

IMPROVING LEGISLATION ON LONG-RANGE ISSUES

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In a recent speech, Congressman Don Young (R – Alaska) labeled proposed legislation on the Tongass National Forest “shortsighted.”ⁱⁱ Similarly, Senator Robert Byrd (D – West Virginia) called Congress “myopic” in its approach to overhauling the nation’s intelligence services.ⁱⁱⁱ Charges of failing to take longer-range aspects into consideration are often leveled by and about legislators during congressional debates. Some reasons for this are obvious. The immediate always trumps the longer-range and the immediate is a constant at the highest levels of government in the United States. On top of that, add two-, four-, and six-year election cycles into the mix and there is neither time nor incentive for legislators to pay much attention to longer-range problems. This is a serious problem to the extent that Congress is called upon to address longer-range problems.

Many issues of longer-range policy are framed by two related questions: “What are the possibly significant, long-term consequences of alternative near-term actions?” and “What near-term actions are most likely to achieve desired long-term objectives?” The dividing line between issues related to these two questions is not sharp, but issues related to the first question include research and development decisions, major infrastructure investments, constitutional changes, education reform, and nuclear waste storage. Issues related to the second question include climate change, combating terrorism, biodiversity, national security, sustainability, and most long-term societal goals. It should be clear from these lists that there is a wide variety of issues that could benefit from longer-range thinking and analysis. Legislation has, in fact, been carried out on all of these issues. It is fair to ask how that legislation has done and, more importantly, how that legislation might have been improved by longer-range thinking and analysis. Is it clear that longer-range thinking *can* improve legislation?

The Legislating for the Future Project is an initiative of New York University’s John Brademas Center for the Study of Congress and the Organizational Performance Initiative, and is co-sponsored by the Brookings Institution and the RAND Corporation. The project will examine the capacity of Congress to address long-term problems facing the nation, probe the public’s attitudes towards Congress’ ability to make long-term decisions for the 21st Century, and analyze specific long-term policy issues. The Legislating for the Future Project will convene experts for discussions of specific long-term issues, such as global warming, and seek to generate strategies to make Congress more flexible and adaptive to future problems. The Advisory Committee for the project is headed by Former Representative Lee H. Hamilton. The project is funded by the John Brademas Center for the Study of Congress, the Smith Richardson Foundation and the Carnegie Corporation. For more information, please visit: www.nyu.edu/wagner/performance and www.nyu.edu/brademas.

Any legislation that fails to meet its objectives is always open to the charge that the failure was due to a lack of longer-range thinking or analysis. But, “Monday morning quarterbacking,” “20-20 hindsight,” and similar popular pastimes are, at best, weak arguments in favor of the value of longer-range thinking and analysis.

There are, however, a few historical cases where longer-range thinking and analysis have been done before the fact, have been ignored, and later were proved to be better solutions than the solutions that ignored that thinking. Perhaps the most famous case involved John Maynard Keynes. Keynes had been the British finance department representative at the post-World War I Versailles peace conference in 1919. He quit his position and argued in *The Economic Consequences of the Peace* that the economic reparations which Germany was being asked to pay were too large, that they would destroy the German economy, and that that could result in further conflict in Europe. These were borne out when the German economy was hit by hyperinflation in 1923. As a result, little of the required reparations were paid and Germany went on to provoke World War II. By looking at the longer-term economic consequences of the reparations being asked, Keynes argued that there was a better policy. In the aftermath of World War II, the Marshall Plan took an approach more akin to Keynes’s suggestions and the outcome, as we know, was much better.

Further, there are cases in which the consequences of a crucial lack of longer-range thinking were clearly evident in the aftermath of legislation. In 1977, Congress reacted to a precipitous decline in the Social Security trust funds and passed a Social Security rescue bill that then-President Jimmy Carter said would make the system “financially sound well into the next century.”^{iv} The legislation, among other things, increased Social Security payroll taxes based on the traditional assumption that the rate of growth of taxable wages would equal the rate of increase in prices plus an additional amount for productivity growth. This assumption reflected the performance of the US economy over most of the post-World War II period, but underestimated the eventual depth of the economic crisis of that time. After 1977, the traditional relationship between prices and wages reversed and price increases exceeded wage growth. The social security system plunged again toward insolvency and had to be “rescued” again in 1981 because of a failure to seriously consider more than a single, trend-extrapolated economic world – even in the midst of an economic crisis. Consideration of more than one extrapolated future is the most rudimentary of longer-range thinking.

If Congress were inclined to improve its longer-range thinking, what tools are available to it? Making good longer-range decisions is more a matter of the uncertainty involved than the time frame. In examples of longer-range infrastructure issues, such as the interstate highway system for example, there might be little doubt of the value of the project, even though the project itself may take several decades to complete. The question of whether to proceed and even the question of how to proceed, while containing uncertainties, are sufficiently clear that the decisionmaking process does not require much more than common sense and a rough economic analysis.

On the other hand, the issue of climate change, for example, is still one of great contention because of our general ignorance of exactly how climate works, how much man is responsible for climate change, and what the long-term consequences of climate change (and man's further interventions) might be. These are what might be termed issues of deep uncertainty – where we do not know, or key parties cannot agree on, the proper models, probabilities, or means of measuring outcomes. These types of issues confound the classical “predict-then-act” approach to developing policy or legislation.

Legislating Under Deep Uncertainty in the Past

To be sure, Congress and others have had to face issues involving deep uncertainty and have been called upon to make decisions in those circumstances. Often, those decisions are made after gathering what data there is from experts and others, and then using best judgment in arriving at a decision. Over the years, more systematic means have been developed for dealing with issues involving deep uncertainty. Those methods have been used extensively in the business and military worlds, for example, but are not as evident in the legislative world. Still, successful decisions have been made at the highest levels of government using some of these methods and it is useful to be reminded of the methods and how they have been successfully employed.

Scenario analysis. In conditions that admit to the possibility of a wide spread of outcomes, scenario analysis is often used to explore that spread. The basic notion of scenario analysis is to explore a set of scenarios that cover the important future possibilities. In the example of Social Security mentioned above, had Congress looked at a scenario in which the economic crisis deepened further, the eventual Social Security rescue package may well have been improved. In fact, throughout the period of the social security system crisis, the Social Security Administration provided at least three different scenarios for the future of the system. Had those scenarios been better utilized, legislation during that period might have been much better.

A good example of the proper use of scenario analysis took place in the Eisenhower administration. In the wake of Joseph Stalin's death in January of 1953 and other pressing events, President Eisenhower decided to conduct a review of the existing American containment policy. He wanted to explore three possible approaches to containment and organized three teams to explore the consequences of those approaches. In what came to be known as ‘Project Solarium’, Team A explored the existing containment policy seeking to prevent Soviet expansion in Europe while minimizing the risk of general war. Team B explored a strategy in which any Soviet or Soviet-sponsored aggression would lead to general war and threaten massive U.S. and allied retaliation using any means necessary. Team C explored a “rollback” strategy that would halt and then reverse any Soviet efforts to hold territory using the Red Army.

Each team created the details of a future world in which its particular strategy was adopted. Each team was ordered to explore with “maps, charts, all the basic supporting figures and estimates, just what each alternative would mean in terms of goal, risk, cost in money and

men and world relations.”^v Each of these scenarios was then presented and debated at a National Security Council meeting with the Joint Chiefs of Staff, the service secretaries, members of the NSC Planning Board, and the other two teams in attendance. Eisenhower eventually selected a variation of the Team A strategy, but not before he ordered the three groups to meet together to “agree on certain features of the three presentations as the best features and to bring about a combination of such features into a unified policy.”^{vi}

The eventual result of Project Solarium was NSC 162/2 that basically set the U.S. containment strategy for the remainder of the Cold War. The use of scenarios was an important element of exploring three different approaches and their longer-range consequences for the U.S. and for the world.

Historical Analogies. Man is an analogic reasoner. We use historical analogies every day as we think and talk about the uncertain future. The deeper the uncertainty surrounding an issue, the more likely we are to use historical analogies in reasoning about appropriate policies.

The point of mentioning historical analogies in this context is because there are systematic means for employing historical analogies in decisionmaking. In their book, *Thinking in Time*, Richard Neustadt, adviser to several presidents, and Ernest May lay out “dos” and “don’ts” for using historical analogies in decisionmaking.

A related “method” for thinking about issues involving deep uncertainty is deep insight. One of the classical examples of deep insight is George Kennan’s insight into the Soviet Union and how to deal with it in the Cold War. Published (under the pseudonym ‘X’) in *Foreign Affairs* in July, 1947, “The Sources of Soviet Conduct” argued that the Soviet Union would collapse from internal instabilities if it could be kept from expanding its influence and ideology. Although Kennan’s idea of containment was different from that adopted as national security policy towards the Soviets, his deep understanding of the Soviets led to the notion of containment that arguably proved to be a correct strategy. While there aren’t systematic means for generating this type of deep insight, the concept of deep insights deserves mention as a method for dealing with deep uncertainty and aspects of it will be echoed in the section on robust decision methods below.

Simulation and modeling. Simulation and modeling were used to inform policy problems involving deep uncertainty before the invention of the computer, but their use has expanded in parallel with the advancing capabilities of electronics. The more quantitative the issue, the more likely its future is to be explored using computers. A good example of this is in the area of Social Security. In 1994, as Secretary of Health and Human Services, Donna Shalala asked the Social Security Advisory Council to take the first look at long-term financing of the Social Security System since 1979. The Advisory Council used a sophisticated model of the Social Security System that included factors such as demography, mortality, fertility, marriage and divorce, immigration, disability rates, retirement age laws, and economic assumptions. Picking a small number of sets of variables that represented low, intermediate and high values, they projected Social Security

financing year-by-year out 75 years in the future. The projections indicated that, in the absence of any changes, full Social Security benefits could not be paid on time beginning in 2030. They then presented three options for action to be taken in the near-term to rectify this impending system failure.

In addition, the Advisory Council convened a Technical Panel on Assumptions and Methods. That panel suggested several potential improvements to the process that was used to arrive at the projections. In general, the suggested improvements were about using different ranges and values for various parameters and possibly alternative methods of projecting future values. This is another topic that will be echoed in the section below on robust decision methods.

Methods for Improving Legislating Under Uncertainty

Long-term policymaking, with or without the benefits of the methods described above, is commonplace. It is done well in some cases and not so well in others. After-action reports can usually find blame in the policymaking process, but not all successes are the result of good long-term policy approaches and not all failures are the result of the absence of good long-term approaches. The best one can hope for is the continual improvement of methods and applications.

Research in cognitive processes and other fields have improved our understanding of the difficulties in doing “rational” planning. Problems such as cognitive biases and over-optimism tend to cloud decisionmaking processes at all levels. This has spurred efforts to improve decisionmaking under uncertainty and efforts are underway in a variety of venues. The Social, Behavioral and Economic Sciences Directorate at the National Science Foundation, for example, has funded several projects under the general emphasis area of Decision Making, Risk, and Uncertainty. It is beyond the scope of this paper to detail all such efforts that are underway, but there are a couple of areas worth mentioning in which RAND has pioneered methods that can be useful in improving legislating under uncertainty. The two methods are Assumption-Based Planning and Robust Decision Making and are worth extended discussions.

Assumption-Based Planning. All plans and policies require some assumptions about the future. These can range from simple assumptions that the future will be very much like today, to sophisticated assumptions relating to a complex interplay between plans/policies and the world. When a plan or policy fails, it is often possible to identify as assumption underlying the plan/policy that failed. A study done in 1999^{vii} looked at several instances in which large companies suffered significant downturns and pointed out assumptions in each case that the companies made that failed, causing the downturn. In the cases noted, they argued that the culprit assumptions could easily have been foreseen had the companies paid more attention to the assumptions they made during planning. That study went on to recommend a variety of techniques for ensuring that planners are aware of their important assumptions and plan accordingly. Assumption-Based Planning (ABP), developed at RAND, was one of the techniques mentioned and serves as a good example of

the techniques for paying attention to planning assumptions. For the remainder of this section, I will consider a policy to be a *plan* of action for tackling a political issue (that's the definition of *policy* in the popular online free encyclopedia, Wikipedia^{viii}) and policymaking as *planning*. The points made about plans and planning are thus equivalent points to be made about policy and policymaking.

Assumption-Based Planning was developed in the late 1980s as a tool for improving plans.^{ix} Its main purpose is to expose the important assumptions underlying a plan – particularly those assumptions that planners don't realize, or have forgotten, that they are making. Developing plans requires making assumptions about the future. Some of those assumptions are likely to come true; others are more vulnerable to uncontrollable and unforeseen events; still others may be quite unlikely to persist or to come about. Some of the assumptions are likely to be very important to the success of the plan; others will be more peripheral. ABP is primarily a “post-planning” tool (recognizing that good planning is an iterative process) that concentrates on the assumptions in an already-developed plan that are most important to the plan's success and that are most uncertain. Specifically, ABP works to decrease the risks that those assumptions represent.

The driving force behind ABP is the view that it is important to confront, explicitly and honestly, the uncertainties facing a plan. There are five basic steps in Assumption-Based Planning. The first step is to identify the assumptions in the plan. This is the most critical step in ABP and there are several methods for identifying as many of the assumptions as possible that underlie a given plan. Many of a plan's assumptions will be explicitly spelled out and easy to identify. The primary purpose of this step is to uncover assumptions that are implicit or have been ‘forgotten’ in the planning process.

The next step in ABP is to identify the assumptions upon which the success of the plan most heavily rests--the “load-bearing” assumptions--and the assumptions that are most vulnerable to being overturned by future events. Assumptions that are both load-bearing and vulnerable are the most likely to produce nasty surprises as the plan unfolds.

To deal with potential surprises, ABP produces three things in the final three steps: signposts, shaping actions, and hedging actions. *Signposts* are warning signs that can be used to monitor those assumptions that are most likely to produce surprises. Signposts are events or thresholds that, if detected, signify that a vulnerable assumption is broken or dangerously weak and that management or planning action is called for.

Shaping actions are intended to help shore up uncertain assumptions, to control the future to the extent possible. Planners generally know how they would like an assumption to play out. Shaping actions are designed to help the assumption play out to the planners' liking.

Hedging actions better prepare for the possibility that an assumption will fail, despite efforts to shore it up. Hedging actions typically come from thinking through a plausible scenario in which an assumption collapses and asking what might be done now to prepare for that scenario.

A planner using Assumption-Based Planning cannot hope to identify all the possible ways in which a plan could fail, nor hope to prepare a plan for any eventuality. There is any number of events that could intervene to disrupt any plan. The primary aim of ABP is to ensure that a plan is cognizant of and responsive to the major uncertainties inherent in the assumptions that underlie it. Many of the assumptions upon which the plan rests are voluntarily made by the planners. Those voluntarily made assumptions should be most explicitly recognized and dealt with. Surprises from the failure of those assumptions should be most avoidable.

The original applications of ABP were to help the U.S. Army deal with the strategic vacuum left by the collapse of the Soviet Union. The post-Cold War world was one of deep uncertainty about the roles and missions of the Army. As the Army developed its strategic plans for future operations and materiel, those plans were subjected to ABP with resultant signposts, shaping actions and hedging actions. This was a comfortable process for the Army because it was very much the way the Army did tactical planning. Signposts were akin to tactical “named and targeted areas of interest” that tactical commanders monitored for evidence that the enemy was doing something different than expected. Hedging actions were like contingency plans in case the enemy *did* do something different than expected. Shaping actions were like channeling activities that were undertaken to try to induce the enemy to act in a manner that suited the Army’s tactical plans. It is this notion of the pre-preparation of plans undertaken in conditions of serious uncertainty that could turn out to be very useful for Congress as it tackles issues with important longer-range uncertainties. Legislation with built-in signposts to be monitored and built-in course corrections that would be triggered by those signposts would make legislation much more robust to uncertainty than today’s predict-then-act legislation in which the process starts over again from zero when the world turns out differently than was presumed by the legislation.

An interesting application of ABP to a current policy issue illustrates further potential for methods like ABP to improve long-term policymaking. Over the last year and a half, RAND researchers undertook an ABP exercise related to the U.S. strategy to counter terrorism.^x Rather than a simple ABP application to the official U.S. strategy that was laid out in the February 2003 version of the U.S. *National Strategy for Combating Terrorism*,^{xi} the research was carried out on three different approaches to combating terrorism. One was the above-mentioned official approach. The second was an approach that, for clarity, was called “Enhanced Law Enforcement and Intelligence” and was based largely on the approach described in Philip Heyman’s book *Terrorism, Freedom, and Security: Winning Without Wear*. The third approach was called “Disengagement and Total War” and was based largely on Michael Scheuer’s book *Imperial Hubris*.

The first two steps of ABP – identifying load-bearing, vulnerable assumptions – were carried out on each approach. The exercise drew out an interesting set of implicit (or at least not explicitly stated) load-bearing, vulnerable assumptions in each of the approaches. Comparisons among the load-bearing, vulnerable assumptions of each approach revealed some surprising commonalities and differences in the three approaches. Importantly, each plan had load-bearing assumptions whose validity was strongly denied by adherents of the other plans. For example, the U.S. National strategy assumed that other nations would find

it in their own interest to cooperate with the United States whether or not they agreed with U.S. actions. Proponents of the Law Enforcement plan argued vigorously that the cooperation of other nations could not be coerced because it is too easy to pretend to cooperate when one is actually not. Proponents of the Disengagement plan argued that nations only look out for their own narrow interests and that we should never expect much cooperation. As another example, the U.S. National strategy also assumed that the United States had few resource constraints in its fight against terrorism; the Law Enforcement plan emphasized the allocation of scarce resources; and the Disengagement plan strongly cautioned against wasting American blood and treasure.

Exposing the load-bearing, vulnerable assumptions of alternative plans in this way permits a more open, rational discussion of important policy issues. Of course, in this case, such a discussion would be taking place after the fact in that the U.S. National strategy had already been set. Nonetheless, the exercise is a good illustration of the power of deeply exploring the assumptions underlying alternative options. Then, too, such open, rational discussion needs to be sanctioned, as it was in Project Solarium that Eisenhower personally oversaw.

In this exercise, the benefits came from applying only the first two steps of ABP. Beyond that point, there is added benefit in carrying out the remaining three steps of ABP. When a final, better-informed policy is developed, there will remain some load-bearing, vulnerable assumptions. Having already contemplated appropriate policies under different assumptions, however, much of the work of developing signposts, shaping and hedging actions to address those load-bearing, vulnerable assumptions would already have been done.

Signposts and hedging actions, particularly, build resilience into the eventual plan/policy. They allow the plan to be *adaptive*. Adaptivity is particularly desirable in a long-term plan/policy because of the deep uncertainties involved. Signposts enable monitoring for trends or events that would suggest the resolution of some uncertainties and the possibility of course corrections. The hedging actions provide pre-planned options for those course corrections.

Another desirable trait in long-term plans/policies is *robustness*. That is the topic of Robust Decision Making.

Robust Decision Making. If exploring three scenarios during policymaking is a good idea, wouldn't exploring 30 or 3000 scenarios be even better? Exploring a variety of policy options against 30 or 3000 scenarios would allow analysts to identify options that performed well across a wide swath of the scenarios explored. That is the notion of a *robust* policy – a policy that is relatively insensitive to whichever scenario might eventuate.

Robust decision methods are appropriate for many problems involving decisionmaking under conditions of complexity and deep uncertainty, but are particularly powerful tools for long-term policy analysis, which is one of the most stressing challenges in this genre. When applied to long-term policy issues, a robust decision approach aims to produce consensus

on some sensible course of near-term action, particularly on issues involving many stakeholders. This requires the discovery of policy options consistent with the parties' different expectations about the future and the range of values they hold. A robust decision method approach would address the challenge of a multiplicity of plausible futures by proceeding in multiple iterations as humans and computers alternately challenge each other's conclusions about futures and strategies. Four key elements or principles should govern the form and design of these interactions.

1. Consider **ensembles** of large numbers of scenarios. An ensemble is a carefully selected subset of possible futures that is as diverse as possible in order to provide a challenge set of scenarios against which to test alternative near-term policies.^{xii}
2. Seek **robust**, rather than optimal, strategies that do “well enough” across a broad range of plausible futures and alternative ways of ranking the desirability of alternative scenarios. Robustness provides a useful criterion for long-term policy analysis because it reflects both the normative choice and the criterion many decisionmakers actually use under conditions of complexity and deep uncertainty.^{xiii}
3. Employ **adaptive** strategies to achieve robustness. Adaptive strategies evolve over time in response to new information. Near-term adaptive strategies seek to influence the long-term future by shaping the options available to future decision-makers. That is, the near-term strategies are explicitly designed with the expectation that they will be revisited in the future.
4. Use computer tools designed for **interactive exploration** of the ensembles of plausible futures. Humans cannot track all the relevant details of the long-term. But working interactively with computers, they can discover and test hypotheses that prove to be true over a vast range of possibilities. Thus, computer-guided exploration of scenario and decision spaces can help humans discover adaptive near-term strategies that are robust over large ensembles of plausible futures.

RAND has done some explorations of the longer-range future of the Social Security trust funds and that work provides a good example of the virtues of robust decision methods. In their annual report for 2006, the Social Security Trustees^{xiv} looked out as far as 2050 in assessing the solvency of the trust funds. They looked at three different future scenarios. In the High Cost scenario (with current policies unchanged), the trust funds would run out of money by 2030; in the Intermediate Cost case, the funds would be exhausted by 2040; and in the Low Cost case, there would be a positive and growing balance in the year 2050. These results were based on sophisticated models involving demographic, economic, and other factors, but they provided projections for only three possible sets of future values for those factors.

In its study, RAND used a social security policy and accounts simulation model called SSASIM[®] that was developed by the Policy Simulation Group. This is a sophisticated model that has been in continuous development since 1994 when it started out as part of the

Advisory Council’s work mentioned earlier. Its results will not be exactly the same as those produced by the Trustees, but they will be similar. The RAND study looked at four different policy options^{xv}, including a continuation of current policies. The big difference between the RAND approach and the Trustees’ approach was that RAND looked across 4000 scenarios for each policy instead of the three that the Trustees looked at. The 4000 scenarios were chosen from a wider range of values than used by the Trustees and were selected to uniformly cover the space of factor ranges.^{xvi} When the results of all 16,000 cases are plotted, the resulting graph looks like a slightly distorted bell curve with deficits as large as \$45 trillion, a few surpluses larger than \$60 trillion, and a median balance that shows a deficit of about \$5 trillion.^{xvii}

The results of the 16,000 cases exhibit a much wider range of trust fund balances than did the three cases run by the Trustees. This is an important point. We often suffer from a poverty of imagination when we attempt to imagine possible future conditions. Picking high, low, and intermediate cases further tends to restrict our imagination because we tend to consider the high and low cases as extremes (and therefore, unlikely) and the intermediate case as being most probable. Testing policies against a very large number of conceivably plausible futures provides a much better backdrop against which to develop policies. But the results of those 16,000 cases can do more than just stretch the imaginations of policymakers. In the Computer-Assisted Reasoning system (CARs™)^{xviii}, these cases can be manipulated by analysts to answer a variety of important policy-related questions.

The most obvious question to ask is: which option performed best? The answer in this case, not surprisingly, is that the aggressive, combined case performed best. It is more likely to produce surpluses than deficits and it outperforms the other three options in almost all possible futures. Not included in these results, however, are the costs of implementing these policies. It is not the goal of the social security trust funds to maximize the trust fund surplus. Part of the aggressive strategy requires reducing cost-of-living adjustments by 0.5%. To what extent are that policy’s projected surpluses coming at the expense of increasingly widespread old-age poverty?

The true goal of the trust funds is to provide the maximum benefit with the minimum likelihood of the trust funds running out of money. Having projected results for each of the four policies in each of 4000 futures, one can ask a different kind of question of that database, “tell me the policy that produced the smallest nonnegative surplus in each future.” The “winner” there would be a much more interesting and compelling policy option.

And there is a further step that can be taken. One can ask questions about regret – where regret is the difference between how a given policy performed in a given future and how the best of the four policies performed in that future. In this case, the best policy in a given future is the one that produces the smallest nonnegative surplus and the winning policy is the one that produces the least regret across the 4000 worlds. The winning policy in this case, is *not* the aggressive, combined case. It is this ability to address important policy-

related questions, through the computer, to the 16,000 cases that makes robust decision methods different from just running 4000 or 16,000 scenarios.

Finally, as analysts look at the answers to questions such as those above, they can contemplate different options that may outdo the four that have already been analyzed. New options can then be run against the 4000 scenarios and those results then become part of the database of which further questions can be asked. This ability to iteratively use the computer to test options and use humans to generate new options provides the true power of robust decision methods in developing policy options that are as insensitive as possible to how the future will unfold.

Conclusion

Congress has a spotty record in addressing longer-range concerns in its legislation. In fact, there have been times when it has allowed short-range concerns to derail efforts that *were* addressing longer-range issues.^{xix} Further, more pressing near-term issues and short terms of office provide constant disincentives to consider longer-range concerns. Only part of the problem of making better legislative decisions on long-range issues, then, comes from a lack of tools to handle the uncertainty inherent in the long-range. The answer to better longer-range legislation is like the answer to the question of how many psychiatrists it takes to change a light bulb (“One, but the light bulb has to want to change.”) Congress has to want to do a better job of longer-range concerns in its legislating process. The development of improved techniques for handling deep uncertainty could, however, help undercut current *disincentives* and lead to improved legislation aimed at longer-range issues.

Of the two methods mentioned for improving longer-range legislating – Assumption-Based Planning and robust decision making – the easier to implement is ABP. Any policy planning group should, with minimal preparation, be able to apply ABP to identify the load-bearing, vulnerable assumptions underlying various policy options. Doing so should lead to improved debates (even if only internally) about policy issues. Perhaps more importantly, it is possible to imagine using techniques like Assumption-Based Planning to develop a new type of adaptive legislation that carries policy-activating signposts and, thanks to previously developed hedging actions, conditions conducive to smooth, automatic policy changes.

Robust decision methods, while holding the promise of being able to develop truly robust policies, require significant computational machinery and expertise. The tools to do robust decision making are still in development and improving rapidly. They should continue to improve over the coming years. Such machinery and expertise are probably better located in support organizations such as the Congressional Budget Office and Governmental Accountability Office. The expertise and practice can be fostered there and made available to Congress and others.

In addition to these (and other) improvements in means for long-range policy analysis, the continuing efforts to improve decisionmaking under uncertainty should continue to reduce

the fear and avoidance of important longer-range policy issues at the highest levels of the U.S. government.

Notes:

ⁱ Dr. Dewar is a senior policy analyst at RAND, but the following paper represents his personal views and not necessarily those of either RAND nor any of its research clients or sponsors.

ⁱⁱ <http://donyoung.house.gov/Legislation.aspx?NewsID=1667>

ⁱⁱⁱ http://byrd.senate.gov/speeches/byrd_speeches_2004_october/byrd_speeches_2004_october_lis/byrd_speeches_2004_october_lis_0.html

^{iv} From President Carter's comments on signing the legislation. See, <http://www.presidency.ucsb.edu/ws/index.php?pid=7035>.

^v Robert Bowie and Richard Immerman, *Waging Peace: How Eisenhower Shaped an Enduring Cold War Strategy*, New York: Oxford University Press, 1998; p.125.

^{vi} *Ibid.*, p.138.

^{vii} *Proceeding in Daylight: Frontier Practices for Challenging Strategic Assumptions*, Corporate Strategy Board, Corporate Executive Board, Washington, DC, 1999. See also, <http://www.executiveboard.com>.

^{viii} See <http://en.wikipedia.org/wiki/Policy>.

^{ix} Details can be found in Dewar, James, *Assumption-Based Planning: A Tool for Reducing Avoidable Surprises*, Cambridge University Press: Cambridge, 2002.

^x Report forthcoming.

^{xi} Executive Office of the President (EOP), *National Strategy for Combating Terrorism*, Washington, D.C., February 2003.

^{xii} In experimental design, ensembles are the result of mathematical and statistical methods to select a number of scenarios for optimal coverage of variable or parameter space.

^{xiii} See, for example, Rosenhead, M. J., Elton, M., Gupta, S.K., 1972: "Robustness and Optimality as Criteria for Strategic Decisions." *Operational Research Quarterly* 23(4): 413-430.

^{xiv} Technically, they are the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds and their report is The 2006 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds, 1 May 2006 (Washington: USGPO.)

^{xv} The four options were: a continuation of current policies, a modification strategy for cost-of-living adjustments, a general revenue transfer, and a combined strategy.

^{xvi} Technically, the study used a Latin Hypercube experimental design.

^{xvii} Strictly speaking, the options were modeled as adaptive with an option to change after 20 years. Given how the trust fund balances were doing, the policy reverted to current policies, was not changed, or was changed to the most aggressive, combined policy.

^{xviii} A description of the use of CARs in Robust Decision Making can be found in Robert Lempert, Steven Popper, and Steven Bankes, *Shaping the Next One Hundred Years: New Methods for Quantitative, Long-Term Policy Analysis*, RAND, MR-1626-CR, 2003.

^{xix} For example, in 1987, the issue of catastrophic health care coverage diverted Congressional attention from broader issues of access and coverage. An issue involving fewer than 1 million beneficiaries was allowed to derail efforts aimed at 35 million medically uninsured citizens.