

## FORECASTING THE FUTURE

Soren Kierkegaard once said, "Life can only be understood backwards, but it must be lived forwards." This volume represents an effort to look forwards. If we are able to understand forwards better, perhaps we will be able to live forwards better, too.

The reach of this volume is ambitious, but it is not as grandiose as that of some past efforts. It does not pretend to look unerringly into the future through a crystal ball. Its ambition is more modest. In a select number of critical areas, this volume attempts to identify key trends, critical and emerging issues, and opportunities and challenges on the horizon.

This volume is about New York State and some of its key problematic areas, particularly those likely to increase in their problematic quality as we enter the next century. They have been chosen because they represent areas where actions in the present can affect future outcomes, perhaps deflecting otherwise likely negative futures, or making desired objectives the subject of concentrated action. In one sense, this volume is a textbook of what New York State is like now and what, *ceteris paribus* (that convenient phrase that means "things remaining equal"), it will be like in the year 2000. The recommendations are both procedural and substantive—who must play on some future "level playing field," if the game is to be fair and representative, as well as what will determine victory. Because some of the issues on which we focused are deeply divisive, some chapters simply array options and identify trade-offs. Other chapters, marked by greater unanimity on desired outcomes, are more prescriptive in character.

### GOOD PREDICTIONS AND BAD PREDICTIONS

The elements that make for good prediction and the elements that make a prediction good for use by policy makers are similar, but not the same.

Prediction is best when one deals with phenomena characterized by lots of inertia, where there is little room for changes that would fundamentally redirect present trajectories. Analysts may be pleased by the ability to predict accurately, but the resulting predictions are of little good for decision makers because policy can have an effect only at the margin, if at all. In such circumstances, the future can be predicted well, but it cannot be controlled. The most that can be done is to develop plans for mitigating or ameliorating the inevitable. Short-term demographic forecasts are often so characterized.

Chaotic and ill-structured phenomena are bad from the point of view of both analysts and policy makers. Such situations become more likely as one focuses at increasingly finer levels of specificity. For example, the orderliness of the behavior of gases in volume dissolves into chaos if one attempts to describe it at the molecular level. Chaotic conditions are not susceptible to good prediction. Clear trends or trajectories are lacking, and predictions amount to little more than idle speculation. In the long run, outcomes are likely to be affected or determined by forces impossible to anticipate or even identify, frequently involving new factors from completely outside the scope of consideration. Neither analysts nor policy makers like such conditions; the future can be neither predicted nor controlled. International terrorism is a case in point.

The most useful predictions for policy makers are those that can be made with sufficient accuracy so that steps can be taken to avoid undesired outcomes or consequences. In this circumstance the future can be predicted well enough to be controlled. Statements of the type "if we don't do this, then that will happen" warrant serious attention. Actions undertaken in response to predictions can change the predicted outcome, however, making it difficult to validate the quality of the forecast.

### **GOOD NEWS, BAD NEWS, AND POLITICS**

Attempts to look to the future, even objective, disinterested ones, are quite likely to encounter political difficulty, even within the most high-minded political communities. The reasons for this are several; not all the blame can be laid at the feet of politicians.

The large majority of predictions that are neither immutable nor trivial contain bad news. Few of us are fond of bad news, even when early warning affords opportunity to forestall or avoid potential bad outcomes. The proclivity of academics and other futurists to foresee difficulty ahead (with perhaps the exception of those whose specialty is in "future technological marvels," and even in this realm plenty of purveyors of gloom can be found) has led to a good deal of suspicion among politicians regarding this group. Academicians are viewed by many members of the political community just as the Old Testament prophets must have been perceived by the monarchy of the day. Full of forecasts of tribulation and woe, they seem more trouble than they are worth.

It takes a smart person to foresee trouble; it takes an even smarter one to see opportunity. Trouble results frequently from the simplest of causes, derailment, as it were, or reaching the end of the line. Opportunity, however, results often from confluences or

synergisms of trends, the ultimate effects of which are difficult to divine or anticipate. Even those who optimistically touted computers twenty years ago, for example, were not very prescient about the precise nature, type, or extent of the effects these machines would have, especially given the rise of the personal computer.

In sum, it may be simply easier, given the limits and predispositions of our cognitive capabilities, to foresee when things are likely to turn bad if everything goes along according to present trends than it is to foresee how present trends will eventually intersect and interact to lead to new and better developments. Last but not least, scholars and other futurists are probably no more immune than anyone else to the seemingly natural human fascination with bad news at the expense of good.

An exception to this is the volume produced by the state during the Rockefeller administration entitled *Change/Challenge/Response* (New York State Office for Regional Development, 1964), which portrayed the future of the state to the 21st century from the vantage point of the mid 1960s. This exceptional piece of analysis correctly foresaw the shift to an information- and service-based economy and many other key characteristics of the present. What it did not foresee was the declining future of heavy industry, the migration of the young to the Sunbelt, the fiscal crisis coming at the mid-point of 1970s recessions, and exceptionally high rates of inflation. How could it have? The inflationary impact of the Vietnam War and the Great Society were only dimly on the horizon. While the "baby-boom" generation's higher education needs were correctly forecasted, their absorption into the economy exceeded in scale what this state—or any state—could have been expected to foment and encourage. Finally, the seeds of intense international competi-

tion to U.S. steel-making and automobiles were present, but its maturation depended on a number of volatile factors: the changing global economy, evolving tastes of U.S. consumers and business people, and a series of fluctuations in exchange rates.

Does this record suggest that forecasting attempts at predicting our collective future are futile? Quite the contrary. Experience says that New York should have repeated the long-range planning process in the late 1970s as it is doing in the mid 1980s. The two key events for New York of the 1970s received little prospective attention from scholars, politicians, and the press alike—the fiscal crisis of New York City and State, on the one hand, and the population loss of 750,000, on the other. Both issues could have been foreshadowed had the process begun in *Change/Challenge/Response* been reiterated as a fixed feature of our governance.

## METHODS FOR FORECASTING

Imperfect as they each might be, there is no shortage of keys to the future. Some forecasts are based on the intuition (or, perhaps, revelation) of specific individuals. Other forecasts are based on formal and explicit simulation models. Between these two intuitive and analytical extremes, a variety of other techniques are possible.

The present volume relies upon one of the most time-honored techniques for addressing the future and other issues that involve considerable uncertainty. New York State Project 2000 relied on the use of expert advisory panels and study directors in a model inspired by the National Academy of Sciences. A study director from the university community was appointed and advisory panels were established for each project. Each panel consisted of 15–25 individuals with extensive knowledge and concern about the

topic. These panels met formally at least twice, once near the beginning of the project and again near its end, and gave advice, guidance, and direction to the study director throughout the course of the project. The chapters that make up the remainder of this volume are thus the product of intensive, repeated peer review.

The present approach is characterized by distinct strengths and weaknesses. Approaches based upon expert consensus are likely to drive out or modify odd or highly aberrant points of view. Research suggests (e.g., Mumpower and Anderson 1983) that, in general, across a wide variety of tasks requiring expertise, the aggregation of opinions of multiple experts leads to a result that is superior to that expected from any single, randomly selected expert. This is in accord with common sense. Many heads often perform better than one. More information is available from multiple sources, and arguments are subjected to review and critique by colleagues.

The weakness of such consensual approaches is also obvious to common sense. Although groups of experts can be expected to outperform any single, randomly selected expert, the group cannot be expected to outperform the very best expert. The individual voice of insight or wisdom may be drowned out by his or her more prosaic or myopic colleagues. Unfortunately, we have developed no reliable means for detecting when the lone voice crying in the wilderness will be proved right in the end and when (much more frequently) wiser heads will ultimately be proved right and should prevail. In short, we have no reliable means for distinguishing the best expert from all the rest.

The eight topics that make up this volume—population, economic structure, science and technology, economic development, water resources, electricity, long-term care, and corrections and criminal justice—by no means

exhaust all the issues that are important to the state. The particular choices made reflect a compromise between comprehensiveness, feasibility, and usefulness.

An exhaustive and comprehensive study of all the issues likely to prove important to the state was clearly beyond reasonable scope. Interviews by the present authors with scores of people keenly interested in the fortunes of the state—individuals from all parts of state government, from universities and colleges, from the private sector—generated a small list of issues which were repeatedly identified as key ones for the state. From this list, the present list of 8 studies was derived.

Three of the studies are crosscutting and broad-based. These studies we believed to be of fundamental importance to the state and its future and thus of fundamental importance to the other studies that make up this volume, as well as any other efforts that might later follow. The study on *population* was intended to address and answer fundamental questions about who New Yorkers are, what they are

like, where they live, and how all this is likely to change over time. The study on *economic structure* was intended to provide the first comprehensive mapping of structural changes in the state's industrial regions. The study on *science and technology* was intended to provide a basis for anticipating the types of scientific and technological developments likely to be important for the state and to consider how the state might better foster scientific and technological growth and development within its borders.

The five remaining studies were more topical and policy-oriented. Within the area of the state economy, *economic development* was chosen for special attention. Within the area of the environment, New York's considerable *water resources* were selected as the focus. *Electricity* was the focal topic within the energy area. Within the field of human services, *long-term care* was identified as a topic of special concern. Finally, within the broad area of criminal justice, *corrections* was singled-out for close attention.