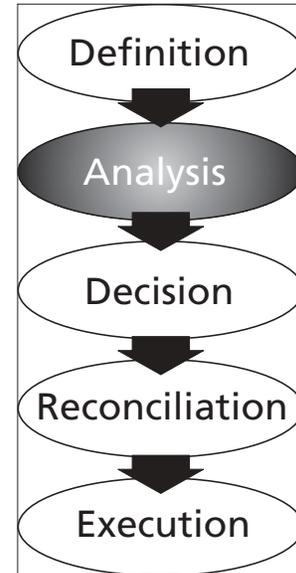


POLICY ANALYSIS

Find out the cause of this effect, or rather say, the cause of this defect, for this effect defective comes by cause.

-William Shakespeare, *Hamlet*, Act II, 1601



Our discussion of analysis in the previous chapters emphasized the comparison of concrete, tangible, and measurable alternatives and courses of action: Is system A more cost-effective than system B? Do we prefer this deep-water port to the alternatives? Does this Operational Plan offer greater chances of success than the others do?

But sometimes we must evaluate problems that are less clearly defined, less tangible, and less easily measured. For example, what will improve quality of life more: a pay raise or better medical care? What is the most cost-effective source of officers? Should basic training be gender-integrated or gender-segregated? Should the commissary sell discounted cigarettes? Policy analysis assists the decision maker as he or she establishes guiding principles and rules concerning social, welfare, equal opportunity, medical issues and the like.

We conduct policy analysis in one of two general circumstances. First, after a policy decision is made and implemented, we do a Policy Evaluation to assess whether the state we sought was achieved. Policy evaluations are generally descriptive in nature; they look backward to measure previous performance and compare it to what we expected. The second type is the Policy Recommendation where we identify the courses of action most likely to produce a favored outcome. Because we are recommending a future course of action, policy recommendations are prescriptive and normative in nature; they seek to solve problems and tell us what we should do and how to proceed. Occasionally, we may integrate the two types of policy analysis, e.g., a task force studying recruiting shortfalls may also recommend policy changes to improve recruiting.

Policy analysis is based on the same logic as analysis of any other question. In practice, however, we may have to take special steps to deal with the elusive character of some policy questions, which means taking care to cope with the special issues that arise with policy analysis.

Values and Policy Analysis

In policy analysis, many difficult problems are defined in terms of values. It is frequently impossible to develop criteria for evaluating policy alternatives without involving questions of values

and norms. Quality of life problems are a good example. How should we measure quality of life? Is the divorce rate a good criterion? What about community involvement? Net income? How would you weight these criteria? We quickly get into problems that are both philosophically and analytically difficult. Even if our values are not engaged, others' will be. Contrast this with the analytic situations we discussed earlier. Choices between aircraft or deepwater ports can involve strong views but seldom values and norms.

Certainly, values and norms are not as central to selecting a port as they are when we make choices about equal opportunity policies. Groups may define the same problem differently from their ethical perspectives, which is why we must emphasize clarity in the Definition Phase. Ethical values may affect our measurements and data collection, intentionally or otherwise. By carefully distinguishing facts from values,¹ we can separate the ethical issues from the still-valuable tools of problem structuring, mathematics, and modeling, which should not be controversial.

What difference does it make that policy analysis is often value-laden? It need not matter much if we keep some points in mind. First, we believe that subjective does not equate to irrational. Values may be subjective, but that does not mean we cannot deal with them as objectively and analytically as we do other issues. Second, we should be intellectually honest and discriminate scrupulously between value judgments and the factual aspects of the analysis.

Cause and Effect

Another issue of particular importance in policy analysis is establishing causality—understanding why something happened. Understanding the causes of a policy problem, like low retention, is usually a precondition to evaluating alternatives for remedying it. Of course, establishing cause and effect is important in all forms of analysis, but it is especially difficult in the analysis of policy.

This difficulty exists because the world of human interactions is especially complex and difficult to understand. The scientific method is difficult to apply while evaluating policy alternatives; we seldom have a controlled environment for policy experiments. Instead, we are compelled to perform what are called natural experiments: determining cause and effect in the real world as people live their lives. This poses serious challenges to good analysis. Interventions into people's lives on the basis of a faulty understanding of social causes and effects can create serious problems. Misunderstanding the causes of poor retention can lead us to expend valuable resources while the problem continues unabated.

Because we face serious challenges isolating cause and effect in policy analysis, the Definition Phase is especially important. We must carefully define the effect we are studying. If we cannot measure the effect directly, we may have to measure it by proxy. For example, how do we measure morale or unit cohesion? Re-enlistment rates, numbers of disciplinary incidents, and field exercise scores are all measurable indicators of a unit's health. Taken together, and perhaps with a few more added, they reflect the more intangible elements of morale and cohesion.

After we identify the effect we are analyzing, we build a list of possible causes. The range of possible causes of a given effect may be tremendous. The range of plausible causes should be smaller, but may still be quite large. We use three general guidelines for linking cause and effect:

1. The extreme, complete isolation of values from decision making is called Scientific Instrumentalism, which is not what we are advocating.

- The cause must precede the effect. A must come before B.
- The relationship between the proposed cause and effect must be plausible:
 - › *Sufficiency*: A must be able to cause B.
 - › *Quantity*: There must have been enough of A to cause B.
 - › *Duration*: A must be present long enough to cause B.
- We must account for all other possible causes.

The requirement that causes must precede effects is obvious but sometimes (surprisingly) overlooked. The plausibility requirement is also straightforward in theory but may require careful examination. The most difficult guideline we assess is the third, accounting for other possible causes of the effect.

The first category of other possible causes we examine is the group of events that would occur whether or not a particular policy is implemented. For instance, we may change an aviation squadron's training syllabus to improve aircraft carrier landing performance. While this change may contribute to better performance, we also know historically that as squadrons progress through the training cycle, their carrier landing grades improve with repetition regardless of the training syllabus. We need to determine if the squadron's scores improved beyond the historical average and, if they did, whether our change was the proximate cause. The decline in health among a graduating class tracked since it began service may be due to aging, not a degradation in the quality of military medicine.

The underlying trends of a particular environment may mask the impact of a new policy. To attract high school graduates to join the services, recruiters continually change their advertisements and selling points. A change in the number of high school graduates enlisting may be due more to the overall number of students completing high school and the strength of the economy than as a result of the recruiters' marketing plans.

Singular or short-term events may also produce outcomes that complicate cause and effect relationships. The popular film *Top Gun* led to a surge of interest in Naval Aviation. The alleged misbehavior and sexual harassment by and of some naval aviators at the 1991 Tailhook Symposium in Las Vegas had the opposite effect. In either case, recruiters and analysts must be aware of the influence of these events when they are assessing the success of their recruiting programs.

As we evaluate the effect of a policy, the other contributing causes may confuse us in several ways. At one extreme, we may decide a policy is ineffective because we cannot detect an impact. In truth, the policy may hold the line against further deterioration; its beneficial effects are negated by other causes and we wrongly classify it as unsuccessful. The other extreme is where the outside influences create the appearance of success and the policy is not actually influential. In between these poles, we have outcomes that are distorted, for better or worse, by causes apart from our policy.

We account for the contributions of these additional factors as accurately as possible. The most common method we use is creating control groups to measure the state of a population we did not expose to the policy. Complications from other causes may force us to exercise judgment and make estimates or value-based assumptions to continue the analysis. As before, we should display these assumptions and judgments clearly before presenting the results of our analysis.

Once we identify the plausible causes of an effect, we focus on the actionable causes. These become the basis for our policy alternatives and forecasting outcomes. Typically, we compare policy alternatives in cost-effectiveness studies. Unlike other forms of analysis, disparate stakeholders are more likely to value the same policy effect differently; therefore others may challenge our evaluation of the worth of an outcome or benefit later in the process. Also, we may have to evaluate several outcomes from each policy option, further complicating our comparison of alternatives and their merits.

The most difficult circumstance we face is one in which we cannot isolate cause with reasonable certainty because too many other confounding factors complicate our measurements. We may not be able to isolate the contribution of the policy we are studying. While we may dispute the cause, at the same time the present state may be clear. Polarized groups may use the same facts and the same analysis to support opposite arguments about their cause. Consider the difficulty we have identifying cause and effect if we are evaluating the military's participation in illegal narcotics shipment interdiction. Has military intervention caused any reduction in drug traffic or has the traffic been re-routed? Is the street price of narcotics a more reliable measure of effectiveness than the amount of drugs captured? In these circumstances, the principal contribution of policy analysis is to clarify the facts and structure the problem for a rational debate.

Spillover Effects

Just as there may be outside confounding causes for an effect, our policy may have consequences beyond the objective we are trying to attain. The spillover effects may be more significant than our original policy objective. For example, while managing manpower reductions after the Cold War, the Navy exempted officers from Selected Early Retirement Board actions if they requested retirement within two years. The Navy leadership was trying to humanely manage its reduction of senior officers who were likely to be separated involuntarily by offering them stability at the end of their careers. Many officers submitted two-year retirement letters, many more than the Navy expected. On the other hand, officers who intended to remain in the Navy, especially those selected to assume a major command, did not tender retirement requests. Unfortunately, so many officers requested retirement that the Navy, forced to reach its Fiscal Year end-strength levels, was forced to attrite officers who were on its Major Command list. Navy leadership could have avoided this unintended consequence with more thorough policy analysis.

Policy Analysis Methods

Next, we will examine the general approaches to policy analysis, the important role of forecasting, several of the most common modeling techniques, and some concerns about data collection to support policy analysis.

APPROACHES TO POLICY ANALYSIS

There are three principal approaches we use to analyze policy: the Top-Down approach, the Bottom-Up approach, and Mixed approach. The first two represent extreme views and the third is a compromise between them. The top-down approach is essentially the straightforward application of rational cost-benefit analysis to policy problems. We define the problem cleanly and exhaustively, we develop alternatives that represent the entire range of possibilities, and we compare those alternatives using valid criteria and a model to forecast all the possible outcomes of each policy option. Because it requires an all-powerful leader who makes decisions based on

experience and analysis and who can direct implementation by an act of will over an entire organization, it is also called the Rational Comprehensive Approach. Secretary of Defense McNamara's implementation of the Planning, Programming, and Budgeting System and the Department of Defense reorganization Congress directed in the Goldwater-Nichols Act of 1986 are historical examples of this approach.

There are two problems with this approach. The first is that we can almost never meet the prerequisites of the pure top-down approach: a clearly defined problem, a full range of alternatives, easily measured criteria and a good model of the policy problem. Usually, when we think we can meet these requirements, we are proven wrong. Note the chronic under-performance of centrally decided policies, e.g., planned national economies and welfare programs. Second, even if we felt we had these requirements in hand, the chances are great that given the subjective dimension of policy questions others would strongly disagree. Seldom can we, or even very powerful decision makers, implement exactly the policy option that looked best in a formal policy analysis. Typically, decision makers have to implement a somewhat altered option, in response to other factors.

The bottom-up approach represents the other end of the spectrum: a grass roots approach to policy analysis. It responds to criticisms of the top-down approach by taking a humble view of what is possible. We accept that many policy problems must be ill-defined, that we cannot be confident that we know the full range of alternatives, that criteria for assessing their performance will be crude, and that our ability to forecast policy outcomes is poor. For this reason, we avoid defining our long-term objectives in detailed or actionable terms. We focus instead on small, achievable objectives that do not require wrenching changes from the status quo. Because the scope of change is small, our demands for forecasting are short term and easier to satisfy. Because different groups within an organization may make decisions independently that affect the whole, and the overall direction of an organization may be unplanned—or self-synchronized—this approach is also known as Disjointed Incrementalism. Secretary of Defense Cohen's decision to allow each service to decide independently whether to gender-integrate its basic training is an example of the bottom-up approach to policy.

Using the bottom-up approach, we adjust our alternatives and our objectives simultaneously as new facts become available; it is an ongoing process where means and ends merge. Because we are making decisions in small increments, there is no single large decision point; rather, we weave through a network toward the ultimate objective. The incremental effect is a continuous, responsive application of policy to solve problems rather than dramatic, isolated events. This incrementalism encourages us to involve many disparate groups to formulate policy, thereby gaining some comprehensiveness, and facilitates reconciliation because the stakes of any individual decision are never very high. If participants in a decision cannot reach consensus, we may transition to an adjudicative process with a common superior (always available in DoD) before we proceed further. Because it facilitates consensus solutions, the bottom-up approach is further known as the Political Approach.

We recognize the bottom-up approach has serious limitations, too. It is conservative in nature because it favors only small changes from the status quo; therefore it may discourage innovation and creativity, sometimes to the point of immobility. The bottom-up approach does not lead to rapid, sweeping change, though it may incrementally produce great change over time. This means that urgent problems are likely to fester which may not be acceptable. Also, the bot-

tom-up approach means those problems of injustice, abuse, mistreatment, and the like may be changed only gradually. Congress has formed many panels and commissions to evaluate national military strategy and the services' force structures, roles, and missions, most recently the Commission on Roles and Missions (1994) and the National Defense Panel (1996), and now mandates the Quadrennial Defense Review (1997, 2001) because it considers the Pentagon locked into incremental approaches to national security issues despite the major changes in the global security environment. Because we avoid focusing on a long-term objective, our weaving trail of small steps may lead to an inefficient or even circular path.

Obviously, we will take a Mixed Approach in practice, since both extremes have serious difficulties. In the Definition Phase we recognize that the character of the problem and the conditions in which it occurs must drive the method chosen to attack it. But we have a preference for the top-down end of the continuum when we have a good grasp of a policy problem. When we do, the top-down approach enables us to exploit that knowledge for the benefit of our entire organization in DoD, which we know is responsive to positive leadership.

By its nature, the bottom-up approach says the best we can do is muddle through. That may be true some of the time, even most of the time, but not all of the time. We recognize that our ability to understand policy problems is limited, but it is not nonexistent. Some problems we can understand better than others. For example, we can understand the disastrous impact of prejudice in promotion policies. We may have some knowledge of what improves retention and quality of life. On the other hand, our knowledge of the long-term impact of gender-integrated versus gender-segregated basic training may be more limited. The kind of policy analysis that we can do for these problems is necessarily different.

FORECASTING TECHNIQUES

Prediction, as with analytic models, is very important in policy analysis. While the methods are simple, we have a difficult task judging when they are valid for the issue we are studying. We classify forecasts in three groups: forecasts by extrapolation, forecasts by theory, and forecasts by judgment. Forecasts by extrapolation project a trend into the future, usually by extending the curve or line on a graph as in figure 9-1. Here, the population's level of knowledge about Shipboard Electrical Safety is a function of how often the unit holds training;

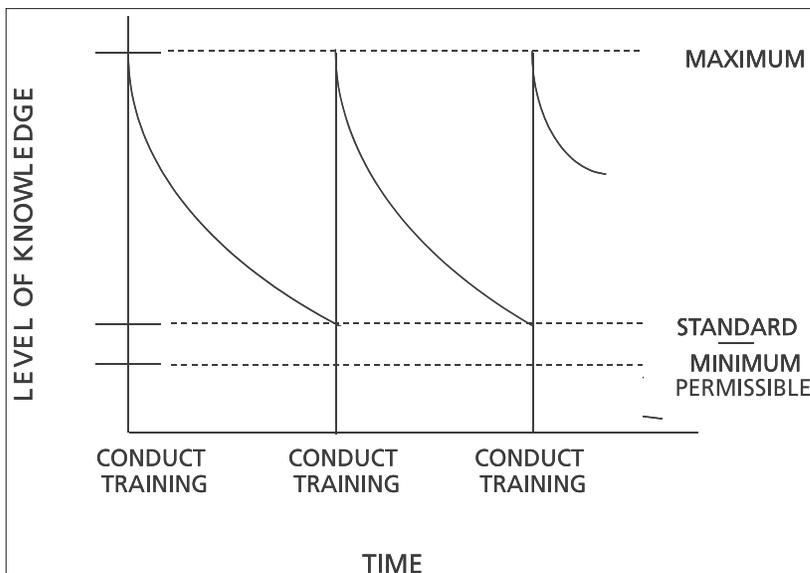


Figure 9-1. Decay of Knowledge Over Time.

of a ship's crew is highest right after a training event. As time from the training event passes, knowledge among the respondents decays exponentially until it reaches an unacceptable level unless the unit conducts additional training.

Because personal safety is the issue, the prudent commanding officer holds training well before knowledge has decayed to the minimum permissible level.

The strength of this approach is its practicality, but its validity may be a problem. First, extrapolation is appropriate only when we have some reason to believe that the future will resemble the past. It often does, but it often

does not. Certainly extrapolation cannot be used to predict revolutionary change that, by definition, differs considerably from the past. Second, the further we project behavior into the future, the less accurate the forecast becomes.

Theoretical forecasts require a well-defined statement of cause-and-effect concerning the issue we are assessing. That theoretical statement is the basis for the forecast. The strength of this approach is that its predictions do not depend upon straightforward extrapolation from the past. In principle, therefore, forecasts based on theory have a better chance of anticipating sharp and discontinuous change. Its weakness is that it requires a very good theory, which is often a resource in short supply. An example of forecasting by theory is Input-Output Analysis, a matrix display we can use to identify how a group of events interacts with one another. We list events or outcomes along the X- and Y- axis of a matrix and evaluate, in X and Y pairs, the effect one event is likely to exert on the other. For example, we may have a series of policy choices on one axis and outcomes on the other: How do changes in promotion policy affect retention, billet seniority profiles for the force, etc.?

EVENTS	COLLEGE BENEFITS	MEDICAL BENEFITS	COMPENSATION	DEPLOYMENT FREQUENCY
RECRUIT	High	Low	High	Low
COMPLETE FIRST ENLISTMENT	Medium	Low	Medium	Medium
1ST RE-ENLISTMENT	Low	Low	High	High
2ND RE-ENLISTMENT	Low	Medium	High	High
CONTINUE UNTIL RETIRED	Low	High	Medium	High

Table 9-1. Cross-Impact Analysis of Events and Incentives.

The Cross-Impact Analysis is a specific type of input-output analysis that shows us three aspects of linkage: whether an event positively influences another, how strong that influence is, and how that linkage behaves over time. Table 9-1 is a cross-impact analysis reflecting one analyst's impression of how certain benefits affect an individual's decision to continue his or her military career. From the table, we see that as he or she progresses through a career, college benefits become less important to the average service member and quality of life (deployment frequency) becomes more important.

We often use this kind of input-output analysis in DoD to evaluate issues like logistics support and base closures, e.g., if we close a base, how many dependents and retirees will be affected by eliminating the commissary, exchange, and medical services?

Forecasts by judgment are based on expert opinion about the future of the issue under study. As such they are inherently subjective and value-based, but, in many cases, they may be the best we can do. The Delphi Method we discussed in Chapter 5 is most common way DoD uses to make forecasts by judgment.

We may also use the Delphi method to produce diverging, not converging, viewpoints when we desire a range of opinions. After the initial round of statements and propositions, we select members to debate their positions before the rest of the group to sway opinions or influence values. The moderators summarize positions in a way that emphasizes the polarity in responses,

not consensus. The final report contains a variety of options and arguments for and against each alternative. We seldom generate actionable recommendations from either Delphi process, but the forecasts they provide are very useful for policy discussions and further analysis.

POLICY MODELS

We can describe policy-modeling techniques in the same terms of abstraction, predictive qualities, complexity, and purpose, as we did earlier in Chapter 7 to describe analytic models. Policy models tend to have a higher level of abstraction than analytic or force-on-force models. The higher level of abstraction in most policy models increases the chance that we may use the wrong problem formulation or incorrectly address cause and effect.

Because they model human behavior, policy models begin with and incorporate high levels of uncertainty. Policy models tend to be simpler than other types of models because of their dependence on abstraction and assumptions; if we make them more complex we are forced to layer assumption upon assumption and our level of uncertainty quickly rises to unacceptable levels. We must identify and explain the method of prediction used by the model. We should also be clear whether we are using the model to evaluate policy or develop policy recommendations.

DATA COLLECTION

Questionnaires and surveys are the standard tools of the policy analysts. We review them carefully before we distribute them to remove bias, maintain their neutrality, and to ensure they collect information germane to our discovery of cause and effect. Closed-ended questions (multiple choice and true/false) can influence and even predetermine responses while open-ended questions allow people to answer in their own words but are more difficult for us to process. DoD gives officers a questionnaire when they resign from the service to elicit information to support retention efforts. Do those officers give their real reasons for leaving, particularly if they desire to continue as reservists? What about asking officers who remain on active duty why they are staying?² Groups with biases, or agendas, may deliberately try to manipulate data collection and we must safeguard against contamination—unless their values are what we are trying to identify.

Once we are satisfied with the questionnaire, we have to examine the sampling plan. The most thorough and expensive method is a survey based on sophisticated sampling. The least dependable method occurs when we allow respondents to self-select as with postal, electronic mail, and media talk show surveys. While a small percentage of the population may feel strongly enough about a particular issue to pick up the telephone, their opinions are unlikely to reflect the feelings of the population at large. Similarly, in an effort to improve physical fitness, a unit commander may consider starting an intramural sports program on base. To determine the level of interest, he may ask for volunteers to organize a base league for a sport. If he gets a strong response, he may anticipate an improvement in the fitness level of his organization. In reality, those who enjoyed the sport already will come forth while the couch potatoes remain firmly planted. There will probably be no improvement in the level of fitness of the people he was trying to reach. The data he asked for did not help solve his problem because it did not relate to the cause to achieve the desired effect.

2. On each set of Navy officer orders, the Chief of Naval Personnel includes a paragraph stipulating each officer will fill out a retention questionnaire. An informal survey of 250 officers we conducted at the U.S. Naval War College determined, at most, an officer had filled out two in the course of his or her career and most officers had never filled out any.

The size and composition of the sample population we survey will be very important to the credibility of our analysis. The sampling plan should use methods like random selection and geographic distribution of the sample. The sample size must be statistically significant to represent the whole population of interest. To reduce the effects of self-selection, we can collect data from a captive audience representative of the general population by conducting site surveys. In addition to surveys, we may be able to use process measures that are already in place collecting data such as complaint filings or number of transactions. We may also be able to compare organizational performance with existing professional standards, especially when we are studying a customer service problem.

We must consider how measurement error influences our evaluation of the policy effect. Measurement errors in policy analysis are usually due to flawed survey tools (poor questionnaires) or inappropriate sampling techniques. While we generally leave data collection to the analysts, we are interested in their methodology and sampling techniques. Both can be a source of debilitating error and can fatally influence the quality of our analysis. Because policy analysis generally concerns human behavior, people are the source of our most important and difficult-to-evaluate data. Analysts or respondents to surveys may introduce measurement error.

No matter how well designed and statistically reliable our study may be, the fact that we are doing a study influences the data we collect. Analysts coined the term "Hawthorne Effect" after a study in a factory of the same name. The analysts sought to measure the effect of lighting on worker productivity. The researchers observed that any change in the quality of lighting (better or worse) increased worker productivity. The analysts attributed this unexpected result to the workers' perception that because they were singled out for observation, the company was interested in their well-being. The workers' morale increased, they had more interest in their work, and productivity increased—whenever the analysts observed them. This phenomenon is the analyst's counterpart of Heisenberg's Uncertainty Principle in the physical sciences. Heisenberg, an atomic physicist, posited we cannot measure anything without altering it or its environment and we cannot know the extent of our disruptions with certainty. Whenever we measure, we must consider the effect that the act of collecting data has on the data itself.

EVALUATING POLICY ANALYSIS

Before we make decisions based on a policy analysis, we apply the same standards of validity, reliability, and practicality we have used throughout this book. In policy analysis, we have difficulty achieving high levels of validity because of the dominant role of values and the vagaries of human behavior. We run the greatest danger of misformulating the problem, compared to other types of analysis, during policy analysis.

Once we have structured the problem, we must ensure we are addressing the right things—the effects that relate to our objectives and their actual causes. Because we often use very abstract modeling techniques, we must examine our surrogates and proxies critically to ensure they reflect the areas we are trying to measure. While conducting policy analysis, we carefully scrutinize data collection to minimize measurement error from poorly constructed surveys and inappropriate sampling techniques to achieve higher levels of reliability. We can compensate for measurement errors by using control groups to compare outcomes between populations affected by a policy and groups not exposed to it in order to improve reliability. We balance the desire for perfect knowledge we gain from querying everyone in a pure and isolated environment with the cost in time and money of doing so. We seek a rational approach to the

analysis in terms of practicality, balancing the resources consumed against the knowledge gained.

CASE STUDY: AVIATOR RETENTION

In the early 1980s, the Navy and the Air Force were both concerned about their poor retention of aviators. Each service did its own policy recommendation analysis, seeking the optimal cause for producing a desired effect of better aviator retention. Both services concluded aviators were resigning due in large part to the low pay scales in the post-Viet-Nam military—there was an especially large pay gap between officers and their civilian college graduate peers. The budget cuts of the 1970s made military career opportunities seem all the more uncertain. Both services therefore concluded increased monetary compensation would improve overall retention. For aviators in particular, they proposed paying bonuses in exchange for commitments to remain on active duty and to increase flight pay, the special supplemental hazard pay for aircrews.

Thus, both services decided improved monetary compensation would increase retention but they disagreed on the form it should take. The Navy wanted across-the-board continuation bonuses and a modest increase in flight pay to improve pay over the long term. The Navy argued that the morale of those not eligible for the bonuses targeted at specific types of pilots would suffer, creating new retention problems. The Air Force argued that bonuses might cause elitism, create pay inversions between junior and senior officers, and foster other manpower management problems. The Air Force favored a large increase in flight pay and small bonuses.

Congress authorized a program similar to the Navy proposal. Both services instituted a policy of awarding continuation bonuses to aviators who obligated to remain on active duty. Subsequently, both services experienced an upsurge in pilot retention, but the bonus policy came under fire from Congress. The General Accounting Office reported that \$80 million of \$103 million paid in bonuses went to senior aviators and Naval Flight Officers who would have remained on active duty without bonuses, or to flyers in aircraft communities where retention was not a problem. Congress discontinued funding bonuses for a year and then re-instituted them. This time they targeted junior aviators in communities with critical shortages.

Later, government policy analysts tried to determine cause and effect. There were confounding causes that made the contribution of the retention bonuses to improved aviator retention difficult to isolate. For example, on 1 October 1980, the military received an 11.7 percent pay raise, a 25 percent flight pay increase, and the newly instituted variable housing allowance. Apart from military compensation packages, the consensus of the studies was that pilot retention was far more closely related to commercial airline hiring than continuation bonus programs. It became clear that external confounding factors were driving the effect, not bonuses or flight pay.

The Air Force experienced the hazards of the Bottom-Up approach to policy later in the 90s drawdown. Like the other services, they reduced personnel as they scaled down force structure. The Air Force, driven in part by Congressional endstrength requirements, targeted personnel reductions by looking at short-term population numbers in pay grades rather than overall force structure into the next decade. Also, by 1996, under the programs described above, they had awarded aviator retention bonuses to many captains with six to eight years of service.

To bring personnel strength down, the Air Force offered separation pay to officers, including pilots unless they had obligated service remaining from earlier retention bonuses. They involun-

tarily separated pilots who failed to select for promotion and exempted them from their obligated service without penalty. Separated involuntarily, these non-promotion-selected pilots kept their earlier retention bonuses, received separation pay, and a separation bonus. After these policies became clear, over a hundred Air Force aviators submitted letters to the promotion board asking to not be promoted to major. If not selected, these officers with their retention bonuses, augmented by separation bonuses, would make a very substantial amount of money during their first few years with the airlines, which were hiring again. DoD may have been able to avoid a self-inflicted wound if the Air Force had more carefully considered the long-term impact of several short-term decisions.

Now the pendulum has swung again and the Navy and Air Force are facing severe pilot shortages. The Air Force is taking a holistic approach this time. They are studying the number of pilot billets they actually require (many desk jobs are coded for pilots to ensure the aviator perspective dominates the service culture). The Air Force is exploring cooperative programs with the airlines for sharing pilot transition training costs if the airlines will delay hiring until after fourteen years of service.

Summary

Policy analysis is the most difficult type of analysis we do in DoD. Our challenges begin with the Definition Phase because some policies are simply too vague for us to evaluate. Policy issues often require that we make value-based assumptions and consider value-based options that may not be acceptable outside our organization. Establishing the cause and effect relationship in policy evaluation or for a policy recommendation is pivotal.

The outcomes from selecting and then implementing a policy option may be varied and unintentional, therefore we make an exhaustive effort to identify spillover effects. We recommend using a mixed approach for policy analysis that emphasizes top-down or comprehensive techniques for strategic decisions (our usual situation in this course) and bottom-up or incremental approaches for routine decisions.

Because of the importance of prediction in policy analysis, we described the extrapolation, theoretical, and judgmental procedures of forecasting. Data collection and measurement errors are more likely in policy analysis because we are dealing with human behavior and responses. Good policy analysis provides information about facts, values, and actions concerning a policy issue. Because policy decisions are rooted in values and behavior, we accept that in many cases the role of analysis is limited to providing a tool to help focus debate as we prepare to make decisions.

