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 requires 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.

The course contributes to a number of the Student learning goals set out for MIPA students, most obviously the following four goals:

II A. “Students will read, comprehend, and effectively summarize policy research and policy-relevant academic research.”

III A. “Students will 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.”

IV D. “Students will demonstrate the ability to maintain fidelity to objective social science-based research methods.”

V B. “Students will 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.

Take home exam (35% of course grade)

A take-home exam during the second week of November 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 21
2. Project report 2 (annotated bibliography) will be due on October 12
3. Project report 3 (categories & measurement) will be due on October 26
4. A first draft of the CBA will be due on December 7
5. Classtime on December 14 will be devoted to team presentations of their projects
6. A final draft will be due on December 19
In addition, you should plan on participating in a briefing on the final report at your client’s convenience, most likely after the end of the semester, and most likely via Skype. You are all expected to participate equally in interacting with clients and in the analysis; 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 Learn@UW.

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:


I will additionally make other readings and class materials available via Learn@UW.
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 Learn@UW.

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Book chapter</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/7/16</td>
<td>Introduction: What is CBA? How is it used? Discussion of team projects</td>
<td>1</td>
</tr>
<tr>
<td>9/14/16</td>
<td>Conceptual foundations + discussion of past years’ projects</td>
<td>2</td>
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<tr>
<td>9/21/16</td>
<td>Valuing C &amp; B when markets exist - primary markets</td>
<td>3, 4</td>
</tr>
<tr>
<td>9/28/16</td>
<td>Valuing C &amp; B when markets exist - secondary markets [Prof. Weimer]</td>
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<tr>
<td>10/5/16</td>
<td>Discounting &amp; the social discount rate</td>
<td>6, 10</td>
</tr>
<tr>
<td>10/12/16</td>
<td>Uncertainty (I): Expected values, sensitivity analysis</td>
<td>7</td>
</tr>
<tr>
<td>10/19/16</td>
<td>Uncertainty (II): Value of information, option values, quasi-option values</td>
<td>7, 8</td>
</tr>
<tr>
<td>10/26/16</td>
<td>Revealed preferences (I): experiments and quasi-experiments</td>
<td>11, 12</td>
</tr>
<tr>
<td>11/2/16</td>
<td>Revealed preferences (II): demand curves and shadow prices</td>
<td>13, 14</td>
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<tr>
<td>11/9/16</td>
<td>Take home exam</td>
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<tr>
<td>11/16/16</td>
<td>Valuing life &amp; time</td>
<td>16</td>
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<tr>
<td>11/23/16</td>
<td>Existence value, stated preferences, CV</td>
<td>9, 15</td>
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<tr>
<td>11/30/16</td>
<td>Catch-up &amp; project consultation</td>
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<tr>
<td>12/7/16</td>
<td>Behavioral economics &amp; cases</td>
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<tr>
<td>12/14/16</td>
<td>Presentations</td>
<td></td>
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</tbody>
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Detailed schedule

All readings in the textbook are required; additional required readings are marked with an asterisk.

**Wednesday, September 07, 2016**
Intro: What is Cost-Benefit Analysis? How is it used?
- BGVW, Chapter 1
  * EPA. 2014. “Guidelines for Preparing Economic Analyses.” [Sections 1 & 3]
- Copenhagen Consensus, Post-2015 Consensus

**Wednesday, September 14, 2016**
Conceptual foundations: decision rules, welfare measures Discussion of past projects
- BGVW, Chapter 2
- EPA. 2014. “Guidelines for Preparing Economic Analyses.” [Sections 4.1, 4.6 & 4.7]

**Wednesday, September 21, 2016**
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.)
Wednesday, September 28, 2016 [Prof. Weimer]
Valuing C & B when markets exist - primary markets (cont.)
Valuing C & B when markets exist - secondary markets
• BGVW, Chapter 5


Wednesday, October 5, 2016
Discounting: mechanics, the social discount rate
• BGVW, Chapter 6, 10


• 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)


Wednesday, October 12, 2016
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


Wednesday, October 19, 2016
Uncertainty (II): Value of information, option values, quasi-option values
• BGVW, Chapter 7, 8


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**Wednesday, October 26, 2016**

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

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**Monday, November 2, 2016**

Revealed preferences: natural experiments

• BGVW, Chapter 13, 14


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**Wednesday, November 9, 2016**

**Take home exam**

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**Wednesday, November 16, 2016**

Valuing life and time

• BGVW, Chapter 16


Wednesday, November 23, 2016
Existence value, stated preferences, contingent valuation


- BGVW, Chapter 9, 15


Journal of Economic Perspectives Symposium on Contingent Valuation:


Wednesday, November 30, 2016
Catch-up class / cases / project consultation

- BGVW, Chapter 15


Wednesday, December 7, 2016
Implications of behavioral economics

- First draft of CBA due


- Cases: early childhood interventions