Review of "Assessing Economy-wide Effects of Health and Environmental Interventions in Support of BCA" by Kenneth M. Strzepek, Collins Amanya, and James E. Neumann

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Overall comments

- A comprehensive and well-written review of economy-wide modeling of program interventions
- Makes a good case for why economy-wide modeling might be more suitable than standard BCA for certain types of interventions in the social (particularly health and education) sectors.
- Authors clearly articulate when economy-wide modeling is more appropriate:
  - Effects are likely to be large and cumulative over time
  - There are likely to be cross-sectoral linkages and synergies
  - When sufficient data are available for economy-wide modeling

Economy-wide modeling is not new

- In fact, it was used very widely in the past. CGE models and SAMs were much more commonly used in the 1970s and 1980s than they are now.
- Used in the US to evaluate the impact of the Clean Air Act of the early 1970s.
- But the CGE and SAM models of yesteryears were based largely on inter-industry linkages within an economy, which were reasonably well-understood and well-documented.

Past limitations

- However, the literature on the empirical links among education, health, agriculture and other economic sectors was not as well-formed at that time.

- As the paper argues in its concluding section, a major future priority is
  - "… *quantification and development of mathematical relationships for the impacts between health-based interventions/projects/programs and their outcomes on human activities (e.g. number of reduced diarrheal events per capita for increased clean water supply.) These 'translational' relation-ships are necessary to provide the key links needed between traditional static assessments of the impact health and environmental interventions, and economy-wide modeling, thereby quantifying the potentially important cumulative, intersectoral, and spillover effects of these interventions.*"

The situation today …

- Fast forward to today.
- We have a great deal of empirical evidence on these relationships between social interventions and household outcomes.
- What is needed is to plug the parameters of these estimated relationships in more traditional economy-wide models to see how a health or educational intervention can create direct and indirect impacts on the broader economy.

How a program or project is financed matter?

- The paper makes an important point – within an economy-wide model, the “cost” of an intervention is not absolute, but depends on how the intervention is financed – viz., by donor grants, development bank loans, public-private partnership, or domestic tax revenues.

- Standard BCA typically doesn’t make this distinction.

Studying impacts based on quasi-natural policy experiments?

- In addition to standard BCA and economy-wide modeling, there is a third approach that hasn't been used by the BCA community as much.

- This involves looking at large quasi-random social interventions that have taken place in the past and studying their reduced-form impact on households and communities many years or even decades later.

Examples of studies

- Duflo (2001) studied the effect on male wages in 1995 of one of the largest primary school construction programs in the world that occurred in Indonesia between 1973 and 1978.
- By using information on their birth year and migration history, she could match men in the labor market to the district in which a primary school was constructed when they were of primary-school age.
- She did a rough benefit-cost calculation and found that the internal rate of return for the school construction program was in the range of 8.8-12%.

- The advantage of such econometric studies is that they yield “reduced-form,” real-world estimates of impact – in other words, the estimates are based on actual household data and allow for all kinds of synergies and interactions to have occurred.

- Numerous examples of such studies that have been done for expansion of health insurance coverage (in Vietnam) or construction of primary health centers (in Brazil).