PA 881 - International Cost-Benefit Analysis

Fall 2017
University of Wisconsin, Madison
La Follette School of Public Affairs
Social Science 6112
W 2:30 - 4:30 p.m.
Office hours: TWR by appointment

Instructor: Emilia Tjernström
201 Observatory Hill Office Bldg. & 323 Taylor Hall
tjernstroem@wisc.edu
Webpage

This version: September 6, 2017

What is cost-benefit analysis?

Cost-benefit analysis (CBA) is a technique for evaluating a project or investment by comparing the economic benefits with the economic costs of the activity. This may sound straightforward; during the course of the class you will learn that it is everything but.

Policy decisions always require trade-offs, some more difficult than others. Given scarce resources, deciding how to allocate funding requries careful thinking about what the opportunity costs of those funds are. If we devote more resources to, say, reducing pollution or boosting the resources available to public schools, the money spent can no longer be used for other purposes. CBA can be used as a decision rule to determine whether a project should be carried out, or to compare competing projects. In general, CBA aims to pin down what policy-options will maximize social welfare.

Course objectives

Throughout the course of the semester, you will learn the basics of CBA and discuss the advantages and limitations of the approach. At the end of the semester, I want each of you to be critical consumers of CBAs and to be able to identify weaknesses of existing CBAs – as well as ways of addressing these shortcomings.

You should not be too worried about your grade; instead, you should focus on learning the tools taught in this course. I recommend viewing your grade in this course as a signal of where I think you stand in terms of your understanding and ability to apply the tools of this course.

I hope that you will learn many things, but have identified the following key learning goals:

- By the end of the semester, you will be able to read, comprehend, and effectively summarize policy research and policy-relevant academic research.
- By the end of the semester, you will be able to communicate in clear written language: a real-world policy problem, relevant scholarly studies and practical applications, a policy-analytic method to investigate the problem, and client-oriented advice to mitigate the problem.
- By the end of the semester, you will be able to maintain fidelity to objective social science-based research methods.
- By the end of the semester, you will be able to complete high quality group projects, including demonstration of effective project management and teamwork.

Course requirements & grades

Several components are designed to help you reach these goals:

Participation and attendance (15% of course grade)

Class sessions will mix lectures, discussion, case studies and problem solving to explore both the practical and conceptual aspects of CBA. I expect active participation in class and diligence in the completion of assigned exercises and readings, since class discussions will only be productive if you all do the assigned readings and/or problems prior to class, show up, and participate in the discussions.

Exercises For most classes, I will assign exercises and/or reading questions on the topics that will be covered in class. My hope is that this will help you do the readings purposefully, and come in to class with questions and comments. We will go over exercises in class, and I may call on students to describe how they approached the problem.

Readings Some of the readings might be challenging, as they occasionally make use of math or economic theory that you might not be 100% comfortable with. I encourage you to persevere. In your professional life, you are likely to encounter papers and reports outside your comfort zone and you will be forced to extract information from them. I won't expect you to understand all of the mathematical details; strive instead to grasp the gist of the arguments presented.

Religious observances If a religious observance will require you to miss class time, please notify me within the first two weeks of class of the specific days or dates on which you request relief. If the date you will miss is an exam, we will schedule a make-up exam time either before or after the regularly scheduled exam.

Midterm exam (35% of course grade)

An in-class midterm exam in October will give you a chance to show me what you have learned so far.

Cost benefit project (50% of course grade)

Although the theory of CBA can be learned in the classroom, carrying one out in reality is part theory, part art; this art is best mastered by actually practising it. Toward this end, you will work together in teams to conduct a CBA of a real intervention/program/policy for a real client.

The course outline lists several milestones, designed to help you keep on track with your project:

1. Project report 1 (summary + plan) is due on September 26
2. Project report 2 (annotated bibliography) will be due on October 10
3. Project report 3 (categories & measurement) will be due on October 31
4. A first draft of the CBA will be due on December 5
5. Classtime on December 12 will be devoted to team presentations of their projects
6. A final draft will be due on December 19
7. Last year, students asked me for a chance to evaluate their team members. I will therefore ask each student to evaluate the effort and contributions of other team members, and I will consider the responses in assigning individual grades.

In addition, you should plan on participating in a briefing on the final report at your client's convenience, most likely near/right after the end of the semester, and most likely via Skype. You are all expected to participate equally in interacting with clients, in the analysis, and in the final presentation; team members should all be familiar with every aspect of the CBA. **Please do not take this course if you are unwilling or unable to give the project a high priority.** I reserve the right to lower the grade of anyone who does not contribute fully to his or her team.

I strongly prefer that you submit course materials electronically through Canvas. Please include FirstName_LastName in file names!

Academic integrity

By enrolling in this course, each student assumes the responsibilities of an active participant in UW-Madison's community of scholars in which everyone's academic work and behavior are held to the highest academic integrity standards. Academic misconduct compromises the integrity of the university. Cheating, fabrication, plagiarism, unauthorized collaboration, and helping others commit these acts are examples of academic misconduct, which can result in disciplinary action. This includes but is not limited to failure on the assignment/course, disciplinary probation, or suspension. Substantial or repeated cases of misconduct will be forwarded to the Dean of Students Office for additional review. For more information, or if you have any doubts about how the above terms are defined, please refer to http://www.students.wisc.edu/doso/academic-integrity/.

The UW Writing Center has a handout on acknowledging, paraphrasing and quoting sources. For the take-home exam in particular, please read this handout – especially if you have any doubts about how to cite sources.

Course materials

We will rely extensively on the assigned (required) textbook:

- Anthony E. Boardman, David H. Greenberg, Aidan R. Vining, and David L. Weimer, Cost- Benefit Analysis: Concepts and Practice, 4th ed. (Upper Saddle River, New Jersey: Prentice Hall, 2011).

I will additionally make other readings and class materials available on Canvas.
All readings in the textbook are required; additional required readings are marked with an asterisk.

Schedule/overview

Rough outline of topics. Please note that I may add or drop readings during the semester; I will announce changes in class and update the syllabus on Canvas.

Date	Topic	Book chapter
9/12	Introduction: What is CBA? How is it used? Discussion of projects	1
9/19	Conceptual foundations; previous projects	2
	Guest speaker: Caitlin Tulloch, the International Rescue Committee	
9/26	Valuing C & B when markets exist - primary markets	3, 4
10/3	Valuing C & B when markets exist - secondary markets	5
	Discounting & the social discount rate	6, 10
10/10	Uncertainty (I): Expected values, sensitivity analysis	7
10/17	Midterm exam	
10/24	Uncertainty (II): Value of information, option values, quasi-option values	7, 8
	Guest speaker: Sarah Stillman (staff writer at the New Yorker)	
10/31	Revealed preferences (I): experiments and quasi-experiments	11, 12
11/7	Revealed preferences (II): demand curves and shadow prices	13, 14
11/14	Valuing life & time	16
11/21	Catch-up & project consultation	
11/28	Existence value, stated preferences, CV	9, 15
12/5	Behavioral economics & cases	
12/12	Presentations	

In addition to the regular classtimes, I will also try to schedule two (optional) Stata computer lab sessions outside of class – one on how to handle, transform (merging, appending, reshaping) and summarize data, and a second one on data visualization and loops.

"I would add one word for any student beginning economic study who may be discouraged by the severity of the effort which the study, as he will find it exemplified here, seems to require of him. The complicated analyses which economists endeavour to carry through are not mere gymnastic. *They are instruments for the bettering of human life."*

Pigou, Arthur C. "The economics of welfare, 1920." McMillan&Co., London (1932).

Detailed schedule

September 12
Intro: What is Cost-Benefit Analysis? How is it used?

- BGVW, Chapter 1
- Arrow, Kenneth J., Maureen L. Cropper, George C. Eads, Robert W. Hahn, Lester B. Lave, Roger G. Noll, Paul R. Portney, et al. 1996. "Is There a Role for Benefit-Cost Analysis in Environmental, Health, and Safety Regulation?"

* EPA. 2014. "Guidelines for Preparing Economic Analyses." [Sections 1 & 3]

- LeDuc, Daniel. 2014. "Results That Bring Change." MacArthur Foundation, Trust.
- Copenhagen Consensus, Post-2015 Consensus
  - Background: http://www.copenhagenconsensus.com/post-2015-consensus/background
  - Purpose: http://www.copenhagenconsensus.com/post-2015-consensus/purpose
- Weiner, Zachary. "Ethical Fourier Transform." Saturday Morning Breakfast Cereal. http://www.smbc-comics.com/index.php?id=3831

September 19
Conceptual foundations: decision rules, welfare measures
Discussion of past projects
Guest speaker: Caitlin Tullock from the International Rescue Committee

- BGVW, Chapter 2

* Cost-Benefit Analysis of IRC Programming in Lebanon

* Organic Certification for Yaqona on Kadavu, Fiji – A Cost-Benefit Analysis

* Cost-Benefit Analysis of Afforestation Projects for Erosion Control in New Zealand

- OECD. 2006. "Chapter 4: Decision Rules." In Cost-Benefit Analysis and the Environment: Recent Developments. Paris: OECD.
- EPA. 2014. "Guidelines for Preparing Economic Analyses." [Sections 4.1, 4.6 & 4.7]

September 26
Valuing C & B when markets exist - primary markets

- **Project report 1:** Describe the issue being addressed in your project; sketch a plan for completion (5-7 pages)
- BGVW, Chapter 3 & 4 (Chapter 3 should hopefully feel like review; if you need additional review, you might want to consult a microeconomics textbook. Please let me know if you would like suggestions.)
- Eliasson, Jonas. 2009. "A Cost–benefit Analysis of the Stockholm Congestion Charging System." Transportation Research Part A: Policy and Practice 43 (4): 468–80.

* Glaeser, Edward L. 2015a. "Is High-Speed Rail a Good Public Investment?." Economix Blog. http://economix.blogs.nytimes.com/2009/07/28/is-high-speed-rail-a-good-public-investment/.

* ———. 2015b. "Running the Numbers on High-Speed Trains." Economix Blog. http://economix.blogs.nytimes.com/2009/08/04/running-the-numbers-on-high-speed-trains/.

* ———. 2015c. "How Big Are the Environmental Benefits of High-Speed Rail?." Economix Blog. http://economix.blogs.nytimes.com/2009/08/12/how-big-are-the-environmental-benefits-of-high-speed-rail/.

October 3
Valuing C & B when markets exist - primary markets (cont.)
Valuing C & B when markets exist - secondary markets
Discounting: mechanics, the social discount rate

- BGVW, Chapter 5, 6, 10

* Arrow, Kenneth, Maureen Cropper, Christian Gollier, B. Groom, G. Heal, R. Newell, W. Nordhaus, et al. 2013. "Determining Benefits and Costs for Future Generations." Science 341 (6144): 349–50.

* Glaeser, Edward L. 2015d. "What Would High-Speed Rail Do to Suburban Sprawl?." Economix Blog. http://economix.blogs.nytimes.com/2009/08/18/what-would-high-speed-rail-do-to-suburban-sprawl/.

* *Case:* Whittington, Dale, Marc Jeuland, Kate Barker, and Yvonne Yuen. 2012. "Setting Priorities, Targeting Subsidies among Water, Sanitation, and Preventive Health Interventions in Developing Countries." World Development 40 (8): 1546–68.

- Dugger, Celia W. 2007. "Ending Famine, Simply by Ignoring the Experts." The New York Times, December 2, sec. International / Africa. http://www.nytimes.com/2007/12/02/world/africa/02malawi.html.

- Jonasson, Erik, Mateusz Filipski, Jonathan Brooks, and J. Edward Taylor. 2014. "Modeling the Welfare Impacts of Agricultural Policies in Developing Countries." Journal of Policy Modeling 36 (1): 63–82

- OMB Circular A-4, Office of Management and Budget's guidance to Federal agencies on the development of regulatory analysis:
https://www.whitehouse.gov/sites/default/files/omb/assets/omb/circulars/a004/a-4.pdf (skim)

October 10
Uncertainty (I): Expected values, sensitivity analysis

- **Project report 2:** Prepare an annotated bibliography with the 10 studies that are the most relevant to your topic; give highest priority to published CBAs on similar topics

- BGVW, Chapter 7, pp. 167-187

* Mueller, John, and Mark G. Stewart. 2014. "Evaluating Counterterrorism Spending." The Journal of Economic Perspectives 28 (3): 237–47.

October 17
Midterm

October 24
Uncertainty (II): Value of information, option values, quasi-option values
Guest speaker: Sarah Stillman, staff writer the New Yorker

- BGVW, Chapter 7, 8
- Arrow, Kenneth J., and Anthony C. Fisher. 1974. "Environmental Preservation, Uncertainty, and Irreversibility." The Quarterly Journal of Economics, 312–19.
- Camerer, Colin F., and Howard Kunreuther. 1989. "Decision Processes for Low Probability Events: Policy Implications." Journal of Policy Analysis & Management 8 (4): 565–92.
- OECD. 2006. "Chapter 10: Quasi-Option Value." In Cost-Benefit Analysis and the Environment: Recent Developments. Paris: Organisation for Economic Co-operation and Development.

October 31
Revealed preferences: experiments and quasi-experiments

- **Project report 3**: Prepare a list of the relevant categories of costs and benefits; indicate how each can be measured
- BGVW, Chapter 11, 12
- TBD

November 7
Revealed preferences: natural experiments

- BGVW, Chapter 13, 14
- Weimer, David L., and Michael J. Wolkoff. 2001. "School Performance and Housing Values: Using Non-Contiguous District and Incorporation Boundaries to Identify School Effects." National Tax Journal 54 (2): 231–53.
- Ahlfeldt, Gabriel M., Pantelis Koutroumpis, and Tommaso M. Valletti. 2015. "Speed 2.0 - Evaluating Access to Universal Digital Highways." SSRN Working paper ID 2560715. Rochester, NY: Social Science Research Network.

November 14
Valuing life and time

- BGVW, Chapter 16

* Belenky, Peter. 2011. "Revised Departmental Guidance on Valuation of Travel Time in Economic Analysis." *pp. 1-2, 11-14, skim the rest*

- Leon, Gianmarco, and Edward Miguel. 2015. "Risky Transportation Choices and the Value of Statistical Life." Working paper.
- Fezzi, Carlo, Ian J. Bateman, and Silvia Ferrini. 2014. "Using Revealed Preferences to Estimate the Value of Travel Time to Recreation Sites." Journal of Environmental Economics and Management 67 (1): 58–70.
- Wolff, Hendrik. 2014. "Value of Time: Speeding Behavior and Gasoline Prices." Journal of Environmental Economics and Management 67 (1): 71–88.

November 21
Catch-up class / cases / project consultation

- BGVW, Chapter 15
- * Bergerson, Joule A., and Lester B. Lave. 2005. "Should We Transport Coal, Gas, or Electricity: Cost, Efficiency, and Environmental Implications." Environmental Science & Technology 39 (16): 5905–10.

November 28
Existence value, stated preferences, contingent valuation

- BGVW, Chapter 9, 15
- Kopp, Raymond J. 1992. "Why Existence Value Should Be Used in Cost–benefit Analysis." Journal of Policy Analysis and Management 11 (1): 123–30.
- Rosenthal, Donald H., and Robert H. Nelson. 1992. "Why Existence Value Should Not Be Used in Cost-Benefit Analysis." Journal of Policy Analysis and Management 11 (1): 116–22.

Journal of Economic Perspectives Symposium on Contingent Valuation:

- Kling, Catherine L., Daniel J. Phaneuf, and Jinhua Zhao. 2012. "From Exxon to BP: Has Some Number Become Better than No Number?" The Journal of Economic Perspectives, 3–26.
- Carson, Richard T. 2012. "Contingent Valuation: A Practical Alternative When Prices Aren't Available." The Journal of Economic Perspectives 26 (4): 27–42.
- Hausman, Jerry. 2012. "Contingent Valuation: From Dubious to Hopeless." The Journal of Economic Perspectives 26 (4): 43–56.

December 5
Implications of behavioral economics

- **First draft of CBA due**
- Portney, Paul R. 1992. "Trouble in Happyville." Journal of Policy Analysis and Management 11 (1): 131–32.
- * Robinson, Lisa A., and James K. Hammitt. 2011. "Behavioral Economics and Regulatory Analysis." Risk Analysis 31 (9): 1408–22.

- Salanié, François, and Nicolas Treich. 2009. "Regulation in Happyville." The Economic Journal 119 (537): 665–79.
- Sunstein, Cass R. 2003. "Terrorism and Probability Neglect." Journal of Risk and Uncertainty 26 (2-3): 121–36.
- Cases: early childhood interventions

December 12
Presentations