

TOOLS AND APPROACHES TO THE USE OF ECONOMIC ANALYSIS IN SPS DECISION- MAKING

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CHANGING LIVES
IMPROVING LIFE



Institute of
Development Studies

OVERVIEW

- ✕ Context
- ✕ Role and nature of economic analysis
- ✕ Approaches to economic analysis
- ✕ Decisions on the basis of multiple criteria
- ✕ Conclusions

CONTEXT

- ✗ Significant weaknesses in SPS capacity in developing countries
- ✗ Limited resources:
 - + Domestic
 - + Donors
- ✗ Evidence of inefficiencies in technical cooperation:
 - + Supply-led
 - + Lack of priority-setting
 - + Overlaps versus gaps across donors
- ✗ Thrust towards enhanced aid effectiveness:
 - + Information sharing
 - + Coordination
 - + Economic analysis
- ✗ Little evidence of systematic use of economic analysis in practice

ANALYSIS OF TRADE-RELATED SPS CAPACITY-BUILDING



ROLE OF ECONOMIC ANALYSIS

- ✗ 'Sift out' projects with net cost
- ✗ Identify priorities within capacity-building needs:
 - + Weaknesses in SPS capacity
 - + Products
- ✗ Identify efficient approaches to capacity development:
 - + Alternative solutions
 - + Points of intervention

BENEFITS OF ECONOMIC ANALYSIS

- ✗ Economic efficiency
- ✗ Objectivity
- ✗ Transparency & accountability
- ✗ Inclusiveness
- ✗ Appreciation of risk & uncertainty

CHALLENGES IN UNDERTAKING ECONOMIC ANALYSIS

- ✗ Costs and benefits can be wide-ranging and difficult to identify
- ✗ Costs and benefits can be difficult to measure
- ✗ Costs and benefits can be difficult to attribute
- ✗ Spill-over effects may be significant
- ✗ Data is almost always an issue:
 - + Availability
 - + Quality
- ✗ Changes *nature* of decision-making processes:
 - + How decisions made
 - + Cost and time intensity of decision-making processes
 - + Influence & power structures

ECONOMIC ANALYSIS METHODS

- ✗ Cost-benefit analysis:
 - + Which options yield net benefit?
 - + Which option yields greatest net benefit?
- ✗ Cost-effectiveness analysis:
 - + Which option most cost-effective way of achieving given objective?
- ✗ Multi-criteria decision analysis :
 - + Which option best way of achieving outcome with multiple objectives?
 - + What is impact of changing priorities across multiple objectives?

COST-BENEFIT ANALYSIS

- ✗ Compute and compare flow of costs and benefits of options over time
- ✗ Costs and benefits expressed in monetary units
- ✗ Comparison to baseline - usually the status quo
- ✗ Focus:
 - + Narrow versus wider impacts
 - + Partial versus general equilibrium effects
- ✗ Cost estimation:
 - + Engineering approach
 - + Econometric approach
 - + Accounting approach
- ✗ Benefit estimation:
 - + Quantification
 - + Monetization

COST-BENEFIT ANALYSIS

- ✗ Most widely applied approach to economic analysis of SPS controls
- ✗ Relatively few applications in developing countries, especially in area of food safety
- ✗ Applied to *ex ante* and *ex post* analysis
- ✗ Wide variation in approaches – simple accounting frameworks to econometric models
- ✗ Often appreciable data problems
- ✗ Applications tend to be highly context-specific
- ✗ Some evidence of more routine use:
 - + Project preparation/appraisal
 - + Regulatory impact analysis

COST-EFFECTIVENESS ANALYSIS

- ✗ Monetary costs of alternative options compared with (common) physical benefits
- ✗ Options ranked in terms of cost per physical benefit
- ✗ Option with greatest cost-effectiveness acts as baseline
- ✗ Will not determine if options produce a net benefit
- ✗ Most widely applied approach to assessment of medical interventions
- ✗ Limited applications to food safety and animal health controls
- ✗ Applications focus on alternative controls in very specific contexts
- ✗ Little or no application in developing countries

MULTIPLE-CRITERIA DECISION ANALYSIS

- ✗ Choice between options in terms of multiple criteria
- ✗ Can be applied to relatively large numbers of options that vary in the associated costs and benefits
- ✗ Costs and benefits do not need to be measured in common monetary or non-monetary units
- ✗ Highly flexible in terms of data requirements
- ✗ Wide range of methods that differ in how distinguish between options
- ✗ Widely applied in natural resource management, engineering....
- ✗ Little application to SPS controls....but some recognition could be of significant utility

DRIVING PRINCIPLES

- ✘ What questions need answering?
 - + Number/range of options
 - + Range/diversity of impacts
- ✘ What is feasible?
 - + Data
 - + Time
 - + Resources
 - + Skills/experience
- ✘ What compromise is acceptable in terms of rigour and/or completeness?
- ✘ Is there buy-in at key levels of the decision process?

ANALYTICAL CONTEXTS

- ✘ *Ex post* analysis of existing capacity-building efforts
- ✘ Analysis of large-scale capacity interventions
- ✘ 'Demonstration' analysis of controls on SPS risks and/or enhancements in capacity
- ✘ Choices between multiple capacity-building options/design of actions plans for capacity enhancement

PRIORITISING CAPACITY-BUILDING OPTIONS ON THE BASIS OF MULTIPLE CRITERIA

- ✗ Broad-based comparisons of capacity-building options within and across SPS areas
- ✗ Prioritisation on basis of multiple criteria:
 - + Trade impacts
 - + Direct domestic impacts
 - + Livelihood impacts
- ✗ Importance of decision criteria in choosing between options may differ
- ✗ Information set on decision criteria may differ:
 - + How measured
 - + Available data

A MULTI-CRITERIA FRAMEWORK

- 1 • Define choice set
- 2 • Compile information cards
- 3 • Develop cobweb diagrams
- 4 • Derive numerical prioritization

DEFINING CHOICE SET

- ✗ Determines the boundary of the analysis
- ✗ Indicators:
 - + Capacity-based
 - + Compliance-based
 - + Trade-based
- ✗ Need on-going and consistent system of data capture and synthesis
- ✗ Need to refocus towards *ex ante* indicators of capacity-building needs
- ✗ Role of triangulation

COMPILING INFORMATION CARDS

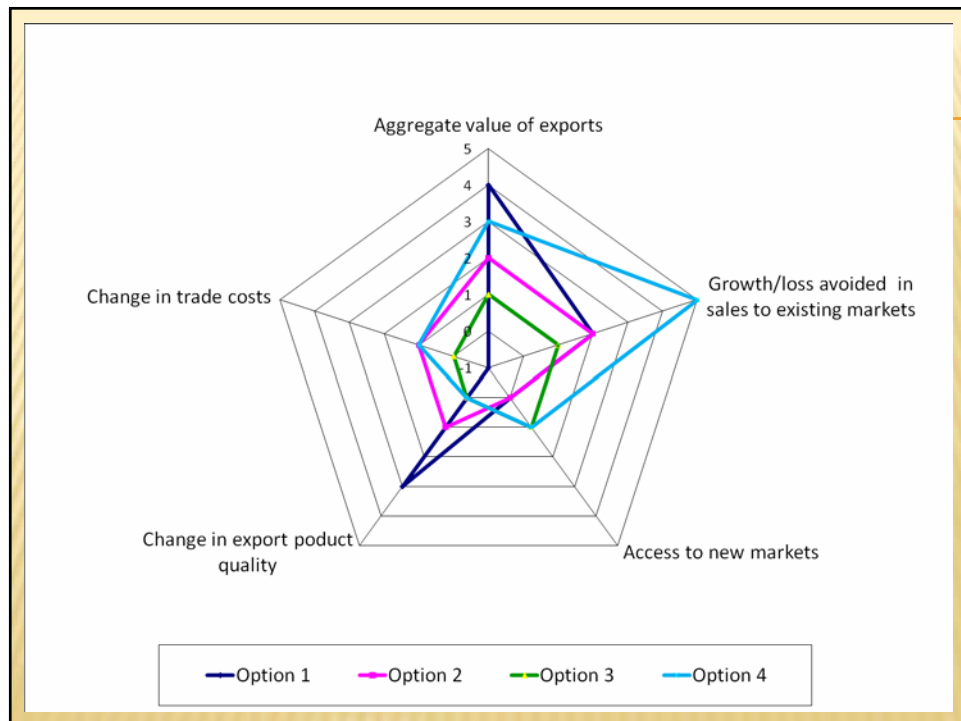
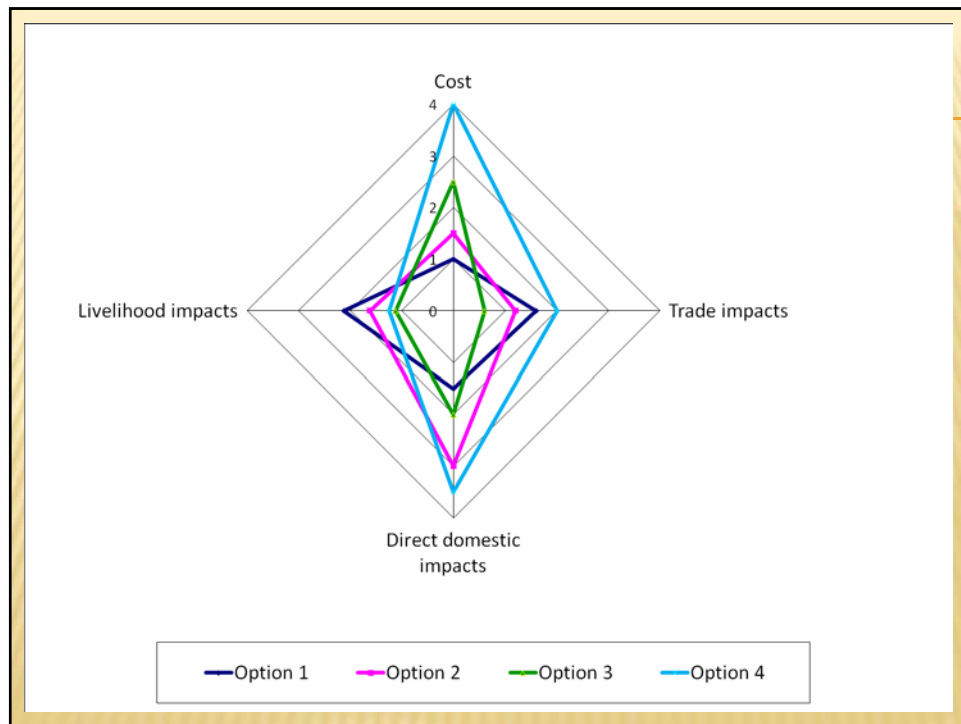
- ✗ Define decision criteria capturing costs and benefits that are pertinent to the choice between capacity-building options
- ✗ Derive measures of each criterion relative to a 'calculation base':
 - + Discrete data
 - + Ordinal data
 - + Count data
 - + Continuous data
- ✗ Compile information card for each capacity-building option
- ✗ Brings all information together onto a 'level playing field'
- ✗ Facilitates initial 'sifting' of options

DECISION CRITERIA

Categories	Specific Impacts
Costs	<ul style="list-style-type: none"> •Non-recurring costs •Recurring costs
Trade impacts	<ul style="list-style-type: none"> •Aggregate value of exports •Growth/loss avoided in sales to existing markets •Access to new markets •Change in export product quality •Change in trade costs
Direct domestic impacts	<ul style="list-style-type: none"> •Change in agricultural productivity •Change in domestic public health •Change in environmental protection •Change in domestic market sales
Livelihood impacts	<ul style="list-style-type: none"> •Number of smallholder farmers in value chain •Change in number of smallholder farmers •Degree of poverty reduction •Change in total employment •Level of involvement of women •Change in level of involvement of women •Benefits to vulnerable/disadvantaged areas

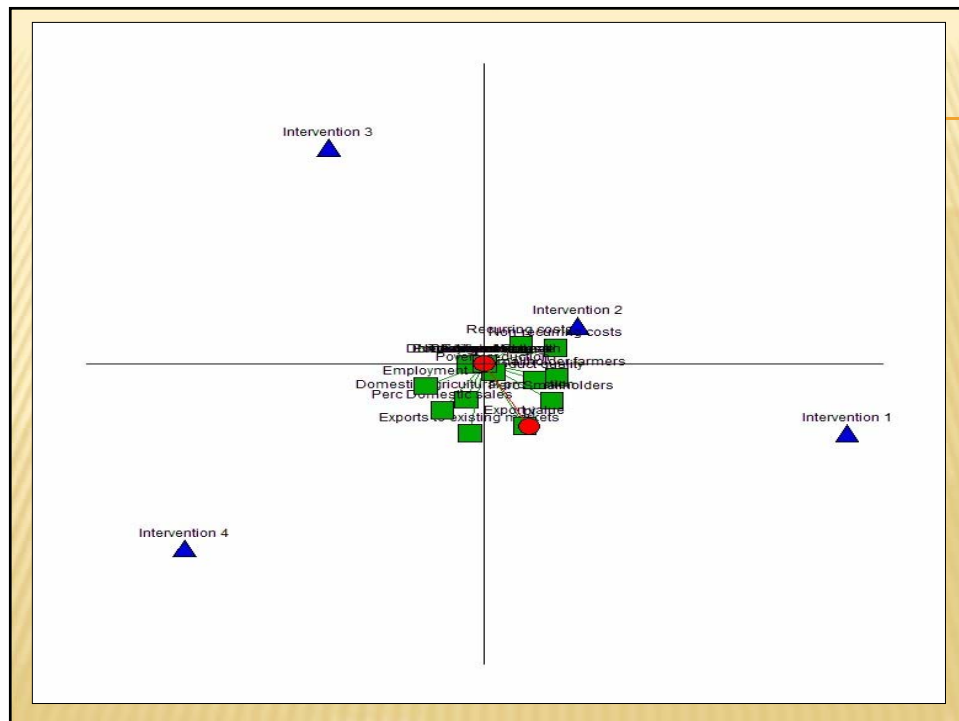
CONSTRUCT COBWEB DIAGRAMS

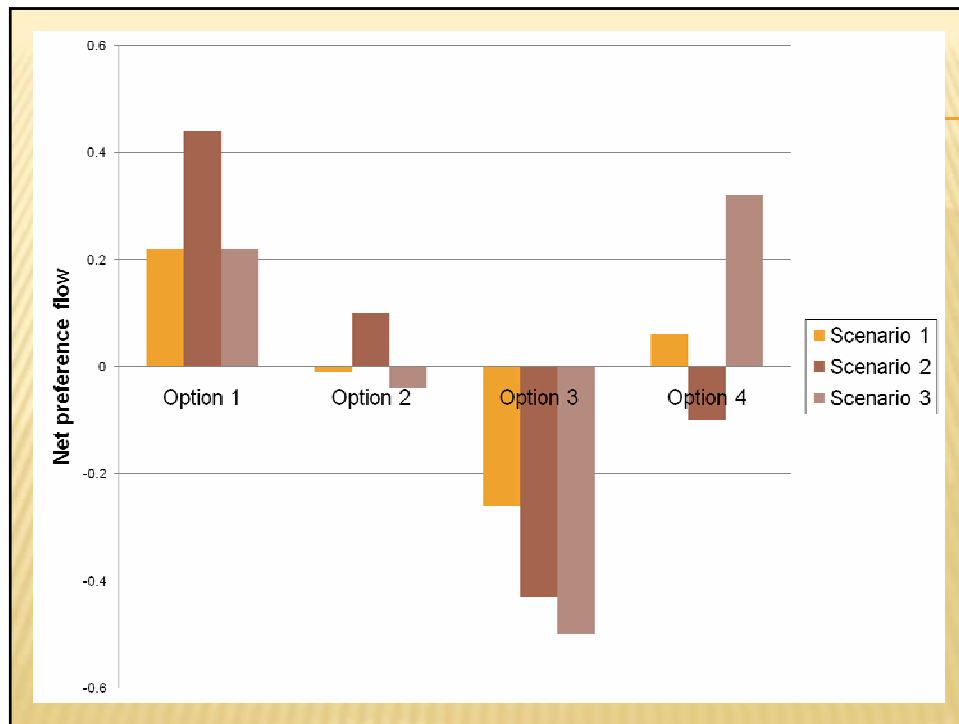
- ✘ Visual characterisation of costs and benefits of the capacity-building options
- ✘ Can use common or distinct metrics
- ✘ Facilitates comparison of options
- ✘ Can be basis of second round of 'sifting' of options using minimum/maximum thresholds for key decision criteria



FORMAL PRIORITISATION

- ✗ Derive numerical rankings using multiple-criteria decision analysis
- ✗ Approaches:
 - + Ranking of options
 - + Single optimal option
 - + Acceptable/unacceptable options
- ✗ Outranking provides a flexible approach for ranking capacity-building options on basis of net preference
- ✗ Decision criteria can be incorporated using any form of data
- ✗ Can define direction and nature of preference relations
- ✗ Can alter weights assigned to particular decision criteria





CONCLUSIONS

- ✗ Existing studies demonstrate the utility of economic analysis in various contexts....
- ✗and also illustrate the attendant challenges
- ✗ There are remaining questions over the use of economic analysis to support routine decision-making
- ✗ Need a flexible approach that can be applied to make broad-based comparisons of capacity-building options
- ✗ Multi-criteria decision analysis could be a valuable addition tool
- ✗ Whichever approach is employed, needs to be operationalised in a broader structured framework
- ✗ Use for supporting versus making decisions