Adapting Cost-Benefit Analysis to 21st Century Regulatory Requirements and Democratic Institutions

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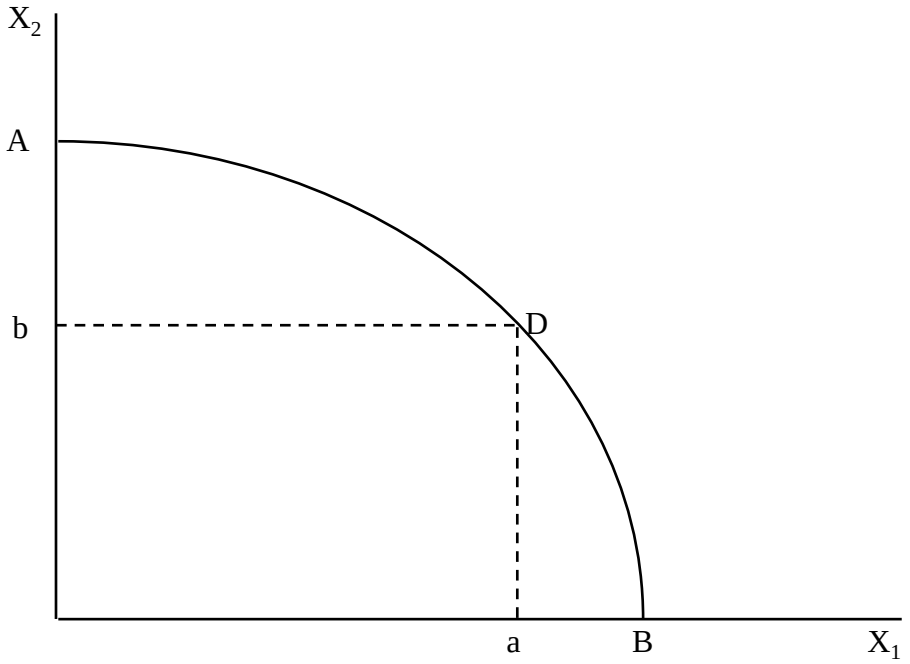
Expensive policy and regulation can increase prices, reduce wages, increase unemployment (Hahn & Sunstein)

Questionable Cost-Benefit Ratios
(Net Benefits of Regulations: in millions, adjusted to 1996 dollars)

Regulation	2000	2005	2010	2015
Exposure to Methylene Chloride	-60	-60	-60	-60
Roadway Worker Protection	0	0	0	0
Financial Assurance for Municipal Solid Waste Landfills	-100	-100	-100	-100
Pulp and Paper Effluent	-150 to 0	-150 to 0	-150 to 0	-150 to 0
Ozone Standards	0	-235 to 240	-840 to 1190	-9,200 to -1000
Child Restraint System	-40 to 40	-40 to 40	-40 to 40	-40 to 40
Vessel Response Plans	-220	-220	-220	-220
Nitrogen Oxide Emission from new Fossil Fuel Fired Steam Generating Units	-57 to 29	-57 to 29	-57 to 29	-57 to 29

Justice and “reasons” trump Pareto in the 21st century



- Twenty-first century society has shifted ground in relation to pure utilitarianism
  - Environmental justice
  - Corporate responsibility
- Pareto’s ethical proposition of economic indifference to the distribution of resources, rights and obligations no longer holds
- Cost-Benefit Analysis remains rooted in the utilitarian ideal

Cost-Benefit Analysis
Traditional Versus "New"

- Traditional Cost-Benefit Analysis represents a decision criterion independent of individuals' participation in public choice

- Hicks-Kaldor – compensation criterion
  - The compensation principle states that a social change can be deemed a Pareto improvement if those who stand to gain could, through lump sum transfer payments, compensate those who stand to lose and still remain better off. This principle requires only that prospective gains in consumers' surplus are sufficient to create the potential for such compensation, not that it actually occur.

- The New Cost-Benefit Analysis rejects imaginary compensation criterion – judges results only in terms of discursive process
  - A positive Cost-Benefit Analysis finding is to be viewed as a hypothesis, one that can be validated only through discussion and consensus. If a majority rejects the changes, the Cost-Benefit finding is refuted. The finding is equally refuted if a minority dissents; minority dissent is interpreted as the need for further options, including compensation provisions for damaged minorities. Only options that yield consensus without minority dissent can be regarded as welfare improvements

Social Values

- With traditional Cost-Benefit Analysis, social values (life, health, environment, time, amenity …) are measured from historical data using either revealed or stated preference (contingent valuation) empirical methodologies
- The new Cost-Benefit Analysis recognizes that values take shape during the process of discussing prospective change
- Empirically derived estimates from historical data are not “data,” but points of departure in a discursive process
- Habitat protection

Libertarianism Versus Republicanism

- Some demand a Libertarian political framework; No formal procedures
- Problem: Individuals are “hard-wired” with certain mental heuristics that lead to biased forms of reasoning, especially in matters of complexity. Such biases have the effect of prompting people to make choices that are inconsistent with their own beliefs, values and preferences
- A Middle Ground: Applied as a procedure of facilitated discourse, Cost-Benefit Analysis offers a means of liberating “the communicative instinct” while helping individuals avoid the mental heuristics that give rise to unintended reasoning biases

Cost-Benefit Analysis as a Discursive Social Institution

- What is a discursive procedure
- Discursive design: *A social institution around which the expectations of a number of actors converge*. *It therefore has a place in their conscious awareness as a -- site for communicative interaction among them.*
- *-Individuals should participate as citizens, not as representatives of the state or any other corporate and -- nonhierarchical body. No concerned individuals should be excluded and an -- educative mechanism should promote the competent participation of persons with a material interest in the issues at hand who might otherwise be left out. The focus of deliberations should include, but not be limited to, the individual or collective needs and interests of the individuals involved. Thus the institution is oriented to the generation and coordination of actions situated within a particular problem context. Within the discursive design, there should be no hierarchy or formal rules, though debate may be governed by informal canons of free discourse. -- The decision rule is consensus. A neutral third party should initiate, lubricate and oversee discussions among interested parties*
- Educative Mechanism: The rational frame and evidence-based apparatus of Cost Benefit Analysis)

Would People Participate in a Discursive Institution?

- Stalemate in other areas of decision, such as the courts
- Genuine desire for improved communications with protagonists
- Communitarian instinct liberated by the propensity of free but rationally framed discourse to allow better arguments to come into play
- Self-interest wherein people see more to gain from participation than from abstention (transparency of multi-stakeholder discussion in a free but rationally framed, evidence-based and probabilistically reasoned discourse helps defuse the efficacy of single-issue strategic behavior
- People can agree about "*what* to do" while disagreeing about "*why* to do it"

Objectives of the Discursive Process

- Engagement
- Information
- Evidentiary Consensus
- Policy Consensus
  - What to do
  - Why to do it

RISK ANALYSIS PROCESS

- We use the Risk Analysis Process (RAP) a proprietary multi-step process used to support and enhance decision-making

- Involves four steps:
  1. Identify and develop the structure and logic of the business case model
  2. Quantify the estimates of input assumptions and risk ranges
  3. Facilitate scrutiny of model logic and parameters looking to develop consensus among stakeholders
  4. Simulate case outcomes

FORMULATE ISSUE: YOUTH INCARCERATION AND REHABILITATION

POLICY ALTERNATIVES

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HUMAN AND COMMUNITY DEVELOPMENT IMPACT TEMPLATE

Area of Impact	Impact Quantity Metrics	Impact Value Metrics
Juvenile Justice	Person-years of incarceration/1000	Opportunity cost per person-year ($)
Mental Health		
Education		
Affordable Housing		
Community Change		
Regional Policy		

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CAUSE AND EFFECT STRUCTURE (EVIDENCE)

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QUANTITIES AND VALUES (EVIDENCE, PROBABILITY)

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EVIDENTIARY CONSENSUS

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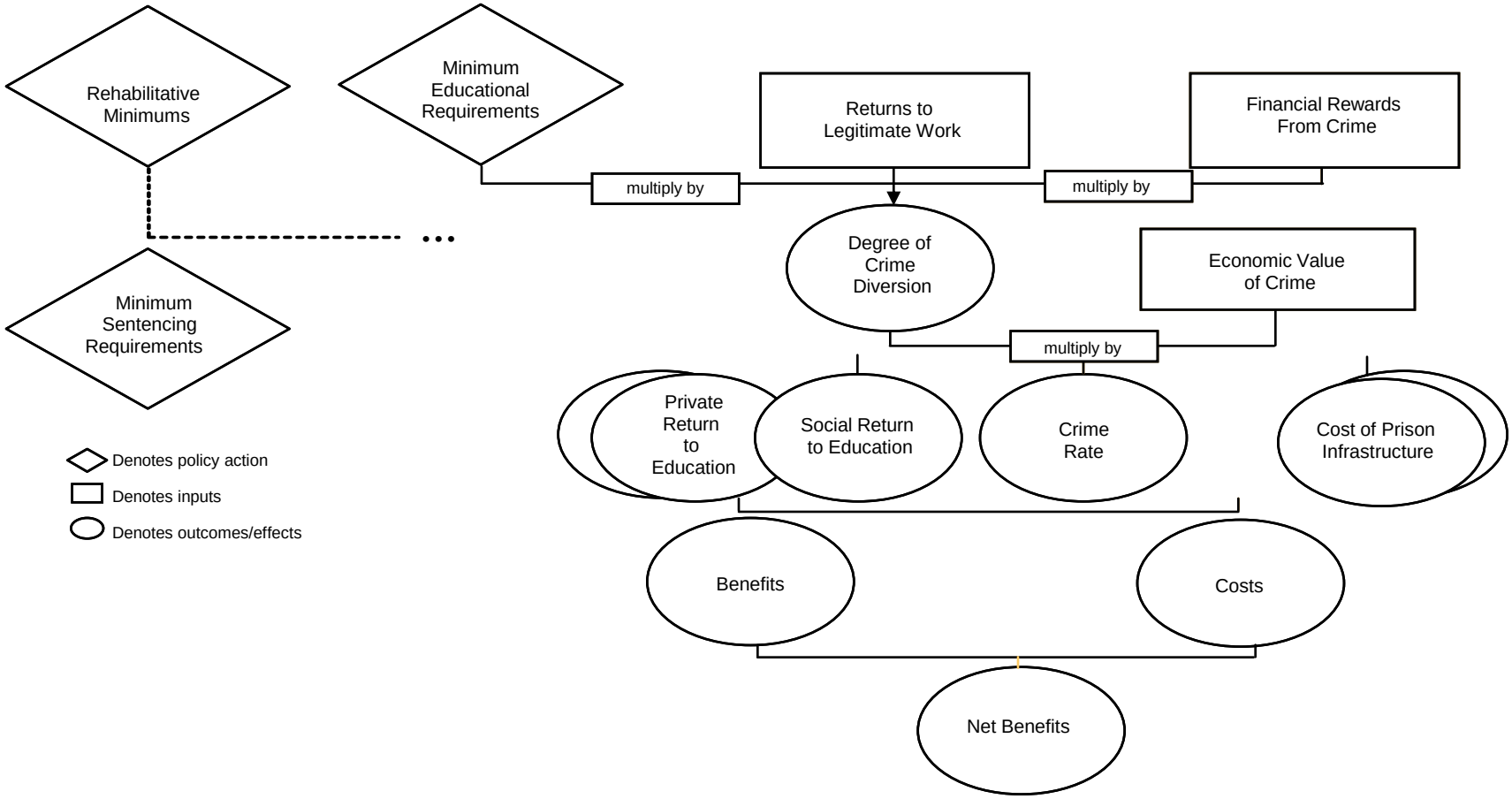
CONSENSUS

1: Structure and Logic

ISSUE: YOUTH INCARCERATION AND REHABILITATION

Causal Linkages and Probability



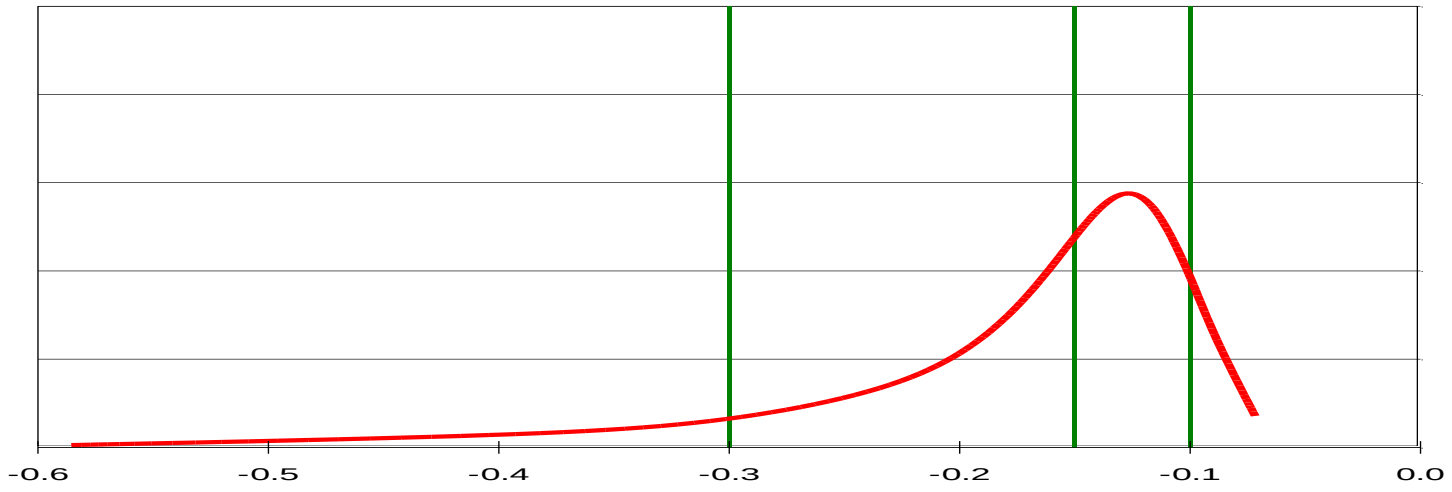
2: Assumptions, Probabilities

ISSUE: YOUTH INCARCERATION AND REHABILITATION

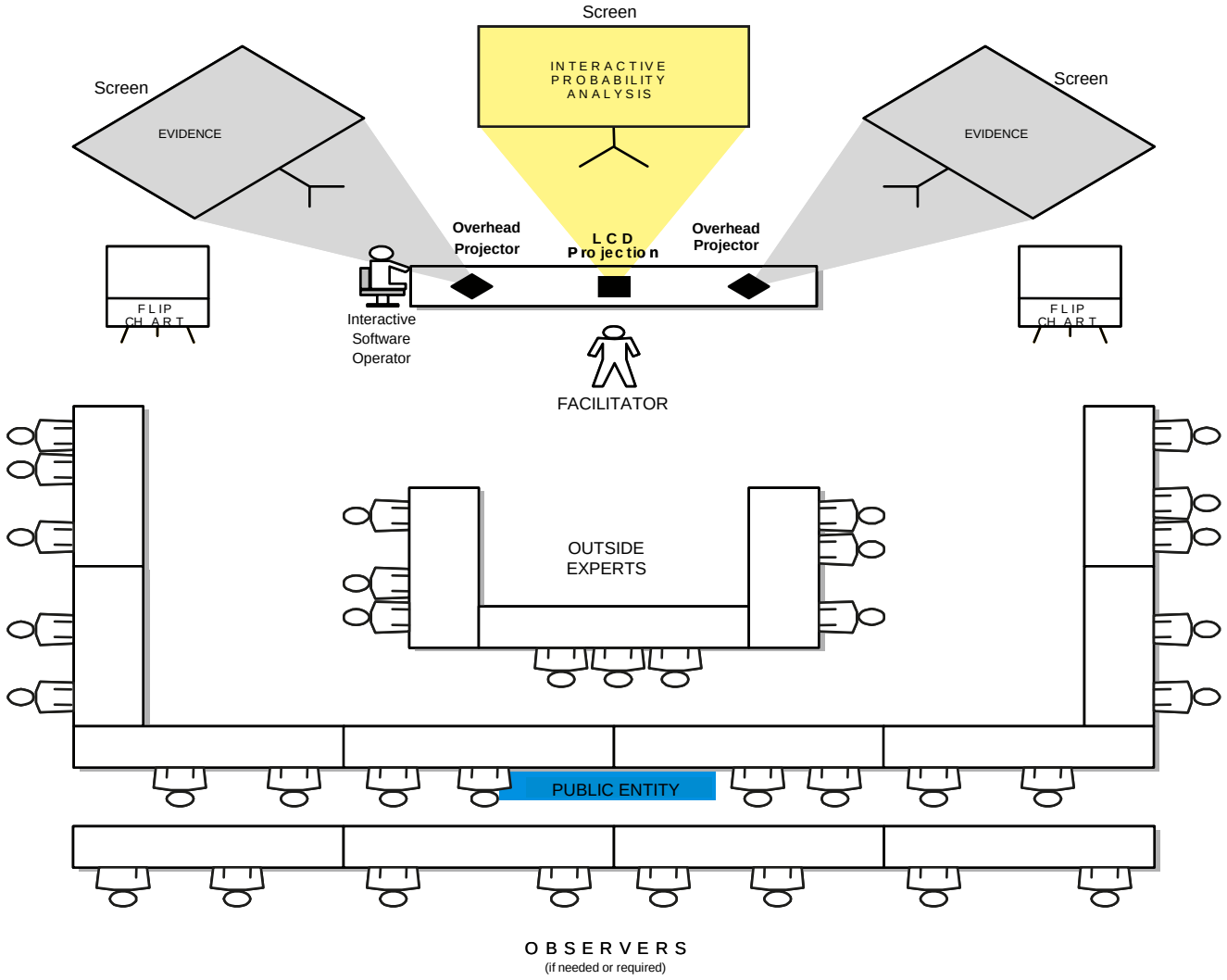
Causal Linkages and Probability (Cont'd)

Elasticity of Crime Rate With Respect to Each Year of Additional Secondary Education

Median	10% probability of being this low	10% probability of being this high
-0.15	-0.3	-0.1



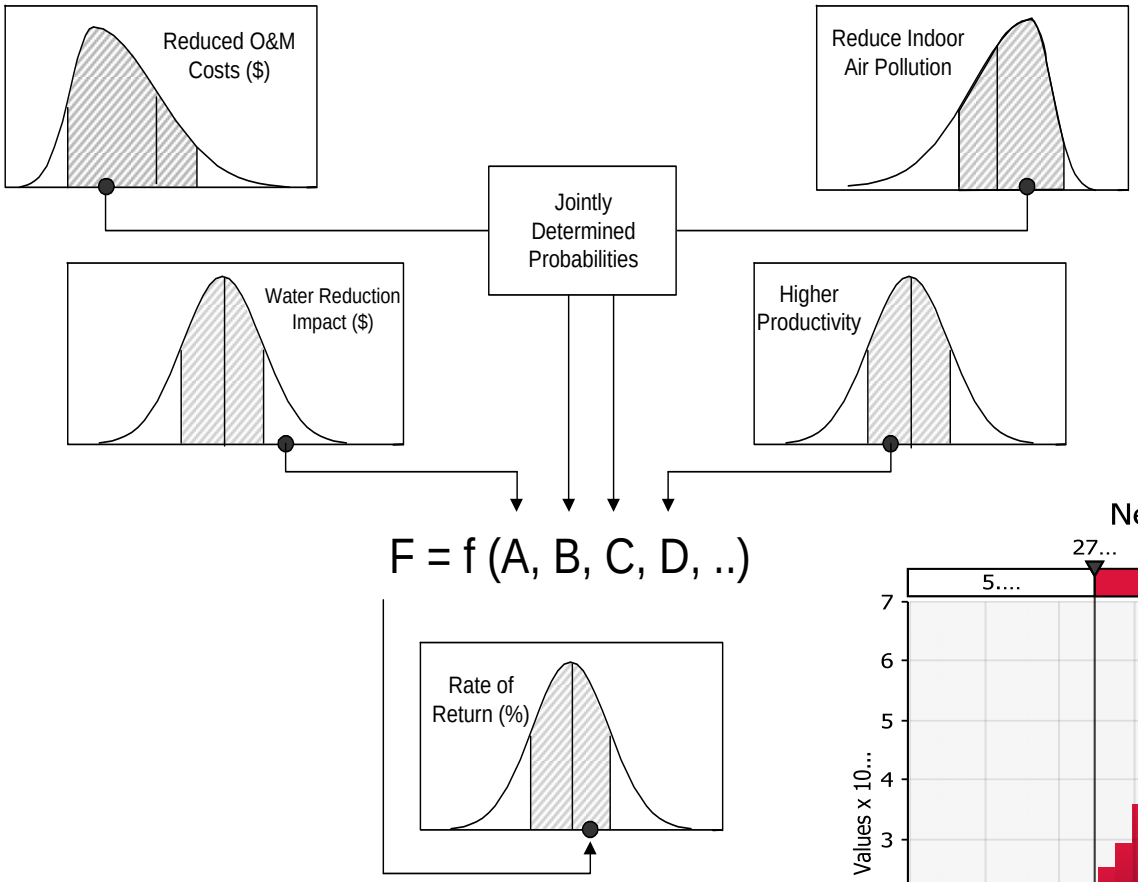
3: Scrutiny, Facilitation

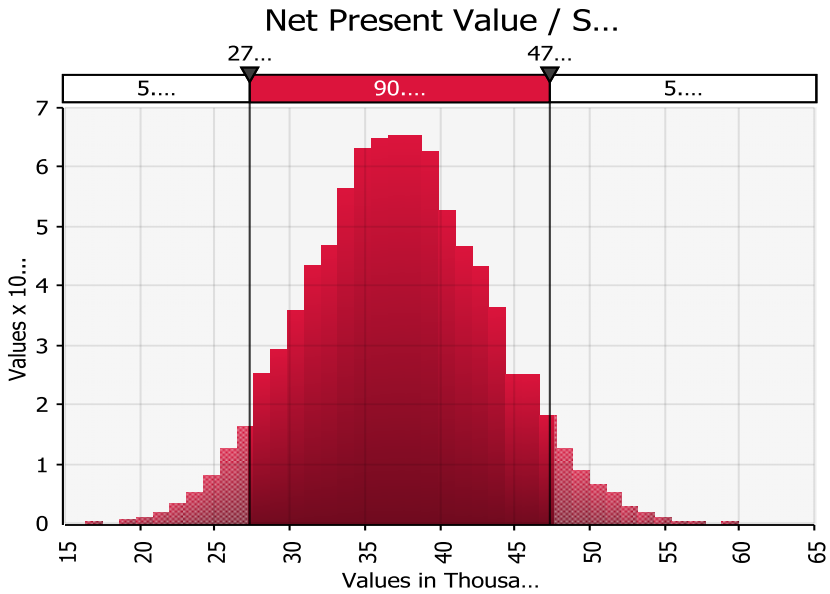


3: Scrutiny, Facilitation

- Review structure and logic models and forecasting assumptions with a panel consisting of:
  - Engineers, Scientists, etc.
  - Stakeholders
  - Project Managers
  - Economists
  - Others
- Revise structure & assumptions and facilitate consensus

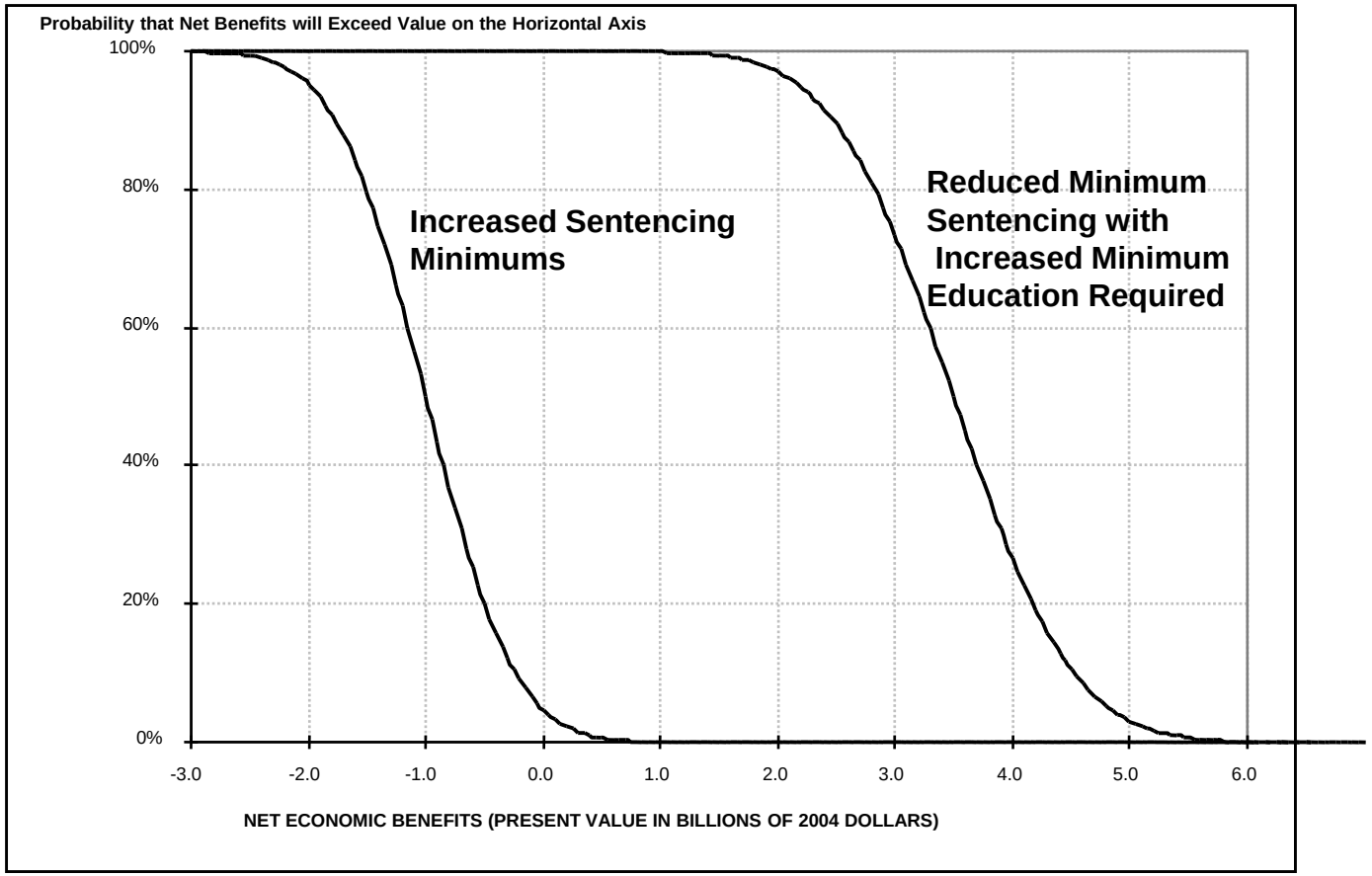
4: Simulate Outcomes





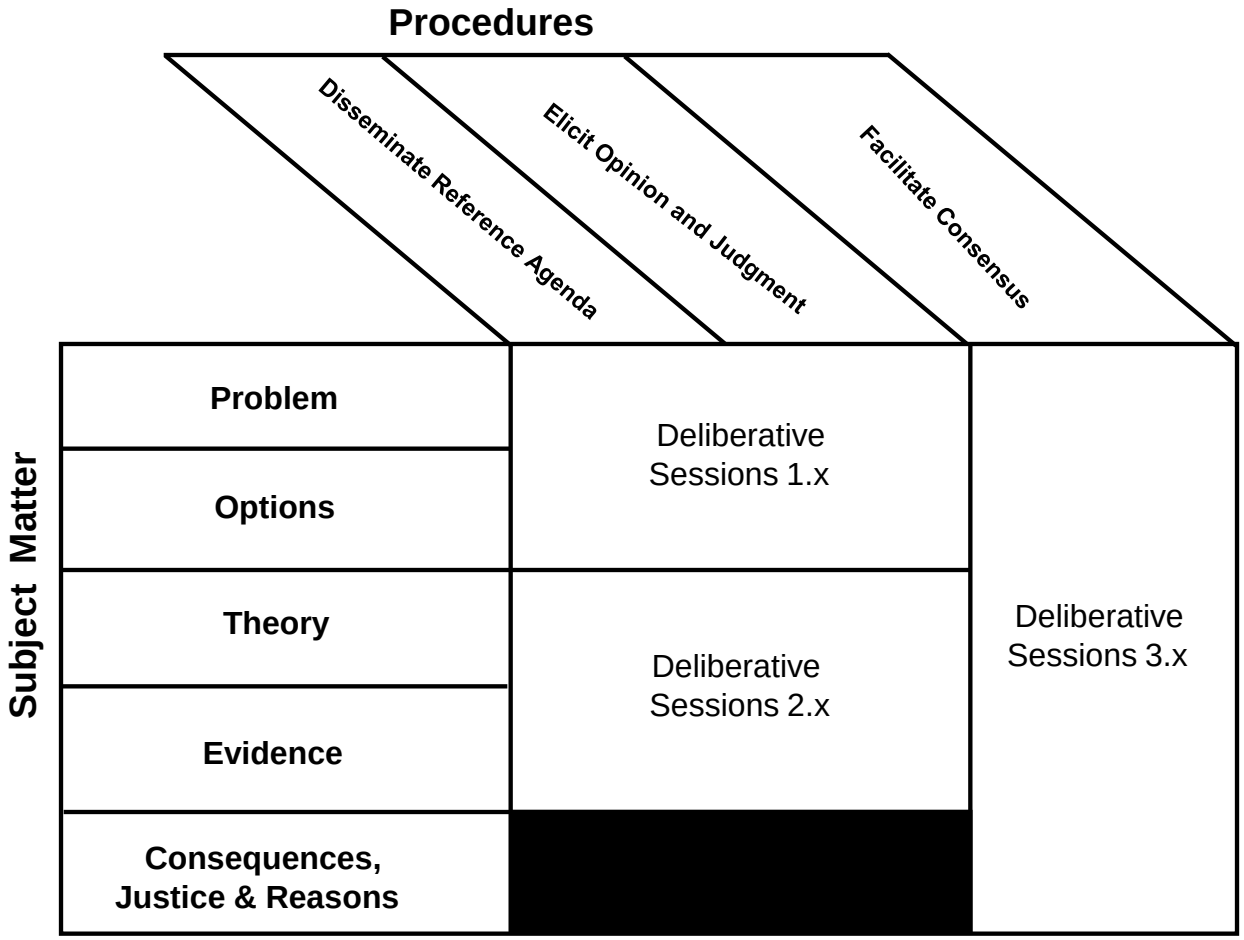
4: Simulate Outcomes

- Evidentiary Consensus: Policy Consensus



Protocol for the Community Discursive Process

- The New Cost-Benefit Analysis: An integration of discourse theory, welfare economics and probability



PROTOCOL

- Part I: Issue identification and first-round synthesis;
- Part II: Discursive analysis sessions;
- Part III: Second-round synthesis; and,
- Part IV: Discursive synthesis sessions.
- Part I synthesizes relevant information on the basis of which the preliminary business model is established.
- Part II exposes community panelists to the logic and the quantitative assumptions -- for interactive analytic scrutiny, with a view to obtaining consensus on key technical issues and numerical assumptions.
- Part III, the cost-benefit analysis group re-synthesizes the models and enumerations based on panel consensus and the group's independent due diligence. Outcomes are obtained accordingly.
- Part IV exposes community panelists to the outcomes and seeks consensus through interactive sensitivity and risk analysis.

Protocol (Cont'd)

PART I: FIRST-ROUND SYNTHESIS

1. Meta-Analysis

Meta-analysis of the research literature

Assessment of institutional dynamics in client organization

2. First-Round Model Development

First-round synthesis of cost-benefit model based on, (i) state-of-the-art scientific knowledge regarding the cause-effect-risk linkages that drive the benefits and costs of policy under review; and (ii) institutional dynamic.

3. First-Round Enumeration and Probability Assessment

First-round synthesis of median values and probability distributions for each parameter in the cause-effect-risk linkage model based, as above, on (i) state-of-the-art scientific knowledge regarding the cause-effect-risk linkages that drive the benefits and costs of policy under review; and (ii) institutional dynamics

4. Panel Communications Materials (The Reference Book and Workbook)

Preparation of non-technical, diagrammatic representation of cause-effect-linkage model

Preparation of non-technical presentation of parameter values and probability distributions

Preparation of presentation of two items above in the Reference Book and Workbook. Reference Book opens with overview of process protocol and role of panelists.

Circulation of Reference Book and Workbook to panelists.

Protocol, (Cont'd)

PART II: Panel SESSIONS

1. Independent Chair's opening remarks on role of panelists

2. Presentation of the Process by the Facilitator

3. Facilitated Panel Review and Consensus Regarding Cause-Effect-Risk Model

Facilitated elicitation of panelists' opinions and beliefs regarding causal variables, risk variables and cause-effect-risk linkages in the model.

Facilitated elicitation of panel consensus regarding modifications required to the model.

4. Facilitated Review of Enumeration and Probability Assessment

Facilitated elicitation of panelists' opinions and beliefs regarding each data and parameter value and associated probability distribution. Extensive use of interactive groupware

Facilitated elicitation of panel consensus regarding the enumeration of each data and parameter value and associated probability distribution. Extensive use of interactive groupware

5. Independent Chair's closing remarks and thanks to panelists

Protocol (Cont'd)

PART III: SECOND-ROUND SYNTHESIS

1. Second-Round Model Development

Second-round synthesis of based on panel outcomes

2. Second-Round Enumeration and Probability Assessment

Second-round synthesis of median values and probability distributions for each parameter in the cause-effect-risk linkage model based on panel outcomes and due independent diligence

3. Stakeholder Communications Materials (The Reference Book and Workbook)

Preparation of presentation of Reference Book of Preliminary Results

Circulation of Reference Book of Preliminary Results

Protocol (Cont'd)

PART IV: SYNTHESIS SESSION, AND FINAL RESULTS

1. Synthesis Session on Outcomes

Facilitated elicitation of panelists' opinions and beliefs regarding outcomes in terms of causal variables, risk variables and cause-effect-risk linkages in the model. Extensive use of interactive groupware

2. Final Results

Modes and Cases of Cost-Benefit Analysis as a Discursive, Educative Mechanism

MODE	CASE	KEY FACTORS
Evidence informs stakeholders	Second runway at Vancouver International Airport	Links between noise and economic /householder value Valuation of noise effects
Stakeholder informs evidence	Housing Rehabilitation for Elderly & Disabled	Quality-of-life effects of structural modifications and architectural regulations
Two-way between evidence and domain scientific expertise	Lung Health Policy Framework	Cause-effect hypotheses Impact coefficients
Market player informs evidence	Project cost analysis	Quantity availability Commodity prices