

SUBJECT

RISK ANALYSIS

SESSION 5 Applying decision analysis

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Basic Methods of Policy Analysis and Planning

. The Need for Simple Methods of Policy Analysis and Planning.

Our increasingly complex society confronts us with more and more difficult policy problems that are not easily solved. Although these problems may be “attacked” or “addressed,” often they have no clearly correct answers. Some authors characterize the problems of modern society as “squishy,” “fuzzy,” and “wicked” and as often having the following attributes:

1. They are not well defined.
2. Their solutions cannot usually be proven to be correct before application.
3. No problem solution is ever guaranteed to achieve the intended result.
4. Problem solutions are seldom both best and cheapest.
5. The adequacy of the solution is often difficult to measure against notions of the public good.
6. The fairness of solutions is impossible to measure objectively.

There are many examples of complex problems. What is the best location in a state for a maximum security prison? Should a ban on phosphorus that has proven ineffective in improving water quality be lifted? A city council is considering offering tax breaks for developers willing to build offices in certain sections of downtown. Should the mayor veto the plan? The county executive has proposed a \$50 million expansion of the metropolitan airport. Should the county board of supervisors support this plan? These problems will be answered: that is, decisions will be made. Even if the decision is to do nothing, it will still have consequences for citizens.

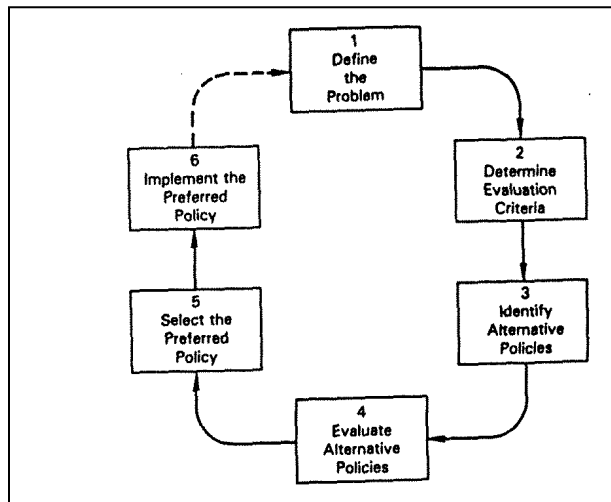
How will decision makers make their decisions? On the basis of what information will they act? To whom will they listen: lobbyists, constituents, policy advisers? The number of trained professionals employed in government and in the private sector to offer advice on these matters is growing. They usually call themselves planners, policy analysts, or public managers. This book is for people who want to work in this area. It is called *Basic Methods of Policy Analysis and Planning* because it is intended as the first book a beginning analyst will use in building a portfolio of methods to approach

knotty public policy problems.

QUICK BASIC POLICY ANALYSIS

We believe there is a set of systematic procedures or policy analysis methods that can be used to attack contemporary policy problems. We also believe there is a

subset of these methods that are basic methods, yielding quick results and serving as theoretically sound aids to making good policy decisions. Some people might argue that the variety of public policy problems is so great that no one set of systematic procedures could be developed for dealing with all of them. Critics might also say that the



geographic and political context for these problems is so far-ranging that they don't have much in common, thus defying any standard approach. Yet a process for approaching these problems has evolved and has been applied. Called the rationalist model, one version takes the form of Figure 1-1, in which problem definition leads to the identification and evaluation of alternatives followed by policy implementation. There is evidence that when time and resources are available, the analytical process does take this or an acceptably similar form.

This book is different from others in that we present only quickly applied methods, those that can be useful when there is not time for researched analysis. Policy analysts are often required to give advice to policy makers in incredibly short periods of time, in contrast to university researchers and think-tank consultants who are hired specifically to conduct intensive research on public policy issues. Some have called this latter type of work "policy studies" or "policy research." Analysts doing this work are typically given comparatively large budgets and long periods of time to produce results, and they work with large sets of data. Consequently the methods they use are different than those used by staff who work for decision makers on a day-to-day basis. The terms 'researched analysis' and 'quick analysis' were coined to describe this difference.' Since we have included in this book only methods which we feel are both quick and

theoretically defensible, we consider them to be highly useful for completing a short-term assignment or for taking the first cut at a longer-term project. Thus we call them basic methods, and the product of their application basic analysis.

The goals of persons who produce "researched analysis" are different than those of persons who produce "basic analysis." Certain to be critically reviewed by their peers, researchers seek the truth behind problems and nonintuitive, or even counterintuitive solutions. Fellow researchers are impressed with the complexity, elegance, and precision of the analysis. For quick, basic analysis the goals are much more practical. The goal may be simply to inform public decision makers well enough so they don't get caught in major errors. An example might be to assist the mayor of a large city who must decide whether to side with the director of public works in defending the cost of garbage collection when an opponent claims the cost to be double that of other cities of comparable size. Somewhat more idealistically, the goal might be to inform decision makers well enough so that a more enlightened discussion of public policy occurs and better policy is adopted as a result. On a practical level, quick, basic analysis may be all that is justified for a one-time local problem where the cost of a large-scale study would exceed the benefit from the precise solution or where for political reasons the best technical alternative has little chance of being adopted.

The process of basic analysis is much more complex in some respects than that of researched analysis. Researched analysis is rather well codified; there are routine steps of exploration and accepted standards of scientific behavior. On the other hand, the most compelling feature of basic analysis is whether the consumer understands it, is able to follow its logic, and as a result is able to formulate better policy. This means that there is an interplay between the basic analytical routines themselves, the process for interacting with clients, and the communication tools used to convey the results of analysis. This is why some authors describe basic analysis as craft rather than science. Success is measured by the quality of public debate and the efficacy of the policy adopted. Therefore, basic analysis must be responsive to the policy problem. Methods must be selected for their ability to attack the client's problem in the time available without obfuscation.

Much has been written about the differences between policy analysis and planning. To avoid a tortuous review we will highlight what is important for users of this book. Some might say that the differences are well described by the phrases researched analysis and basic analysis, with planning being the former and policy analysis the latter. This, like other

simple dichotomies sometimes proposed, is inadequate. First, were the pertinent literature in both fields to be reviewed, one would find that policy analysis has concentrated primarily on problems of the federal level of government while planning has focused on those of state and local governments. Although this is an accurate statement about the literature, this dichotomy, too, has relatively little meaning for our purposes. State and local governments adopt policies and the federal government often develops plans. Some critics would say that policies are more broad and abstract, require more information and analysis, and have wider ramifications than plans but others would argue the opposite. The answer depends on the level of government: one's tactics may be another's policies and yet another's plans. This semantic difference is not very important. Most practicing planners and policy analysts use both basic methods and researched methods in their work, whether that is in public or private practice.

More telling perhaps is the historical development of each field and the resulting differences in the paradigms of their processes. Classic comprehensive planning includes the following elements:

1. An extensive inventory phase, usually for gathering data on the natural geography and environment, on the physical infrastructure, and about the demographic and economic characteristics of the resident population.
2. A search for alternative solutions, which may be described as exhaustive but in fact is severely constrained, with significant alternatives eliminated before presentation to the client (the public).
3. The preparation of a plan.
4. An unspecified client: "the public interest."
5. A subject-oriented as opposed to a problem-oriented scope (e.g., the transportation system versus congestion of the downtown loop).
6. A rather long time horizon (at least ten years).
7. An apolitical approach to the process of implementation.

Policy analysis, on the other hand, includes this parallel set of characteristics:

1. An inventory or search phase, limited in scope and directed at a particular issue.
2. A constrained search for alternatives, which are then all usually evaluated and displayed to the client.
3. The preparation of memoranda, issue papers, policy papers, or draft legislation.
4. A particular client, be it a chief executive, an elected official, a public interest group, a neighborhood, or a bank, likely to have a particular perspective on the problem.
5. An issue or problem orientation, described alternatively as a reactive posture.
6. A time horizon often compromised by terms of elected officials and uncertainty.
7. A political approach to getting things accomplished.

The comprehensive planning process has more in common with researched methods, and the policy analysis process has more in common with basic methods. However, several additional points should be made. First, policy analysis is, in a sense, only part of a larger policy planning process. Analysis itself is the breaking up of a policy problem into its component parts, understanding them, and developing ideas about what to do. Many activities beyond analysis are involved in the policy

development process. and the term “policy analysis” may often be used when “policy planning” would be more appropriate.

Second, the two descriptions suggest that policy analysis is much more reactive than planning, always happening after someone has spotted a problem or proposed a solution. This is a reality of policy analysis at present; it may be a result of a shortage of resources for analysis in government. Someone must take the first step in creating or designing the plan, policy, or program, and this role of the professional planner in government has been severely neglected.

Third, planning is conducted because of the concern for the appropriate use of resources in the long run and the concern for the target public interest. As noted above, the policy analysis paradigm specifies work for a single client. That client might be an embodiment of the public interest, like a mayor taking a particularly heroic stand on an issue seen as vital to city residents. Or the client might hold a very personal agenda, like re-election, that could well work in opposition to the public interest.

Finally, our reason for including “policy analysis and planning” in our title was not to imply that we would cover researched methods as well as basic methods. To the degree that the two can be separated, we will cover only basic methods. Rather, we chose our title because the activities of policy analysts and planners in state and local governments are the subject of this book. How the professional label reads is moot.

LEARNING THE METHODS OF POLICY ANALYSIS AND PLANNING

Methods courses are usually taught by supplying students a tool box of analytical techniques (e.g., forecasting methods and regression analysis) that can ostensibly be applied to policy problems. There are many drawbacks to this approach. It creates the sense that all that needs to be done is to discover the proper match between problem type and specific method and then crank out a solution. This is seldom the case. It also fails to acknowledge that the complex problems facing governments are usually multifaceted and require multiple, not single, analytical approaches. Problems examined this way usually lose their context and become mathematics problems rather than policy problems.

In reaction to this approach to learning methods, some have said that since each problem is unique, what is needed is a “proper frame of mind” to do analysis. In other words, there is no standard method that can be used to approach these problems; each time an approach must be created new. Our position lies between these two. We believe that a standard procedure exists for addressing these problems. We also believe that a number of fundamental or basic methods can be used within this procedure to analyze complex problems. We have brought these basic methods together in this book for the beginning policy analyst. We believe these basic methods cannot be effectively learned without a context. Thus in this book we describe the process of policy analysis and planning and explain a number of basic methods appropriate to each step in that process. Each method is illustrated with examples. The end of each process chapter contains practice problems. The second part of the book contains policy cases, which will take from five to 25 hours each to resolve. For each policy case, unlike the more directed exercises provided with the process chapters, readers are on their own in delineating the problem, choosing an approach, and adopting methods of analysis. This combination of traditional learning and learning by doing was selected with several goals in mind. We hope each user of this book will:

1. Learn to recognize situations in which specific basic methods can be applied quickly and appropriately.
2. Become competent at using methods of analysis and designing approaches to policy problems.
3. Learn how to communicate the results of analysis to appropriate decision makers.

In the process of attaining these goals, we hope our readers will also:

- Learn the language of policy planning.
- Learn to write with organization, clarity and precision.

- Learn to use supporting documentation (maps, charts, graphs) effectively.
- Learn to speak publicly, delivering critical information concisely.
- Learn to develop simple models that are supported theoretically and empirically.
- Learn to evaluate the distributional aspects of policies and programs.
- Learn to incorporate political factors into analysis.
- Learn to advocate uncomfortable positions.
- Learn to work under time constraints and to allocate analytic resources.
- Develop management skills and the ability to work in, and/or direct a team.
- Learn how to obtain policy-relevant data, through efficient search techniques and persistence.
- Practice the sifting and synthesizing of mountains of seemingly irrelevant reports and memoranda.
- Practice using secondary data sources.
- Develop quantitative analytic skills.
- Develop skills for qualitative analysis.
- Learn to design effective program implementation guidelines.
- Learn to cope with 'uncertainty in a policy context by being flexible and tolerating false starts and dead ends.
- Learn to read and understand legislative language.
- Learn how to develop a program of researched analysis for staff.
- Learn to be skeptical of their own solutions as well as those of other analysts.

Some people might argue that these skills are best learned on the job. We contend that because a standardized process has emerged and because practitioners of policy analysis and planning have developed a number of basic methods, it is more efficient to learn and practice these methods before facing them in real life.

What role do other courses play in learning to do policy analysis? For those who expect to work on state and local government problems two other streams of learning, besides methods, are important. The first is the process of policy making and planning. How do governments work, laws get passed, and administrative rules get initiated? How do professionals within organizations function in providing analysis and advice to decision makers, be they elected or appointed officials? How can the process of analysis involve various constituencies and public and private groups? Courses in planning, government, administration, and management as well as some interdisciplinary programs are directed toward these concerns.

The second essential element is a knowledge of the economic, geographic, and social structures of urban and regional systems. How do cities and regions grow and decline? Which of their problems might be addressed by governments? Courses in urban and regional economics, human ecology, sociology, geography, and interdisciplinary offerings address these questions. The analytical methods portion of a planning or policy analysis curriculum usually involves courses in descriptive and inferential statistics, use of the computer on larger data sets, and courses containing a potpourri of researched analysis techniques such as survey research methods, linear programming, cost-benefit and cost-effectiveness analysis, input-output techniques, modeling, and simulation. Some curricula offer courses containing more generic methods for policy analysis and planning, such as forecasting and prediction, alternatives generation, and techniques of program monitoring and evaluation.

This text should be used early in the analyst's career. After learning basic methods of policy analysis and planning, the analyst will be ready to move on to coursework in more advanced analytical techniques and techniques of researched analysis that require more time, resources, and usually larger information bases and data sets.

PRACTICAL PRINCIPLES FOR BEGINNING POLICY ANALYSTS

Learning how to approach policy problems and how to choose appropriate basic methods during the policy process takes time. There is no substitute for practice. Our first bit of advice, then, is to begin thinking

like analysts and planners. As you read the daily news, reflect on the problems confronted by governments and ask how you would approach those problems, what information you would need, and what basic methods might be appropriate. Over time, as you develop the habit of looking at policy problems analytically, you will gain confidence in your ability to understand such problems. The following suggestions should help as you begin to undertake policy analysis.

1. Leans to Focus Quickly on the Central Decision Criterion (or Criteria) of the Problem: What factor of the problem is most important to your client? On what criterion is the decision likely to be made? Will it be minimizing the cost of some service? Or might it be to spend more effectively the funds now allocated to the activity? Perhaps it will be to broaden the base of those being served by the program. On what basis can we judge the merits of alternative policies or programs? Identifying the central “nugget” of the problem is essential.

In some cases the criterion can be inferred from legislative intent; in others you might have to exhume it from a mountain of seemingly patternless reading material. When working on exercises or case studies, you will have no real client from whom to extract “the nugget.” On the other hand, the client often has no idea what the central decision criterion is. The difficulty is that public policies often have multiple and competing objectives, and the objectives are often extraordinarily ill defined. Beginning analysts must learn to focus quickly, or valuable analytical time will be wasted.

If beginning analysts are to survive, it is essential that the sea of ambiguities—extensive reading material but none with priority, reams of undifferentiated data, the blank writing pad, the motionless pencil, and the calculator in the “off” position—be recognized and overcome. Getting started is difficult, but focussing on the central decision criterion will help identify needed information. It is better to make a bad start than to make no start. You can and should recycle: after several hours of work does your central decision criterion still ring true?

There are, of course, dangers in choosing the nugget prematurely. There is a tendency to choose the one that can be defined and measured most easily (e.g., least cost) while possibly ignoring more important but less quantifiable goals and impacts and forgetting about who pays and who benefits from the policy. There is also a distinct possibility that several competing and equally valid decision criteria exist, and that early focussing will dismiss the alternatives forever.

2. Avoid the Tool-box Approach to Analyzing Policy: Some disciplines spec-

ify analytical routines in detail for many circumstances. This may encourage some people to begin work on a policy problem because it lends itself to their favorite method. Ideally the problem should dictate the methods, not vice versa, This book is intended to help avoid the toot-box appioach. Because problems are complex, beginning analysts can be very apprehensive about which method to use, We advise using the simplest appropriate method, and using common sense to design a method if one doesn't already exist. Combine methods if you must. Use more than one whenever possible. Apprehension often forces us back to the methods with which we feel most comfortable, but try to avoid this tendency.

The principal tools of the policy planner are logic, common sense, and experience with particular substantive areas. It helps to be practiced in data analysis, rational problem solving, and other specific skills. But more often than not we design our own approach or methodology to policy problems. This kind of creativity becomes easier the more policy analysis we do and the more we learn what the clients, be they real or simulated (in exercises and cases), find understandable and useful to their deliberations. If the methods applied are not transparent, the client is forced to either accept or reject the results without understanding. Doing the exercises and completing the cases in this book, seeing others' approaches to the same problems, and understanding the deficiencies of one's own methods are efficient ways to obtain experience in policy analysis.

3. Learn to Deal with Uncertainty: Neophyte analysts are tempted to isolate each parameter of a policy problem and then establish their most likely future values. Having tacked down the key parameters of the problem (because the task is never-ending, many spend most of their allocated time on this phase), they believe the problem can be solved. This approach is often a waste of time. Therefore we describe basic methods of decision analysis and sensitivity testing that can aid in analyzing important parts of a policy problem even if you cannot find values for certain variables. This will be illustrated with a popular policy question: Should a city waive property taxes for x years on certain downtown properties in order to encourage their redevelopment? Our experience shows that most beginning analysts spend all their time trying to find out (for sure) whether the tax abatement will cause the development. Almost no time gets spent trying to analyze what the costs and benefits of such a program would likely be if it were instituted and did or did not cause development. Learning to live with and work with uncertainty is a must for policy analysts. Uncertainty is present in nearly every public policy problem.

4. Say It with Numbers: Much of this book deals with using numbers to understand and resolve problems. Most policy problems have an associated data base, and it is important to use these data in gaining insights about the problem. The most basic mathematical operations—addition, subtraction, multiplication and division—can yield powerful insights. Division, for example, can tell you how much a service costs per capita. When analyzing the case on solid-waste collection, you will undoubtedly want first to perform a number of simple mathematical operations. How much garbage is collected in how much time? By crews of what sizes? Using how many of what kinds of trucks? In streets or in alleys? Using what type of trash container? Compared to other cities, how do these numbers look? High, low, equivalent? What critical data are obviously missing but essential to this first-cut analysis? Of course, not all critical factors can be measured empirically. Some are intangible, but this does not necessarily make them unimportant. Even if, in the last analysis, intangibles are found to be central, the quantitative analysis will supply a good base upon which other analyses can be done.

5. Make the Analysis Simple and Transparent: Does the analysis inform your clients? Do they understand it and as a consequence make better decisions? These central questions should be asked about any policy analysis. To achieve these goals, the analysis must be simple. This doesn't mean simple-minded, but rather, not complex, convoluted, and impossible for a bright, well-informed client to follow. Transparency is another attribute of effective analysis. This means that if any models or calculating routines are used, the client should be able to see how they work, step by step, not simply be given the results of the internal machinations of a "black box." Simplicity and transparency go hand in hand.

Using a gravity model to predict retail sales provides a good example of this principle. In judging the impact of a proposed suburban shopping mall on the downtown of a medium-sized city, planners employed a typical gravity model to assess changes in shopping patterns (Figure 1-2). Those familiar with such models will know that the results shown in Figure 1-2 are the product of running data through a mathematical formula, a formula whose various parameters should be clear and transparent and open for discussion, criticism, and possible testing with data by others. The mall is both generating more total business and drawing business away from elsewhere, including downtown. Unfortunately, Figure 1-2 shows only the results of analysis. To be consistent with our principle, the factors in the formula need to be defined, the data used to generate the results should be listed, and a rationale for using this model in the given context should

be provided. In some reports the analyst may want to confine such detail to an appendix, but it should always be made available so that consumers of the analysis can follow the logic and check the factors being used and their measurement. If it is too complicated to explain, it should not be used in analyzing policy.

Size of proposed Mall	<i>Distribution OF ANNUAL. RETAIL TRADE</i>		
	<i>Downtown</i>	<i>Mall</i>	<i>Other</i>
Don't build	\$40M	\$0	\$12M
10,000 square feet	\$35 M	\$10 M	\$10 M
20,000 square feet	\$25 M	\$30 M	\$ 8 hi
40,000 square feet	\$15 M	\$45 M	\$ 6M

M - Millions of dollars

Figure 1.2 . Reilly's Law of Retail Gravitation applied to the Upland mall

6. Check the Facts: It is important to develop a healthy skepticism for widely held beliefs and established facts in matters of public policy. Such beliefs and facts have a way of becoming base-line information for anyone who begins to study a policy problem. Yet they are not always reliable, It takes time to feel confident enough to challenge existing authorities, but uncovering erroneous or uncorroborated facts can prevent your analysis from compounding the error. A few tips for checking the facts include:

1. Analyze the sources of the facts. Is the position of the author served by the facts?
2. Never rely on a single source. Use people, reports, and the analysis of others to corroborate the facts. Use independent sources.
3. Understand how the facts were generated. If the method wasn't clear, discount the facts greatly.
4. Since you can't check everything, check the facts most closely associated with the central decision criterion.
5. Since facts often depend on definitions, check the critical ones. If the claim is that a majority of all city families are in poverty, how are "majority," "city," "families," and "poverty" being defined and measured? Can you generate the same facts by using these definitions and assumptions?

Many planning and policy analysis issues revolve around population projections. Too often the projections of prestigious agencies are taken as facts and become bases upon which other analyses are performed. A

smaller city within a metropolitan region had done this by relying on the projections of a respected regional planning agency. The regional totals were projected objectively, with the agency using the latest birth, death, and migration rates. However, these totals were allocated to communities on the basis of the regional agency's plan. The plan itself was at odds with what had been happening for the previous decade. The plan was designed to encourage centrality and dense development, but the region was becoming more spread out and more decentralized. The plan was a normative statement about the agency's desired growth pattern, but the agency had no power to implement its plan. The resulting population projection for the small city was, then, much higher than could be expected. Until a sharp analyst reviewed the fact base (including the population projections) analyses were being done under the assumption that the agency's city-level projections were a forecast of trends.

7. Learn to Advocate the Positions of Others: There are three principal reasons that taking a position different from your own can be beneficial. This is not to suggest that analysts should be amoral. Rather, your willingness to advocate other sides of the issue can have several positive results. (1) It can raise the level of debate, bringing out the merits of both sides and displaying the problem and alternative solutions in all their complexity. This can help lead to compromises, where if left as simple arguments or arguments based on clashing values alone, the problems may remain irresolvable. (2) This approach can improve your analytical skills and your facility with unfamiliar subject material, in the process perhaps causing you to reexamine what you have considered to be established truths. (3) This approach can also strengthen the tradition of an advocacy process where a strong challenge to an established policy — even a good policy — can result in a better policy. Competitive or advocacy processes are built into some of our most important institutions: the courts, the Congress, and free enterprise. These systems rely on conflict in order to function, and their achievements would be far fewer if they had to wait for consensus or had vested a single entity with the responsibility to take a comprehensive view.

Analysts should take the opportunity to learn from lawyers, whose professional training teaches them to assume either side and to play within the rules of the legal and political process. Learn to make up for a lack of substantive knowledge — in housing, health, environment, transportation, land use — by substituting an efficient learning process. Like lawyers, students of policy analysis need to be able to develop a case from any perspective and with limited prior substantive knowledge of the problem area. Policy analysts need to know how to learn efficiently about substantive problem areas because most analysts will encounter problems

that shift during their lifetime, if not daily.

8. Give the Client Analysis, Not Decisions. Policy analysts and planners usually give advice to their clients; they do not make decisions for them. This has important implications for the types of analyses that are done and, even more importantly, for the methods of communicating the results of analysis. The client will make the final choice and should be able to reanalyze the policy data. This means that critical assumptions, values, and uncertainties must be reported.

When the analysis is done well, the decision maker will be able to weigh the consequences of changes in assumptions, values, and uncertainties and come to an independent conclusion. In some cases the client will be seeking a recommendation, but this is typically the case only with skilled analysts who have developed a long-term relationship with their client.

This point about analysis rather than decisions can be sharpened with an illustration. It was proposed to build a bridge to replace an existing ferry service over a river which separated the downtown of a major metropolitan area from its hinterland. The analysis showed that the critical variables in deciding between the new bridge and maintaining the existing ferry were the amount of time saved by commuters and how it was valued, the uncertainty of a major cost overrun on the bridge, and the assumption that traffic would remain at levels that could be adequately served by the existing ferry fleet. Good analysis would detail these factors for decision makers and assess the consequences of varying assumptions about each. Poor analysis would simply recommend action. The key is learning to present detailed information in a format that decision makers find understandable and persuasive.

9. Push the Boundaries of Analysis beyond the "Policy Envelope". Often problems come in very circumscribed forms. Someone has already decided what the problem is and what the alternatives are. The analyst may be able to expand both the problem definition and alternative solutions. For example, if traffic congestion is the specified problem and three alternative freeway locations are the possible solutions under consideration, a good analyst might raise questions of overall traffic efficiency and equity and advocate adding several mass-transit options to the freeway alternatives. For new and junior analysts this may not be possible, but at least the bounds should be explored. If the results are good, consider introducing them into the formal analysis. A major portion of our potential contribution is taken from us if we are handed the problem definition. Almost nothing remains if we are also given the allowable set of alternative solutions.

10. Be Aware That There Is No Such Thing as an Absolutely Correct, Rational, and Complete Analysis. Quality of analysis can be judged only in the context of time and resources available. Students working on practice problems or cases often complain that they are never given enough time to complete the analysis satisfactorily and that teachers have unrealistic goals for what can be accomplished in the time allotted. Students fail to believe that so little time would be devoted to analyzing "such an important policy" in the field. Many of the problems in this book are, however, drawn from field experiences where practicing analysts had little time and few resources. Only in practice can the twin constraints of time and resources be appreciated. Even if resources and time were unlimited, the analysis would seldom be absolutely correct and complete. There would still be the issues of uncertainty and competing value systems.

The analyst must ask clients the level of analysis they desire: one person-hour or ten; one person-day or seven; a month or a year of how many people's effort? Analysts must be prepared to examine a problem at any of these levels, making recommendations where appropriate about the optimal amount of effort for each level of inquiry. Time and resources should be spent in amounts that garner the maximum marginal gain in information per dollar spent. Usually two or three levels of analysis can be identified for a policy problem, and an appropriate budget and work program can then be designed for each.

The case of a proposed parking garage can illustrate this point. Should the city clear a vacant downtown parcel and build a large municipally owned parking structure? At the first level we may have less than ten hours in which to analyze the idea. The work program would probably concentrate on verifying the total cost to the city of building and operating the structure and estimating the revenues it might generate by using fee structures and utilization rates from several adjacent lots. Given more time, say 40 hours, the analysis might be broadened to include an examination of the opportunity costs of building the garage, that is, the benefits lost by not selling the land to a private developer who would build a 20-story tax-generating office building. A sensitivity analysis might also be performed on the garage's proposed pricing schedule and expected utilization rate to see if the decision to build holds under pessimistic scenarios. With a work program that might stretch to six months and include several staff members, it would be possible to inventory the city's private and public parking facilities for pricing practices and utilization rates by location and relate this information to an overall plan for downtown development. Major secondary effects such as the impact

on mass-transit ridership and retail shopping could also be explored. If still more time were available, it might also be possible to enter into more detailed negotiations with potential buyers of the downtown site and get written commitments to various types of development. The overall impacts of those proposed developments could then be compared to the parking-garage alternatives.

This last level looks very much like what we have described as researched analysis. However, drawing the line between basic and researched analysis is very difficult. Most policy problems can be approached on various levels, given different time and resource constraints, and useful advice can be given to decision makers at all levels of analysis. The analysis can get more comprehensive and detailed as resources and time increase, but even when detailed analysis is done, questions remain. In the parking-garage example, these might include the uncertainty over utilization rates and the effect on mass transit and retail activity, as well as uncertainty about possible alternatives to the garage and their impacts on employment and property taxes.

We hope that beginning analysts will grow comfortable with the idea that they can provide clients a product that aids decision making, no matter how limited time and resources are. It is a matter of designing the work program to maximize information and analysis within given constraints. Getting good at this takes time and comes with experience. Practicing on sample problems and case examples is an ideal way to begin.