

Chapter 7: Evaluation and Valuation Methodologies: Applications to eco- agri-food systems

Outline

- Key Messages
- 1. Introduction
- 2. Why decision makers need models and tools for evaluation
- 3. Key concepts in valuation and evaluation
- 4. Evaluation methodologies and criteria (techniques and models)
- 5. Models to implement an integrated evaluation framework
- 6. Conclusions

1. Introduction

- **Summary of pertinent issues from earlier chapters relevant for this chapter.**
- (Key goals in Highly heterogeneous and uncertain world of eco-agri-food systems)
- Food security, nutritional adequacy, livelihoods, gender, poverty, minimum support prices, lack of access to formal credit markets, vulnerability to disasters, illiteracy, equity vs efficiency -
- How agri-food complex system is influenced and is influenced by rest of the sectors and policies in the society (for eg. Policies to divert agricultural land or policies supporting alternate use of land).
- In the process how does this influence the environment and biodiversity dimensions (intergenerational and intra-generational equity)

2. Why decision makers need models and tools for evaluation?

- Valuation - (what we are not considering right now) (examples illustrating the need for including the values and how values can improve decision making). Agricultural – credence goods
- Valuation and evaluation from whose perspective (policy makers, health practitioners, national accountant, business, farmers). The synergies and complementarities in decision making. Divergence between individual vs societal interests.
- Potential trade-offs and forecasting of various decisions and how evaluation framework can be useful (e.g. subsidy on pesticides vs subsidy on organic production. Subsidies in general may be bad but the decision here is on good subsidy vs. ugly subsidies. Marginal benefits vs marginal costs), Decision on GM crops vs. conventional crops (both are different).
- Examples on how using right evaluation framework can help improve decision making?

3. Valuation and evaluation

- Valuation as an input to evaluation (the perspective of the total economic value)
- Private and social benefits and costs (externalities technological and pecuniary).
- Key features of externalities (temporal, spatial) and how do we incorporate them in the decisions?
- Valuing visible flows – using market prices and situations when market prices are different from the efficient prices
- Use of shadow prices
- Valuing the invisibles of agri-food systems (during production, processing, consumption)
- Alternative measures, metrics and data for measuring economic/monetary values (private benefits and private costs vs social benefits and social costs)
- Situations where economic valuation methods may not be applicable
- Methods using Non-economic approaches

4. Evaluation methodologies and criteria (techniques and models)

- State of affairs/state of the art
- Cost Benefit Analysis –
- application and limitations (distributive weighting matters, whose benefits and whose costs matter, role of policy makers as maximizers of social welfare – distributive weights matter – distributional equity, gender equity, small vs. large scale farmers) and ethics of discounting. Key limitation (use of welfare criteria vs income criteria which is more commonly understood).
- Multi-criteria analysis – applications and limitations
- Cost-effectiveness analysis – an alternate. And where it can be applied

5. Models to implement an integrated evaluation framework

- Scope (model and the need for integrated evaluation framework (to carry out the analysis of trade-offs in sustainability of various agricultural systems, integrating economic simulation models with biophysical crop simulation and environmental process models)
- Available models and tools
- Advances in measuring non-monetary values and data sources
- Decision Making Layer (private, public)
- Need for integration – Systems approach
- Application of the integrated evaluation framework to the eco-agri-food system

6. Conclusions

- -Treatment of risk and uncertainty (evaluation of health impacts)
- - Understanding the limitations in use of models and frameworks
- - Implications for policies