**Cost Analysis with Imperfect Data**

Keri Culver – [kculver@msi-inc.com](mailto:kculver@msi-inc.com)

AEA 2011 Conference – Values and Valuing

**Session Goals**

1. Outline a few cost analyses methods
2. Show examples of cost data
3. Practice cost evaluation methods given imperfect data

**Cost analysis types**

1. **Cost-effectiveness analysis:** (CEA) “the evaluation of alternatives according to both their costs and their effects with regard to producing some outcome.”[[1]](#footnote-1)
   1. Comparison of ways to achieve the same outcome
   2. Requirements:
      1. two or more programs
      2. a common goal
      3. a common measure of effectiveness
   3. Example: Two programs designed to increase reading test scores.
   4. CEA compares alternative ways to reach a desired outcome.
2. **Cost-benefit analysis:** (CBA) “the evaluation of alternatives according to their costs and benefits when each is measured in monetary terms.”[[2]](#footnote-2)
   1. Weighs benefits in monetary terms against costs in monetary terms.
   2. Requirements: researcher must be able to putbenefits in $ terms
   3. Example: a program helps juveniles stay away from crime after treatment.
   4. Compares across programs
3. **Cost-utility analysis:** (CUA) “the evaluation of alternatives according to a comparison of their costs and their utility or value.”[[3]](#footnote-3)
   1. Similar to CEA but measures stated preferences, aka utility or value, against actual costs.
   2. Requirements: Must be able to get stakeholder preferences and weigh appropriately.
   3. Example: Parents, teachers, principals and reading specialists value two programs differently, and weights are assigned according to importance.

**Counting costs**

1. Explicit costs/project expenditures
2. Implicit costs: in-kind goods or services
3. Estimated costs, for which the project is not responsible

**Think like an auditor. Are the costs correct and complete?**

1. Does the cost structure make sense? What is not included?
2. Look at data on the handout – what errors/questions can you find?

**Is the measure of effectiveness sufficient?** Some questions to ask yourself:

* 1. Internal validity? Is there control? Pre-post?
  2. What different perspectives can you imagine? Who is speaking? Who is left out?

**The Ratio: CEA – a simple example**

C (Cost)

E (Effectiveness)

**What’s so complex about that?**

|  |  |
| --- | --- |
| **Denominator** | * Other types of effects – such as percentages over a population. * Test data and cost per point increase in score * Data quality |
| **Numerator** | * Project has multiple objectives, each with a portion of the costs * Changes over time – discounting (also applies to effects) * Fixed versus variable costs, stepped costs - Scaling |
| **Project**  **uncertainty** | * Scale may affect C/E ratio * Benefits don’t accrue to all beneficiaries equally * Would costs stay the same? Levin and McEwan: *sensitivity analysis*. |

**Cost-benefit analysis (CBA)**

1. “Do the benefits outweigh the costs?” Levin and McEwan, p. 155.
2. Counting and checking costs is similar to CEA
3. Putting benefits in monetary terms.

**Last example:**

1. Cost data rarely comes in a nice neat format.
2. Find it where you can get it

* Verify what you find
* Use the “think like an auditor” premise
* Find holes and make defensible estimates.

1. Compare to effects or benefits as applicable

Corso, Phaedra S. 2010. Presentation “An Introduction to Economic Evaluation,” Presented at AEA/CDC Summer Evaluation Institute. June 2010. Downloaded 28 Oct 2011 at <https://higherlogicdownload.s3.amazonaws.com/EVAL/AEA_2010_Corso-1.pdf?AWSAccessKeyId=1RMAN8YH8YCNBW6KAZG2&Expires=1319831045&Signature=mFAnJc1eDEfbIdCAL8HU07yPmSE%3D>

Levin, Henry M and Patrick J. McEwan. 2001. “Cost-effectiveness Analysis.” Second Edition. Sage Publications. Thousand Oaks, California.

1. Levin, Henry M and Patrick J. McEwan. 2001. “Cost-effectiveness Analysis.” Second Edition. Sage Publications. Thousand Oaks, California. P. 10-11. [↑](#footnote-ref-1)
2. Ibid, p. 11. [↑](#footnote-ref-2)
3. Ibid, p. 19. [↑](#footnote-ref-3)