families America; and (3) Nurse Family Partnership. Conduct a cost-benefit analysis of taking each of these programs to scale in Wisconsin, meaning that every county would provide the model. The primary interest is in child maltreatment prevention outcomes. The final report should include a cost-benefit analysis for each program including all measured child and family outcomes, as well as a comparison of the programs focusing specifically on their impact on child abuse and neglect.

You should begin by reviewing Stephanie Lee, Steve Aos, and Marna Miller, *Evidence-Based Programs to Prevent Children from Entering and Remaining in the Child Welfare System: Benefits and Costs* (Olympia: Washington State Institute for Public Policy, 2008). The project is of interest to the Wisconsin Children's Trust Fund, which is a public-private partnership created by the State legislature in 1983 to: (1) advise national, state, and local policymakers on child abuse and neglect prevention statutes and policies; (2) develop educational and public awareness materials that promote individual and families strengths, build parenting skills, and encourage community supports for children and their families; and (3) provide funds and assistance to local programs that strengthen and support thousands of Wisconsin families. Client: Cailin O'Connor, Children's Trust Fund, cailin.oconnor@wisconsin.gov.

5. In Wisconsin drivers who are convicted of violating traffic laws must pay fines (traffic forfeitures). In Dane County, if a forfeiture is not paid within 60 days of judgment, the Circuit Court routinely suspends the person's driver's license and turns the case over to a collection agency. To gather data relevant to assessing the efficacy of suspending drivers' licenses the Circuit Court conducted an experiment between August 2, 2007 and October 30, 2007, randomly assigning those who had not paid their forfeitures within 60 days of judgment into four groups: suspend drivers' licenses but do not send to collection agency; send to collection agency but do not suspend licenses; suspend drivers' licenses, wait 30 days, then send to collection agency; and send to collection agency, wait at least 150 days, and then suspend licenses. In the fall of 2008, a team of students conducted a cost-benefit analysis based on the experimental data. However, there is some concern that the randomization was not complete and that all system costs were not taken into account. The current project will do two things. First, conduct statistical tests to assess the success of randomization, and take appropriate statistical steps to correct for any incomplete randomization detected. Second, redo the cost-benefit analysis taking account of the full administrative and social costs associated with the handling of cases. Client: Todd E. Meurer, Circuit Commissioner, Todd.Meurer@wicourts.gov.

6. The Energy Independence and Security Act of 2007 set efficiency standards for incandescent light bulbs that will be phased in over the period 2012 through 2014. These standards have implications for the social benefits of promoting the use of compact fluorescent lamps (CFLs). On the one hand, the energy savings from replacing incandescent bulbs with CFLs will be reduced. On the other hand, the costs of replacement may decrease if the costs of incandescent bulbs increase. Conduct a cost-benefit analysis of CFL replacement programs in Wisconsin taking account of the phase-in of the lighting efficiency standards in the Energy Independence and Security Act of 2007. Consider existing programs and potentially desirable modifications. Client: Eileen Hannigan, Senior Research Analyst, Wisconsin Energy Conservation Corporation, eileenh@weccusa.org.

I will evaluate each team in terms of how much progress it makes in light of the scope of the topic, the complexity of the issue, and the availability of information. My assessment will reflect comments from the client on the usefulness of the product and the professionalism of the team.

Tentative Schedule

Introduction (Sept. 2)

BGVW, Chapter 1

Scan: EPA Guidelines

<http://yosemite.epa.gov/ee/epa/eed.nsf/webpages/Guidelines.html>

Team projects organized

Note: Projects from several previous years and spreadsheets for exercises are available at learn@UW.

Class Discussion of Team Projects from Previous Years (Sept. 9)

BGVW, New Chapter 11 (available at learn@UW)

Conceptual Foundations (Sept. 14 and 16)

BGVW, Chapter 2 (Prepare exercises 2, 3, and 4 for class)

Valuing in Primary Markets (Sept. 21, 23, and 28)

BGVW, Chapter 3 (Prepare exercises 1 and 2 for class)

BGVW, Chapter 4 (Prepare exercises 1, 2, and 3 for class)

Spreadsheet Exercise 3.3

Spreadsheet Exercise 4.4

Valuing in Secondary Markets (Oct. 30)

BGVW, Chapter 5 (Prepare exercises 1, 2, and 3 for class)

Project report due: Each team should prepare a five- to seven-page (double-spaced) report that describes the issue being addressed in the project.

Spreadsheet Exercise 5.4

Basics of Discounting for Time/Social Discount Rate (Oct. 5 and 7)

BGVW, Chapter 6 (Prepare exercises 1, 3, and 4 for class)

BGVW, Chapter 10 (Prepare exercise 1 for class)

Scan: OMB Guidelines

<http://www.whitehouse.gov/OMB/circulars/A004/A-4.PDF>

<http://www.whitehouse.gov/omb/circulars/a094/a094.html>

UK Guidelines

<http://greenbook.treasury.gov.uk/>

CPI Calculator

http://www.bls.gov/data/inflation_calculator.htm

Spreadsheet Exercise 6.6

Expected Values and the Value of Information (Oct. 12 and 14)

BGVW, Chapter 7, pp. 156-166, 176-185 (Prepare exercises 1, 3, 4, and 6 for class)

David L. Weimer and Mark A. Sager, “Early Identification and Treatment of Alzheimer’s Disease: Social and Fiscal Outcomes,” *Alzheimer’s & Dementia* 5(3) 2009, 215-226.

Sensitivity Analysis (Oct. 19)

BGVW, Chapter 7, pp. 166-176 (**Hand-in write-up of exercise 5 — Spreadsheet Exercise 17.5**)

Project report due: Each team should prepare a list of the relevant categories of costs and benefits, and indicate how each can be measured. *Read BGVW, Chapter 15, to get an idea of available shadow prices from secondary sources. Those doing social policy projects should read Stephanie Lee, Steve Aos, and Marna Miller, Evidence-Based Programs to Prevent Children from Entering and Remaining in the Child Welfare System: Benefits and Costs for Washington (Olympia: Washington State Institute for Public Policy, Document No. 08-07-3901, 2008).*

Option Price and Option Value (Oct. 21)

BGVW, Chapter 8

Spreadsheet Exercise 8.3

Life-Cycle Analysis (Oct. 26)

Joule A. Bergerson and Lester B. Lave, “Should We Transmit Coal, Gas, or Electricity: Cost, Efficiency, and Environmental Implication,” *Environmental Science and Technology* 39(16) 2005, 5905-5910.

Visit: www.eiolca.net and do the tutorial for the EIO-LCA model.

Midterm Examination (October 28)

Estimation Based on Revealed Preferences: Demonstrations and Experiments (Nov. 2)

BGVW, Chapter 11 (Prepare exercise 2 for class)

Estimation Based on Revealed Preferences: Natural Experiments (Nov. 4 and 9)

BGVW, Chapter 12 (Prepare exercises 1 for class)

BGVW, Chapter 13 (**Hand-in write-up of exercise 3**)

Spreadsheet Exercise 12.2

David L. Weimer and Michael Wolkoff, "School Performance and Housing Values: Using Non-Contiguous District and Incorporation Boundaries to Identify School Effects," *National Tax Journal* 54(2) 2001, 231-253.

W. Kip Viscusi and Joseph E. Aldy, "The Value of a Statistical Life: A Critical Review of Market Estimates Throughout the World," *Journal of Risk and Uncertainty* 27(1) 2003, 5-76.

Contingent Valuation (Nov. 11, 16 and 18)

BGVW, Chapter 9 (Passive use)

BGVW, Chapter 14 (Prepare exercise 2 for class)

Prior to beginning of section, complete survey at <http://www.unm.edu/~rberrens/gcc/>

Bruce Johnson and John C. Whitehead, "Value of Public Goods from Sports Stadiums: The CVM Approach," *Contemporary Economic Problems* 18(1) 2000, 48-58.

Dale Whittington, "Improving the Performance of Contingent Valuation Studies in Developing Countries," *Environmental and Resource Economics* 22(1&2) 2002, 323-367.

Mark Dickie and Victoria L. Messman, "Parental Altruism and the Value of Avoiding Acute Illness: Are Kids Worth More than Parents?" *Journal of Environmental Economics and Management* 48(3) 2004, 1146-1174.

Cost-Effectiveness (Nov. 23 and 25)

BGVW, Chapter 17 (**Hand-in write-up of exercise 2**)

Spreadsheet Exercise 17.3

Shadow Prices in Developing Countries (Nov. 30)

BGVW, Chapter 16

Spreadsheet Exercise 16.4

Presentations (Dec. 3, 8, and 10)

Team reports due December 3

Revised project reports (PDF file) and explanation of revisions due (Dec. 15)

Final Examination (distributed December 15 by e-mail; due at noon December 17)