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# Presidential Address— Seeing Through the Fog: Policymaking with Uncertain Forecasts<sup>1</sup>

*Henry J. Aaron*

## **Abstract**

*All public policies have two things in common. They deal with the future and, as a result, they are based on forecasts or projections. The forecasts or projections may be implicit or based on naive extrapolation or ad hoc assumptions. They may be explicit and based on elaborate extrapolations or on behavioral models. In either case, unfortunately, they are notoriously unreliable. In fact, they almost always are wrong—sometimes just a bit wrong, but often massively wrong. Nonetheless, forecasts are what distinguishes reasoned planning from blind action. Without forecasts, we would be totally at sea. That we have to use forecasts or projections, that we know they will be wrong, and that they usually are wrong raise some difficult questions for policy analysis and policymaking. Regrettably, in my view, they receive too little attention.<sup>2</sup> My purpose today is to urge that they receive more.*

*My comments are intended to make four points. First, it is important for policymakers to appreciate how error-prone forecasts and projections actually are. Second, it is important not to permit the availability of projections or forecasts to obscure fundamental policy questions that are important in any plausible scenario. Third, uncertainty means that, where possible, it is prudent to design policies with built-in flexibility that respond automatically to diverse possible outcomes. Fourth, where built-in flexibility is impossible, complete analyses should take into account the consequences if forecasts prove wrong, and weigh those consequences against the results of postponing action until information improves or against other policies under the plausible range of possible outcomes. © 2000 by the Association for Public Policy Analysis and Management.*

## **THE FUTURE LIES AHEAD—SOMEWHERE**

Uncertainty arises for several distinct reasons. First, data are often unreliable. Survey data are estimates with standard errors. More elaborately constructed data may be

<sup>1</sup> Bruce and Virginia MacLaury Senior Fellow, The Brookings Institution. Parts of this talk are drawn from “Thinking about Aging: What We Know, What We Can’t Know, and Why It Matters” prepared for a conference on “Policy Options for An Aging Society,” 21 October 1999. The views expressed here are my own and do not necessarily represent those of the trustees, officers, or staff of the Brookings Institution. I wish to thank Ralph C. Bryant, Peter Diamond, Robert D. Reischauer, and Richard Schmullensee for helpful suggestions, and, especially, Charles Schultze for careful reading and criticism of an earlier draft.

<sup>2</sup> The issue received considerable attention four decades years ago from political scientist Charles Lindblom.

subject to revision as better and more complete information becomes available. National income accounts, for example, are subject to several revisions and do not become “final” until several years after the data are first released. In at least one case, economists spent considerable energy explaining a drop in reported saving that revisions indicated had not actually occurred.

Second, models imperfectly represent the behaviors we analyze. The problem is not abstraction, which is necessary. Rather it is the plethora of competing models, prepared by well-meaning analysts, each of whom thinks his or hers is best and the others are inferior. With good fortune, one claimant is correct. Unfortunately, policymakers are poorly positioned to tell which one. They know it and, as result, may ignore analysis.

Third, policymakers must have baseline projections of the future if policy is not changed. Some projections are formal, such as the 75-year actuarial studies used for Social Security and Medicare. Some are informal guesses or simple extrapolations. Some are the product of sophisticated models, such as those used in macroeconomic forecasting. None is reliable.

Fourth, the consequences of proposing changes in policy are uncertain for multiple reasons. The proposal may be rejected or may pave the way for a different initiative. Failed proposals may nonetheless have real economic, social, or political effects. President Clinton’s disastrous foray in 1993–1994 into health care reform is illustrative. Though it failed, many believe it encouraged the growth of managed care. And it left political land mines scattered over the health reform landscape that have inhibited discussion of measures to extend health insurance coverage. Even if a proposal is legislatively successful, it must still negotiate the uncertainties of implementation. And if implemented, we come full circle because the consequences of the policy will be uncertain, given the diversity of predictions flowing from alternative models.

At one level, we know all this. But I don’t think most of us realize how bad these problems really are. The following examples are intended as the analyst’s equivalent of a cold shower.

### **Budget Projections**

The Congressional Budget Office (CBO) and the Office of Management and Budget (OMB) each issue two budget projections annually. Both look 10 years into the future. They clearly influence policy debate, as 1999 budget wrangling illustrates. They may even affect policy. The one thing they clearly do not do is track events. Figure 1, prepared by my colleague Robert Reischauer, reports projected budget deficits and surpluses of the CBO over the last five years. These projections have been purged of the estimated effects of policy changes. The revisions reflect revisions in projection methods and in expected revenues and expenditures, which are influenced primarily although not exclusively by economic performance. As recently as 1995, CBO projected deficits in 2005 of \$472 billion. In August 1999, they projected a surplus of \$283 billion. In the space of just a bit over four years, for reasons that have nothing to do with policy, annual projections have moved by approximately three-quarters of a trillion dollars. And they will certainly move again because they are based on restrictive budget caps that are probably not sustainable. And, of course, projections are based on assumptions regarding employment, productivity growth, and the stock market that are bound to be at least a bit off the mark.

### **Unemployment**

A related error concerns the so-called “natural rate of unemployment”—the unemployment rate consistent with a constant difference between the growth rates

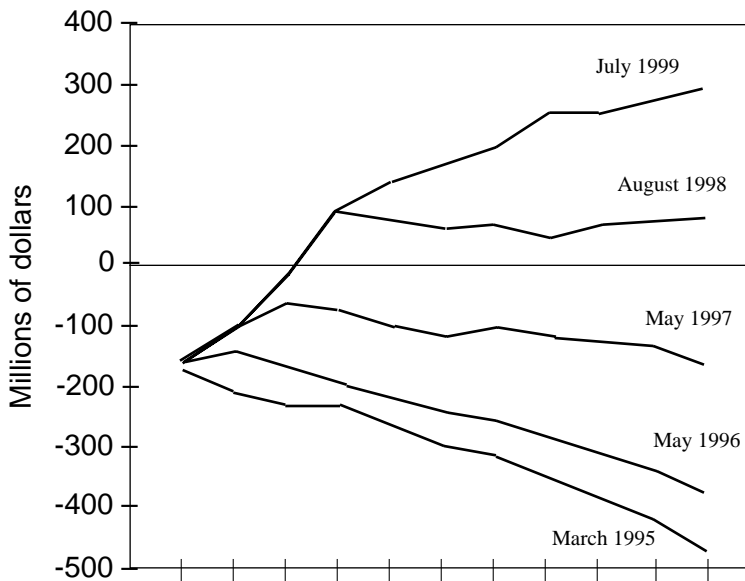


Figure 1. Budget deficits and surpluses, CBO projections.

of wages and of worker productivity and, hence, with a constant rate of price inflation. As recently as three years ago, few economists doubted that sustained unemployment below about 6 percent would precipitate accelerating wage and price increases. In fact, the unemployment rate fell below 6 percent in September 1994 and below 5 percent in May 1997. Inflation has not risen.

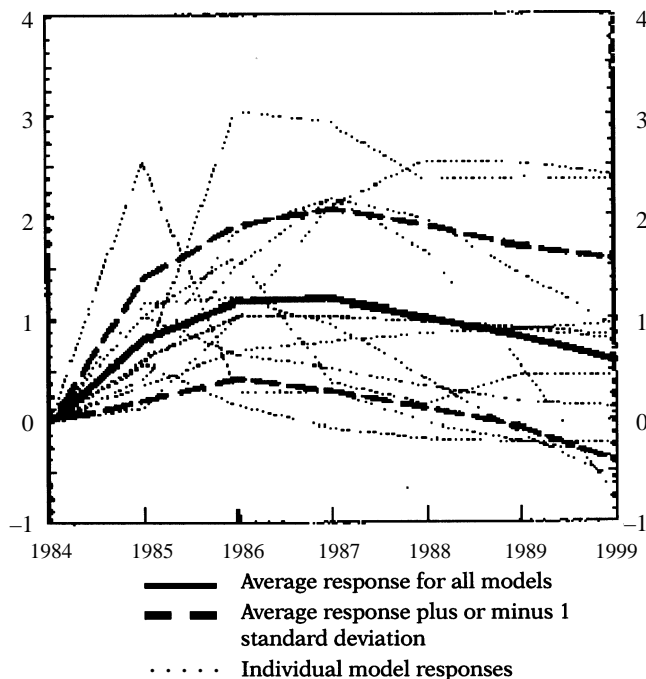
To be sure, the United States has been economically blessed. Growth of health care spending slowed, so that cash wages could rise a bit faster without a corresponding acceleration in growth of compensation costs. The dollar strengthened against the currencies of key trading partners, holding down import costs. Slumps in the rest of the developed world have kept down the prices of raw materials. Still, three years ago few economists believed that the U.S. economy—even with good “breaks”—could operate with unemployment and inflation rates simultaneously as low as those we have experienced.

The pessimistic mainstream may yet turn out to be correct. Health care costs will likely resume their dizzying ascent. One day the rest of the world will recover economically. Then, or perhaps sooner, domestic policy may shift to offset renewed inflationary pressures and push up unemployment rates—but this unhappy prospect is not certain. This uncertainty raises a difficult problem for policymakers. The fires of inflation are slow to kindle, but hard to extinguish. What rules should guide macroeconomic policy?

### Macroeconomic Modeling

Correctly forecasting the economic consequences of a change in macroeconomic policy is a surpassingly difficult problem. But the stakes are high, and people try to solve it. Unfortunately, competing models often produce quite disparate forecasts, as Figure 2 illustrates. It presents simulations with some of the most highly regarded macroeconomic models of the effect on U.S. real Gross National Product (GNP) of a

Percent deviation from baseline path



Source: Bryant [1988].

**Figure 2.** Response of U.S. real GNP to a U.S. expansion simulation.

phased increase in the U.S. money supply. As is apparent, the projections differ, which is neither surprising nor disturbing. But they differ hugely and even in sign, which is both surprising and disturbing.<sup>3</sup> How should macroeconomic policymakers use such simulations?

### *Health Care Expenditures*

For the past decade, health economists have been telling anyone who would listen that rising health care spending will pose greater budgetary and structural challenges to policymakers than will Social Security [Aaron and Reischauer, 1998]. In 1995, for example, the Health Care Financing Administration (HCFA) actuaries anticipated that the cost of Medicare, measured as a share of GDP, would more than double by 2020 and more than triple by 2040. Four years later, after Congress significantly changed Medicare and managed care had become the norm, the HCFA actuaries cut projected growth by more than half (Table 1). Under the new projections, Medicare costs over the succeeding two decades would grow annually just 2.1 percent, rather than 3.4 percent, faster than GDP. Through the marvels of compound interest, a change

<sup>3</sup> The picture has improved somewhat since these simulations, as indicated by Bryant, Hooper, and Mann [1993]. More recent forecasts are less diverse than those shown in Figure 2, in part because modelers “improved the breed” in response to such simulations. Even now, however, models continue to produce widely differing predictions of the effects of fiscal and monetary interventions.

**Table 1.** Projections of Medicare outlays by HCFA actuaries.

Projection Year	Medicare Outlays percentage of GDP (Medicare growth per year above GDP growth)		
	Actual in Projection Year	Projected for 2020	Projected for 2040
1995	2.61	6.01 (3.4%)	8.05 (2.5%)
1999	2.55	3.92 (2.1%)	5.25 (1.8%)

Source: Trustees Reports, various years

in annual growth of a bit more than 1 percent, this revision reduced a problem by more than half. And that was the fruit of just 4 years of revisions, with 21 still to go.

Short-term forecasts have proved to be no better than long-term projections. In 1991, HCFA projected that national health care spending would reach 16.4 percent of GDP in the year 2000. Two years later CBO put the share for the year 2000 at 17.5 percent. The current forecasts are 14.3 percent and 13.9 percent respectively—down, rather than up, from past highs.

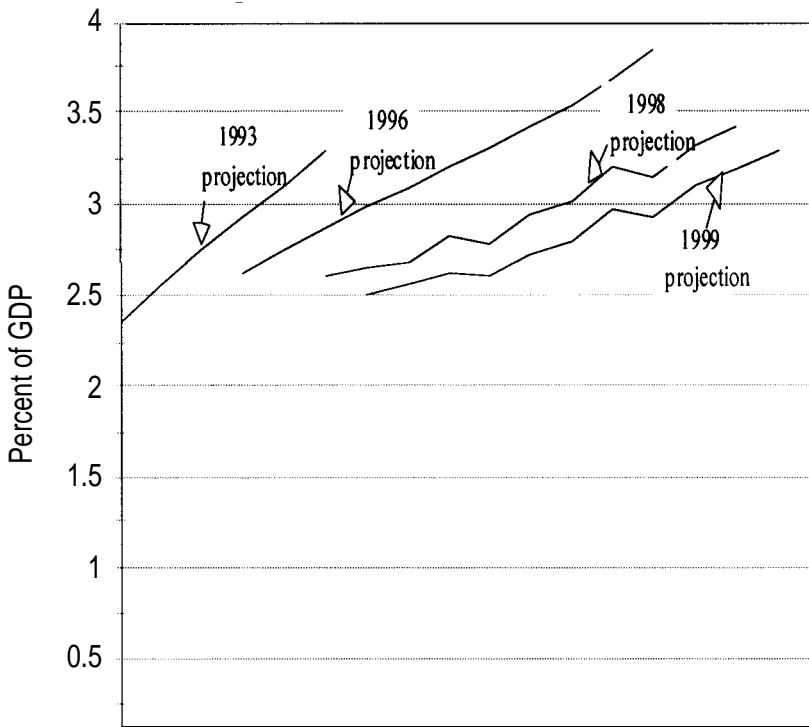
Projections of Medicare and Medicaid spending have proven equally unreliable (see Figure 3). Let me be clear—the people who prepare these projections are first-class professionals doing a difficult job. The HCFA and Social Security actuaries are at pains to emphasize that they deal in projections that, unlike forecasts, are supposed to show the consequences of current law, not forecast changes. The plea of “not in our job description” does not extend, in my view, to market developments such as managed care, but even if it did, all is not well, as the recent history of Social Security projections indicates.

### *Social Security*

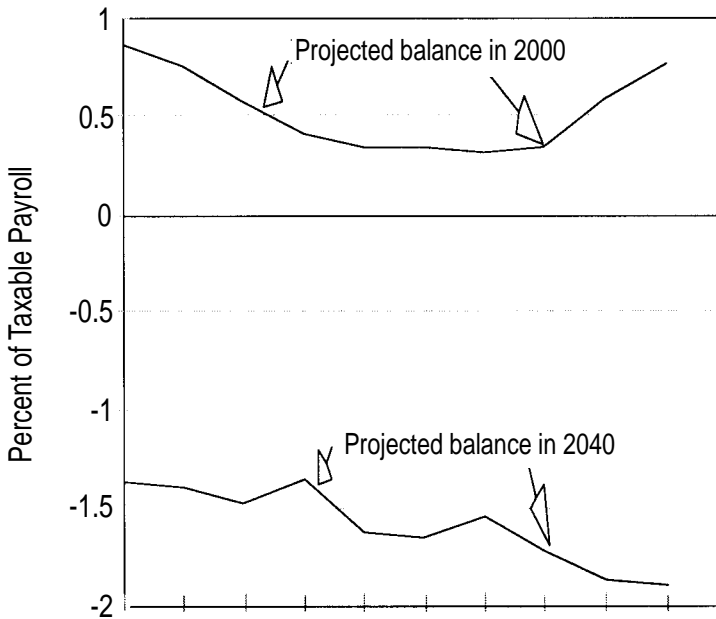
The Old-Age, Survivors, and Disability Insurance Program has not been the subject of significant legislation since 1983. The program is not sensitive to the vagaries of the health care market that buffet Medicare. But it is subject to economic events and these have led to paradoxical changes in the projections. The short-term picture has improved dramatically, while the longer-term picture has deteriorated somewhat less, as shown in Figure 4.<sup>4</sup>

The health care and Social Security projections hold a straightforward lesson—large revisions in both short-run and long-run projections are to be expected. But, if that is true, should these revisions increase or reduce the urgency of legislation to close the projected long-term deficits? More generally, how should policymakers use these projections?

<sup>4</sup> As a result, the 75-year projections, which average short- and long-term events, have improved slightly in the past two years.



**Figure 3.** Medicare plus Medicaid spending, CBO projections, selected years.



**Figure 4.** Social Security Trust Fund balance projections, 1990–1999.

### *Telecommunications Policy*

The telecommunications industry is growing fast and unpredictably, and its technology is changing with disconcerting speed. Ma Bell unwillingly spawned a brood of Baby Bells who are now behaving like children in the back seat during a long car trip, claiming more of the seat for themselves and whining that the others are behaving badly. The Internet now provides not only information and titillation, but also personal phone and even video service. It is competing with broadcast media, especially for teenager's music—thereby promising to convert a public nuisance into a private addiction. Now limited to desktop computers tethered to cable, the Internet is becoming accessible through beamed signals received by hand-held and automobile-based computers. Television comes to our houses not only from old-fashioned towers but also from satellites and cable.

Pity the Federal Communications Commission, the Federal Trade Commission, the Anti-trust Division of the U.S. Department of Justice, and other state and federal regulatory agencies. They share overlapping regulatory responsibilities with respect to an industry in which they cannot know who will be competing with whom next month, to say nothing of next year. They are asked to regulate a technological typhoon but without instruments that are remotely up to the task. A single issue of *The Wall Street Journal* published the day on which I wrote this paragraph contained the following three stories:

Five years ago, entrepreneur Alain Rossman bumped into a GTE Corp. executive at a Las Vegas trade show and handed him six drawings showing how a cellular phone could receive stock quotes, e-mail and flight schedules from the Internet. . . . Today, the new technology, known as Wireless Application Protocol, or WAP, is spreading like wildfire in Europe and Japan and is due to hit American shores in earnest next year [Naik, 1999].

On the eighth floor of the Securities and Exchange Commission headquarters in Washington, a group of 10 lawyers leads the government's effort to fight securities fraud on the Internet. Their goal is lofty: to ferret out the hype and lies that lure gullible investors—and victimize many more by causing wild volatility in stock prices. Investors may not be reassured to know, though, how primitive the SEC's armament is: One of the few technological tools it relies on is Yahoo!, the free Internet search engine. Strapped for funds, the agency hasn't been able to buy the more sophisticated software it says it needs to monitor the Web [Paltrow, Ip, and Schroeder, 1999].

Global Crossing will acquire the telecommunications business of defense-electronics company Racal for about \$1.6 billion, according to people familiar with the matter. The purchase would enable the undersea cable operator to offer one-stop shopping for telecom services to clients with operations on both sides of the Atlantic [Mehta and Raghavan, 1999].

What is the right strategy for public policy in this environment? What are poor regulators to do?

### *Global Warming*

Emission of greenhouse gases may or may not be warming the earth's atmosphere, but it is most assuredly heating up public discourse. Some say that the survival of humankind is at stake and that consumerism—perhaps an even more emotional topic—is responsible. But the heat would rapidly dissipate were it not for huge uncertainty of four kinds.

The first concerns the physical consequences of the emission of various oxides of carbon and sulfur and other so-called greenhouse gases and of particulates. The

average temperature on the earth has been rising for several decades. Exactly how much and how long are matters of dispute. Many analysts are confident that emission of green-house gases is largely responsible for the warming. They are also confident that continued and increased emissions will cause continued and possibly accelerated warming. On just how much, views vary widely [Portney, 1999].

The second concerns baseline projections of how the atmospheric load of greenhouse gases will grow over time. No one knows for sure what emissions will be; how much of these emissions will be absorbed by oceans, trees, and other sinks; or what will be the physical consequences of the increased atmospheric load of such gasses.

The third area of uncertainty concerns the economic, meteorological, and social consequences of global warming, should it occur. Some foresee calamity, with some nations sinking beneath rising seas and others wracked by storm, drought, or insufferable heat. Other analysts believe that changes will be gradual, permitting necessary adjustments to occur slowly. They also point out that warming will bring benefits as well as costs, as in “people winter in Florida, not Duluth.”

The final uncertainties concern behavioral responses to possible policy changes. The primal problem is to estimate the quantitative effects on behavior of various policies. The dual problem is how much it would cost to reduce emissions—how many people and how much industry will have to relocate and how much capital would have to be scrapped.

Despite all of this uncertainty, policymakers must still decide whether to implement policies to reduce emissions. The costs of failure to act if the pessimistic scenarios are correct could be huge. But the costs of action if the more optimistic scenarios are correct are also enormous. How should policymakers factor uncertainty into their decisions?

## THE ANALYTICAL PROBLEM

Imagine that we lived in the following world. Current data are precise and correct. The cone of forecast uncertainty is relatively narrow and not important from a policy perspective.<sup>5</sup> Model coefficients are correct on the average. Standard errors are small. Implementation delays are correctly anticipated. Reversing incorrect policies is costless. The ability to achieve a given outcome at some future date does not depend on whether a policy is initiated now or later. Finally, the difficulty of changing policy does not vary with prior decisions or over time—that is, there are no “windows of opportunity.” The political consequences of today’s legislative failures on tomorrow’s legislative success are well understood.

Of course, these assumptions are all false. Forecasts are poor. Policymakers are bombarded with analyses based on different and often inconsistent models. The delay between recognition that a policy should be changed and implementation of the change is often long and is certainly variable, involving lags in legislation, implementation, and response. Policy makers fear to reverse policy. And, of course, the difficulty of recognizing or opening windows of legislative opportunity and keeping them open is what makes political leadership so precious.

What this all means is that in deciding what to do, we should take account of the inaccuracies in our base data, recognize that our models may be wrong, weigh the reliability of projections, and take account of the time before current actions take effect, the ease of reversibility, the ease of future as compared to current action, as well as of the direct and intended economic and political consequences of our current action, which are themselves uncertain.

<sup>5</sup> The so-called “butterfly effect” suggests that even tiny measurement errors may be troublesome because they can ramify within complex, nonlinear systems to produce large consequences.



Macroeconomists have recognized the problem of model uncertainty for decades.<sup>6</sup> The general principle as first enunciated by William C. Brainard is “the greater the uncertainty associated with the value of policy multipliers, the less active policymakers should be in adjusting the settings on their instruments” [Bryant, Hooper, and Mann, 1993]. More recently Alan Auerbach and Kevin Hassett [1999] considered how uncertainty regarding future economic and demographic events should shape current fiscal policy as it is affected by Social Security reform. They concluded that uncertainty about future economic events *by itself* is no reason for legislative delay in closing a projected deficit. In fact, uncertainty justifies extra short-term saving when saving is suboptimal. Risk aversion causes possible losses from a worse-than-expected future to outweigh possible gains from a better-than-expected future. Note that this conclusion differs from Brainard’s. Furthermore, even this conclusion collapses if legislation cannot be changed freely whenever new information becomes available. In that event, action should sometimes be deferred. Instead of legislating, Auerbach and Hassett write, the

. . . government may . . . choose not to exercise its valuable option to set policy and, because the impact of its policies on the elderly cannot be reversed in the future, it is more likely to choose inaction when fiscal tightening is called for. Thus, the optimal policy response over time might best be characterized by great caution in general, but punctuated by occasional periods of apparent irresponsibility.

This conclusion is remarkably equivocal, despite the exclusion of many of the politically relevant uncertainties I mentioned before. In addition, they simplified heroically in various ways to make analysis tractable. They set the problem in an overlapping generation model where each generation contains one representative person who lives two periods. With one representative agent per generation, the model omits intra-generational distributional questions, which are matters of central importance to many in the current Social Security debate. Their only limit to policy—that it cannot be changed in two successive periods—omits most of the interesting political complexities. With each generation living only two periods, economic questions about the effects of different timing of policy changes on welfare of various cohorts and the politics of decisionmaking could not be considered. The central insight—that uncertainty about the future should not justify procrastination—is relevant to the current debate on Social Security financing, but it holds only if one treats the current debate as one about financing alone.

In fact, few of us explicitly take account of any of the various kinds of uncertainty. We normally pretend that we live in the simple world of accurate data, certain projections, and costless and frictionless legislation. We use certainty models to analyze the effects of well-defined policy changes and evaluate the results. And no one has ever simultaneously considered all of the problems arising from various kinds of uncertainty relevant to policymaking. The reason is straightforward. The task is laughably beyond our current analytical capacities. We simply cannot simultaneously handle the direct consequences of a policy change (presuming that our data and models are exactly right); *and* the direct consequences under alternative properly-weighted uncertain contingencies; *and* the direct consequences under plausible models different from the one we have used; *and* the difficulty of modifying policy if current projections are incorrect; *and* the impacts on future legislation of the different legislative and political environment brought about by current actions; *and* whether it would be better to act now or defer action until the future; *and* if we act now,

<sup>6</sup> The major early statement of the problem is Brainard [1977].

whether it would be better to implement policy changes promptly or at some time in the future.

If we tackled those questions all at once, we would rapidly lapse into subjective evaluations for which our analytical training provides no legitimacy. Science does not advance by tackling questions that are too hard to answer. And experts do not retain their reputations by dithering about “maybe” and “perhaps” in areas outside their expertise.

Decisionmakers, in contrast, routinely have to deal with such complexities. They know that forecasts may be absurdly off the mark. They hear from a variety of analysts with models generating diverse and sometimes contradictory prescriptions. Elected officials, like the rest of us, are loathe to admit error. They also fear that, if they reverse a decision, voters will punish them at the next election for being weak or indecisive. And they have a direct and well-focused understanding of voters’ “loss aversion”—that failure brings punishment more reliably success brings rewards. This fact led Charles Schultze to describe political behavior as adhering to a modified Hippocratic oath: “Never be seen to do direct harm.”

As analysts, we pretend that we are simply providing decisionmakers with information and they must decide how to use it. But given the passionate intensity with which many of us push our favored policy options, this response is self-serving or self-deluding nonsense. We are wannabe policymakers. But we use analytical frameworks that exclude questions central to political judgment. We exclude those questions because we can’t answer them. But our incapacity does not make those questions unimportant or irrelevant. We all hold subjective “priors” about these unanswerable questions—which is a good thing, because they are very important—and these priors may overshadow our analytical judgments—which is also a good thing because they may be more important than the analytical conclusions we are trained to reach. But if those priors are so important and if data and analysis are so riddled with uncertainty, they deserve more careful study than they have received.

I believe that formal analysis of how uncertainty in data and forecast should affect policy recommendations comprises a serious research program of high priority. It should engage theoretical and empirical economists, political scientists, psychologists, and sociologists. Progress will be slow because the problems are formidable. But this topic is at the core of policy analyses and recommendations. In the words of Linda Loman on the life of her salesman husband Willy, “Attention must be paid.”

## **MEANWHILE...**

At least until that research agenda makes some progress, it is important for those of us in the policy business to try informally to recognize implications of data, model, and forecast and projection uncertainty. In that spirit, I present the following principles.

### **The Drunk and the Streetlight Pitfall**

The story about the drunk looking under the lamppost for a wallet lost somewhere else, because that is where the light is, has long been a cliché. Projections and forecasts can become lampposts even for sober policy analysts. The current debate on reform of Social Security and Medicare is illustrative.

Virtually every policy recommendation regarding Social Security or Medicare rests on projections of population, economic conditions, and health care costs stretching 75 years into the future. Some analysts feel crowded even by a 75-year horizon and wish to look ahead a century or two. Long-term forecasts have played a highly

constructive role over the years. They have encouraged policymakers to consider a distant future they might otherwise ignore. They have thereby constrained legislative impulses to “buy now and pay later.” In fact, the United States has pioneered in such long-term projections. It is, as Marxists used to say, “no accident” that pension problems related to population aging are smaller in the United States than in any other developed nation except Great Britain, which solved its problems by legislating the gradual atrophy of assured public pensions.

The usefulness of these long-term projections can easily blind us to the fact that they have little to do with many of the important policy issues in the current Social Security and Medicare debate. On the central questions of whether Social Security should be privatized in whole or in part, who should bear the risk of financial market fluctuations, how much pensions should redistribute income, and what forms of administration are least costly, long-term projections are substantially irrelevant. Projections of pension costs are relevant to whether to build reserves and, if so, how fast. But the same answer to this question can be implemented in a public or in a private system, a point that is now accepted by advocates and opponents of privatization alike [Geanokoplos, Mitchell, & Zeldes, 1998; Murphy & Welch, 1998; NASI, 1998; Sinn, 1999]. Very long-term projected deficits may cause politicians to consider major program changes that would otherwise secure no hearing. But long-term projections have little or no substantive bearing on what form social insurance pensions should take.

To be sure, long-term demographic and economic trends will influence the kind and size of the pension system that the United States will want and can afford. Current medical advances could boost life expectancy far more than official projections now assume—perhaps by two or three decades or even more [Schwartz, 1998]. We are completely ignorant about the quality of life people might enjoy should life expectancies increase so much. We do not know, for example, whether the entire process of aging—reduced mental flexibility, senility, deterioration of joints, muscle atrophy, arthritis, decline of libido, and other curses of the aging class—will be delayed. If they are, tomorrow’s 75-year-olds may look like today’s 50-year-olds. If not, tomorrow’s 75-, 85-, and 95-year olds may just be more numerous than, but not different from, today’s. In the former case, working lives could lengthen and the tax rates necessary to support pensioners could stabilize or fall. In the latter case, a geriatric expansion could push pension costs sky high.

Other important uncertainties surround projected growth of worker productivity. If productivity grows 0.5 percent annually, U.S. residents in 2050 will have 29 percent higher incomes than we do today. At 1.5 percent growth, they will have 114 percent more than we do today. Both growth rates are within the range that responsible forecasters might assume. The difference—nearly equal to income today—will influence how future workers feel about paying taxes to support health and pension benefits for the dependent elderly and disabled. We also are ignorant about what will happen to economic inequality. Since Social Security is, without close rival, the most important public instrument of income redistribution, our inability to forecast trends in income inequality means that we cannot know how important it will be to sustain the current structure of this program.

The same disconnect exists between financial projections and structural reforms of Medicare. Even with recent revisions, large deficits are likely in the second decade of the next century. But the debate over Medicare reform concerns issues that would be present even if Medicare faced a balanced fiscal future. In fact, most structural reforms—a new drug benefit, catastrophic coverage, reduced cost sharing for those with low incomes, and improved long-term care protection—would raise costs and aggravate future deficits. Other important issues—whether Medicare should directly

provide premium relief for the poor elderly or continue to rely on Medicaid and what should be done about the medigap insurance market—are largely independent of cost projections.

Once again, the prospect of deficits puts Medicare on the policy agenda, a fact of great political significance. But this is political public relations. The policy issues have little to do with the projected deficits. In short, our lamplight—the projections that absorb so much attention—is not shining on the most important issues in the current debate. A brighter light would be useful but is not available.

### Experiment When You Can

If the loss from a mistaken policy is as large as or larger than the gain from a correct action and one is as likely to be wrong as right, inaction is in order. Sometimes, however, the loss from a mistake is small or slow in accumulating, but the gains are quick and large. That is precisely the situation that confronted U.S. monetary authorities a few years ago as unemployment dropped to around 6 percent. The consensus among economists was that lower unemployment would cause inflationary pressures, but that the pressures would be small at first.

In that situation, the monetary authorities had the wisdom, guts, and political insulation to run an experiment. They permitted demand to rev up beyond what many feared was the economic red line. Unemployment fell but, surprisingly, inflation did not rise. If inflation had worsened, the experiment could have been terminated at little long-run cost. Although I have no inside information, I doubt very much whether the Open Market Committee or Federal Reserve Board staff expected that wage and price inflation would remain stable—and even less that they would fall—when unemployment dropped first below 6 percent and then below 5 percent. But they realized that the nation faced what economists call an asymmetric loss function, which made experimentation possible. The rest is history.

Similar opportunities for policy experimentation may be rare. Few important decisions are made in relative secrecy by people who are politically positioned to risk error and who can readily reverse mistakes. But policy makers should look for opportunities to experiment.

### The Lewis and Clark Approach<sup>7</sup>

For some of the most important and challenging policy problems, information about the current situation is not very good and forecasts far into the future are unreliable. This category obviously includes global warming and telecommunications policy. But the litany of failed forecasts and projections that I presented earlier includes health care, pensions, and the overall budget. For such problems Charles Schultze once proposed that it is better to follow the example of Lewis and Clark—do careful planning for a day or two, but not more—than it would be to try to plan a Cook's tour, mapping out the future in great detail.

For one example, take global warming. It is surely prudent to take inexpensive steps to curb greenhouse gas emissions. The most important element of this strategy is to replace capital goods, as they wear out, with ones of increased energy efficiency. The strategy also includes intensified efforts to improve models and to develop and promote energy-efficient alternatives to current modes of transportation and production. But it also suggests that commitments now to very costly current measures, mostly defined by scrapping capital goods before they wear out, would be premature.

<sup>7</sup> This metaphor was conceived by Charles Schultze. I am plagiarizing.

Delay will either establish that such steps are unneeded or supply data that will make harsh measures more acceptable to skeptical populations.

### Pick Your Fights and Eat Spinach before Dessert

Prospect theory, developed two decades ago by Daniel Kahneman and Amos Tversky [1979], emphasized the importance of “framing” and the principle of “loss aversion.” Framing refers to the tendency of people to evaluate gains and losses in terms of *changes* from initial situations, rather than to make *global* judgments about situations as a whole. Loss aversion refers to the tendency of people to value losses more than they value gains of equal size. Together, these principles suggest that policy analysts and policymakers should more heavily weight the possibility that events will turn out more unfavorably than anticipated than that events will turn out more favorably.

Few, I trust, will disagree with the following banality: Cutting benefits or raising taxes to close a projected Social Security deficit—that is, inflicting losses on identifiable people—is more difficult than failing to raise benefits or failing to cut taxes to eliminate a surplus. Because forecast uncertainty is here to stay, this prosaic fact suggests that policymakers should be slower to spend a projected surplus than to close a projected deficit. When a revision in the projection methods during the early 1970s revealed that Social Security faced theretofore unrecognized surpluses, the President and Congress had little difficulty distributing the windfall as increased benefits. In the decades since, Congress has responded slowly to projected deficits. I believe that policy analysts should recognize this asymmetry in the case not only of social insurance, but also of other government activities. The time to close deficits is now. Dissipating surpluses can wait.

Returning to the uncertainty about future life expectancy, policy makers would be well advised, in my view, to index Social Security benefits to offset any unanticipated increase in life expectancy. Such indexation could take various forms—a change in monthly benefits, a change in the age of initial entitlement, a change in payroll tax rates, or some combination of these changes. The alternative methods of adjustment have radically different implications for the evolution of the nation’s pension system, but all would spare future Congresses the risk that they will have to confront choices they find extremely difficult to make. If life expectancy grows less than anticipated—good news in the ghoulish world of pension actuaries—Congress would have little trouble dealing with the “problem.” Indeed, such unanticipated surpluses would give elected officials a chance to adjust relative benefits in light of changing perceptions of need.

On similar reasoning, cutting taxes now is inadvisable. The cuts would be hard to reverse if current rosy projections turn out to be wrong. If they are right, cutting taxes later will not be difficult. In addition, the principle of loss aversion also means that large-scale tax reforms, which redistribute income if revenues are maintained, provoke more opposition from losers than support from gainers. Tax cuts can reduce the losses for losers, thereby advancing two ends—lowering liabilities *and* facilitating reform of tax structure [Aaron, Gale, and Sly, 1999]. I realize that those who wish to downsize government support tax cuts not solely for economic reasons. They hope that tax cuts will change budget politics and constrain government spending. If this is a motivation, then some attempt should be made to analyze this claim.

### IS THAT ALL?

Let me anticipate your reaction to this list: Its pretty thin! Furthermore, these principles are informal, at best, and even mutually inconsistent. I am sorry, but it’s

the best I can do. You may have additional principles to add to this list. Some such compendium, complemented by good examples, might be a useful part of the curriculum of public policy training. But even a longer list is no substitute for serious analysis. So, if you are not satisfied with the list of principles I presented, it is time for serious analysts to tackle the problems. The problems are formidably difficult and will resist solution. But even modest progress will improve analysis and strengthen the quality of the training colleges and universities provide in the social sciences.

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