Advanced Policy Analysis Modelling

Introduction to Policy Analysis and Policy Modelling
- Part I -

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Lecture notes and further information:
http://www.uni-hohenheim.de/apo

LECTURE OUTLINE

- Introduction
  - Course Expectations
  - Lecture Topics
  - Project: Policy Analysis with Models

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POLICY ANALYSIS

The Nature of Public Problems

In the public sector, problems:

- have political as well as purely technical aspects;
- often lack a good cause-effect knowledge base;
- may be solved only by producing new problems;
- often involve trade-offs between cost and effectiveness;

In the public sector,

- it may be hard to measure adequacy of results;
- may be hard to measure fairness of results.
Classical Rational Problem Solving Model

In theory, problems can be approached using a rational, comprehensive problem solving model.
- The demands of this model are:
  1) Define the problem
  2) Determine important social value
  3) Identify all alternatives
  4) Assess all alternatives
  5) Select optimal alternative
  6) Implement optimal alternative

But: there are several limitations in the public sector for the use of the theoretical model.

Tips for Practical Policy Analysis

1. Quickly identify the central decision criterion of the problem
2. Identify what types of public sector actions can be taken
3. Avoid the "one best way" approach
4. Learn how to deal with uncertainty
5. Say it with numbers
6. Make the analysis simple and transparent
Tips for Practical Policy Analysis

7. Check and re-check the facts
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8. Learn to anticipate the objections of opponents
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9. Give analysis, not decisions
   -
10. Push the boundaries of the envelope
    -
11. Policy analysis is never 100% complete, rational, and correct
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SIX STEP POLICY ANALYSIS

1) Verify, define and detail the problem
2) Establish evaluation criteria
3) Identify alternative policies
4) Assess alternative policies
5) Display and distinguish among alternatives
6) Implement, monitor, and evaluate the policy
Six Step Policy Analysis

1) VERIFY, DEFINE AND DETAIL THE PROBLEM

- State the problem meaningfully
- Determine the magnitude and extent of the problem
- Continually re-define the problem in light of what is possible
- Eliminate irrelevant material
- Question the accepted thinking about the problem
- Question initial formulations of the problem
- Say it with data
- Locate similar policy analyses
- Locate relevant sources of data

Six Step Policy Analysis

1) VERIFY, DEFINE AND DETAIL THE PROBLEM (contd.)

- Eliminate ambiguity
- Clarify objectives
- Resolve conflicting goals
- Focus on the central, critical factors
- Is it important? Is it unusual? Can it be solved?
- Identify who is concerned, and why?
- What power do concerned parties have?
- Make a quick estimate of resources required to deal with the problem
2) ESTABLISH EVALUATION CRITERIA

- What are the important policy goals, and how will they be measured?
- Identify criteria central to the problem and relevant to the stakeholders
- Clarify goals, values and objectives
- Identify desirable and undesirable outcomes
- Is there a rank order of importance among the criteria? What will be the rules for comparing alternatives?
- Administrative Ease
- Costs and benefits
- Effectiveness
- Equity
- Legality
- Political acceptability

3) IDENTIFY ALTERNATIVE POLICIES

- Consider a wide range of options
- Consider the status quo, or no-action alternative
- Consult with experts
- Brainstorming, Delphi, Scenario writing
- Redefine the problem if necessary
Six Step Policy Analysis

4) ASSESS ALTERNATIVE POLICIES

- Select appropriate methods and apply them correctly
- Estimate expected outcomes, effects, and impacts of each policy alternative
- Do the predicted outcomes meet the desired goals?
- Can some alternatives be quickly discarded
- Continue in-depth analysis of alternatives that make the first cut

Six Step Policy Analysis

5) DISPLAY AND DISTINGUISH AMONG ALTERNATIVES

- Show strengths and weaknesses of each alternative
- Describe the best and worst case scenario for each alternative
- Use matrices, reports, lists, charts, scenarios, arguments
Six Step Policy Analysis

6) IMPLEMENT, MONITOR, AND EVALUATE THE POLICY

- Draw up a plan for implementation
- Design monitoring system
- Suggest design for policy evaluation
- Was the policy properly implemented?
- Did the policy have the intended effect(s)?

Policy Analysis

ROLE OF THE POLICY ANALYST

- Policy analysis is a systematic evaluation of the technical and political implications of alternatives proposed to solve public problems.
- Policy analysis refers to both the process of assessing policies or programs, and the product of that analysis.
- A policy analyst:
  - uses qualitative and quantitative data;
  - uses a variety of approaches to the problem;
  - applies appropriate methods correctly.
The role of the policy analyst is to:
- Produce arguments for debates about public policy
- Produce evidence for decisions about public policy
- Act as internal organizational consultants
- Act as external policy consultants
- Handle both technical and people aspects of policy analysis

All policy represents the distribution of power and resources. These policies are an expression of values. Values and beliefs are often used as short-cuts to decision-making.

But: Who is to define what is good? Whose values or goals should be pursued? What is the right thing to do? Who or what is ultimately to be served? Should the analyst give neutral advice, or normative advocacy?

Bias is inevitable in policy analysis. To mitigate the effects of bias, the analyst can:
- identify all underlying assumptions;
- keep accurate records;
- use multiple sources of information;
- use replicable methods and models;
- identify the client's goals and values;
- identify the formal and informal actors and institutions;
- address relevant professional and ethical considerations.
SELECTING TECHNIQUES FOR POLICY ANALYSIS

- Selecting the appropriate techniques to use in policy analysis depends on a variety of factors:
  - what the client wants to know;
  - the time available;
  - knowledge of the decision criteria;
  - complexity of the issue;
  - available data.

VERIFYING, DEFINING, AND DETAILING THE PROBLEM

- Problem Definition
- Developing Problem Statements
- Back-of-the-Envelope Calculations
- Quick Decision Analysis
- Political Analysis
- First Cut Policy Analysis
**Policy Analysis - Verifying, defining, and detailing the problem**

### PROBLEM DEFINITION

- **The first thing the policy analyst must do is to ask:**
  1) Does a problem exist?
  2) Can anything be done about it?
  3) Does the client have the power?
  ∴ If the answers are 'no' ∴

- **Pitfalls in public policy problem definition:**
  1) accepting the client's definition of the problem
  2) looking only for the simple and obvious
  3) thinking that any and all problems need a public solution
  4) confusing the need for short- versus long-term solutions
  5) confusing the values of individuals versus collectivities

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### DEVELOPING PROBLEM STATEMENTS

- **In developing problem statements:**
  1) think about the problem;
  2) delineate the boundaries of the problem;
  3) develop a fact base;
  4) list goals and objectives for policy solutions;
  5) identify the policy envelope (key players);
  6) develop preliminary costs and benefits;
  7) review the problem statement.
BACK-OF-THE-ENVELOPE CALCULATIONS

- One of the first things a policy analyst will do is to try to get a handle on the possible dimensions of the problem and potential solutions. The analyst may ask:
  1) How many people are we talking about?
  2) What is the likely cost per unit of service?
  3) How much of the target population can we serve?
  4) How much do we have available to spend?
  5) Will more staff be needed?
  6) Will this impact the budget/tax rate?
  7) What are the trends in this area?
  8) What will happen if we do nothing?

Where can we get the information for doing these calculations?

QUICK DECISION ANALYSIS

- Quick decision analysis is a variation on the technique of *making decision trees*.

- Decision trees are ways of diagramming a problem, when the problem has more than one solution.

- It is a tool to help policy analysts see the logical alternatives to a problem.
POLITICAL ANALYSIS

- Policy analysts should recognize that politics is important at all stages of the policy process, including policy analysis.
- There are a number of ways to communicate about potential political influences or factors that may impinge on the policy analysis.
  - These techniques attempt to allow political factors to be treated like any other important considerations in policy analysis.
- The analyst may
  - draw up a list of issues involved in defining the problem, and
  - identify a number of potential political actors who have taken positions on those issues.

FIRST CUT POLICY ANALYSIS

- An issue paper is a study that is conducted in preparation of making a decision on whether or not to do a policy analysis.
  - It describes the problem, the attendant issues, the political groups involved, and concludes whether or not a policy analysis will be feasible.
- A first cut policy analysis concentrates on identifying preliminary recommendations.
  - It is a mini-policy analysis, conducted in a short period of time, using simple techniques. It forms the basis for a much more in-depth, complex, and thorough full-fledged policy analysis.
- Researched analysis refers to a more traditional research project, perhaps conducting a pilot study of several policy alternatives to generate concrete data on which to base recommendations.
ESTABLISHING ANALYSIS CRITERIA

- What Are Criteria
- Reliability and Validity
- Economic Criteria
- Equity Criteria
- Technical Criteria
- Political Criteria
- Administrative Criteria

WHAT ARE CRITERIA

- **Goals:** Every time a policy problem is identified, some statement of goals is adopted.
  - The goals are what the adopted policy alternative should accomplish.
  - Goals are broad, formal, long-term problem-solving achievements that are desired.
  - Example: make sure that all rivers are safe, clean, and usable.

- **Objectives:** Goals are translated into objectives.
  - Objectives are more concrete statements about desired end states, with time tables, target populations, and resource limits.
  - Example: make the river Rhine safe for swimming and fishing.
**WHAT ARE CRITERIA**

- **Criteria**: Criteria are the measurable dimensions of objectives.
  - Criteria are used to compare how close different proposed policy alternatives will come to meeting the goals of solving the problem.
  - Criteria set the rules to follow in analyzing and comparing different proposed policy alternatives (solutions).

- **Sample criteria** for improving river water quality might be:
  - **effectiveness**: how much of an improvement in water quality will this alternative produce?
  - **cost**: how much will it cost to improve the quality of the river using this alternative?
  - **technical**: do we have the equipment and know-how to use this alternative?
  - **political**: is this alternative politically acceptable?

**MEASURES**

- **Measures** are the actual measurements that will be taken of each proposed policy alternative.

  *For example*, measures such as the following might be employed:
  - effectiveness: how many milligrams of pollutants per liter of water will this alternative clean up?
  - cost: how many dollars will be required to implement this alternative?
  - technical: is the necessary equipment for this alternative available and are people trained to use it?
  - political: what percentage of the voting-age population will favour this alternative in a state-wide poll?
WHAT ARE CRITERIA (contd.)

- One difficulty in specifying criteria and measures is that many problem statements have vague, fuzzy, or even conflicting goals.
  - This is often necessary in order to get consensus on taking some action about the problem. But this complicates the selection of criteria.
  - Example: If dirty rivers are a problem, and the goal is to have clean rivers, what is the most important consideration in choosing between different ways of cleaning up the rivers?
    - Is it cost? Is it effectiveness? Is it equity?
  - What do we mean by "clean"? (It is impossible to get rivers 100% clean). Do we use Federal, State, or local standards on admissible levels of toxicity? How will we measure the level of cleanliness that different policy alternatives are likely to produce?

RELIABILITY AND VALIDITY

- The criteria and their measures must be unambiguous.
- They should be relatively straightforward and simple to measure.
- Their application should produce uniform results, no matter who does the measuring of different alternatives.
- Repeated measurements of the same alternative should produce the same results, again, no matter who does the measuring.
- Criteria and measures should be appropriate to the unit of analysis.
Most policy analysis involves at least one economic criterion. These include impacts on the economy, on expected public sector revenues, on government spending, etc.

The most common economic criteria are costs.

Costs may include:
- borrowing costs -- the costs of borrowing funds
- decreases in net worth -- decreases in assets and/or liabilities
- direct costs -- directly attributable to the policy alternative
- indirect costs -- additional impacts not included in the goals
- intangible costs -- costs that cannot be counted or quantified
- monetarizable costs -- can be expressed in dollars

Costs need to be counted!
One cannot assume that the money was going to be spent anyway.
Costs should be identified as completely as possible, eliminating unpleasant surprises down the road.
Another type of cost criterion that is often employed is marginal cost. That is, if some good or service is already being produced, how much more will it cost to produce one additional unit of output?

The types of costs that are considered in marginal analysis are:
- fixed costs -- these do not vary in the short run, no matter how many units are produced
- variable costs -- these vary directly with the volume of output of goods or services
- average costs -- the total of units of output divided by the total costs of output
- marginal costs -- the costs of producing one additional unit of output
- sunk costs -- these are costs that can be ignored as they have already been spent in the past

Another type of economic criterion is benefits. Benefits can be measured in many of the same ways as costs, including:
- direct benefits -- directly attributable to the policy alternative
- increases in net worth -- increases in assets and/or liabilities
- indirect benefits -- additional benefits not included in the goals
- interest earned -- interest that will accrue or be paid
- intangible benefits -- benefits that cannot be counted or quantified
- monetarizable benefits -- can be expressed in dollars
- one-time benefits -- one-time reduction in the problem
- ongoing benefits -- continuing decreases in the problem
EQUITY CRITERIA

- Efficiency and effectiveness are technical and economic questions, but equity is a public question.
- Equity asks about the social allocation of burdens and benefits. Equity asks the questions of "who pays?" and "who benefits?”.
- A proposed policy alternative may impact equity if it will change the distribution of burdens and benefits in society. There is no universally approved optimal or right answer for how benefits and burdens should be distributed in society. That is a continuing area of contention, and essentially a political decision.

  - Horizontal equity:
  - Vertical equity:
  - Inter-generational equity:

TECHNICAL CRITERIA

- Effectiveness is often used as a criterion by which to judge policy proposals. Effectiveness is the extent to which the proposed policy will attain the goals set forth in the problem statement.
- Another technical criterion is technical feasibility. This asks whether the technology exists or is readily available to implement a proposed alternative.
- Other technical criteria may question whether the measurement of criteria can be conducted at the desired level of reliability and validity.
POLITICAL CRITERIA

- Many times the client for the policy analysis will hold a political office. In that case, the policy analyst must often include political criteria in the assessment of proposed policy alternatives.
- Political viability asks whether or to what extent a proposed policy alternative will be acceptable to relevant powerful groups, decision makers, legislators, administrators, citizens, unions, or others.
- Other ways of assessing political viability include:
  - acceptability -- is the proposed alternative acceptable to policy makers, policy targets, the general public, voters, etc.?
  - appropriateness -- is the proposed alternative appropriate to the values of the community, society, the legislature, etc.?
  - legal -- is the proposed alternative legal under current law, or will statutes have to be amended or enacted?
  - responsive -- will the proposed alternative meet the real or perceived needs of the target group, the public, etc.?

ADMINISTRATIVE CRITERIA

- Many public policies are implemented by public agencies. Therefore, administrative operability or administrative ease are often used as criteria for judging proposed public policies.
- Questions that may be addressed include:
  - authority -- does the agency have the authority to implement the proposed policy?
  - commitment -- does the proposed policy have the commitment of top managers, field staff, and support staff?
  - capacity -- does the agency have the resources to implement the proposed policy, in terms of staff, skills, money, training, expertise, etc.?
  - support -- are the facilities, equipment, and other support available for the proposed policy?
IDENTIFYING ALTERNATIVES
- Generating Alternatives
- Sources of Alternatives
- Pitfalls

GENERATING ALTERNATIVES
- Before alternatives can be generated,  
  1) the problem must be correctly identified, and  
  2) relevant criteria for judging alternatives must be specified
- At first, the policy analyst can generate a large number of alternatives, but later reduce them to a manageable size.
- Consider alternatives like the status quo, but also radically different.
- Consider what may be possible under different circumstances.

GENERATING ALTERNATIVES (contd.)
- Some criteria that are often used in judging the suitability of alternatives include:
  1. cost -- can we afford it; will it be cost-effective?
  2. reliability -- does it have proven success, or is it subject to failures?
  3. stability -- will it still work if conditions change?
  4. invulnerability -- will it work if one of its component parts fails?
  5. flexibility -- can it accomplish more than one thing?
  6. riskiness -- does the alternative have a high chance for failure?
GENERATING ALTERNATIVES (contd.)

- Some criteria that are often used in judging the suitability of alternatives include (contd.):

7. communicability -- is it easy to understand?
8. merit -- does it address the problem?
9. simplicity -- is it easy to implement?
10. compatibility -- is it congruent with existing norms and procedures?
11. reversibility -- can we return to our prior state if it fails?
12. robustness -- can it succeed in different future states?

SOURCES OF ALTERNATIVES

1. The status quo or no action alternative
   = current efforts will continue at the same level.

   It is important to consider how effective any different alternative will be at changing the status quo.

   Status quo is a baseline analysis:
   - identifies clear trade-offs with the present;
   - clarifies project objectives;
   - underlines whether there is a need for action or not;
   - provides linkages to existing efforts;
   - identifies problems likely to emerge; and
   - confirms that no optimum solution exists.
SOURCES OF ALTERNATIVES (contd.)

2. Experiences of others with similar problems
   - from reported research findings, experts, laws, public opinion polls, new technology, etc.

3. Re-define the problem from others' points of view, including opponents of any change.

4. Consider the ideal, then apply political, economic, and other constraints.

5. Literature review of professional and academic journals, government reports, collected proceedings from conferences, online services etc.

6. Case studies of real world experiences:
   - why was the alternative adopted,
   - what were the circumstances,
   - what other alternatives were considered and discarded,
   - how did it eventually work out,
   - what modifications were made after implementation.

7. Passive collection and classification:
   - keep a folder for collecting interesting policy solutions on a regular basis, even if no problem exists at the moment, from clients, superiors, advocates, media, interest groups, etc.
   - Then refer to the folder in when you need it.
SOURCES OF ALTERNATIVES (contd.)

8. Develop Typologies:
   - identify all the types of persons likely to be affected by any policy alternative, and what the probable reaction of each group would be to each type of alternative suggested;
   - then develop alternatives that can overcome the objections of most of the groups.

9. Brainstorming
   - can be oral, written, or electronic.
   - Brainstorming has two phases:
     1\textsuperscript{st} a pure idea-generation phase, where no judgements are made about any ideas; and
     2\textsuperscript{nd} an evaluation and ranking phase, to help arrive at concrete solutions.

10. Use analogies: 'new' problems are mostly really just like 'old' problems.
    - Personal Analogy: pretend to be someone affected by this problem, identify with the problem to see what types of policy alternatives suggest themselves;
    - Direct Analogy: look at solutions to other problems to see if they can be applied to this one;
    - Symbolic Analogy: imagine the most aesthetically satisfying solutions rather than merely technologically sound ones;
    - Fantasy Analogy: image the ideal solution, and try to preserve as much of it as possible when working backwards through real world constraints.
SOURCES OF ALTERNATIVES (contd.)

11. Modify existing solutions:
   - Magnify -- do more, more often, larger, longer, exaggerate, add new components, new resources
   - Minify -- do less, less often, smaller, shorter, omit, remove, split apart, under use, fewer resources
   - Substitute -- switch components, apply in different order, use different materials, try a different location or different sponsor
   - Combine -- blend approaches, combine units, combine purposes, combine sponsors
   - Re-arrange -- reverse, invert, change sequence, speed up, slow down, randomize
   - Location -- use single or multiple locations, node versus scattered, temporary versus permanent

Timing -- accelerate, lag, stagger, run concurrently, shorter span, longer span, time sharing
Finance -- provide, purchase, tax, user fee, subsidy, co-pay, deductible, voucher, contract out
Organization -- centralized versus decentralized, mandated versus voluntary, regulated, prohibited, enforced, inform, implore
Decision Sites -- individual, unit, organization, elected, appointed, advisory, binding
Influence Points -- users, providers, intermediaries, beneficiaries, payers
Risk Management -- guarantees, insurance, remedial correction
PITFALLS IN IDENTIFYING ALTERNATIVES

1. Too much reliance on past experience.
2. Failure to capture ideas and insights (listen, write them down, record them).
3. Too early closure on problem definition.
4. Setting a policy preference too soon before all the alternatives are known.
5. Criticizing new ideas as they are offered.
6. Some alternatives are ruled out too early on.
7. Failure to re-consider discarded alternatives if conditions change.