

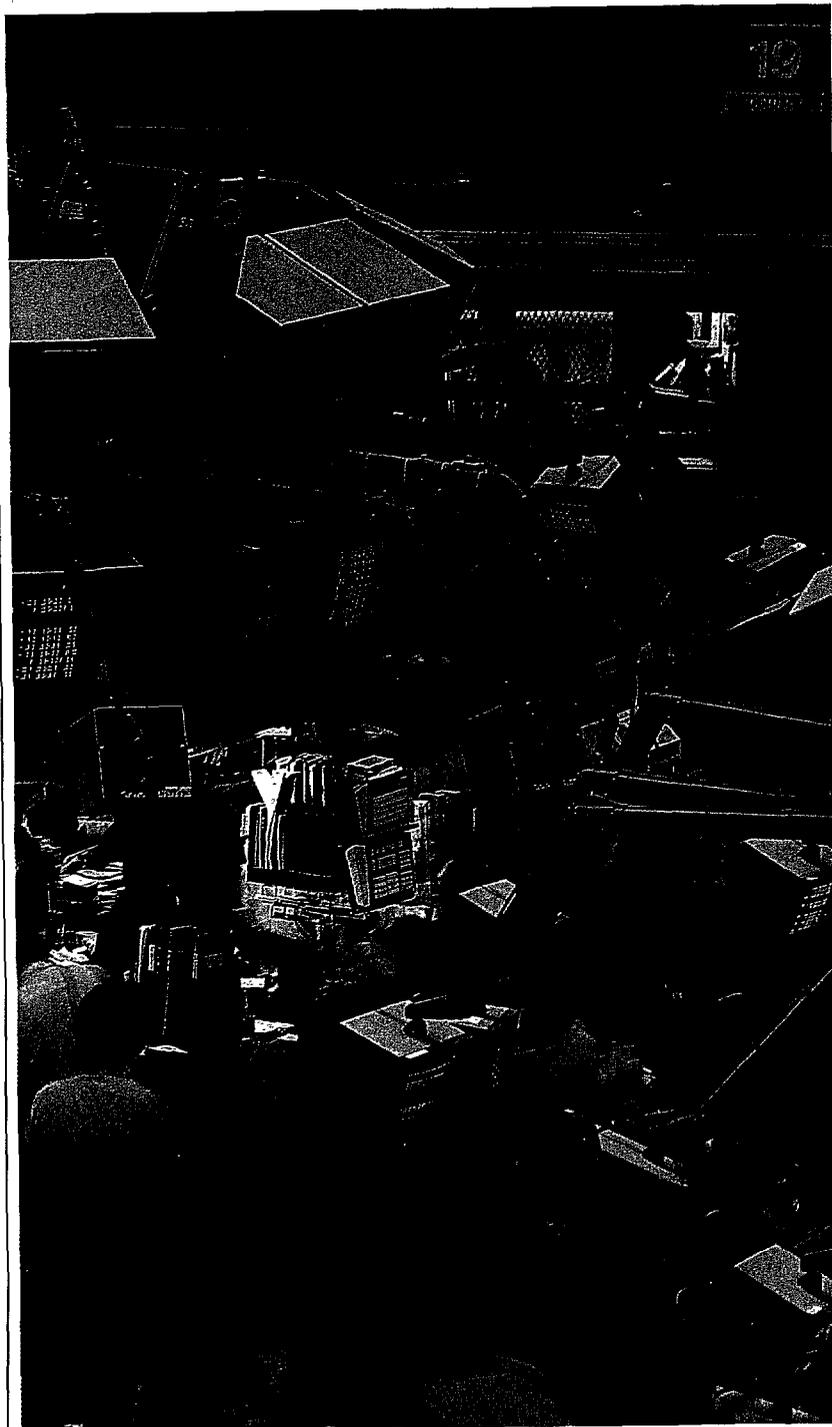
THE G·A·O

A QUARTERLY SPONSORED BY THE U.S. GENERAL ACCOUNTING OFFICE

JOURNAL



136522



AFTER BLACK MONDAY

*An Interview with
Brady Commission
Executive Director
Robert R. Glauber*

IMPROVING FEDERAL FINANCIAL MANAGEMENT

Huge Challenge, Huge Promise

BRINGING ACCOUNTABILITY TO FOREIGN AID

The Job Begins at Home

NUMBER 2 SUMMER 1988

042939 - 042949

THE G·A·O

A QUARTERLY SPONSORED BY THE U.S. GENERAL ACCOUNTING OFFICE

JOURNAL

NUMBER 2
SUMMER 1988

C O N T E N T S

	FROM THE COMPTROLLER GENERAL	3
ROUND TABLE	AFTER BLACK MONDAY <i>An Interview with Robert R. Glauber</i>	4 042940
FOCUS	IMPROVING FEDERAL FINANCIAL MANAGEMENT	
	THE GROWING NEED FOR REFORM <i>Frederick D. Wolf</i>	12 042941
	LEARNING BY NEW YORK'S EXAMPLE <i>Edward V. Regan</i>	20 042942
	GETTING A HANDLE ON WEAPON SYSTEMS <i>Representative John M. Sprutt, Jr.</i>	25 042943
FEATURES	BRINGING ACCOUNTABILITY TO FOREIGN AID <i>Carol Schuster and Jess Ford</i>	31 042944
	THE WORLD OIL MARKET	
	• THE ENERGY SECURITY DILEMMA <i>Donald Z. Forcier and Daniel M. Haas</i>	38 042945
	• AN EMPTY PUMP DOWN THE ROAD? <i>John H. Lichtblau</i>	47 042946
	• OIL-RISK INSURANCE: CHOOSING THE BEST BUY <i>Amory B. Lovins and L. Hunter Lovins</i>	52 042947
	PRIVATE ENTERPRISE, PUBLIC RESPONSIBILITIES <i>John S. R. Shad</i>	61 042948
	REVENUE ESTIMATING: A MORE PROMINENT PART OF TAX POLICY <i>Charles L. Vehorn, Thomas J. McCool, and Gerald R. Jantscher</i>	64 042949
BOOK REVIEWS	Forrest Chisman and Alan Pifer, <i>GOVERNMENT FOR THE PEOPLE — THE FEDERAL SOCIAL ROLE: WHAT IT IS, WHAT IT SHOULD BE</i> , reviewed by Burma H. Klein. William Greider, <i>SECRETS OF THE TEMPLE: HOW THE FEDERAL RESERVE RUNS THE COUNTRY</i> , reviewed by Harry S. Havens. Edward N. Luttwak, <i>STRATEGY: THE LOGIC OF WAR AND PEACE</i> , reviewed by Allan I. Mendelowitz.	72



THE G·A·O

A QUARTERLY SPONSORED BY THE U.S. GENERAL ACCOUNTING OFFICE

JOURNAL

• *Comptroller General
of the United States*
CHARLES A. BOWSHER

• *Editorial Advisors*
HARRY S. HAVENS, *Chairman*
IRA GOLDSTEIN
JAMES F. HINCHMAN
DONALD J. HORAN
LARRY E. ROLUFS

• *Editor*
STEPHEN ALTMAN

• *Staff*

Text Editor
DIANE LEE

Associate Editors
LINDA F. BAKER
HANNAH FEIN
DEBORAH A. SIGNER

Coordinator
BRENDA JAY

Design
HAUSMANN/KROHN, INC.

Production
CLAIRE DOYLE
TOM KNEELAND

• *Office of Publishing
and Communications*
LARRY E. ROLUFS, *Director*
MICHAEL SPEER
JUDY OBERDICK MERRILL
NANCY CROTHERS

• *Editorial Advisory Board*

JOHN F. AHEARNE
GEORGE J. ALEXANDER
EDWARD W. BALES
THEODORE C. BARREAU
ROBERT BORUGH
NORMAN M. BRADBURN
JOHN BRADEMAS
MARVIN BRESSLER
JOHN C. BURTON
MICHAEL N. CHETKOVICH
SHELDON COHEN
WILLIAM COLEMAN
MORRIS W. H. COLLINS, JR.
ROBERT CURVIN
BREWSTER C. DENNY
JOHN T. DUNLOP
PAUL L. FOSTER
J. RONALD FOX
BARBARA H. FRANKLIN
BRUCE L. GARDNER
MARTHA GILLILAND
PATRICIA A. GRAHAM
C. JACKSON GRAYSON, JR.
ROBERT HAVEMAN
B. R. INMAN
RALPH E. KENT
MELVIN R. LAIRD

KENT L. LEE
HERMAN LEONARD
DAVID F. LINOWES
BEVIS LONGSTRETH
CHARLES F. LUCE
BRUCE K. MacLAURY
JOHN L. McLUCAS
ASTRID E. MERGET
W. LEE NOEL
ALFRED E. OSBORNE, JR.
RUSSELL E. PALMER
RAYMOND E. PEET
DONALD A. PETRIE
GEORGE PHILLIPS
JOHN B. RHINELANDER
ELLIOT RICHARDSON
J. ROBERT SCHAETZEL
EDWIN H. SIMMONS
J. EDWARD SIMPKINS
ALVIN R. TARLOV
SUSAN J. TOLCHIN
ROBERT M. WARNER
ROBERT WEAVER
SIDNEY J. WEINBERG, JR.
KAREN H. WILLIAMS
CHARLES J. ZWICK

THE GAO JOURNAL is published quarterly by the Office of Publishing and Communications, Rm. 4528, U.S. General Accounting Office, Washington, DC 20548. First class postage paid at Washington, D.C.

WRITERS whose work appears in *The GAO Journal* speak for themselves only. Unless otherwise indicated, their views or opinions should not be construed as the policy or position of GAO or any other organization with which they may be affiliated.

EDITORIAL CORRESPONDENCE: By mail to the above address. Letters to the editor are encouraged. Unsolicited manuscripts will be returned only if accompanied by a self-addressed, stamped envelope.

POSTMASTER: Send changes of address to the Office of Publishing and Communications, Rm. 4528, U.S. General Accounting Office, Washington, DC 20548.

FROM THE COMPTROLLER GENERAL

THROUGHOUT THE federal establishment, policymakers and managers are coming to understand that their capacity to serve the public interest is undermined by having to rely on financial systems that are simply inadequate to the scope and nature of the federal government. Our second issue of *The GAO Journal* features three articles on the need to improve federal financial management.

In "The Growing Need for Reform," Frederick D. Wolf, Director of GAO's Accounting and Financial Management Division, outlines both the deficiencies of the government's current financial management system and the steps necessary to improve it. Some of these actions already have been taken. Mr. Wolf speaks for GAO when he advocates the adoption of legislation to make improvements uniform and permanent.

In support of the argument for reform at the federal level, New York State Comptroller Edward V. Regan recounts his state's experience — as well as that of New York City — in imposing discipline on previously undisciplined financial systems. He draws the lesson that sound financial practices lead not only to more responsive and accountable government, but to broader benefits for the society at large.

We are pleased to offer, as part of the same package, an article by Representative John M. Spratt, Jr., who brings experience both at the Pentagon and with the House Armed Services Committee to bear in focusing on Selected Acquisition Reports — a neglected mechanism for informing the Congress of the cost and progress of weapon systems. A point the Congressman makes — and one that recurs in all three articles — is the importance of reliable financial information. Policymakers and managers simply must have it. Public debate requires it. Only disciplined financial systems provide it.

Systems of a different sort come under discussion in "After Black Monday," an interview with Robert R. Glauber, Executive Director of the Presidential Task Force on Market Mechanisms. The Task Force, also known as the Brady Commission in recognition of its Chairman, former U.S. Senator Nicholas F. Brady, focused not so much on the 508-point drop in stock prices last October 19 as on the systems that let it happen so fast. Having produced our own report on the crash, we at GAO decided to invite Dr. Glauber to share his thoughts with us 6 months after the event.

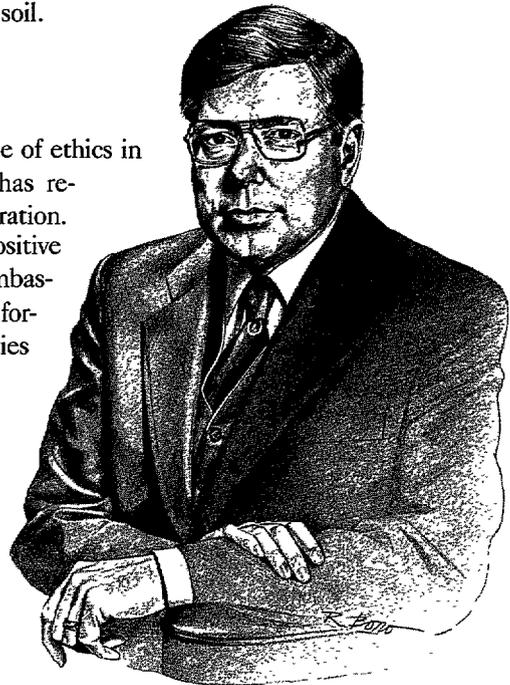
One other realm that has seen its share of drama is

the world oil market. Today, oil supplies may be plentiful and prices within reason, but memories of the shortages and price explosions of the 1970s lead all Americans occasionally to wonder if such events may recur. GAO's new report, *Energy Security: An Overview of Changes in the World Oil Market*, examines the present state of America's energy security. The *Journal* offers three perspectives, one a personal view from Donald Z. Forcier and Daniel M. Haas, two of the people most involved in producing the GAO report. The other two pieces — one by John H. Lichtblau of the Petroleum Industry Research Foundation, the other by Amory B. Lovins and L. Hunter Lovins of the Rocky Mountain Institute — come at the energy-security issue from two differing angles, each of which should make for provocative reading.

So should "Bringing Accountability to Foreign Aid," an essay by GAO's Carol Schuster and Jess Ford on the importance of knowing where the foreign aid dollar is going and how it is being used. While foreign assistance programs have done considerable good, the writers say, public support for foreign aid is never robust, and is threatened even further by the inability — and sometimes the disinclination — of the foreign policy establishment and foreign aid administrators to ensure accountability for taxpayer-financed programs on foreign soil.

Here at home the issue of ethics in the business world has received much consideration. We offer the refreshingly positive view of John S. R. Shad, Ambassador to the Netherlands and former Chairman of the Securities and Exchange Commission.

Ambassador Shad is but one of several outside contributors to this issue of *The GAO Journal*. We are grateful to all of them, as we are to those writers from our own ranks. We feel there is value — and stimulation — in considering as many responsible views as possible. We hope you agree.



Charles A. Bowsher

AFTER BLACK MONDAY

An Interview with Robert R. Glauber



IN THE WAKE of the unprecedented drop in the stock market last October 19th, President Reagan convened the Presidential Task Force on Market Mechanisms, under the leadership of investment banker and former U.S. Senator Nicholas F. Brady. Mr. Brady named as Executive Director Dr. Robert R. Glauber, Chairman of the Advanced Management Program at Harvard Business School. Under his direction, the 379-page Brady Commission report was presented to the President and the public on January 8th.

At the same time, GAO was involved in a "crash" project of its own. By the end of January it, too, had produced a look into the causes and effects of the market decline. In mid-April, some of the people most involved in that report, *Preliminary Observations on the October 1987 Crash* (GAO/GGD-88-38, Jan. 26, 1988), invited Dr. Glauber to share his thoughts on the status of reform 6 months after the event.

Dr. Glauber and Comptroller General Charles A. Bowsher were joined by Harry S. Havens, Assistant Comptroller General; Richard L. Fogel, Assistant Comptroller General, General Government Division; and Craig A. Simmons and John R. Schultz, Senior Associate Director and Deputy Associate Director, respectively, in the General Government Division.

BOWSHER— *How would you judge the administration's response to the Brady Commission report?*

GLAUBER— A cautious one, I think. Initially, they wanted to look at all the studies coming out of the break — ours, GAO's, the Securities and Exchange Commission's (SEC), and the Commodity Futures Trading Commission's (CFTC) — and withhold any particularly strong response until they'd considered them all. Publicity in advance of our report had characterized it as having a very radical set of conclusions and recommendations. I don't think they are radical in any sense, and I think as people have digested the contents, they have concluded that the recommendations really aren't radical at all. We don't propose very much additional regulation, but rather a reorganization of existing regulations to conform more with the reality of the way the markets operate in the 1980s.

BOWSHER— *You recommended much greater involvement on the part of the Federal Reserve, becoming a sort of overseer, coordinator, or tie-breaker among the financial market regulators. I get the sense the Fed is reluctant to assume that sort of role.*

GLAUBER— Our view was that there are a limited number of issues that, because they cut across markets, require some kind of coordinated regulation. We examined a number of alternatives for locating this coordinating function, and decided that the Fed seemed like the most plausible. I don't think anyone thought that the Fed was going to come running to accept the invitation; they never have before and we doubted they would this time. The Fed is an independent agency, but it's also an unelected agency whose base of political support is always somewhat uncertain; it certainly doesn't want to be seen as requesting more power. What's interesting is that Alan Greenspan, when he testified before the Congress recently, embraced a number of our specific proposals — just not the one about who should be the orchestrating or coordinating agency.

HAVENS— *What other alternatives did you think were potentially available?*

GLAUBER— Well, one alternative would be similar to what Senator William Proxmire proposes — some kind of interagency council. But it would need to have teeth: They'd need both the responsibility and the authority to act on certain issues. And indeed, Senator Proxmire's bill says, in effect, "Go out and fix things, or come back and tell us what legislation is needed to fix them." The weakness in that scheme, of course, is action in time of crisis, when it's harder for a committee to act than an individual. That's one reason we'd prefer to see a single agency, such as the Fed, responsible for taking the appropriate measures. But in any event, we care less about just who does it than that something get done.

HAVENS— *How about Treasury? Are there advantages or disadvantages to a “politically responsive” coordinator, as opposed to the Fed?*

GLAUBER— I have a certain bias toward the independent Fed; it’s more in keeping with the way we’ve regulated these markets traditionally. But it’s also a question of current levels of expertise. Treasury, for instance, clearly knows a lot more about the bond markets than it does about the stock market; it would have to gather together a lot of experts. The reality is that the Fed — particularly the New York Fed — knows a tremendous amount about the stock market, as well as the bond markets.

FOGEL— *What about the SEC as an alternative?*

GLAUBER— We spent a lot of time with SEC people because of our interest in stock-market practices. They’re an impressive group, and they gave us tremendous cooperation. Their first love, and foremost experience, is with stocks, and that’s where their primary focus lies. They come from a stocks perspective — just as the CFTC comes from a futures perspective. I think that the SEC could be made the repository of the coordinating responsibility that we propose for the Fed, but it would require giving them additional support — more expertise in futures, for instance — and it would require a change in certain elements of their organizational culture. Yet, still you would be left with an institution that really doesn’t answer one of the requirements that we think the Fed does, which is the background in credit markets. To a large extent, what we’re faced with are credit-market problems.

FOGEL— *Do you see a consensus forming as to the key issues that need to be addressed?*

GLAUBER— There’s considerable consensus over the major issues, and particularly a couple of them. On the need for some kind of unification of the clearing system, I haven’t heard anyone in New York or Chicago or Washington come out in opposition to that. I’m sure once we get down to details, there will be a lot of disagreement, but there’s agreement that we simply cannot have a system that’s as uncoordinated as ours is, one that grew up piecemeal in an era when a lot of today’s financial instruments didn’t exist. Clearing needs to be integrated, and pretty soon.

There’s also fairly strong consensus — at least in the United States — on circuit breakers, if by circuit breakers you mean things as broadly based as trading halts and price limits.

BOWSHER— *We’ve heard so much about getting linked markets with linked regulation and linked policies, yet we haven’t seen the kind of consultation that’s so clearly needed among the markets and regulators.*

GLAUBER— Circuit breakers are a good example: When one market decides to close down at some point, it obviously has an impact on that market, but in today’s world, it probably has even greater impact on the other markets. What we’d like to see is the various exchanges and regulators sit down in a room and start to work on how to coordinate the effects of these various circuit breakers.

FOGEL— *Why do you think the New York Stock Exchange decided to cut off index arbitrage after a 50-point movement in the market?*

GLAUBER— I haven't asked John Phelan specifically, but I think it has something to do, at least in part, with the fact that the public and the press need to find a villain, and in this instance they've become convinced that index arbitrage is it. One of the remarkable aspects of the October 1987 event was that there really weren't any villains. But as in everything else, if you don't have a natural villain, people find the next best thing. The retail houses, in particular, have felt a lot of public pressure to get rid of index arbitrage. That pressure was transmitted to the Exchange's board, which had to do *something*, so it chose to cut off computerized arbitrage after a 50-point swing. I've told John Phelan and anyone else who would listen that I think that's just shooting the messenger; it certainly won't make things better, and if anything, it might make things worse. When it was triggered for the first time, it didn't have much effect at all. I think that's good. If it had an effect, it probably would have been a bad one.

FOGEL— *On this issue of linked markets, what role did you find the Chicago markets playing? Some have said they're really important as a hedge against stocks; others say it's just a casino out there. Did you get into the role of the Chicago markets?*

GLAUBER— Not too deeply. We started from the premise that they play a useful role and that they're here to stay. In Chicago they trade an instrument that people *want* to trade, and that's important. I don't think that institutions want to trade futures particularly; they want to trade baskets — collections of stocks representing the entire market or important segments of it. Since New York hasn't given them a good opportunity to trade baskets, they trade them where they can. It provides for price discovery and also for some risk shifting — not as much as commodities, but some, nevertheless.

SCHULTZ— *Is New York now coming to grips with its failure to address the new market demands?*

GLAUBER— Sure. New York has been talking about trying to design a post where they'd trade some form of basket. And I think that's only sensible. After all, institutional traders very quickly outran the liquidity of any individual stock, and therefore had to move to something more than a stock to get the liquidity they wanted. Baskets were the obvious next step. New York — unfortunately for New York — never traded them. Now, on any given day in Chicago, the volume of stocks represented by futures contracts is typically twice the volume of stocks traded in New York.

FOGEL— *A related issue is margins. Some would say we've got to see higher margins in Chicago to reduce the volatility there.*

GLAUBER— We want to see margins in Chicago that are consistent with what's required for stocks. Our argument is that margins may be different things in different markets, but in one respect they're the same everywhere: They are a mechanism for leverage. If it's true that we are working in one big market today, and that whether you enter through the futures door or the stock door, you're entering the same room, then we don't see why you should be working with different amounts of leverage. I think if we could get people to focus on another innovative proposal — cross-margining — we might be able to take the sting out of this. And if we could ever get unified clearing, then we could get meaningful cross-margining.

SIMMONS— *Do you have any views on what steps the markets need to take, presumably over a fairly long period of time, to meet the new institutional trading demands? A basket post is one; a potential revamping of the specialist system may be another. What else do you think they need to do?*

GLAUBER— I think, basically, they need to make the highways broader: fix the communications systems, improve the computer systems, put more capital behind the market-making function, and maybe even go to a different market-making function. But I don't believe even that is going to be enough. You can have all the computers and all the capital in the world, but you're never going to be able to make people put their capital at risk if it's not in their best interests to do so. Even if you had enough capital, and people were willing to put it at risk — that is, to absorb that kind of volume — it would be put to use so infrequently that it would be an utter waste of capital. So that can't be, by itself, a solution. We think it's an important part, but we think there are other issues that cut across markets and have to be dealt with.

BOWSHER— *As the country goes about trying to fix its own markets and regulations, both our reports said to look abroad, because that's where a lot of the future lies. How have things unfolded in that area?*

GLAUBER— Not much has occurred, in part because we have an interval in which to get things right here in the United States. If you look at the amount of trading done in U.S.-listed securities in London, it's less than 1 percent of the volume done in these securities here in the States. So while we're eventually going to have global markets, we don't have them yet. But as we design regulatory reform in this country, we're going to have to be aware of its impact on other countries; if we over-design it, we threaten to drive trading from here to somewhere else. My bet is that if we design it correctly, we'll have nothing to worry about, because other nations will follow our lead. I don't think any major country wants organized or unorganized mayhem in its markets; Hong Kong, for instance, is an object lesson for other countries as they reexamine their own structures.

Eventually there is going to be a global market of some form, and we're going to have to take cognizance of that. Indeed, that was one of the attractions of the Fed. . .

BOWSHER— . . . *insofar as many other countries employ their central banker in the same capacity that you envisioned in your report.*

GLAUBER— Right. The model exists elsewhere: France and England. Japan, too: The Ministry of Finance is ultimately the mechanism that regulates the markets.

BOWSHER— *Getting different nations to cooperate poses a pretty daunting task when we can't even get our own markets working together. Are you concerned about this?*

GLAUBER— I'd have to say yes. I think at the heart of the problem is the fact that we're trying to get people to cooperate who have grown up in very different kinds of environments, have differing perspectives, and see themselves in something of a competitive battle for institutional trading dollars. I guess the situation has another counterpart here in Washington, where you have agencies that have grown up independently and are very proud of their traditions.

FOGEL— *I'm amazed that the financial markets experienced a major crash and 6 months later some people are saying not to worry about it. What do you think it's going to take to get them to rein in their competing interests and come together?*

GLAUBER— Making that happen will take some direct pressure. After all, in the mid-1970s, when we decided we wanted to integrate the stock markets, it took a law to get it done. You couldn't get them to do it voluntarily. So you ask why there hasn't been very much pressure from Washington this time around. First, these are very complex issues and many legislators probably don't want to try to understand them; they don't come at this issue from a position of strength. After all, these are not macroeconomic issues, but rather very technical market-mechanism issues that take some understanding. Secondly, they've got their plates pretty full. They've got the Glass-Steagall business, for one thing. And they've got to get reelected; that will keep them busy. Also, though, despite all the dire predictions that may have been heard about forthcoming disasters, there are people who point to last October's event and say, "Nothing so terrible has happened. The economy is doing fine; we haven't had another crash . . ."

HAVENS— *. . . we survived that one, we came out okay, so why worry?"*

GLAUBER— Exactly. The system sort of functioned okay, it didn't break apart — it came close, but it didn't come apart — and since then, the world hasn't come to an end. And as we said earlier, we lack an obvious villain: If there were real villains that you could parade in front of the Congress and make testify as to how they did terrible things, you would get legislators more interested. The things that would interest the Congress would be various kinds of fraudulent trading practices, but nobody has said that sort of thing was at the center of this event. The problem came about from the interaction of a bunch of very complicated trading mechanisms. So the Congress doesn't get ignited. My hope is that it doesn't take another event of the same sort to galvanize them. It would be an expensive way to get things

done, and what's worse, what would get done could be very much off the mark. In the event of another convulsion, we will move very rapidly to do something, and it might be right, but it could just as easily be *very* wrong. I'd much prefer to see us do something as part of an orderly process of thinking it through.

BOWSHER— *Your mention of Glass-Steagall leads me to ask you what your thoughts might be on the subject. We at GAO have come out for a gradual phasing out rather than making any great or sudden change.*

GLAUBER— Clearly, the events of October have to give us pause if we decide to redesign the underwriting mechanisms. There are large forces at play throughout these markets; if you're going to expose the banks to other kinds of activities, you'd better understand how each impacts upon the next. From our perspective on the Brady Commission, Black Monday may have been frightening, but it was the capital-liquidity problem on Tuesday that was horrifying.

HAVENS— *Thinking back to the speculative bubble that preceded the crash, are there lessons for policymakers?*

GLAUBER— The causes behind the fall in stock prices was not our focus. When we were told the name of this Commission of ours — The Presidential Task Force on Market Mechanisms — the general reaction was, "Couldn't they have come up with something a little more attractive?" But as we got into it, what became clear to us was that what was important about the event was *not* that the market went down. As you said, a speculative bubble had been forming, and eventually all speculative bubbles break. When this one broke, it didn't really leave people much worse off than they were at the beginning of 1987. The issue wasn't that the market went down; it was the *way* it went down. It went down by a third in 5 days. If it had gone down by a third in, say, 2 months, we would never have been impaled. So we concentrated on the *mechanisms*, on those things that accounted for the speed, the violence, the disorder of the break — and not a lot of time on what led up to it.

SIMMONS— *Then were your recommendations essentially designed to help better cope with the next fundamental readjustment of investor perceptions of net value, as opposed to preventing another significant market adjustment? It's coping that we're worried about, right?*

GLAUBER— I don't think you can prevent market declines; you can't regulate them out of existence, and I don't think you'd want to if you could. The real focus for improvement should be on protecting the securities and financial markets from the impact of a violent collapse. And that was really the nature of our recommendations. We didn't, for example, make proposals that would intrude on the day-to-day

activities of the market — what you might call structural reform. We didn't propose doing away with derivative instruments, or computers, or TV screens. First of all, it would be fatuous to think of doing these things. But also, I don't think you want to stop the market from declining; you want it to trade out — but in a way that doesn't risk tearing apart the fabric of the financial markets.

FOGEL— *Did anyone anticipate how chaotic the situation would be, how collapsed the time frames for decision-making?*

GLAUBER— It was a system that had worked okay under normal conditions. But as we examined the system in the wake of the event, we came to see how riddled it was, how dependent on a whole number of things working together at one time, with very little margin for error. As for anticipating what would happen in a crisis, the way we all found out what would happen was to have one — to subject the entire system to immense overload. In that sense, we were lucky — we did it and the markets didn't bust completely apart, and now we know what to fix. We need one coordinating regulatory agency; we need unified clearing systems, consistent margins, improvements in circuit-breaker mechanisms, and information systems that can monitor transactions and conditions across the markets.

In the meantime, I think it's apparent that people are concerned and that this concern is having its impact on the markets. If you look at the volume on these exchanges, it's down — down substantially in options and futures. People would be reassured if they saw that steps were being taken to provide a safety net under the market when it is subjected to the sort of extraordinary pressures it experienced last October.

BOWSHER— *They wonder, as well, if today's state of affairs is as threatening as that of 1929.*

GLAUBER— The Commission was under a lot of pressure to write something about 1929 versus 1987. We pointed out that the difference was not so much in what happened to stock prices but in the reaction of the government subsequent to the drop. At least at the first level of potential spillover into the banking system, we had a different scenario: We had the Fed injecting liquidity into the system. Another difference is in trade regulation. In the 1930s, we went to a set of protectionist trade measures that most people think were at least in part responsible for the economic disaster. For us today, trade regulation is still an open issue.

But as some people here have said, after all, the market went up, it went down — it didn't go down that far, and most people are no poorer than they were at the beginning of 1987. So there needn't be any spillover — it's a matter of how we deal with the forces that are set up when there's a drop in the markets. And at least in that area, this time, we have, so far, done very well. ●

Frederick D. Wolf

IMPROVING
FEDERAL FINANCIAL
MANAGEMENT

THE GROWING NEED FOR REFORM

Getting the government's financial house in order will not be easy. But it will be worth it.

THE GOVERNMENT OF the United States is the world's largest financial operation. Its annual outlays amount to almost a quarter of the country's Gross National Product. It employs more than 5 million people and runs hundreds of programs, many of them individually larger than our largest corporations and state governments and affecting the lives of virtually all Americans. Yet the financial management concepts and practices followed by the federal government are weak, outdated, and inefficient. The public is aware of this. The government's inability to manage its financial operations contributes to the popular belief that government can't be counted on to get anything right.

Over the past half-dozen years, GAO has devoted considerable effort to examining and recommending improvements in the federal government's financial management practices. We think improvements are possible; in fact, the government is already on the road to making many of them. But it is clear that all the parties involved will need to work diligently to ensure that this progress continues and to make permanent the improvements that are already in place. The purpose of this article is to lay out the current problems in federal financial management; to evaluate current efforts to solve them; and, most importantly, to point out the steps that now must be taken in order to make further headway.

The problem

Six years ago GAO undertook a major study of the government's financial management practices.¹ In pointing up the need to overhaul the present system, the study spotlighted six problem areas:

FREDERICK D. WOLF is Director of GAO's Accounting and Financial Management Division.

- *Lack of cost information.* Today's financial reports provide a flood of information but little of the reliable operational and cost data that is essential to monitoring programs, anticipating overruns, and providing a basis for program and budget planning.
- *Lack of reliable information on weapon systems and other major projects.* Current project-reporting systems are not tied to accounting, budgeting, or project-management systems. All too often, reports are incomplete, inconsistent, or unreliable. (See the accompanying article by Representative John M. Spratt, Jr., "Getting a Handle on Weapon Systems.") Significant cost changes may be reported too late for remedial action to be taken.
- *Inadequate disclosure of costs and liabilities.* Major long-term commitments of federal resources, such as employee retirement programs and savings and loan industry deposit-insurance programs, are only partially recognized in the federal budget.
- *Unstructured planning for capital investment.* The government's overall approach to capital budgeting is haphazard; capital expenditures are afforded little visibility, and are improperly accounted for, in the budget process.
- *Antiquated financial management systems.* The government's basic financial management systems are obsolete and inefficient. Many federal programs employ financial systems that use outdated equipment and that are not designed to provide information needed by their administrators or the Congress.
- *Piecemeal approach to solutions.* Conventional efforts to put the government's financial house in order have lacked the long-term, governmentwide approach that is necessary to ensure that consistent data are available across agency and department lines.

Taken together, these six problem areas present a very troubling picture. However, three other facets of

this situation are worth mentioning here: accountability, the budget, and financial reporting.

Accountability

As part of its statement of objectives, the Government Accounting Standards Board (GASB) says this about the principle of accountability:

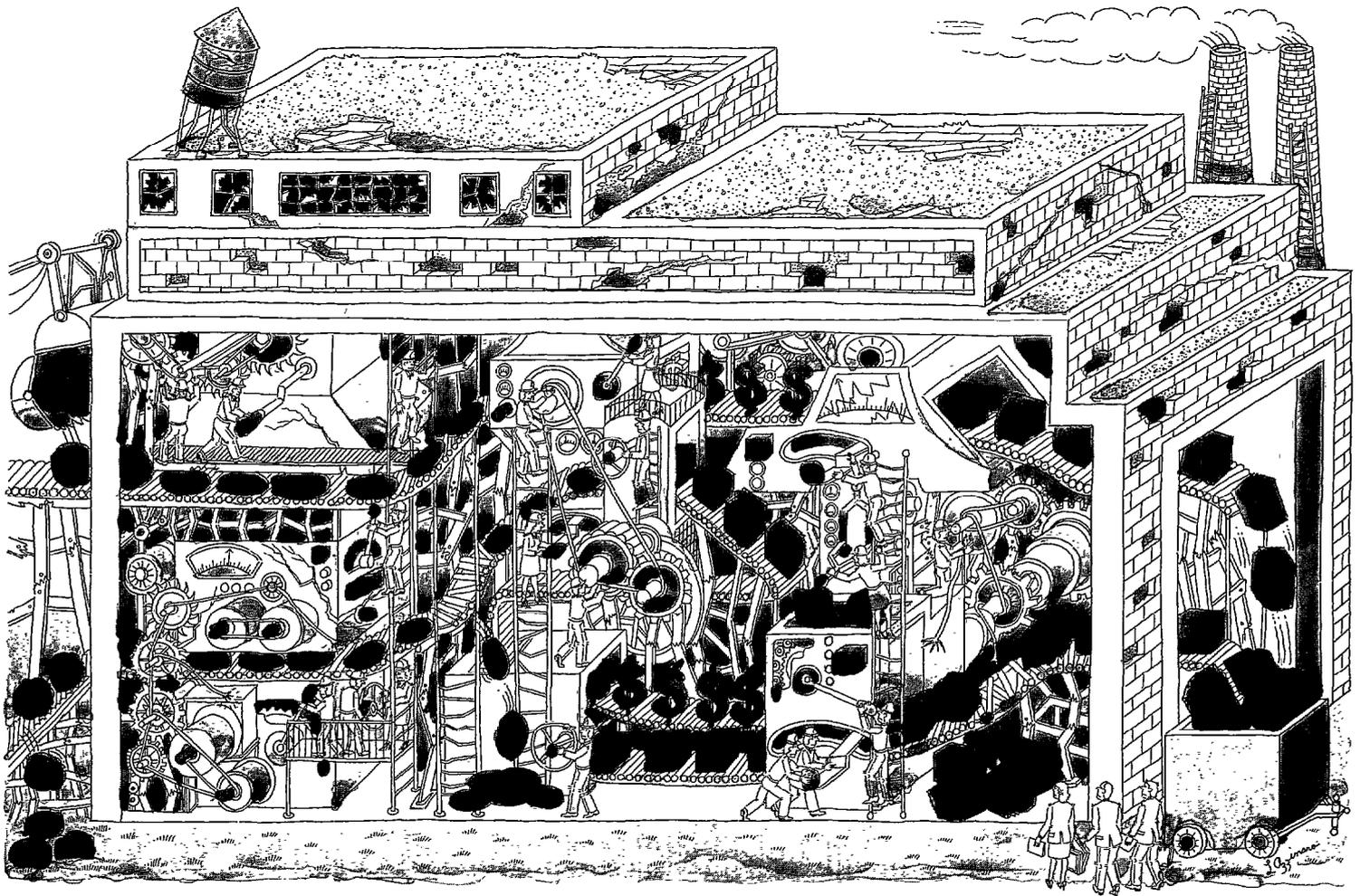
“GASB believes that financial reporting plays a major role in achieving public accountability in a democratic society. Public accountability is based on the belief that the taxpayer has the right to know, a right to receive openly declared facts that may lead to public debate by the citizens and by their elected representatives.”

The federal government traditionally has taken a financial reporting approach based on receipts-and-outlays information. The focus is on budgeting, which

is forward looking, rather than on accountability, which reveals where we have been and what we have done. Under the current approach, policymakers must plan for the future without a firm grasp of the present or the past. And the public debate to which GASB refers may be crippled for lack of data.

The budget

At a time when overwhelming deficits bring calls for a balanced budget and the budget process itself is dominated by the Gramm-Rudman-Hollings approach, there is still a very large, unanswered conceptual question: What does “balanced” mean? Gramm-Rudman-Hollings directs us to reduce the deficit to zero; others argue that zero is an impractical or even unnecessary target. Many advocate balancing the federal budget — “like the states do” — not realizing that the states define “balanced” differently than the federal





From the level of day-to-day, on-the-ground operations to the level of overall, long-range program management, federal managers are constrained by a lack of adequate financial data.

government does. States often balance their budgets to zero on the operating side but believe that it is acceptable to go into debt for long-term investments. The Gramm-Rudman-Hollings approach, on the other hand, aims at balancing the entire federal budget at zero; if this approach is followed to the letter, by 1993 the federal government will not be able to borrow a penny for anything. Can the government of the United States finance its operations, highway programs, long-term military hardware acquisitions, other investment programs, and loan programs without borrowing a cent? I doubt that it can, nor am I certain that it should. It is crucial that we define the target we really want to reach — a conceptual and policy issue of the very broadest dimensions. (Knowing where we stand in relation to that target would be easier, too, if federal agencies produced financial statements to portray the long-term trend of investments, assets, liabilities, and operating costs. But more on that in the next section.)

Financial reporting

This area of concern runs across several of the problem areas listed above. It might well be called “The Information Issue.” From the level of day-to-day, on-the-ground operations to the level of overall, long-range program management, the performance of federal managers is constrained by a lack of adequate financial data. For example, there has been a great deal of emphasis for the past few years on the day-to-day management of debt collection. But those who have focused on the problem at the Office of Management and Budget (OMB), at the Department of the Treasury, and on Capitol Hill all have noted the disheartening lack of reliable accounts-receivable and loans-receivable data. Taking action on uncollected debts is hard when simple questions about them are unanswerable, questions such as: How many receivables are really current? How many are delinquent but being worked on? How many are in some kind of restructuring phase? How many are at collection agencies? Administrators need reliable data, data that is consistent from one agency to the next and that is produced in a disciplined way. Too often, they have had to do without it.

The lack of financial data is just as crippling at the overall program management level. For example, the Veterans Administration (VA), which runs 180 large hospitals around the country, lacks information on the cost of each one or the cost of a given medical

procedure at one hospital versus another. If someone were to inquire about the potential financial impact of closing a VA hospital — or, for that matter, a State Department embassy or consulate or one of the Forest Service’s hundreds of offices — enough information could be brought together to form a rough estimate of the savings. That might be sufficient for one-time decision-making. But it is certainly insufficient for the program manager who must try to run a whole network of operations every day — who needs to know where things are working well and where costs are going up, where they are going down, where procedures are cost effective, and where they are not.

Improving productivity is another area in which the information issue shows up. A number of administrations have focused on productivity programs, but all have suffered for lack of base-level data against which to compare programs or operations. To improve productivity requires first that we be able to determine the actual costs of programs and then that we be able to compare the findings from one operation or program to the next. But as OMB’s latest privatization and productivity programs have shown, most of the data being used to evaluate operations come from ad hoc sources and are therefore suspect. Critics of a given cost-reduction effort or privatization proposal can simply attack the data as insufficient or unreliable; if better data existed, productivity assertions would have greater credibility.

Part of the information problem can be traced to the federal government’s notoriously antiquated accounting systems. The basic structure underlying many of the current systems was laid out during World War II; many systems were built around 1950s-vintage concepts and computers and have become inefficient and unreliable as new requirements have been layered on old. As the President’s fiscal year 1989 report on *Management of the United States Government* states, “once a leader in the early days of automation, the Government’s financial systems and operations have eroded to the point that they do not meet generally accepted standards.” Hundreds of millions of dollars have been spent each year on uncoordinated efforts to upgrade these systems. In the meantime, costly as they are to operate and maintain, the old systems fail to produce the complete, timely, reliable financial data needed for policy-making and day-to-day operations.

Ultimately, all this talk about financial data leads us to the issue of agency-level financial reporting. GAO has advocated that each agency produce a yearly financial statement — a point of view that, while gain-

ing converts, has not been universally accepted. Some have said that agency financial statements don't reveal very much. "And anyway," they add, "nobody makes decisions based on them."

In a sense, that assertion is true — a manager doesn't make specific day-to-day operating decisions on the basis of the agency's financial statement. But that fact does not by any measure make the financial statement irrelevant. For example, the Federal Savings and Loan Insurance Corporation (FSLIC), the insurer of savings and loan deposit accounts, is one of the few federal agencies to prepare financial statements. FSLIC is in fairly poor financial condition right now — insolvent to the tune of some \$10 billion to 12 billion or more. However, if only the traditional receipts-and-outlays data were available, FSLIC would appear to have a billion dollars in funds. Cash data wouldn't show the enormous overhang of costs that exist today for bankrupt institutions FSLIC is warehousing because it does not have the money to close them down. FSLIC's accrual-based financial statements, by reflecting the agency's true financial condition, have helped attract the attention of the Congress and focus discussion about the recapitalization of the agency.

Financial statements have been very revealing at the Farm Credit System — a nongovernment lending agency that for years did not produce financial statements in accordance with Generally Accepted Accounting Principles (GAAP) or undergo financial audits. Two years ago, its first GAAP-based financial statements were prepared and audited, and for the first time it became clear to everyone that the Farm Credit System was in the sort of serious financial difficulty that would require an infusion of billions in federal funds. If such statements had been available all along, we might have been able to identify some of the problems sooner. Even now, the Farmers Home Administration — a \$60 billion federal lending program that is not substantially different from the Farm Credit System and that has similar problems — does not prepare financial statements or undergo financial audits.

Financial statements for the federal government may still be a controversial proposal, but in other sectors they are taken for granted: a given. Since 1934, annual, comprehensive, accrual-based financial statements of all publicly held corporations, audited by private sector independent public accountants, have been required by the federal government as a matter of public policy. This requirement is one of the keystones of the business world; it imposes internal con-

trols on management and enforces them. It holds managers accountable to shareholders.

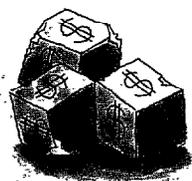
Since the mid-1970s, the states and localities have moved in the same direction. And in 1984, the Single Audit Act mandated financial statement audits of virtually all state and local governments. Likewise, the Congress has mandated accrual-based financial statements and periodic financial audits either by GAO or outside public accountants of all federal government corporations, the Postal Service, and New York City.

What others have done

It is very apparent that in financial management issues the federal government faces problems over a broad front: systems, concepts, accountability, reporting, leadership, implementation. But clearly the federal government is not the only institution to have faced this challenge. Fifteen years ago, had you asked people to compare financial management at the federal and state levels, most would have said, "The feds are doing a better job." But ask again in 1988, and you will find virtually no one who will say that the federal government is outdoing the states. The states, which faced major financial management problems in the early 1970s, have done a lot of things to solve them:

- They usually have had a plan — a general concept of what improvements were needed — and some centralized leadership to carry it out.
- They have used financial statements to pull numbers together — to impose discipline on the systems and provide accountability.
- They have used financial audits to scrub the numbers and the systems.
- They have upgraded systems and, instead of merely focusing on fund control, have focused on management information as well.
- They have moved beyond cash-basis budgeting.
- They have set up internal controls that emphasize prevention rather than after-the-fact detection of wrongdoing.

Of course, not all the states have taken identical actions. But these six points are hallmarks of the sort of efforts that have been successful in state after state. At GAO, we think the same half-dozen measures ought to be taken at the federal level.



Financial statements for the federal government may still be a controversial proposal, but in other sectors they are taken for granted: a given.

BILLIONS IN LOSSES

Last winter, GAO's third governmentwide report on the Federal Managers' Financial Integrity Act cited examples of losses incurred due to weak internal controls. Among them:

- The Department of Defense cannot account for over \$600 million in advances made by foreign customers for weapon systems purchases.
- Medicaid recipients and providers of Medicaid services abusing the system may have cost the federal government at least \$54 million, and possibly as much as \$400 million in 1985, although internal control weaknesses were identified in 1978.
- Weaknesses in agencies' collection systems remain and delinquencies in nontax debt owed the federal government have grown by 55 percent in 3 years to \$24 billion.
- Agencies paid almost 25 percent of their bills late, thereby incurring millions of dollars annually in interest penalties. They also paid close to a quarter of their bills too soon, thus costing the government at least \$350 million annually in lost interest.
- The Social Security Administration, which has long-standing accounting system problems, credits its workers with \$58.8 billion less in earnings than does the Internal Revenue Service, a difference that may result in underpayments to an estimated 9 million beneficiaries.

Continuing Efforts Needed to Improve Internal Control and Accounting Systems (GAO/AFMD-88-10, Dec. 30, 1987).

The accompanying article by New York State Comptroller Edward V. Regan recounts his state's experience and that of New York City. There are lessons in these experiences for us. Granted, the federal government is larger, more complex, and different in certain fundamentals from state and local government and private corporations. But there are some financial management concepts that appear to be universal, and there are solutions adaptable to the federal level. We think it makes sense to employ the best practices that others have pioneered for us, adapting them where necessary to meet the unique needs of the federal government.

Areas in which to take action

The 1985 report, *Managing the Cost of Government*, which grew out of GAO's study of federal financial management, laid out a long-term approach that stressed four key elements:

- *Strengthened accounting, auditing, and financial reporting.* Effective financial management must start with complete, reliable, consistent, and timely information. Routine and special reports must be timely, useful, and readily understandable, and the reliability of the information must be ensured through effective auditing procedures.
- *Improved planning and programming.* Many of the most pressing national issues cannot be adequately considered using a narrow, short-term approach. A modern financial management system should include a structured process for considering these issues, one that focuses attention on major issues, identifies alternative courses of action, and analyzes their probable consequences. The process must ensure that the alternatives are accurately and completely costed on the basis of data from the integrated accounting systems.
- *Streamlined budget process.* To be effective, the federal budget process must be made more manageable and must be integrated with the planning, programming, and accounting phases of financial management. Reform is needed in both the Congress and the executive branch. This effort should concen-

trate on eliminating unnecessary repetition, detail, and obstacles to action. The system and its operating procedures must be designed so that program managers, policy officials, and Members of Congress can focus on the difficult budget choices that must be made.

- *Systematic measurement of performance.* Effective management of resources requires examining the results of government activities, as well as their costs. An integrated and disciplined financial management system that provides consistent data on cost and performance is essential to help both the Congress and the executive branch assess the efficiency and effectiveness of government operations. Top appointive federal executives have relatively short tenures and are therefore especially dependent on reliable cost and performance reports to ensure that resources are being used effectively.

Taken together, these elements form the conceptual foundation of a new financial management structure. Putting the new structure in place and making it work, however, will also require:

- *System development efforts.* New systems must be designed and installed, over a period of years, that consistently implement the accepted concepts and take full advantage of the latest technology. Much of this can be accomplished with little additional cost by coordinating new and existing system-development activities.
- *Organizational changes.* To operate the new structure efficiently, financial management responsibilities within the federal government need to be reexamined and better defined.
- *Investment in people.* To operate effectively, even the best-designed financial management system requires able, dedicated, well-trained people and continuity of leadership from skilled executives.

What's been done recently

The logical starting point in tracing recent efforts to reform federal financial management would be the early 1980s. As mentioned earlier, it was in 1982 that the Comptroller General began his evaluation of the issue, but around that time several other relevant events took place. When looking back at these and subsequent actions, it's best to keep in mind not only

the individual problems they were aimed at solving, but how, taken together, they reflect a growing consensus on the broader approaches to managing the federal dollar.² Beginning around 1982:

- The Federal Managers' Integrity Act was passed, recognizing significant internal control weaknesses as the cause of many federal financial management problems. The act emphasizes the responsibility of agency managers to ensure that government operations are carried out in an efficient and effective manner and recognizes the crucial role of internal controls in ensuring improved government operations. The act requires, for the first time, that agency heads produce annual reports on the status of internal controls and accounting systems and identify measures to correct internal weaknesses.
- OMB began a series of individual initiatives under the umbrella title of Reform 88, which had as one of its central features the improvement of federal financial management. Among other things, OMB called for the standardization of government accounting data and, with it, a common standardized financial reporting capability; accounting systems in keeping with the Comptroller General's standards; the standardization of payroll systems; the streamlining of administrative payment centers; and improvements in credit management, debt collection, and cash management.
- The Debt Collection Act of 1982 was passed, requiring improved accountability and the application of proven private sector collection practices in the federal government.
- The Prompt Pay Act was passed, dealing with specific deficiencies in the government's payment of vendors.
- The President's Council on Management Improvement and the President's Council on Integrity and Efficiency were established to deal with issues of management and of fraud, waste, and abuse.

In subsequent years, a number of other actions have been taken to improve federal financial management, including the following:

- *Standardization of systems and information.* GAO revised its accounting standards for the federal government; the Department of the Treasury reissued its reporting requirements for federal agencies; OMB issued a standard general ledger to begin standardizing data at the agency level; and, more recently, the Joint Financial Management



Even the best-designed financial management system requires able, dedicated, well-trained people and continuity of leadership from skilled executives.

“WE CAN NO LONGER AFFORD TO WASTE MONEY”

“To manage resources within future deficit reduction targets, we will need better financial information at every level and stage of decision-making from the agency manager to the President and the Congress. Therefore, improving financial systems is a key ingredient in the President’s overall program to enhance management efficiency.”

— **Secretary of the Treasury James A. Baker III; OMB Director James C. Miller III; and Comptroller General Charles A. Bowsler** in a memorandum to heads of departments and major agencies, August 14, 1986.

“At a time when Congress is being asked to trim every program to the absolute minimum, it is especially important to ensure that each dollar is properly spent and tracked. We can no longer afford to waste money because our financial management systems are antiquated and obsolete.”

— **Senator John Glenn**, introducing the Federal Financial Management Reform Act of 1987, July 22, 1987.

“It is high time that the Federal Government had a position, a chief financial officer, that could be held accountable for these shortcomings. Someone who would be responsible for supplying the executive branch and the Congress with reliable, consistent, timely, and complete financial information. This financial officer would require the building and maintaining of an effective financial structure including development and implementation of a financial plan; the maintenance of quality, skilled personnel to carry out the plan; and the development and implementation of systems to bring about the necessary accountability.”

— **Senator William V. Roth, Jr.**, cosponsoring the Federal Financial Management Reform Act of 1987, July 22, 1987.

Improvement Program issued core financial system requirements that represent the minimum standards that must be met by all federal government financial systems.

- *Auditing.* The Single Audit Act was passed in 1984, requiring that state and local governments produce annual, audited, entitywide financial statements, with additional emphasis on review and testing of internal controls and on compliance with laws and regulations.
- *Credit management, debt collection, and cash management.* Initiatives have been undertaken, first by OMB and the Treasury, then by all major agencies, through which billions of dollars in savings have been reported.
- *Accounting systems.* Virtually all major agencies are evaluating their accounting and financial systems requirements, including, in most cases, increased attention to management information needs. OMB’s Circular A-127 requires agencies to prepare 5-year accounting system improvement plans; for the first time, federal agencies must consider their financial systems with an eye to the “long haul.”
- *Agency financial statements.* Several agencies have recognized the need for public accountability statements. GAO has completed financial audits of VA and the General Services Administration; Inspectors General have completed financial audits at the

Social Security Administration and the Department of Labor; and financial audits are under way at the Environmental Protection Agency, the Department of the Air Force, and the Department of Agriculture.

- *The budget.* The drive to get the budget-deficit problem under control has been marked by a pair of extraordinary actions. The first was the enactment in 1985 of the Gramm-Rudman-Hollings emergency deficit control act, with its mandated schedule for balancing the federal budget. The second was the 1987 White House-Congress "budget summit," through which agreement was reached on a package of reductions over fiscal years 1988 and 1989. Both events fell outside the usual budget-appropriations procedures. Lasting improvements in federal budgeting will require changes in the procedures themselves.

To that end, a number of issues basic to federal budgeting are receiving serious attention, among them proposals to improve the discipline and timeliness of the congressional budget process; restructure the budget to provide for capital and operating budgets within the unified budget; revise the budget's reporting on trust and non-trust-fund amounts, to better disclose how trust-fund balances are used to finance non-trust-fund programs and lower the reported unified budget deficit; require congressional "up-front" appropriations to cover the projected subsidy costs of new direct loans and loan guarantees; and provide for the budget reporting of annual accrued liabilities in federal pension programs and other such programs in which the current cash-based reporting of outlays does not reflect the annual cost of the activity.

The newly established National Economic Commission, created by the Omnibus Budget Reconciliation Act of 1987, is now addressing proposals such as these, and is scheduled to report on its conclusions by March 1989.

- *Leadership.* OMB has recently appointed a Chief Financial Officer for the executive branch and directed each agency to designate a corresponding official. It has established a Council of Chief Financial Officers to deal with major financial management issues. OMB intends to propose legislation to institutionalize the Chief Financial Officer position within OMB and the agencies.
- *Congressional interest.* Several bills have been introduced in the House and Senate over the past 5 years, and numerous hearings have been held on

what is needed to improve federal financial management.

What is needed today

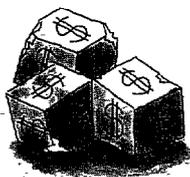
The last item in that list leads to a question: Given all that has been done to improve federal financial management, what should be done to ensure that progress continues? Experience has shown that major federal management reform of any kind is more likely to succeed if it has a legislative underpinning. That is why GAO has drafted legislation and submitted it to the Chairmen of the Senate Governmental Affairs Committee and the House Government Operations Committee. "The Federal Financial Management Reform Act" would provide for:

- Centralized leadership that would be responsible for developing and implementing a governmentwide plan for improving financial management systems and reporting annually on the plan's progress;
- Corresponding financial management leadership in executive branch agencies; and
- Annual preparation and audit of agency and governmentwide financial statements to foster accountability and system integrity.

For problems as complex and long-standing as those of federal financial management, there are no magical solutions. The situation can be righted only through painstaking, long-term efforts. These efforts cannot be haphazard; they must be made part of the government's standard operating procedure. We at GAO feel that to build in that approach so that it endures from one administration to the next will require legislation. The Federal Financial Management Reform Act may not solve every facet of the problem, but it will, without doubt, enable the federal government to better manage its financial affairs, save billions of dollars, and help restore the accountability of managers and the credibility of government in the eyes of the public. ●

1. The study resulted in the two-volume report, *Managing the Cost of Government: Building an Effective Financial Management Structure* (GAO/AFMD-85-35 and GAO/AFMD-85-35-A, February 1985).

2. One mark of this consensus was the August 1986 letter from the Comptroller General, the Director of OMB, and the Secretary of the Treasury to all federal agencies, conveying the top level commitment of the three central federal financial agencies to improve federal financial management.



Efforts to improve federal financial management cannot be haphazard; they must be made part of the government's standard operating procedure.

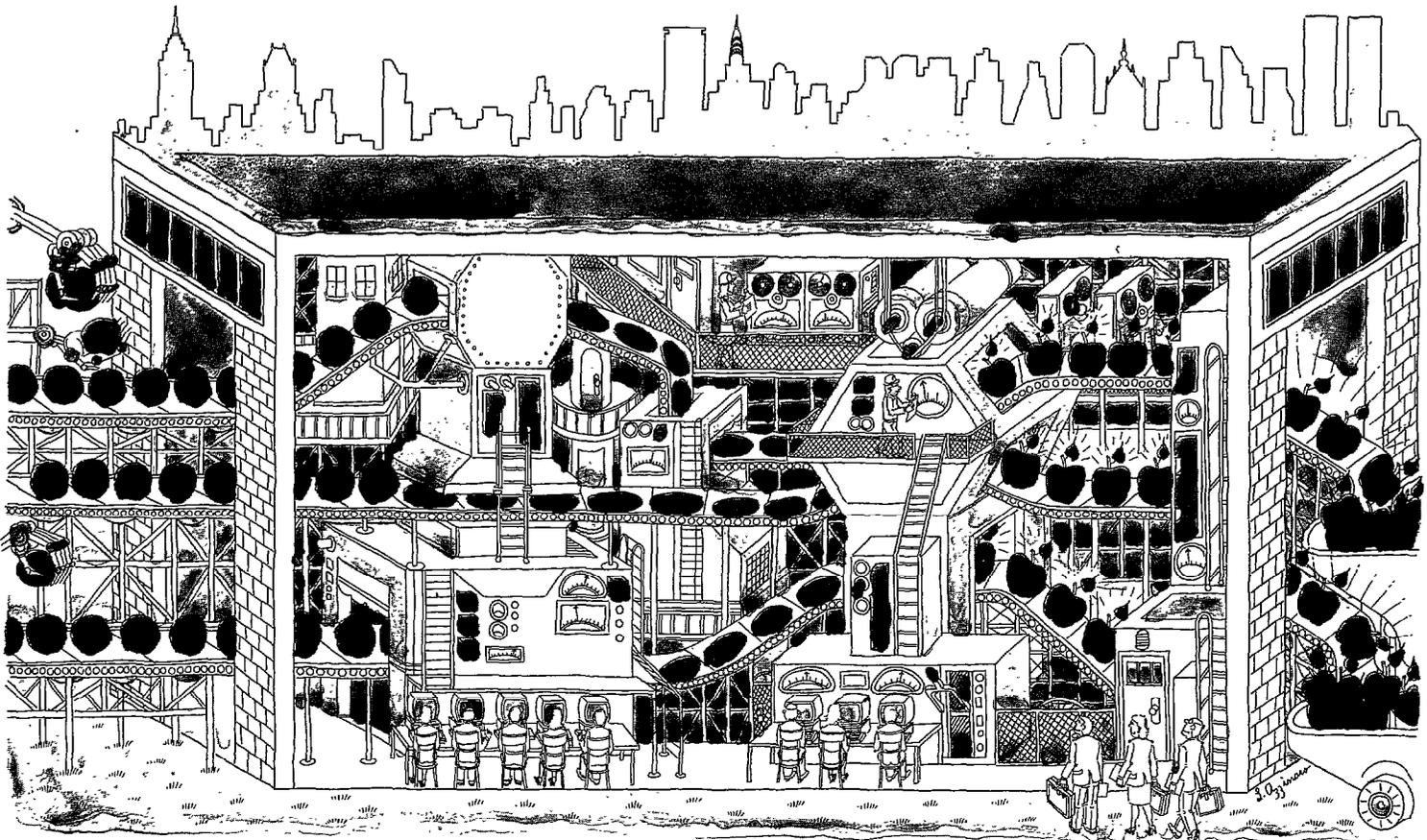
Edward V. Regan

LEARNING BY NEW YORK'S EXAMPLE

A lesson in the way better government financial systems lead to better government.

THE POTENTIAL of the U.S. government's debt-ridden, undisciplined financial management and reporting systems to help unsettle the world's financial markets was dramatically demonstrated last October 19th. Let us hope that it will not take another Meltdown Monday for the nation to recognize a simple truth — that sound financial systems discipline political behavior and thereby benefit the entire society. New York State and New York City offer dramatic examples of that principle. Their experience is not only highly instructive in itself, but has applicability at the federal level as well.

EDWARD V. REGAN is Comptroller of the State of New York.



Early in 1979, shortly after I became Comptroller, I was asked to speak on New York State's financing programs before a U.S. bankers' organization meeting in Arizona. At that point, New York's annual "spring borrowing" was approaching. Outside of the federal government, that borrowing was by far the largest government financing program conducted anywhere in the nation; that year it totaled \$3.1 billion in short-term notes. Eventually it grew to \$4.3 billion. Having been Comptroller for only a month, I was new enough to the job to be shocked by the sheer size of the borrowing.

I described to that bankers' organization New York's way of doing business: a web of "financial schemes, unorthodox and obscure methods of government budgeting, financing and financial reporting — inevitably causing adverse consequences for the economy."

Over the course of decades, for example, New York's governors and legislators had routinely deferred, or "rolled over," the payment of bills from one fiscal year to the next. A liability was not recorded until the state decided to pay it — even if payment occurred 6 months later and in a different fiscal year. Billions might be spent before an election, with the associated imposition of taxes delayed until afterward.

State aid to education was merely the best, not the only, example of the way in which New York's cash-basis accounting system allowed for poor accountability. At the start of the fiscal year, the state would increase aid to local school districts. The districts would spend this new money in September, the start of their school year. New buses were purchased, sports facilities improved, and higher salaries negotiated. With November elections approaching, September and October are excellent months for public officials with reelection hopes to be thanked publicly for their largess — so ribbon-cuttings, union endorsements, and the like would be arranged. But the school districts hadn't actually seen any cash; they had borrowed in anticipation of receiving it from the state. And they would see it — the following April, at the beginning of the next fiscal year. That's when the state's taxpayers would find out that ribbon cuttings in the fall meant taxes in the spring.

As Comptroller, I learned the language that was used to make the manipulation of cash-basis accounting seem part of the natural order of things — terms such as "spring borrowing," "magic window," "rollover," and "the 2-year lag" — and I was faced with having to oversee the borrowing of billions in April to pay bills deliberately deferred from the past fiscal year. This is what I had to explain to those bankers in Arizona. I returned to New York determined to overhaul the way the state conducted its fiscal affairs.

It took 5 years. Technically it was one of the broadest and most complex accounting conversions ever undertaken. But the political objective was equally ambitious; the challenge equally difficult. I was proposing to change a whole style of governance, a whole scheme of statutes and ingrained procedures. My job was to do what always has to be done to pull off a major achievement in government: Get the merits of the position and the prevailing politics to coincide.

This called for appearances before civic groups that eventually numbered in the hundreds, dozens of conferences with government fiscal experts and state legislators' staffs, repeated meetings with editorial boards of the state's newspapers — all to build a consensus for change. I found that what interested people was not the technical and professional concerns, or even the deficits themselves. What interested people was what the deficits *stood for*: poor public-policy decisions, often

cynically undertaken to enhance someone's political reputation at the expense of future generations. "Deficits mean you're being systematically hoodwinked" was a statement that made people sit up and take notice.

When I spoke with public officials, particularly those who believed in a strong, activist government, I suggested that activism brought with it an obligation to eliminate obscurity — to make clear to the citizens of the state the way in which that strong government was operated. Sound public policy starts with knowing the facts — and that includes recording the liabilities.

In the business world, accountability is in the "bottom line." Spill red ink and trouble develops. That's the discipline that keeps our free enterprise system on track. The ballot box is the bottom line's public sector equivalent; it is where accountability for official acts is established. Fudge the books in business and, for a while, you can put off the effects of accountability — until disaster strikes. Fudge the books in government, and the value of the ballot box — may I suggest democracy itself — is diminished.

So in 1979 we started the push to bring the state's budget, accounting, and reporting systems into line with Generally Accepted Accounting Principles (GAAP). We produced prototype financial statements on an accrual-accounting basis, started a central accounting-system redesign, and published official statements in the Annual Financial Report. Within 2 years, we had installed the new central accounting system; trained state-agency personnel in its operation; and subjected our financial statements, based on GAAP, to their first independent audit.

With these new measures in place, the nature and extent of the accumulated rollovers and deficits were made apparent. And the size of any new rollover was known within days of the publication of a new state budget. This focused the public spotlight on the state's fiscal practices and paved the way for increased support for financial reform among the political establishment; the business community; the media; and, ultimately, the taxpayers.

Our efforts entered a second stage in 1983. We announced a program to cap both deficits and borrowing and, over a multiyear period, to roll back the deferrals. We drafted amendments to the state constitution along with new legislation, using memos and charts to back up our position. We held a new round of statewide speeches and meetings with taxpayer and business groups.

With some changes, our program was accepted and implemented by the Governor and the legislature. They deserve full credit for the remarkable achievements that followed. In 1985, the first New York State budget balanced according to accrual-accounting principles was issued (as has been done every year since). A series of "rollbacks" was then initiated:

- A wide variety of payments by the state to local governments, some of which had been routinely made 2 years late, were brought current. This required a one-time expenditure of \$163 million.
- \$360 million in personal income tax refunds were rescheduled and are now paid on a more timely basis.
- The state's pension payment, an \$800 million liability that had been lagged 2 years, was brought current by amortizing 2 years of payments over a 17-year period.
- The state funding for increases in education aid is now appropriated on a current basis — an allocation this year of \$655 million.

Ever since New York adopted accrual accounting as its standard, the state has set aside more than \$1 billion to permanently reduce debt and deficits. This illustrates the discipline the system imposes, but also clearly signals the commitment to fiscal responsibility on the part of the Governor and the legislature. This \$1 billion does not produce new buildings or new programs; no press releases or ribbon cuttings are involved. The money simply lessens the burden that future generations of New York State taxpayers must bear.

The state's spring borrowing, which would eventually have reached some \$6 billion or \$7 billion, is now down to \$2.6 billion. It had been 20.9 percent of the operating budget; it is now 9.8 percent. The annual interest cost on the borrowing had been \$246 million; 3 years later, it is \$129 million. Credit ratings are up for the first time in the state's history.

The financial achievements are significant, but the most important accomplishment involves policy. Today, decisions to spend or tax are made in an open and disciplined environment. We produce a detailed study of each executive budget proposal weeks before the legislature is scheduled to consider it. If state policymakers wish to shift the burden of financial liabilities onto future generations, their intent is recorded and reported automatically. Therefore, they no longer do it. Financial systems now control public policy. The state is on sound financial footing.

Among other large benefits, the business community's confidence in New York State has been restored. Business people know there will be no more fiscal surprises. Partly for this reason, they have invested billions in the state over the past 10 years and have created more than 800,000 new private-sector jobs.

That's the state's experience. Now, a brief look at New York City's.

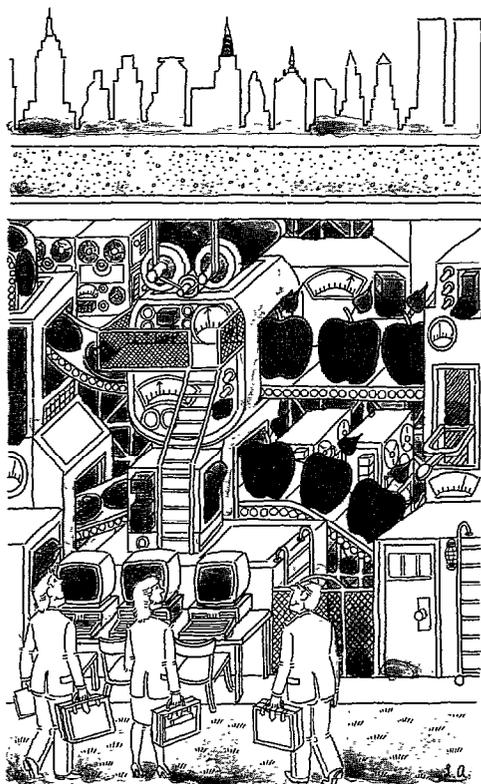
New York City's crisis emerged in 1975 when it was revealed that the city had accumulated, over a number of years, about \$6 billion in short-term borrowing needs. The figure represented a succession of deficits rolled over from month to month and fiscal year to fiscal year. The essential cause was clear: loose fiscal systems, easily manipulated by public officials.

A Securities and Exchange Commission staff report on New York City said this: "Since 1970-71, every expense budget has been balanced with an array of gimmicks — revenue accruals, capitalization of expenses, raiding reserves, appropriation of illusory fund balances, suspension of payments, carry-forward of deficits and questionable receivables, and finally, the creation of a public benefit corporation whose purpose is to borrow funds to bail out the expense budget . . . Reliable financial information was unavailable, and the adjusted deficit could only be estimated because, among other things, the City's internal accounting control system had been deficient in material respects."

Faced with impending bankruptcy, the city was forced to change. Within a few years it overhauled its accounting system to conform with GAAP and installed an automated integrated financial management information system. The city then eliminated its deficits, balanced its budgets, and generated year-end surpluses. It has since received numerous credit upgradings.

From time to time, of course, the specter of scandal still touches New York City. But whatever else some city officials may attempt to get away with — and this is the point of our discussion — they can no longer routinely manipulate the books to achieve their political and policy goals. The city's new fiscal systems just will not allow it.

The celebrated New York City resurgence is related to this. Its economy continues to grow — notwithstanding the current stock market unease — and it is prob-



ably the most vibrant city on the globe.

I hope I have shown how, on the state and city levels, government financial practices once contributed to disaster and now contribute to boom. The federal government's financial management and reporting practices are reminiscent of New York State's a decade ago. At the federal level, though, the consequences could have global implications.

Considering its size, the U.S. government maintains, without doubt, the most inadequate financial accounting and reporting systems on earth. There is no overall financial statement. There are 427 separate accounting systems, and 226 of them are in noncompliance with GAO standards. More than \$300 billion is owed to the federal government, but these receivables are not recorded. Furthermore, the government is contingently liable for more than \$3 trillion in connection with loan-guarantee and insurance programs, the ultimate costs of which are unknown.

This situation begs for two basic reforms. The first is a conversion to accrual-basis accounting. Today, the federal government's liabilities are not recognized. Commitments for purchases and programs, authorized by the Congress and requiring future outlays, are not reported. Future generations of Americans are saddled routinely with hundreds of billions of dollars in obligations.

Taking small slices out of the federal government's \$150 billion to \$200 billion annual cash-basis deficits is no way to make the deficits disappear. The solution to the deficit problem lies in the fundamentals: recognizing that resource and expenditure decisions must balance, and that the process by which these financial decisions are made must be changed.

The second reform involves organization. The U.S. financial management process, now characterized by unstructured planning and weak controls — widely scattered in the executive branch and various agencies — needs direction by a single authoritative office. A federal Chief Financial Officer should be established.

While either a tax increase or a spending cut is obviously needed to reduce the federal budget deficits, the two reforms I suggest would be, in the long run, more significant. The federal government's current financial practices accommodate, even entice, manipulation by public officials, leading to massive borrowing and the creation of untenable deficits. These practices destroy the confidence of both investors and the general public in the nation's ability to regain fiscal control. As I suggested in an April 7, 1987, letter to Howard Baker, President Reagan's Chief of Staff, the situation will improve "only if the (financial) decisions made daily in all branches of the federal establishment are done in a controlled, disciplined environment."

Achieving change will be a very difficult process. Federal officials who resist financial reform use the same language — usually having to do with their need for "flexibility" — that New York State and City officials once used. But New York State and City learned their lessons — lessons that can be applied at the federal level. Though there is in Washington today some feeling that reforms are in order, I believe — on the basis of my experience in New York — that widespread support for reform is crucial to its accomplishment. In this presidential election year, we can all hope that some candidate will recognize the facts and bring them to the attention of a national audience. ●

Representative John M. Spratt, Jr.

IMPROVING
FEDERAL FINANCIAL
MANAGEMENT

GETTING A HANDLE ON WEAPON SYSTEMS

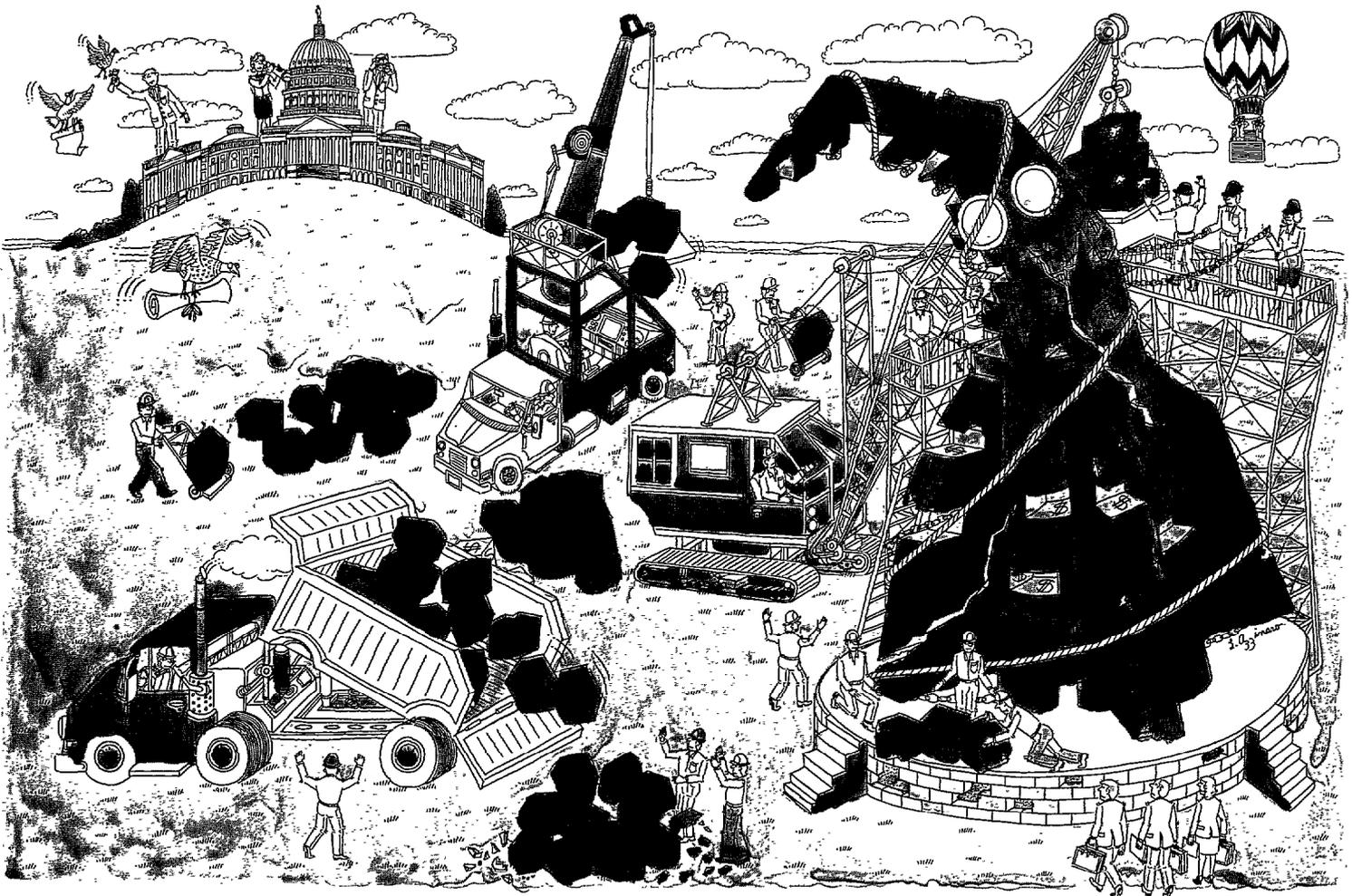
The Pentagon's Selected Acquisition Reports are flawed and underused. Here's how to make them better.

AS THE WAR in Vietnam escalated in the late 1960s, so did inflation and the cost of weapon systems. Overruns brought to light the absence of any cost-variance system in the Department of Defense (DOD) and the lack of any reg-

ular method of reporting actual versus planned costs to the Congress. In fact, there was hardly even a common vocabulary for weapon-system costs. "Cost overrun" could connote inflation in the economy or turbulence in the program; it could mean rampant change orders or simply the purchase of more items than planned. "Unit price" might embrace the end item and initial spares; then again, it might not.

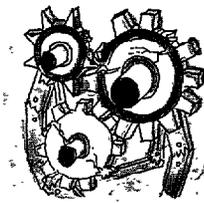
In 1969, Melvin Laird, newly appointed Secretary of Defense, appeared before the Senate Armed Serv-

REPRESENTATIVE JOHN M. SPRATT, JR., of South Carolina is a member of the House Armed Services and Government Operations Committees.



ices Committee, where he was confronted by an old colleague, Senator Richard Schweiker, with an idea. Schweiker wanted to set up, via legislation, a system to track weapon-systems costs and to report the progress of weapons in development or procurement on a regular basis to the Congress. Laird had been Secretary of Defense only a short time, but he had been briefed already on a DOD project, done with the aid of a consulting firm, to design such a system, and he prevailed on Senator Schweiker to withhold his bill until DOD could propose a system of its own.

A SAR is a variance report. Its purpose is to allow actual costs and actual performance to be measured against expectations.



The DOD project was, in fact, a pilot project, limited to only eight programs. But because of Laird's commitment, the Department set out to create a yearly report for each major program in development or procurement. The weapon-system report soon became known as the "SAR," the acronym for "Selected Acquisition Report." Laird turned over the project to his Deputy Secretary of Defense, David Packard, who took a personal interest in the effort; with his weight behind it, the military departments moved forward. Packard's interest was shared by Robert C. Moot, who had risen to Assistant Secretary of Defense-Comptroller from the bottom ranks of the Defense Department and understood the institution intimately from long personal involvement. Moot, in turn, was backed by his counterparts in the military departments, including an Assistant Secretary of the Navy named Charles A. Bowsher, who had come to the Pentagon from Arthur Andersen and Company and understood the need for a variance-reporting system.

Moot assigned the job of developing the SAR into a Department-wide system to his Operations Analysis Group, a group of young graduates of the Harvard Business School who had been lured to work in the McNamara Pentagon by Moot's predecessor, Robert C. Anthony.

In October of 1969, when I came to work in the Operations Analysis Group, the SAR was just coming to fruition. I had nothing to do with its development, but I worked with people who did, and was an interested onlooker. Fourteen years later, when I came to the Congress and joined the House Armed Services Committee, I was curious to learn how the SAR had evolved and how it was being used.

I learned to my dismay that members of the Committee barely knew of it and that staff used it seldom, if at all. When I looked through the SARs for the 1983-84 period, I found out why. Over 15 years, the Selected Acquisition Report had hardly evolved. The Congress had made the reporting requirement permanent by statute (P.L. 94-106; section 139a, title 10, *U.S. Code*), and DOD had published a laborious recipe on how to prepare a SAR, known as Instruction 7000.3. The General Accounting Office, long an advocate of SARs, had evaluated the reporting system in March 1975, May 1980, and July 1986, and made recommendations for improvement, some of which were adopted, some of which were not. In the process, the SAR had grown in length and complexity and detail, but not in usefulness or intelligibility.

Among the SAR's dissatisfied users was Senator Sam Nunn. In the fiscal year 1982 Defense Authorization Act, Senator Nunn and Representative David McCurdy added a new requirement, a unit-cost exception report, to be submitted whenever the total program-acquisition unit cost or the current procurement-unit cost increased by 15 percent over the reported baseline. Still, Nunn implored the Pentagon to develop a more relevant and intelligible SAR, and in 1984, the Pentagon responded with what it called "a significant effort to restructure the SAR so that it would be a more readable and useful summary status report for those charged with management and broad oversight of major weapons programs."

The effort may have been significant, but the result was lamentable. In the name of streamlining the SARs submitted on December 31, 1984, the Pentagon rendered them all but useless. The average SAR was reduced from 20 pages to 9. One was cut from 26 pages to 8. Entire sections or paragraphs were eliminated from the format of all reports; much of the narrative was dropped, leaving mostly tables of numbers.

In its studies of the SAR, GAO had stressed repeatedly that related programs should be included, and such a section was finally added. In the 1984 SARs, however, DOD dropped not only paragraph 7 of the SAR, dealing with related programs, but also paragraphs 5 and 6, describing the weapon system and its mission. Basically, one should want each SAR to describe not just the system but its mission, and to specify technical attainments crucial to mission success. Logically, the SAR should go on to show how these requirements have been translated into contracts, so that contract performance can be followed as money is spent. No one can claim that paragraphs 5, 6, and 7 of the current SAR now satisfy all of the above. But they are included in the SAR to serve

introduction to the program and a summary of its status. Mere highlights will not be enough, however, for the staffer who is a specialist in the program; and the committee staffs' needs undoubtedly will differ from those of the CBO staff, who will be seeking as much consistency and commonality as possible in all the reports, so that they can make generalizations about costs and weapons systems across the board.

The current Deputy Secretary of Defense, William H. Taft, IV, believes that the quest for a single report "to meet the needs of several users with diverse interests, motivations, and responsibilities is not practical." It will not work because the "desires of staffs to have all the possible data cannot be reconciled with the needs of management to have an information system that provides concise, summary information on the cost, schedule, and technical status of a program."

Clearly, the quest will not be an easy one, but before we call it futile, let's explore the purposes the SAR should serve and some ways it could serve them better.

Central Source for Program Data. The SAR should be the central information source for anyone needing to know the essentials of a program and its status. Information about a program can be gathered from testimony, briefings, and sundry sources, but this is a piecemeal process that merely underscores the need for a single information source that is definitive and complete. Nothing fills this role now, but the SAR is the natural candidate.

Obviously, the SAR cannot serve this role if it is written in short, cryptic sentences, nor can it serve this purpose if it becomes so laden with detail as to be inscrutable to the average user. The solution to this dilemma, and to the problem of multiple users, is to reformat the SAR. To make pertinent data in the SAR more accessible, it should begin with an executive summary, including planned costs, costs to date, estimates to completion, and an overview of appropriations, all in tabular form, but with some of the data depicted by graph. The format of such a report with a sample set of graphs has already been developed by GAO.

For the member wanting a quick introduction to a program, the executive summary should be enough. The summary would be backed up, however, by appendixes with much more comprehensive data than the current SAR contains. The specialist in the program or the generalist in need of more information could simply turn to these appendixes. This combination of a concise summary followed by detailed ap-

pendixes solves the problem raised by Secretary Taft, and a graphic display of data would add an extra dimension to the report.

The Department has not responded favorably to the latter idea. It says that mistakes in SAR data can easily be corrected when discovered by DOD, so long as the effort involves just "whiting out" the mistake and typing in the correction, but erroneous graphs are not so easily corrected. This response can't be taken seriously in a world of spreadsheet software, where a few keystrokes on a personal computer can alter tables and graphs alike.

Repository for Reports. If reformatted, the SAR could conveniently be made into a catalog for keeping up with the special conditions and reporting requirements placed upon certain programs by law. For example, section 144 of the Defense Authorization Act of 1987 allows the Advanced Medium Range Air to Air Missile (AMRAAM) to be acquired, provided the total program of 24,000 missiles can be purchased for a total cost of \$7 billion in fiscal year 1984 dollars. A special appendix to the SAR would be logical place for the Air Force each year to project the unit cost of the AMRAAM and, using learning curves and cost trends, to show how it is homing in on the statutory cost requirement. At present, there is no system for keeping up with requirements such as these, and compliance varies from case to case.

Appropriations for a weapon system (such as the Bigeye Chemical Bomb or the Bradley Fighting Vehicle) are occasionally "fenced" by the Congress until completion of tests and a report to Congress. In the case of the Bradley, the Congress mandated live-fire testing to see if the vehicle could be made safer and more survivable. The resulting test reports could easily be annexed to the SAR for the Bradley, or if too lengthy or bulky, they could be referenced in the appendix and summarized. If test reports or summaries were annexed to the SAR, there could be a dividend for DOD. Since the SAR would then have essentially the same contents as the Congressional Data Sheets, the Congressional Data Sheet might be dispensed with, at least if the system covered were also covered by a SAR.

Here are a few examples of reports that might be "piggy-backed" onto SARs by appendix:

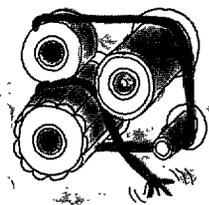
- Production-rate data and life-cycle cost summaries, both which are reported now, but which could be reported in more useful detail;
- Monitoring of procurement practices favored by the Congress, such as the use of contract warranties,

these purposes, and deleting them would not make the SAR “more readable and useful.” It would only make the report weaker.

Fundamentally, a SAR is a variance report. Its purpose is to put down representations about cost and performance at the outset of development, so that actual cost and actual performance can be measured against expectations. If there are no baselines approved or if the approved baselines are altered and abandoned, the SAR loses not only its integrity, but much of its utility. Nevertheless, when DOD set out to make the SAR a “more readable and useful summary status report,” it dropped the “Approved Program” baseline.

Finally, in streamlining the section of the SAR summarizing program cost, DOD decided to group costs into two categories, Development and Procurement. Formerly in the SAR, Development and Procurement Costs were broken out into major sub-categories, such as Airframe, Engine, Avionics, and Initial Spares. Under the new “summary status report,” the user was given the two overall categories only, and no indication as to just where or why costs were going up or down.

The SAR is caught in a sort of limbo. Members of Congress seldom use it, and staff of necessity get by with data from other sources.



The new SARs were a regression, and it did not take the Congress long to realize it. DOD submitted the new SARs in March 1985. By June, the House had passed the fiscal year 1985 Defense Authorization Act, which flatly rejected the new report and reinstated the old SARs. In the same act, the Congress added two new reporting requirements. One called for production-rate data, i.e., the variation of unit costs as the total number of units to be purchased went up or down. The other asked for a summary of life-cycle costs. Rather than make further changes to the SAR, Congress asked the General Accounting Office, the Congressional Budget Office (CBO), and DOD to study the report again and suggest ways to improve it.

Reports from GAO, CBO, and DOD have been in hand for 2 years now, but there has been little follow-up in the Congress, essentially because the SAR is caught in a sort of limbo. Members seldom use it, and staff of necessity get by with data from other sources, such as the backup books that come with DOD's budget request. After 20 years of trying to improve

the SAR, without notable success, the defense committees seem resigned to accepting the report as it is.

Even those who still hold out for an improved SAR acknowledge that legislation is not the best way to create one. It is easy for members or staff to say that this SAR or that tells us little that we need to know. It is much more difficult to express in legislative language exactly what we want to know. And even when statutory or report language is tried, there are problems of translation, which the experience with the 1984 SARs reveals. Indeed, the experiment with the 1984-model SAR shows how wide is the gap between the producers of the SAR and its users.

Is there a way to bridge the gap and build a better SAR? I think there is. It will require, paradoxically, making the SAR both simpler and more complex, and it will take uncommon cooperation between the Pentagon and the Congress. But it can be done.

The process would begin with a statement of purpose. There has to be an accord between producers and users about how the SAR is to be used. After years of submitting SARs, DOD still confuses its purpose by holding that the “SAR was not designed to be a decision document.” What is it then? Well, the Department says, the SAR is “to report on the progress in meeting designated cost, schedule, and performance targets of a program, to focus management attention primarily on changes to the plan, and to highlight breaches of program thresholds.” The answer only begs the question: What is management to do once its “attention is focused?” Why would the Congress want cost or performance data except to make decisions? Our primary role is not “jawboning” the Pentagon, but deciding how to spend billions of dollars. To decide prudently, we need the cost, technical, and schedule data that the SAR was intended to provide.

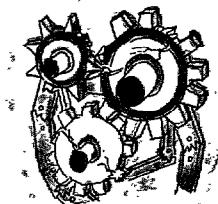
Before seeking to define the purposes the SAR should serve, we probably should ask whom it should serve. Obviously, the SAR is intended for use by Members of Congress and their staffs — particularly those who deal with defense — and it is intended especially for staff of the defense committees. Outside this group, the principal users are CBO and GAO for their overviews of systems covered by the SARs and studies of specific programs. There is one other group the SARs might serve if genuinely improved: senior managers in DOD.

Identifying the users is easy. The problem is that their needs for data vary widely. If a SAR is to be used by Members of Congress, it has to be intelligible to the Member who knows little if anything about a particular program and goes to the SAR for a quick

plans for second-source procurement, or should-cost studies;

- Monitoring of procurement practices *disfavored* by the Congress, such as overuse of undefinitized change orders; and
- Tracking of savings realized due to multiyear contracting.

The SAR can and should disclose known problems, product enhancements under consideration, likely modifications — anything in process that might change the program or result in significant new costs.



Notice of Pending Decisions and Problems. Even with the appropriate appendixes, the SAR would probably never contain enough timely data to become a “decision document.” But this does not excuse the SAR from containing notice of decisions that are pending or imminent. The SAR can and should disclose known problems, product enhancements under consideration, likely modifications — anything in process that might change the program or result in significant new costs. For an example of how SARs now fall short in this respect, consider the SAR for the B-1B bomber, as of December 31, 1986. The most the SAR says of problems with the ALQ-161 defensive avionics system on the B-1B is, “Program impact: insufficient contract reserves.” Overall, the SAR says “The B-1B is expected to meet all current mission requirements.” But the reality is that, at present, the bomber meets only 37 percent of its stated mission requirements, and there is a list of enhancements under consideration that could cost billions if undertaken. But all this must be gleaned from other sources; there is no intimation of it in the SAR. The SAR cannot disclose every upcoming decision, every contingency in the program. But if it cannot be made to disclose forthrightly pending problems and imminent decisions, it will remain of little use because it will not be respected as a source of information.

Accountability. Even though the SAR may never become an executive “decision document,” it will always be a chronicle of events in the life of a program. As such, it should record history honestly. Some of the data kept in the SAR were once held out to induce spending commitments for large sums of money. The SAR should be one document where

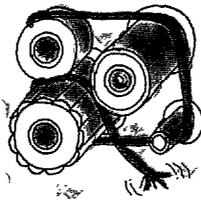
these representations are kept. To serve this purpose, the SAR should record the major elements of the system: the mission, performance requirements to accomplish the mission, technical characteristics to achieve such performance, performance achieved through testing, and system cost. As the system moves from Milestone II to Milestone III, changes in the system are likely to occur, and it may be not only appropriate but necessary to adopt new baselines for cost or technical performance. Nevertheless, the original baselines should be retained both as a worthwhile measurement and as a warning to advocates tempted to oversell their program. The need for a disciplinary tool, a means of enforcing accountability, was put bluntly by David Packard in the Spring 1988 issue of *The GAO Journal*: “While the [Packard] Commission was at work,” he said, “they were holding up the B-1 program as a shining example of how to run these things. We accepted what they told us. By the time we left town, all the problems started showing up. What they should be doing is finding all those guys in Air Force Systems Command responsible for these estimates and firing them. Do that a few times and you might start getting reliable estimates.” Here is a need that a strong SAR could help serve.

Budget Summary. There are other roles the SAR serves now but could serve better. For example, SARs now end with tables showing how budget authority has been provided year by year. The tables are a convenience and ought to be included; however, the information they set forth is already available to the Congress. What is not available, and often needed, is a presentation of (1) the unspent balance of obligated funds, (2) the balance still unobligated from previously appropriated funds, and (3) projected obligation and expenditure rates by quarter. The comptrollers of the military departments keep this data and update it periodically, so tabulating it for the SAR should not be an onerous task. On the other hand, it would be helpful information for congressional staff to have at hand during times when obligational authority and outlays have to be closely watched. Furthermore, the use of obligational authority at a faster rate than program completion may be a sign of problems in the program, just as the accumulation of unused budget authority may be a sign that something is out of order.

The foregoing is enough to show that more can be reported in the SAR, its role can be expanded, and it can still be made more accessible and intelligible. It seems evident after 20 years, however, that the SAR can be improved only marginally by legislation.

Changing it into a truly useful report, full of timely, intelligible information in an accessible format, will depend on truly unusual cooperation among all parties concerned. That can probably be accomplished only by a working group representing all the producers and users of the SAR: DOD comptrollers, program managers, defense committee staffers, and staff from CBO and GAO, joined by a few interested Members of Congress. To craft a better SAR, this group will probably have to labor section by section through actual SARs selected from each of the services, defining ostensibly what the Congress is seeking and what DOD can submit.

If the SAR is enriched as a data source and made more accessible, it will be used more widely and often. And usage of the SAR is probably the best means of sharpening its effectiveness.



The effort will not be easy, because it involves not so much sharing of information as sharing of power. Anyone who seeks a stronger SAR thinking it is just a question of formatting or a quest for clarification has underestimated the problem. Information is a source of power, and the struggle with the SAR is one of those struggles over power that play out constantly in our constitutional system. Even if the basic SAR were overhauled, the struggle would continue. DOD will continue to have a compelling interest in keeping under cover, and for as long as possible, the problems and pending decisions not revealed in SARs today, so that it could keep the Congress out of its business. Thus, if a working group is needed to overhaul the SAR, another working group should be chartered to police the SAR. At present, there is no official body to oversee the report, to insist on clarifications or corrections, or to follow up on disparities or outright

omissions. Such a body could meet when annual SARs were submitted and decide if any of them needed to be corrected or supplemented. It could meet when major problems undisclosed in a SAR finally came to light, and decide if anyone should be chastised for withholding or dissembling information. And at the initiation of each SAR, a body such as this could negotiate with the program executive office the pertinent requirements to be tracked throughout the acquisition.

Basically, I believe that if the SAR is enriched as a data source and made more accessible, it will be used more widely and often. And usage of the SAR is probably the best means of sharpening its effectiveness. For SARs to be used more, one other change is critical: Annual SARs have to be submitted at the time when they are most needed, at the outset of the authorization process. Submission of the annual SARs should be timed to coincide with the budget itself, so that committee staff can look to it for backup and Members will have it on hand for background and for use in questioning witnesses. If DOD witnesses were aware that committee members and staff were examining the SAR before they cross-examined them, they probably would be more eager to ensure the quality and completeness of the document.

Obviously, I can't show that a better SAR will follow from what I have advocated here. But I believe that it will. I also believe that there are potential paybacks for DOD if it is willing to invest the effort. One is the possibility that if the Congress is informed of problems earlier, there will be less backlash — a lower risk of overreaction. Second, with more data and a better SAR, the burden of multiple reports might actually be reduced; at least there should be fewer ad hoc data requests from the Congress. Finally, there is the prospect that with better information, the Congress will make better decisions. If you believe in deliberative government, you have to work on that premise. ●

Carol Schuster & Jess Ford

BRINGING ACCOUNTABILITY TO FOREIGN AID

Until more effective program controls are imposed, foreign assistance resources will continue to be vulnerable to misuse and diversion.

IN 1988, the United States will give 75 countries almost \$7 billion in economic, humanitarian, and food aid to further an array of foreign policy objectives. These aid programs will help address basic needs for food, clean water, shelter, education, and health care among poor populations in nearly every region of the world. They will also help ensure the continued access of American military personnel to bases and other facilities abroad, encourage the peace process in the Middle East,

CAROL SCHUSTER is a senior evaluator and JESS FORD Group Director in the Foreign Economic Assistance Group of GAO's National Security and International Affairs Division.



foster the growth of democracy in some countries, and prevent the economic collapse of others. But however laudable the policy goals, many Americans question whether foreign aid is money well spent. After all, the federal budget deficit has brought calls to constrain domestic spending. In times like these, programs that send taxpayer dollars overseas can expect hard scrutiny.

The numerous revelations of misuse, diversion, waste, and fraud in foreign aid programs have not done much to bolster the limited constituency these programs enjoy. In 1986, for example, as administration officials argued for additional aid to the Nicaraguan Contras, GAO testified that the State Department could not guarantee that the aid that had already been approved for the Contras had actually reached them. That same year brought the saga of deposed Philippine President Ferdinand Marcos, who, while drawing an annual salary of about \$5,700, had accumulated Swiss bank accounts and real estate holdings conservatively estimated at \$5 billion.¹ Haiti's Jean-Claude "Baby Doc" Duvalier also made the news, fleeing to a French chateau with the estimated \$400 million that he and his father Francois had milked from the Haitian people over 25 years.² Theirs was quite a feat, considering that four out of five Haitians earn about \$150 a year.³

According to the Agency for International Development (AID), the primary administrator of foreign economic assistance, the United States provided over \$2.5 billion in economic and military aid to the Philippines during the Marcos regime and over \$400 million to Haiti under the Duvaliers. It was never proven that American aid had wound up in the pockets of these men. But neither could it be demonstrated that all of the aid had reached its intended beneficiaries. In both cases, reliable foreign aid accountability systems simply did not exist.

Over the past several years, a series of GAO inquiries into the administration of foreign aid programs has shown a strong reluctance on the part of AID to impose effective accountability requirements on recipients. AID administrators have taken some actions to improve accountability, but, even today, these continue to be small-scale, peripheral efforts that do not get to the heart of the matter. Neither the foreign policy establishment in general nor AID in particular has made accountability a guiding principle in administering foreign assistance programs.

Obstacles to effective accountability

The foreign environment

Foreign aid involves the transfer of American resources to other sovereign nations — nations that often possess neither the inclination nor the administrative capability to control and account for it properly. So the foreign environment in which each program operates is a major influence in the quest for accountability.

For one thing, most foreign aid recipients are underdeveloped nations suffering from a lack of infrastructure (such things as communications, transportation systems, and utilities) and financial and administrative skills adequate to manage aid resources

effectively. Many recipients are also experiencing political and economic instability and, in the most serious cases, internal military conflicts that severely hamper the logistical systems and monitoring devices designed to ensure that aid reaches those who need it. Afghanistan, Ethiopia, and El Salvador are recent examples of countries facing these sorts of problems. In 1985, for instance, AID reported that, due to logistical problems created by the war, project officers in El Salvador were unable to make the minimum number of site visits they believed were necessary for effective program oversight.

Limits on AID's resources

AID itself faces limitations on its capacity to monitor and manage foreign aid programs. An overseas staff of 2,740 (including about 1,300 foreign nationals) must oversee 2,100 active projects. In Zaire, where program oversight has always been a problem, 14 AID project officers monitor activities spread over 905,000 square miles. To visit some projects, these officials must spend 3 to 5 days—provided the trains run as scheduled, which often is not the case—traveling 1,000 miles from Kinshasa to the Shaba province. In India, AID must contract with private charitable organizations to monitor \$84 million in food aid distributed from thousands of locations.

It is no coincidence that, increasingly, foreign aid is conveyed in the form of cash, partially to lessen the administrative burden of monitoring project activities on foreign soil. In some countries, of course, such as Israel and Turkey, AID has virtually no presence at all. American aid to these countries consists of cash—very much for foreign policy reasons having little to do with accountability.

The “policy takes priority” argument

The latter examples point to another factor in the quest for accountability in foreign aid programs: Sometimes, aid administrators are reluctant to press too hard on accountability issues for fear of jeopardizing other important political and security interests. They make the case that the *quid pro quo*—foreign aid for peace in the Middle East or foreign aid in return for access to military bases elsewhere—is the issue of primary concern to the United States. Accountability, they maintain, may sometimes have to take second billing.

The issue of aid to the Nicaraguan Contras is a case in point. In August 1985, the Congress authorized \$27 million in humanitarian aid to the Nicaraguan Contras, on the condition that the President establish procedures to ensure that the funds would not be diverted for lethal purposes. But the State Department's Nicaraguan Humanitarian Assistance Office (NHAO), providing aid to an organization opposed to the official Nicaraguan government, had to rely on the support of other countries in the region. Unfortunately, these other countries refused to allow NHAO to set up an office on their soil, denied NHAO the use of Central American facilities and support in procuring materials to aid the Contras, and would not establish local bank accounts through which NHAO could pay suppliers directly. When GAO was asked by the Congress to review compliance with the legislative requirement, it found that NHAO

could not attest to the validity of receipts, was unable to check the eligibility of suppliers, and had difficulty establishing the reasonableness of prices.⁴ More importantly, NHAO could not verify that the authorized goods and services had actually reached the Contras. Bank records showed that only a small amount of funds could be traced to specific regional suppliers. In addition, they showed that some large payments had been made to the armed forces of one country in the region. In short, the legislative requirement that procedures be put in place to guarantee the appropriate use of the \$27 million in aid had not been met.

The administration had a strong sense of urgency concerning the fate of the Contras, and set a priority on moving the \$27 million in aid quickly. NHAO had to use a supply network that was already in place in the region, one that succeeded in moving the aid but did not meet accountability standards. At the same time, the National Security Council was operating a secret supply network of lethal and nonlethal aid to the Contras and did not want exposure through stringent review of NHAO's program. NHAO acquiesced both to these obstacles and to the on-the-ground impediments to accountability, and declared that GAO was unreasonable to apply conventional government auditing standards to its operations. In effect, NHAO was saying that in the face of extraordinary policy pressures, such as those encountered in the Contra situation, the standards for accountability might have to be relaxed.

The sovereignty of recipients

One recognizes, of course, that recipients of foreign assistance are usually foreign governments that may not only lack the capacity to adopt "Western-style" accountability systems, but also the political will to provide an accounting of U.S. aid. Some foreign governments simply do not place the same importance on accounting for the money they spend as do governmental entities in the United States. Liberia is an example.⁵ AID officials, in explaining the serious deficiencies in accounting for American assistance over the past several years, told GAO that Liberian authorities typically accepted U.S. conditions and then failed to meet them. Other foreign aid recipients, recognizing the political and security objectives that underlie American aid, may make good-faith efforts to maintain accountability, but ultimately ask, "Will the U.S. *really* cut off our aid if we can't provide financial accounting?" The American answer ought to be, "Perhaps not. But over the long term it will be impossible to maintain public support for your aid if you don't."

Efforts to improve foreign aid accountability

Long-term difficulties notwithstanding, some encouraging actions have been taken to improve program controls and enhance the capabilities of foreign governments to account for the aid they receive. What these actions demonstrate is that better accountability is possible. But more needs to be done.

Program controls

In 1987 a major change was instituted in the way recipients account for cash assistance. Since 1983, GAO and AID's Inspector General had called for better reporting to ensure that cash transfers made under the Economic Support Fund program truly were used to assist the recipients' economies. At that time, it was impossible in many cases to uncover the uses to which cash transfers had been put, simply because the funds were deposited directly to the recipients' bank accounts and commingled with funds from other sources. Nothing was done to rectify the problem until the Congress looked into the Ferdinand Marcos affair and found it impossible to tell if American aid had been diverted to his account. As a result, legislation was passed to require all cash-transfer recipients to maintain their grants in separate accounts so that AID could trace the funds to their ultimate disposition. While the new requirement provides a better means of tracing U.S. cash transfers—about \$2.7 billion in 1987—it does not eliminate the potential for recipients to spend freed-up funds in inappropriate ways.

AID itself has taken actions to improve its control and oversight over foreign aid resources. For example, the agency has shifted some headquarters staff to the field and hired additional foreign nationals to monitor projects, maintain financial records, verify prices, and conduct inspections to ensure that commodities reach their intended beneficiaries. Increasingly, field staff have been delegated authority in areas of control and accountability; they are closer to the actual implementation of aid programs and can make more informed decisions regarding the extent to which program resources need to be monitored. In some cases, local accounting firms have been engaged to bolster AID's audit and evaluation capacity; in the same vein, the Congress recently authorized a staff increase in the agency's Office of the Inspector General. In compliance with the Federal Managers' Financial Integrity Act of 1982, AID performs annual assessments of its internal control systems; as a result of these assessments, the agency has acted to correct weaknesses in procurement practices, cash and property management, and host-government reporting on the uses of local currency funds associated with some aid programs.

Foreign financial management capabilities

Over the years, GAO and AID's Inspector General often have cited the weak financial management capabilities of African governments as a major obstacle to program accountability. Although AID brought some developing country officials to the United States for its Participant Training Program, the program was too modest to translate into perceptible improvements. The turning point came in the late 1970s, when AID's Inspector General reported that financial controls over American and other external assistance to countries in the Sahel (Burkina Faso, Cape Verde, Chad, Gambia, Mali, Mauritania, Niger, and Senegal) were so lax that millions in aid had been wasted, misused, or diverted for illicit purposes. The Congress responded by requiring AID to certify, as a condition on further aid to the Sahel, that nations in the region would install adequate accounting and control systems. The requirement led to the \$5 million Sahel Regional Financial Management Project, which has provided financial

management training to scores of African officials involved in administering aid programs. AID plans to implement a similar program in Latin America. Yet despite these efforts, a recent Price Waterhouse report concluded that AID still places too low a priority on improving financial management in developing countries and needs to do much more if accountability is to improve.⁶

For 10 years, GAO has sponsored the International Auditor Fellowship Program, through which individuals from the national audit offices of developing nations have been invited to Washington for an intensive 3½-month training program. The goal is to improve the auditing skills of these individuals, who can train others when they return home. One outgrowth of the program is an international effort, spearheaded by GAO and Canada's Office of the Auditor General, to improve the training of government auditors in developing nations.

Further improvements are possible

These efforts are well and good, but the foreign policy establishment and aid administrators continue to allow the obvious obstacles to accountability to defeat them. They must reorient their thinking from reaction to innovation—from reacting to problems after they become evident to building in controls from the start. Responding to revelations of possible foreign aid diversions—and usually having to do so under pressure from the Congress—is not the best way to design accountability systems. And once foreign aid has been misused, it is rarely recovered.

If better accountability is to be achieved, foreign aid administrators need to affirm that a higher priority on program controls is both cost effective and in the best interests of their programs and of the recipient nations. Too often, officials have cited the obstacles instead of seeking a path around them. And some continue to consider the call for effective controls as potentially undermining important policy objectives: in short, an intrusion into the foreign policy-making process. This argument was, and in some cases still is, that U.S. interests might be better served by permitting accountability to slide. The argument may be valid in unusual cases when circumstances make it unrealistic to insist on ideal standards of accountability. But in general, achieving more effective program accountability will strengthen rather than weaken the ability of aid officials to pursue their policy goals.

Those responsible for U.S. foreign aid programs have an important stake in assuring the American people that the foreign aid dollar is well spent. Foreign aid programs have done much to benefit developing countries and advance American policy goals. But these are times when painful budget choices confront the nation, and foreign aid does not enjoy great support even in the best of times. Those who make foreign policy and who administer foreign-aid programs should insist that the acceptance of American aid be accompanied by an adequate accounting. They must work to make foreign aid recipients understand that their programs rest on the support

of American voters. It would be short-sighted for those directly involved in foreign assistance programs to continue to take a reactive position toward ensuring accountability over limited foreign aid resources. Congressional prodding, press accounts of misuse, and reports by GAO and AID's Inspector General have spurred improvements. But the real impetus must come from the foreign policy establishment and foreign aid administrators themselves, who must place a higher priority on implementing controls, and realize that effective accountability requirements are compatible with overall American foreign policy objectives. ●

-
1. George Gedda, "Plunderers & Pilferers," *Foreign Service Journal* (October 1986), p. 21.
 2. Gedda, p. 21.
 3. *Congressional Presentation, Fiscal Year 1988*, Annex III, Agency for International Development, p. 234.
 4. *Central America: Problems in Controlling Funds for the Nicaraguan Resistance* (GAO/NSIAD-87-35, Dec. 5, 1986).
 5. *Liberia: Need to Improve Accountability and Control Over U.S. Assistance* (GAO/NSIAD-87-173, July 16, 1987).
 6. *Report on Improving Host Country Financial Management*, Price Waterhouse (Washington, D.C.: August 1987).

Donald Z. Forcier & Daniel M. Haas

THE ENERGY SECURITY DILEMMA

The odds against future oil disruptions are hard to define. Yet we must be prepared.

ENERGY ISSUES ARE NOT a major concern to most people today. In sharp contrast to the 1970s, things appear to be going very well: There are no gas lines, oil prices are low, and supplies are plentiful. But according to large segments of the oil industry, things may not be as they seem. Some in industry argue that the energy security of the United States will be in a precarious position in just a few years if measures such as import tariffs, tax relief, and other forms of governmental assistance are not forthcoming.

As is frequently the case, there is an element of truth in both views. The United States and other industrial countries are in a far better position now regarding energy security than they have been in a long time. However, current trends indicate that a problem

to increase oil imports from the volatile Middle East area, where most of the world's low-cost oil reserves are located. In fact, about 60 percent of the free world's oil reserves are in just six Middle East countries — Saudi Arabia, Kuwait, Iran, Iraq, Abu Dhabi, and Dubai.

Whether this situation is inherently so alarming that the United States should take further steps to reduce its vulnerability to potential oil supply disruptions, and at what cost, is the primary focus of the current energy policy debate. What we will do here is discuss the current energy situation, the trends we see for the future, and the dilemma this situation presents for leaders in the United States and other industrial countries. We also suggest policy approaches.¹

LARGELY AS A CONSEQUENCE OF LOWER OIL PRICES, U.S. PRODUCTION HAS BEEN DECLINING FOR THE PAST 2 YEARS. MEANWHILE, IMPORTS FROM THE MIDDLE EAST ARE UP.

with oil supplies may be emerging once again. Largely as a consequence of lower oil prices, U.S. production has been declining for the past 2 years. The United States and other industrial countries have again started

DONALD Z. FORCIER is Group Director and DANIEL M. HAAS an evaluator in the Energy Group in GAO's Resources, Community, and Economic Development Division.

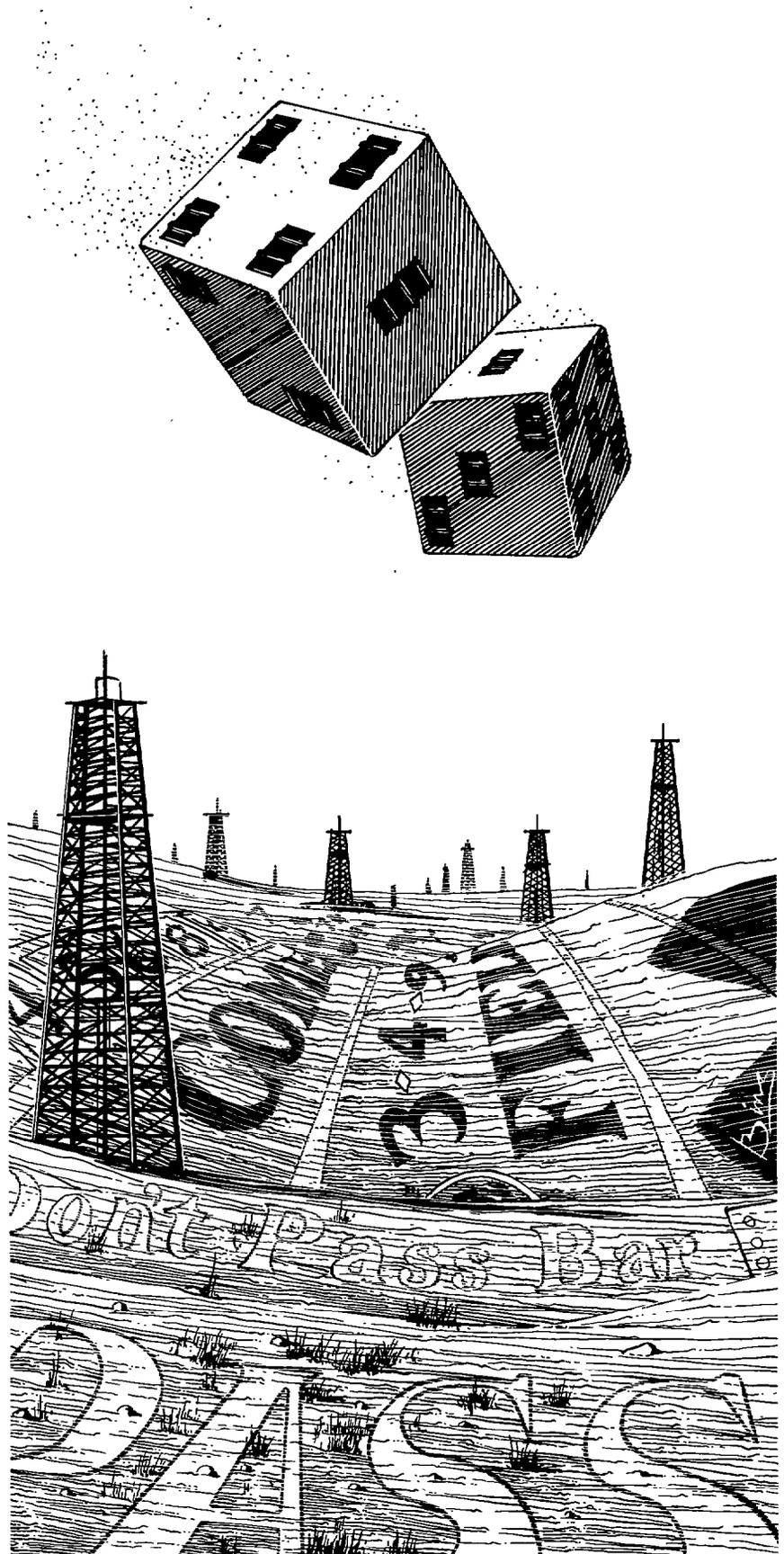
Energy security today

While the economic havoc that oil supply disruptions can cause warrants vigilance against another such occurrence, the energy security of the United States is stronger now than it has been in a long time. If war, sabotage, or deliberate actions by the producing countries were to disrupt oil supplies, industrial countries could manage better during a disruption and would be less seriously affected than they were a decade ago. This improved energy security reflects steps taken by the United States and other industrial countries, as well as major changes in the world oil market, since the shortages and high prices of the 1970s.

ALTHOUGH CURRENT TRENDS POINT TO AN EMERGING ENERGY PROBLEM, SIGNIFICANT UNCERTAINTY SURROUNDS THE FORECASTS, WHILE THE COSTS OF CORRECTIVE ACTION — IN POLICY TRADE-OFFS AND IN DOLLARS — ARE CONSIDERABLE.

For several reasons, the United States and other industrial countries are less dependent now on Middle East oil than they were in the 1970s. Oil shortages and high prices contributed to dramatic improvements in energy efficiency; encouraged the development of additional oil resources in Alaska and in countries such as Canada, the United Kingdom, Norway, and Mexico (this increased supplies by 4 million to 5 million barrels per day (MMBD)); and encouraged industrial countries to build significant “strategic” oil stocks, such as the U.S. Strategic Petroleum Reserve (SPR), which now contains over 540 million barrels. These stocks—which if drawn down could add at least 3 MMBD of oil to worldwide supplies — could substantially augment available supplies if an oil disruption occurred.

Other changes in the world oil market over the past 10 years also improved energy security for the United States. First, the worldwide development of substantial excess production capacity has helped reduce the bargaining strength of the producing countries in world oil markets. Second, lower oil prices in the past 3 to 4 years have at the same time significantly reduced revenues of the Organization of Petroleum Exporting Countries (OPEC), causing many OPEC countries to use their foreign currency reserves or even borrow to finance their economies.² Lower revenues, particularly if they persist, will present a strong incentive for them to keep oil flowing. Third, OPEC countries have made substantial “downstream” investments in refineries and retail outlets in oil-consuming countries and thus risk the loss of assets if they were to deliberately disrupt oil supplies. Finally, new pipelines in Saudi Arabia and Iraq have reduced the amount of oil transiting the



Persian Gulf, which lessens the security risks of shipping oil from this volatile region. Overall, then, OPEC's reduced strength in the world oil market, as well as the West's actions on its own behalf, has contributed greatly to improved energy security in the 1980s.

Let us imagine how these changes in energy security might play out under three scenarios of varying magnitude:

1. Persian Gulf closed to shipping
2. Saudi Arabian production lost
3. Iranian and Iraqi production lost

Table 1 illustrates how these possible oil supply disruptions might be offset today.³

Table 1

EXAMPLES OF MIDEAST OIL SUPPLY DISRUPTIONS AND POTENTIAL OFFSETTING SUPPLIES

Examples of Supply Disruptions	<i>Amount of Oil Disrupted (MMBD)*</i>
1. Persian Gulf closed	7.0
2. Saudi Arabian production lost	4.2
3. Iranian and Iraqi production lost	4.4
Potential Replacements of Supply	<i>Amount of Potential Replacement</i>
1. World excess production capacity	8 to 10.0
In Persian Gulf	6 to 7.5
Outside Gulf	2 to 2.5
2. Fuel switching in the United States and Europe	.9
3. Moving oil through excess pipeline capacity	1.7
4. Strategic oil stocks	At least 3.0

*Numbers are approximations and are in million barrels per day.

In the short term, a closing of the Persian Gulf would perhaps be the most significant disruption because of its sheer magnitude — about 7 MMBD of production shipped by tanker — and because the majority of excess production capacity is located in this region. As the table indicates, if the entire Persian Gulf were closed to shipping, the amount of worldwide excess production capacity that could be made available is about 2 to 2.5 MMBD. By switching fuels and using available excess pipeline capacity, industrial countries could add perhaps another 2.6 MMBD, for a total reduction in the lost supply of about 4.6 to 5.1 MMBD. This would leave a shortfall of about 1.9 to 2.4 MMBD that would need to be covered by strategic oil stocks. Since U.S. SPR stocks alone could be drawn down and distributed at about 3 MMBD, the entire disruption might be offset for some time. Furthermore, European countries and Japan also have strategic stocks that, if put to use, could reduce the effects of such a large disruption.

In the second and third scenarios, however — the loss of all Saudi Arabian production and the loss of all production from Iran and Iraq — excess production capacity could make the difference between having to invoke emergency response measures in the United States and other industrial countries and being able to rely on the market. An important ingredient under these scenarios, of course, would be the willingness of the oil-producing countries to put their excess capacity to use. It seems likely that they would; with lower oil prices over the past few years leading to lower revenues, most OPEC countries would probably choose to raise revenues by increasing production whenever possible.

Trends for the 1990s

While the United States is less vulnerable to an oil-supply disruption today than in the 1970s, the following expected developments could have an unfavorable impact in the decade to come:

- *Non-OPEC production will probably remain level or decline.* U.S. production is declining and is expected to continue to decline. Production in other countries is expected to remain essentially level or perhaps begin to decline in the 1990s.

- *The Middle East will still dominate oil reserves.* Currently known oil reserves are heavily concentrated in the volatile Middle East. Because the oil industry is generally pessimistic about the potential for discovering a large number of new, major oil fields elsewhere, new discoveries are not likely to change OPEC's dominant position.
- *New oil sources may not be competitive.* Even if additional oil resources are discovered, they could be expensive to develop and might be undersold by relatively inexpensive Middle Eastern sources.
- *United States* — heavy oil in the West; natural gas in formations that are not yet economical to develop; oil shale; coal, either to be used directly or indirectly as a feedstock for more convenient fuels, e.g., coal liquids, synthetic gas, or methanol; uranium; and others;
- *Canada* — tar sands; abundant natural gas resources; and uranium;
- *Mexico* — substantial oil and gas resources; and
- *Venezuela* — huge deposits of heavy oil.

WHILE THE THREAT OF OIL DISRUPTIONS WARRANTS VIGILANCE, THE INDUSTRIAL COUNTRIES WOULD BE LESS SERIOUSLY AFFECTED BY A DISRUPTION THAN THEY WERE A DECADE AGO.

In light of these factors, some recent forecasts indicate that in the 1990s, about 40 percent of the free world's oil production could once again be located in the Middle East, up from about 25 percent today.⁴ Since the diversification in sources of supply is important in ensuring energy security, to become increasingly dependent on Mideast oil poses a threat to the energy security of the industrial nations.

The next century

Although one must recognize the extremely tenuous nature of looking beyond the 1990s, the energy situation looks somewhat better in the next century. The reason for this guarded optimism is that vast supplies of undeveloped energy resources existing in the United States and other Western Hemisphere nations — such as Canada, Mexico, and Venezuela — could be tapped under the proper circumstances. Generally, the two most important circumstances would be the right combination of technology (including technology for protecting the environment) and a price sufficient to cover risks, expenses, and a reasonable return on investment. These energy sources include:

In addition, energy sources could include renewable fuels, such as solar energy and biomass, whose potential as viable fuel sources increase each year.

Why aren't these sources being used to a greater extent today? The answer is primarily economic: It is now more expensive to produce alternative sources of energy than to produce conventional oil, and with the present abundance of conventional oil, few markets exist for other forms of energy. Also contributing are technological limitations and, in some cases, concerns about environmental problems, such as the impact of coal production and use. In some cases, further technological advances will be required to extract or to use these energy sources, to help bring the cost down, or to resolve serious environmental questions.

SLOWLY AND STEADILY RISING OIL PRICES WOULD BE IN THE BEST INTERESTS OF U.S. ENERGY SECURITY BECAUSE THEY WOULD STIMULATE NEW ENERGY PROJECTS, NEW TECHNOLOGY, AND MORE ENERGY EFFICIENCY.

Further complicating the picture is the fact that reduced but substantial quantities of conventional oil will continue to exist in the Middle East into the next century. It is still unclear when conventional oil supplies will dwindle and nonconventional sources, such as methanol and tar sands, will have a larger market. Since Middle East oil can be produced and sold at prices far below anything we have seen so far from nonconventional sources, its presence in the marketplace reduces the incentive for potential investors to put their money into nonconventional energy projects.

In general, the longer-term outlook can be viewed

with some optimism. Slowly and steadily rising prices would be in the best interests of U.S. energy security because they would stimulate the start of new energy projects, encourage the development of new technology, and support the more efficient use of energy. In addition to increased prices, substantial lead time is needed to bring new energy sources to the marketplace.

The policy dilemma

If the governments of consuming countries were convinced that an energy supply problem was emerging, they likely would take decisive action to prevent it. But given the complexity of the issues, a clear understanding of the nature of the threat is extremely difficult to achieve.

First, for the industrial countries, taking action to change current energy trends means coming up against important, competing interests: encouraging the growth of national economies; protecting the environment; reducing federal budget deficits; and maintaining stable and friendly relations with other countries while pursuing somewhat different national goals for energy security.

Second, in the past, forecasts have often proven inaccurate and in some cases alarmist: In the 1970s, for example, many oil experts were nearly certain that prices would continue to increase to \$50 or more per

WHEN MAKING DECISIONS ABOUT ENERGY POLICY, THE FEDERAL GOVERNMENT CANNOT RELY SOLELY ON THE MARKET, NOR CAN IT EXPECT ALL SOLUTIONS TO BE INVENTED IN WASHINGTON.

barrel by the 1980s. But these expectations were dramatically revised when prices tumbled to under \$10 per barrel in 1986.

Third, certain developments could change current projections. These include:

- *Lower worldwide oil consumption*, which could be brought about either by higher prices, lower economic growth, or the development of alternative fuels or technologies faster than is presently envisioned; and
- *Higher or more sustained production from currently known sources*, which could be brought about by either higher prices, improved technology, or unanticipated additions to reserves.

The crux of the matter is that such possibilities are speculative: So many factors go into economic growth or the development of improved technology alone that predicting their impact is akin to predicting weather patterns over rapidly changing fronts.

Not surprisingly, complex interplays between capital markets, governmental policies, and international politics also significantly affect the energy security of the United States. While markets do play vital roles in determining the price and supply of oil, it is generally recognized that the world oil market is not a classic free market. Undoubtedly, the improved energy security of the 1980s stems from the market's reactions — in the form of reduced energy consumption and increased energy supplies — to the rapidly rising prices of the late 1970s. However, the rising prices themselves resulted from political events, such as the oil embargo of 1973 and the Iranian revolution of 1979. In addition, major economic dislocations — the worldwide recessions of the mid-1970s and early 1980s — occurred before the markets adjusted.

When making decisions about energy policy, then, the federal government cannot rely solely on the market, nor can it expect all solutions to be invented in Washington. It is generally agreed, for example, that the oil disruptions of the 1970s were exacerbated by price controls and by government allocation programs. The situation is too complex to rely upon a single approach to policy: Many options are available to the United States to improve energy security, as can be illustrated by a comprehensive, but by no means exhaustive, list developed by a Washington-based research company. (See accompanying box.)⁵ Clearly, given these and other possibilities, there is no shortage of steps that could be taken to improve U.S. energy security. The problem lies in agreeing on the nature and the degree of the threat to energy supplies and on the commitment — of both will and resources — necessary to tackle the issue.

In essence, the dilemma facing the United States and other industrial governments is this: Although current trends point to an emerging energy problem with possibly severe consequences, significant uncertainty surrounds the forecasts, while the costs of corrective action—in policy trade-offs and dollars—are considerable. Despite these costs and uncertainties, however, to wait for better information may not be prudent, since many options available to industrial governments would require years before their effects could be felt.

Energy insurance

An approach to energy security is needed that “insures” the nation against unacceptable risks at reasonable costs. However, as is generally the case with insurance, the amount that is desired is probably more than one can afford. The underlying question, therefore, is this: How much energy insurance is enough?

POTENTIAL MEANS TO ENHANCE U.S. NATIONAL ENERGY SECURITY

Levy an oil import tariff or minimum support price for domestic oil.

Build the Strategic Petroleum Reserve to 750 million barrels.

- *Encourage other countries to increase their stocks.*

Reinstate government subsidies for synthetic and alternative fuels.

- *Encourage gasoline substitutes.*

Provide liberal treatment for oil and gas merger activity.

- *Encourage company cost-cutting moves.*
- *Do not prevent OPEC ownership of downstream assets.*

Decontrol natural gas.

- *Eliminate wellhead price controls.*
- *Encourage open natural gas transportation.*

Provide tax or other fiscal incentives for domestic R&D activities.

- *Eliminate the Windfall Profit Tax.*
- *Keep depletion allowance.*
- *Keep intangibles expensing.*
- *Subsidize stripper/high-cost wells.*
- *Establish federally guaranteed loan programs.*
- *Institute tax credits for frontier exploration.*
- *Reduce or defer federal royalty payments.*

Reduce environmental policy barriers to R&D activities.

- *Preserve access to federal lands.*
- *Provide for leasing of the Arctic National Wildlife Refuge.*
- *Carefully structure pollution rules.*

Stimulate non-U.S. exploration and production.

- *Liberalize U.S. foreign tax credits.*
- *Insure foreign political risks for U.S. firms.*
- *Encourage nonprivate (e.g., World Bank) investment programs.*

Encourage demand-restraint policies.

- *Toughen fuel economy standards.*
- *Raise consumer fuel taxes.*
- *Encourage consumer efficiency programs.*
- *Support industrial investments in energy efficient processes.*

Encourage continued diversification of fuel sources.

- *Keep the nuclear option open.*
- *Reduce barriers to energy trade.*
- *Maintain high-risk energy R&D.*
- *Eliminate unnecessary controls on electricity generation and transmission.*
- *Encourage industrial and utility fuel-switching capability.*
- *Sponsor commercialization of alternative fuels and new technologies.*

Where to focus attention

In light of our analysis of this issue for GAO, we believe that U.S. energy policy should focus on the four areas in which actions would have the greatest impact:

1. *Emphasize the transportation sector.* The U.S. transportation sector — which now accounts for nearly two-thirds of all oil used in the United States — is the only sector of the economy that has continued to increase its consumption of oil over the past 10 years. It is also the only sector that is almost totally dependent on oil — about 97 percent. These factors make it reasonable to encourage the development of alternative fuels and the more efficient use of energy in the transportation sector.

The government has four key mechanisms with which to reduce the use of oil for transportation: (1) fuel-efficiency standards, (2) gasoline taxes, (3) government-supported research and development for alternative transportation fuels and vehicles, and (4) government regulations concerning the use of vehicles or fuels. Whatever choices the government makes, it has great leverage in the transportation sector to reduce American dependence on oil.

THE UNITED STATES SHOULD CONTINUE TO DEVELOP ITS STRATEGIC PETROLEUM RESERVE AS CHEAPLY AND AS QUICKLY AS IT CAN. BUT STOCKING UP ON OIL IS NOT ENOUGH.

2. *Continue to build stocks and resolve early-response disputes.* A major reason for improved U.S. energy security is that the United States and other industrial countries have developed oil stocks, or reserves, for use in shortages and emergencies. Certainly one of the most direct ways to improve energy security is to continue developing sources to quickly replace disrupted oil supplies. The United States should continue to develop its Strategic Petroleum Reserve as cheaply and quickly as it can. It should also encourage other

countries to do likewise.

But stocking up on oil is not enough. The United States needs to clarify agreements with other industrial nations about when to use these stocks. There is some disagreement among members of the International Energy Agency (IEA) — formed by the United States and other countries in response to the 1973 oil crisis — on what the early response should be to an oil disruption. The policy of the United States is that in addition to relying on the market, it should use its strategic stocks as a first line of defense. Many other IEA nations, however, have expressed their intention to impose, in the case of a disruption, demand restraints (such as restrictions on driving or on building temperatures) before using their strategic oil stocks. If, as an early response to an oil supply emergency, the United States used its strategic reserves and other countries did not, other countries would be getting, in the view of many, a “free ride” at U.S. expense. Concern about this possibility could be strong enough for the United States to delay the early use of the SPR and cause the market to panic, resulting in rapidly escalating prices. Industrial countries should come to terms with their different viewpoints. The more agreement on “early response” before a disruption takes place, the better.

3. *Develop response measures besides SPR.* Although current U.S. policy almost exclusively focuses on drawing down the SPR in an oil emergency, companion programs could supplement, or back up, the effectiveness of the SPR. Companion programs could include, for example, demand restraints (such as driving restrictions) to reduce consumption, and changes in fiscal and monetary policy (such as low-income energy assistance programs) to mitigate the effects of a disruption. Even if the United States hopes never to use these measures, they should be fully developed and made available for implementation. The consequences of a significant or sustained oil shortage in the future are too great to concentrate all of our energy security efforts in one mechanism. Furthermore, if the SPR does not operate as planned, measures to reduce consumption may help fill the void until problems are resolved.

4. *Encourage improved energy efficiency.* Since the early 1970s, the United States and other industrial countries have significantly improved their energy efficiency — by about 20 percent on average.⁶ Recent decreases in oil prices, however, may slow down or reverse this trend. By continuing to encourage the application of energy-efficient technologies when possible and where cost-effective, the nation can improve its energy security. In general, when less energy is used to produce a given product or service, economic efficiency also improves, which in turn helps the United States become more competitive in international markets. A barrel of oil saved through improved efficiency is particularly valuable because the savings are likely to accrue year after year.

Principles to keep in mind

We suggest, in addition to these four areas of concentration, three principles for policymakers to keep in mind when evaluating U.S. energy security and considering whether additional governmental actions are warranted.

1. *The government should try to maintain a stable atmosphere within which industry can operate.* In the past, governmental policy and regulations have frequently changed on both the supply and the consumption of energy. But frequently changing regulations and rapidly changing prices undermine the economic stability necessary for organizations to make long-term, high-cost investments in research, exploration, development, and marketing.

To support the further development of domestic oil resources, the development of alternative energy supplies, and the avoidance of waste, the government should therefore strive to maintain a stable environment. It should avoid frequent regulatory changes. More broadly, the government should explore ways to dampen excessive volatility in oil prices such as occurred in the 1970s and again in 1986—especially if it occurs as a result of nonmarket factors, such as political events in the Middle East. In doing so, it should try to

WITH THE PRESENT ABUNDANCE OF CONVENTIONAL OIL, FEW MARKETS EXIST FOR ALTERNATIVES, WHICH TEND TO BE MORE EXPENSIVE.

find alternatives to price controls or heavy regulation.

2. *Energy policy should have an important place in U.S. diplomacy.* In addition to searching for technological solutions for development problems or for better ways of improving energy efficiency, energy experts should draw upon diplomacy as yet another leverage point to help protect the energy security of the United States. Western hemisphere countries, such as Canada, Mexico, and Venezuela, have abundant sources of energy. The United States should continue to develop its relationships with these countries and make energy considerations an integral part of foreign policy. The recently signed Canada-U.S. Free Trade Agreement is a step in this direction. Similarly, the better our relations with oil-producing countries, particularly those with abundant supply, such as Saudi Arabia, Kuwait, and the United Arab Emirates (Abu Dhabi and Dubai), the more Americans will be able to shape their energy future.

3. *The lines of communication between the federal government and states should be open and be working well.* To prevent a recurrence of the states' experiences during the 1970s — when many states criticized the federal government for not providing enough information as the oil crisis unfolded — the federal government should involve the states closely in front-end planning for energy emergencies. This approach would resolve much uncertainty about federal and state roles ahead of time. The federal government should also continue to monitor energy trends closely and regularly provide information — about imports, oil consumption patterns, and oil stocks, for example — to state officials and the public. Giving the states consistent, accurate

information on which to base decisions before, during, and after an energy emergency will contribute to a stable atmosphere and improve the nation's ability to respond to emergencies.

Maintaining a state of readiness

In summary, free world oil production may once again become heavily concentrated in the Middle East sometime in the 1990s. Whether this would create an environment conducive to supply disruptions is unclear. Some experts believe that the economic well-being of the producing countries is now intrinsically linked to the economies of the industrial nations and that, because of this linkage, these countries would be as interested in avoiding supply disruptions as the United States.⁷ Although there is some merit to this argument, the question is: What if it's incorrect? With no sure answer to this question, is the United States

ENERGY POLICY SHOULD FOCUS ON THE LONG TERM BY FOSTERING A VARIETY OF ENERGY SOURCES AND CONTINUED IMPROVEMENTS IN ENERGY EFFICIENCY.

comfortable with the risk? While the probability of another oil disruption is uncertain, the downside of underestimating the risk could be severe. Although the United States is in a better position to respond to a disruption today than in the 1970s, it must not grow

complacent. The world oil market is constantly changing, and only in the light of these changes can we judge the adequacy of our state of readiness.

Many of the improvements we suggest would require considerable lead time before the results could be realized. If a disruption occurred, the United States would have to deal with the immediate circumstances and with the resources at hand. Experiences in the 1970s demonstrated that there are few effective "quick fixes." Energy policy should, therefore, focus on the long term by maintaining an atmosphere that fosters the development of a variety of energy sources and continued improvements in energy efficiency. •

1. While these conclusions are our own, they grew out of our work on the upcoming GAO report, *Energy Security: An Overview of Changes in the World Oil Market*, (GAO/RCED-88-170).

2. To a certain extent, the terms "OPEC" and "Middle Eastern" countries overlap. OPEC is an organization consisting of 13 countries: Saudi Arabia, Qatar, Kuwait, Iraq, Iran, Abu Dhabi, Dubai, Venezuela, Ecuador, Algeria, Libya, Nigeria, and Indonesia. The term "Middle Eastern countries" is loosely defined and refers to oil-producing countries located around the Persian Gulf region, most of which are OPEC members. For the purposes of this paper, we include Saudi Arabia, Qatar, Oman, Iraq, Iran, Abu Dhabi, and Dubai.

3. These examples are not intended to indicate which scenarios are most likely, but rather the impact of disruptions of different magnitude in key locations. They do not include the potential increase in stock buildup that could occur as a result of a disruption, which would exacerbate the supply loss. Similarly, they do not include lower oil consumption that would be encouraged by higher prices or by demand-restraint measures and that would tend to reduce the shortfall.

4. *Factors Affecting U.S. Oil and Gas Outlook: A Report of the National Petroleum Council* (Washington, D.C.: February 1987), p. D-15.

5. This list was developed in March 1988 by Adam Sieminski, Vice President of the Washington Analysis Corporation, a Washington-based research company for large investment firms.

6. *Energy Conservation in IEA Countries*, Organization for Economic Cooperation and Development (Paris: February 1987), p. 8.

7. Philip K. Verleger, Jr., Visiting Fellow, Institute for International Economics, quoted in "OPEC Nations Move to Market Gasoline Directly to Consumers," *The Wall Street Journal* (Apr. 20, 1988), p. 12.

John H. Lichtblau

AN EMPTY PUMP DOWN THE ROAD?

With oil imports on the rise, some proposals for slowing the decline in domestic production.

AS EVERYONE KNOWS, the world is awash in oil. The Organization of Petroleum Exporting Countries (OPEC), the once dreaded producers' cartel, is struggling desperately to keep its members' production down to a level that will support a price that, in nominal dollars, is half of what it was in the peak year of 1981. The 7½-year war between Iran and Iraq, two major Persian Gulf members of the cartel, has had no impact on total oil exports from the region. Meanwhile, even at the very low prices of the past 2 years, non-OPEC production keeps rising. This year, it is likely to be 600 to 800 barrels per day above the 1986 level. Clearly, the best one-word description of the world oil market now and for the past 7 years is "surplus." Nor are there any signs that the surplus is about to end.

Nevertheless, we increasingly hear public and private voices predicting a full turnaround within 5 to 7 years, with OPEC once again controlling the market and raising prices at will. Newspaper editorials, not in the Southwest but in the Northeast, where the oil industry has no political constituency, have recently predicted that there is "not a question whether there will be another energy crisis, but only when" and have glumly talked about "the empty pump down the road."

The rising chorus expressing fear that the oil market of the 1990s will be a repeat of the painful 1970s does not ignore or deny the existing surplus. Rather, it is based on a different set of facts. For one thing, world oil demand, which fell during the first half of the 1980s, has risen over the past 2 years and probably will again in 1988. For another, during the same period there has been a marked slowdown in the growth of non-OPEC production. And perhaps most important, U.S. oil imports rose in 1986 as much as they had fallen in the previous 4 years (1 million barrels per day (MMBD)), rose further in 1987, and will do so again this year, raising the nation's net import dependency from 27 percent in 1985 to an estimated 37 percent in 1988. Thus, the question for all planners, public or private, is this: Will the oil market of the 1990s signal a return to the 1970s, a continuation of the 1980s, a hybrid of the two, or something altogether different?

GAO's new report¹ on the world oil market comes up with some interesting answers. These may not please everyone, but they are worth listening to, as are those contained in other in-depth studies, such as the

THE RISING CHORUS EXPRESSING FEAR THAT THE OIL MARKET OF THE 1990S WILL BE A REPEAT OF THE PAINFUL 1970S DOES NOT IGNORE TODAY'S SURPLUS. RATHER, IT IS BASED ON A DIFFERENT SET OF FACTS.

JOHN H. LICHTBLAU is President of the Petroleum Industry Research Foundation in New York City.

Department of Energy's (DOE) March 1987 report, *Energy Security*, and the National Petroleum Council's *Factors Affecting U.S. Oil and Gas Outlook*, published in February 1987.

In brief, GAO finds that "a deliberate oil disruption is less likely today than in the 1970's"; that "if a disruption does occur, the United States and other industrial countries are better equipped to deal with such crises than in the 1970's"; but that "within the next ten years world oil production could become more heavily concentrated in the volatile Middle East than ever before." According to the report, it is not certain to what extent this latter trend will really increase the non-Communist world's oil-supply vulnerability nor that it will actually occur to the extent currently envisioned,

U.S. OIL DEPENDENCY WILL RISE STEADILY
FROM NOW ON, PROBABLY REACHING 50 PERCENT OF
TOTAL OIL REQUIREMENTS BY THE MID-1990s.

given the many economic, technical, geological, and other unpredictable developments that could take place over a 10-year period. Hence, while the GAO report raises and discusses these issues, and especially the question of what kind of "energy security insurance" this nation should have, it does not try to address them with specific recommendations.

A good start in trying to deal with these issues might be a brief look back to see what actually happened in the 1970s to make that decade the nightmare of the world oil market.

First of all, there never was an OPEC policy decision to deny oil to any country. The Arab oil-producing countries, most of which happen to be members of OPEC, imposed such an embargo on the United States (and also on the Netherlands) in October 1973 and enforced it through a progressive reduction of their total oil exports. The goal of the embargo was to

coerce the United States into changing its position in the Arab-Israeli war; in fact, no non-Arab OPEC member supported the embargo directly or indirectly. The embargo did, of course, cause the first great oil price explosion and also demonstrated the importance of Arab oil to the industrial countries of the West. As a means of political coercion, however, it proved a failure, for it did not bring a change in American policy. Eventually this was acknowledged by several senior Arab oil officials, who counseled publicly against threatening again to use oil as a political weapon.

The second oil price explosion was an unintended byproduct of the Iranian revolution of 1979, which cut off most Iranian oil exports for about 3 months. Ironically, the real oil crisis started after Iranian production had been resumed, and was due entirely to a classic hoarding phenomenon under which the widespread fear of an extended or a recurrent Iranian oil disruption caused global inventory accumulation at all levels of distribution. The accumulation pushed prices up, creating inventory profits, thereby encouraging further accumulation. The whole process was supported by the mythical assumption that under OPEC, oil prices could go only one way — up.

The price explosions of 1973 and 1979 were both made possible, or at least exacerbated, by two factors: an absence of excess producing capacity and a dearth of noncommercial stocks upon which the industry could draw to offset the shortage. Today, excess producing capacity around the world is vast — so vast that it threatens OPEC's survival. In the mid-1990s, it will still be quite substantial, although less than now. Under currently projected trends, nearly all the excess producing capacity will be located in the Middle East, making it strategically less secure than if it were more evenly distributed throughout the world. Yet it is difficult to come up with a realistic scenario in which all or most of the Middle East's flowing production and excess producing capacity would become unavailable for an extended period.

The second main cause for the two price explosions of the 1970s, absence of an inventory cushion, is not likely to recur during the next decade. The U.S.

Strategic Petroleum Reserve (SPR) is now approaching 550 million barrels and will continue to grow under existing government policy. Approximately the same volume of noncommercial strategic stocks is available in other industrial countries. In an emergency, reserves could be drawn down at a rate of between 4.5 and 5 MMBD (of which more than 3 MMBD could come from the U.S. reserve) for several months, enough to cope with any likely shortage. This does not mean that psychological and speculative factors wouldn't push prices up significantly at the start of a disruption. But both the magnitude and the duration of the price increase would be substantially curbed by the international availability of supplies from this source, or even by the mere knowledge of its availability. Furthermore, the popular belief of the 1970s that all price increases are irreversible has been shattered by the price drop of 1986-87.

Of course, one can construct a hypothetical Middle East oil-disruption scenario of such proportions and duration that the world's combined strategic reserve stocks would not suffice over time. However, this scenario would have to be based on the occurrence of a major war or a similar military or political disaster. In such a case, the oil shortage would be a by-product of the larger event, and its correction would have to be sought outside the energy sector.

CAN WE TOLERATE A HIGH LEVEL OF FOREIGN OIL DEPENDENCY, EVEN IF NO FUTURE DISRUPTION TAKES PLACE, AND EVEN IF WE ARE ADEQUATELY PROTECTED AGAINST ONE? IT DEPENDS ON WHAT ALTERNATIVES WE HAVE AND AT WHAT COST.

In 1973 and 1979, an SPR of current proportions would certainly have greatly curbed the price increases; prevented any real shortage; and, in 1973, quite possibly dissuaded the Arab oil producers from instituting the

U.S. embargo. Therefore, in protecting ourselves against the hazards of another Middle East oil disruption in the 1990s, there is no more cost-effective means than to keep filling our SPR, at least until it attains the congressionally mandated level of 750 million barrels. The question is not whether we should fill the SPR to this level, but how fast we can do it, particularly as today's low prices are unlikely to last. We also must urge, within the International Energy Agency and through other diplomatic channels, that other industrial countries do not fail in their obligation to maintain adequate strategic reserves. But since our imports are likely to rise much faster than those of Japan and Western Europe, we should be prepared to fill at a higher rate.

Recently the government took another step to ensure the availability of adequate supplies during a foreign oil disruption. It concluded a trade agreement with Canada that assures us of continued supplies during an emergency, at prices no higher than Canada's domestic prices. The agreement is especially significant in that Canada is one of our largest foreign oil suppliers. In 1987, Canada supplied 837,000 barrels per day of crude oil and refined products to the United States, equal to 13 percent of total U.S. imports.

The GAO report deals primarily with the risks of, and remedies for, future oil supply *disruptions*. These may, of course, occur any day, or never. But there is another aspect of our oil import problem, namely our long-term *dependency* on foreign oil. Virtually all forecasts agree that under existing, or even moderately higher, prices, our oil import dependency will rise steadily from now on, probably reaching 50 percent of total oil requirements by the mid-1990s. Even under the very optimistic assumption that successful conservation and substitution measures could keep demand flat by maintaining our trend of declining oil consumption per capita and per unit of Gross National Product, the oil-import dependency ratio would still rise substantially during this period. The reason is the decline in domestic production, which fell by more than 400,000 barrels per day in 1987 and is expected to fall by 150,000 to 200,000 barrels per day this year. At present, rising

production from the Alaskan North Slope has partially offset the decline in the lower 48 states. After 1990, however, Alaskan production will also begin to fall. From then on, the decline in total U.S. production will accelerate.

Can we tolerate so high a level of foreign oil dependency, even if no future disruption takes place, and even if we are adequately protected against one? It depends on what alternatives we have and at what cost. Under equal prices, a lower level of imports and a higher level of domestic production are intuitively, and correctly, viewed as preferable to the reverse, from a foreign policy and a domestic economic point of view. On the other hand, Japan and most Western European countries have long had oil-import dependency ratios of 90 percent or more. Their economies have not suffered as a result. Their crude oil costs have been the same as ours, and they have experienced shortages only on the same two occasions when we did.

Japan and Western Europe, however, have no choice but to import all or most of their oil, as they have little or no indigenous production. By contrast, the United States is still the world's second largest oil producer and has a very substantial undiscovered oil

obsolete by-product of the second price explosion. This tax has not yielded any revenue in the past 2 years, nor will it this year. To abolish it, then, would cost the Treasury nothing. To retain it may cost the nation, in that even a moderate price increase this year or next, which is badly needed by domestic producers, would trigger the WPT for oil from development wells. The consequence would be fewer development wells than would otherwise be drilled and fewer additions to existing proved reserves, since the bulk of these additions consist of upward revisions of existing reserves as a result of new information obtained from the drilling of development wells.

Another negative public policy is the long-standing prohibition against drilling in the Arctic National Wildlife Refuge (ANWR). The U.S. Geological Survey, as well as many industry geologists, considers this the most promising unexplored area in the United States. Should exploratory drilling locate large commercial reserves, the cost of protecting the environment could be borne out of the earnings from the ensuing production. If there are no commercial finds, there will be no need for such large-scale protective measures. The arguments against ANWR exploration and production are similar to those made 13 years ago in the case of Prudhoe Bay. Had these arguments prevailed then, the largest oil reservoir ever discovered in North America would have remained undeveloped. Its impact on reducing U.S. oil imports — and by extension, the demand for and the price of OPEC oil — would have been lost. Meanwhile, the 20 years of oil operations on the Alaskan North Slope, provide an impressive demonstration that large-scale oil operations and maintenance of the environmental balance are not mutually exclusive.

Regarding new governmental action, a tax incentive to stimulate the drilling of new wells would undoubtedly increase the level of U.S. production from what it would otherwise be. Given the virtually certain

WHILE WE CANNOT ARREST THE DECLINE IN DOMESTIC PRODUCTION, WE CAN ADOPT POLICIES THAT SLOW IT DOWN AND DISCARD POLICIES THAT SPEED IT UP.

potential. So while we cannot arrest the decline in domestic production, we can adopt policies that slow it down and discard policies that speed it up. Foremost among the latter is the Windfall Profit Tax (WPT), an

positive effect of such a measure, its net cost to the government could be relatively small over time. The tax incentive could be tied to a price ceiling above which it would not apply. This would ensure that if the market provides sufficient incentive, government support ceases.

SINCE OIL IMPORTS WILL INCREASE UNDER ALMOST ANY SCENARIO, THE GOVERNMENT SHOULD ENHANCE THE ABILITY OF AMERICAN COMPANIES TO DIVERSIFY FOREIGN SUPPLY SOURCES.

Another tax incentive with a ceiling price could be a waiver of taxes on production from temporarily shut-in stripper wells that are reopened after the waiver becomes effective. The provision would, of course, have to have a historical cutoff point to prevent flowing wells from being shut in to qualify. DOE has estimated that the incentive, which is tax-neutral, could raise stripper-well production by about 200,000 barrels per day. At current prices, this would reduce annual oil imports by about \$1.2 billion.

Finally, since oil imports will increase under almost any scenario, the government should enhance the ability of American companies to diversify their foreign supply sources. Some of our current policies may be having an unintended opposite effect. American companies venturing abroad are being saddled with the added political risk of U.S. restrictions or proscriptions on their activities in countries whose governments are considered unfriendly or inimical by our government. In the case of Libya, for instance, our government may have had overriding policy reasons for forcing U.S. oil companies out of that country. But as GAO stated in its

May 21, 1987, report on Libya trade sanctions, "the short term effect of the sanctions on the U.S. oil companies has been a loss of revenue while Libya continues to reap the full benefit of their oil field operations."²

According to the GAO report, "U.S. oil firms are more concerned about the long-term consequences of the sanctions. Total oil reserves in Libya are estimated at 22 billion barrels, making the potential loss of the U.S. firms' access to a portion of these reserves significant."

Another example of this policy is Angola, a substantial oil exporter, all of whose production is in the hands of U.S. and Western European companies. The Congress, which disapproves of the government of Angola, has sought to penalize it by passing legislation (over the opposition of the Treasury) removing the foreign tax-credit provision for U.S. oil companies operating there. It has also threatened to deny Angola "most-favored-nation" treatment on its exports to the United States, which would double import tariffs. Again, the burden of the penalty is falling not on the foreign government but on the American companies: Angola is simply letting more European companies come in.

The government has taken a similar approach in some other countries in which American companies are exploring for oil. But it is a fact of life that unfriendly governments come and go. Thus, current U.S. policy adds to the inherent political risk that U.S. firms take in operating in some foreign countries by imposing the added uncertainty of U.S. political considerations. This may discourage American companies from diversifying their foreign oil sources — and therefore do American interests more harm than good. ●

1. *Energy Security: An Overview of Changes in the World Oil Market* (GAO/RCED-88-170).

2. *International Trade: Libya Trade Sanctions* (GAO/NSIAD-87-132BR).

Amory B. Lovins & L. Hunter Lovins

OIL-RISK INSURANCE: CHOOSING THE BEST BUY

The wisest course may be simply to stop wasting oil and focus on energy efficiency.

GAO'S NEW REPORT on the world oil market suggests that "insurance" against the risks of uncertain oil prices and supplies would be desirable, but costly and unattractive. The report considers mainly supply-side insurance — getting more oil (or other fuels) from more places — on the premise that how much oil we need is largely beyond our own control, save under mandatory cutbacks in emergencies.

This article starts from a different premise: that over an extremely wide range, how much oil we need is not fate but choice. That such flexibility exists has already been amply proven by past energy-efficiency gains that, with relatively little effort or federal support, quietly became so large that they are generally agreed to have chiefly *caused* the soft oil market that culminated in the 1986 price crash. Yet far more remains to be done.

America's most important, yet most overlooked, fuel resource — wringing more work from the energy we already have — can transform risks into opportunities,

negative premium. By systematically saving energy more cheaply than producing it, Americans could put as much as \$200 billion a year back in their pockets. Proven, practical ways to do this are available; what's missing is the decision to use them.

Efficiency:

the quiet revolution

The efficiency revolution has taken place in so many millions of small, unglamorous places — an insulated attic here, a plugged steam leak there — that its full dimensions are seldom realized.¹ Yet by 1986, the 13-year-old "energy efficiency industry" *was producing the equivalent of two-fifths more oil per year than the century-old oil industry was extracting*. Moreover, oil has rising costs, falling output, and dwindling reserves, while efficiency has falling costs, rising output, and expanding reserves. As those reserves are exploited — as Americans "drill for oil" in their boilers, windows, and gas tanks — they are flooding the market with savings far too cheap for the Organization of Petroleum Exporting Countries (OPEC) to compete with.

These savings can be realized so quickly that from 1977 to 1985, the United States saved oil at an average rate of 5 percent per year, four-fifths faster than the economy grew and domestic oil output shrank. That's why oil imports fell throughout that period. Since 1973, the United States has gained 3.5 times as much new energy from savings, or at least 3.8 times as much from savings and renewables combined, as it has lost from the decline in domestic hydrocarbon output. Even in 1985 and 1986, Americans saved 78 percent more oil

PROVEN, PRACTICAL WAYS TO SAVE ENERGY
SYSTEMATICALLY ARE AVAILABLE; WHAT'S MISSING
IS THE DECISION TO USE THEM.

costs into savings, environmental damage into benefits, insecurity into lasting security, and political disputes into win-win solutions. Energy efficiency is not just a necessity for the transition beyond oil, and a superlative oil-insurance policy meanwhile; it's insurance with a

AMORY B. LOVINS is Director of Research and L. HUNTER LOVINS Executive Director of the Rocky Mountain Institute in Snowmass, Colorado.



and gas than was lost in domestic output.

GAO's report describes how increased supplies of other fuels have helped to save oil. Yet more efficient use of energy has outpaced all net expansions of energy supply since 1973 by more than 7 to 1 and, since 1979, by more than 13 to 1. From 1973 to 1986, the energy intensity of the Gross National Product (GNP) fell by one-fourth, its oil intensity by one-third, OPEC's market share by one-half, and national energy bills by some \$150 billion *per year*. By 1986, the improvement in national energy productivity since 1973 was equivalent in annual output to 6.4 Alaskan North Slopes, or 12.8 times oil imports from the Persian Gulf, or 2.2 times total net U.S. oil imports.

Very little of this savings was due to lifestyle changes. The average U.S. passenger car, for example, was driven only 6 percent fewer miles in 1986 than in 1973, despite 4½ percent lower real gasoline prices. Only 4 percent of automobile fuel savings from 1976 to 1987 came from making cars smaller.² But the *technical* improvement in the car fleet from 13.3 to 18.3 miles per gallon (mpg) amounted by 1986 to a new Alaska or more than two Persian Gulfs.

The impressive energy savings of recent years rest mainly on such simple things as caulk guns, duct tape, and lighter materials. Given today's powerful new energy-saving technologies, the United States has barely scratched the surface of how much energy efficiency is available and worth buying. Rocky Mountain Institute's (RMI) latest analyses suggest that full use of the best oil-saving technologies either on or entering the market would save roughly *three-quarters of all the oil now used*, at an average cost below \$10 a barrel. That's cheaper than finding new domestic oil, let alone frontier oil or exotic substitutes.

The need for oil insurance

The reasons GAO cites for concern about oil security are all valid. One — the risk of sabotage or terrorism — is understated, because it can occur not only in the Middle East but also here at home, cutting *domestic* fuel flows far larger than imports. Our 1981 analysis for the Defense Civil Preparedness Agency³ found that a handful of people could turn off three-fourths of the oil and gas supplies to the eastern United States, for upwards of a year, in one evening's work, without even leaving Louisiana. The Trans-Alaska Pipeline System is one of the gravest threats to national energy security: It carries several times as much oil as the United States

gets through the Strait of Hormuz; it is the only way to deliver Alaskan oil; it is largely accessible to saboteurs but could be very hard to mend; and the Army has already declared it indefensible. Indeed, it has already been shot at, and bombed twice, but, fortunately, not competently; apparently the attackers were more interested in theater than in doing serious damage.

In this light, the Strategic Petroleum Reserve, whose delivery system completely depends on three easily cut pipelines to vulnerable refineries, is disturbingly insecure. Oil stockpiles are essential, but they should be in the forms and near the places where they will be needed. Future stockpiles should, in European fashion, be of refined products (replaced periodically, since they deteriorate with age), be far less centralized (so less is at risk per site), and be stored near — but a safe distance from — major points of use.

Supply interruptions are less likely, too, if we pursue friendly relations with major suppliers. Today, most U.S. oil imports come from the Western Hemisphere and Britain. The share supplied by Mexico, Canada, and Venezuela may well increase. Yet across a range of issues — immigration, debt, Nicaragua, acid rain, Arctic protection, economic self-determination, cultural attitudes — U. S. policy could hardly be better crafted to make these three neighbors hold deep and lasting grudges. Building solid long-term relationships is a critical part of any oil "insurance policy."

Even with good foreign relations, stockpiling, and diversification of suppliers, however, some risk of price and supply shocks remains. Price fluctuations are indeed unavoidable: Oil prices have behaved randomly for nearly 90 years⁴ and, despite hedging in futures markets, seem to be getting, if anything, more volatile, not less. This is inherent in any market commodity, whether its supply is politicized and cartelized or not: The price of oil is simply behaving as the prices of wheat, copper, or sowbellies have always behaved. The only remedy is to invest so that, as far as possible, one becomes *indifferent* to oil prices — and to dampen price volatility somewhat by ensuring that oil productivity improves faster than oil resources are depleted.

Many who have an interest in exaggerating the residual risks of oil imports seek to substitute for trade (buying foreign oil whenever it's cheaper than domestic oil) a very different prescription, which in a recent article⁵ we called by its right name — protectionism. This means resubsidizing domestic oil so it looks cheaper than foreign oil, or taxing foreign oil so it looks costlier than domestic oil, or both. Intervention in the oil market to drive users toward other fuels creates "interfuel distortions" that cause vast and unforeseeable mischief. Also, making domestic oil look artificially

cheap discourages its efficient use. And worst, protecting domestic oil from competition by cheaper foreign oil deliberately enables and encourages the domestic oil industry to speed up the very depletion of domestic oil reserves that supposedly prompted the policymakers' concern in the first place: a paradoxical policy David Brower had called "strength through exhaustion." If depletion is a problem, the solution isn't to deplete

IN THE TRANSPORTATION AREA, FUEL-EFFICIENT VEHICLES ARE ONLY HALF OF WHAT'S NEEDED: SUSTAINABLE LONG-RUN SOURCES OF FUEL ARE NECESSARY, TOO.

faster, but to use what we have more efficiently, and thus buy the time to build a sustainable postpetroleum energy system.

Energy efficiency is especially vital in transportation: No supply option makes sense for long with a 20- or 30-mpg car fleet. Yet even cost-effective efficiency (perhaps around 60 to 80 mpg for cars and analogously for other vehicles) is only half of what's needed: Sustainable long-run sources of fuel are necessary, too. Efficiency can both make those sources viable and buy the several decades needed to switch to them. While such long-run options as oil shale, tar sands, and coal syngas cannot possibly compete, diverse biomass fuels do appear to provide a feasible, minimum-cost replacement for oil — the next-best buy after efficiency. With careful management to make farming and forestry sustainable (now they are mainly mining operations), liquid fuels made from their wastes could probably run an efficient U.S. transportation system forever after.⁶ Unlike fossil fuels — syngas being the worst in this respect — such biofuels also would not endanger the earth's climate.⁷

Beware of insurance fraud

The most commonly suggested form of "oil insurance" would, if bought, amount to insurance fraud: It wouldn't deliver on its promise and would, in fact, make matters worse. This fraud is the notion that producing more domestic coal and nuclear power is vital to keeping oil imports at bay. The argument is, in essence, that coal and nuclear power plants have saved a huge amount of oil in the past, so building more of them in

the future will save even more oil. All three steps — premise, inference, and conclusion — are false.

DOE statistics through 1986, showing nuclear and coal output in "primary" terms (i.e., the steam they raise in boilers, rather than their electrical output, which is only one-third as large), show that energy savings have outpaced the combined contribution of coal and nuclear power by threefold since 1973, by fourfold since 1979, and by sevenfold since 1985. Of the total increase from 1973 to 1986 in national primary energy supply, savings provided 69 percent; coal, 15 percent; nuclear power, 10 percent; and renewable sources, at least 6 percent. (Renewables probably supplied about twice that much, but DOE stopped counting most dispersed renewable sources years ago, so we use here conservative official estimates⁸ showing that renewables now provide about 11 percent of the total U.S. energy supply and constitute the fastest-growing part.

Coal and nuclear electric generation did save a good deal of oil that was formerly burned in power plants — but that oil can be saved only once. In 1973, the burning of oil generated 17 percent of U.S. electricity, and utilities burned 10 percent of all oil used nationwide, but by the 1984-86 period, these levels had plummeted to only 6 percent and 4 percent, respectively. Indeed, nuclear expansion since 1973 *already* has exceeded the oil available to be saved in power plants: At least 27 percent of that expansion actually displaced not oil but coal, America's most abundant fuel. Today, electricity and oil are so nearly unrelated that a doubling of the price of oil would directly raise the average U.S. electric rate by only 1.5 percent.

Worse, the *type* of oil saved by coal and nuclear power was nine-tenths "residual oil," a tar-like refinery byproduct hard to use for anything but boiler fuel. Even if we ignore that important distinction and assume that every barrel displaced by coal and nuclear power would otherwise have been imported, DOE statistics show that if the coal and nuclear expansion of 1973 to 1986 hadn't occurred at all, oil imports would have risen by, at most, 5 percent.

The oil displacement achieved by coal and nuclear plants came at a ruinous cost. From 1973 to 1986, the United States spent some \$200 billion on coal and nuclear plants, plus more than \$100 billion in direct federal subsidies.⁹ (Nuclear subsidies alone were running about \$16 billion a year in fiscal year 1984. Per Btu supplied, that's about 80 times the level of subsidy to efficiency sources and nonhydro renewable sources, or about 200 times the subsidy to efficiency sources alone. Yet so great was the cost advantage of efficiency improvements that they wiped nuclear power out of the

market anyway!) The nation's investment of \$300 billion in nuclear plants doesn't even count the cost of operating those plants, which, with their maintenance needs, currently averages around 5 cents per kilowatt-

THE OIL THAT COAL AND NUCLEAR POWER SAVED COULD HAVE BEEN SAVED INSTEAD — AT ABOUT 1 PERCENT OF THE COST — BY THE MODESTLY WIDESPREAD USE OF EFFICIENT LIGHTS, MOTORS, APPLIANCES, AND BUILDING COMPONENTS.

hour — more than it would cost if they burned oil. Nor does it count any environmental costs, such as risks of climatic change from coal, and bomb proliferation from nuclear power.¹⁰ Even so, just the utilities' own direct investment of \$200 billion — to save what their own advocates reckon to be about \$14 billion a year worth of oil — can hardly be termed a good deal.

Choosing the wrong option makes matters worse

There is, however, a more fundamental point to be made: Even if oil burned in power plants hadn't been displaced by coal and nuclear power, *we needn't have kept on burning the oil*. The real alternative was and is *using the electricity efficiently*.¹¹ The oil that coal and nuclear power saved could have been saved instead — at about 1 percent of the cost — by the modestly widespread use of efficient lights, motors, appliances, and building components. This could have been completed, using utility-proven delivery methods, in just a few years, and still have left three-fourths of electric efficiency's potential untapped. Today, the potential is even bigger and cheaper: Remarkable new technologies for raising our electrical productivity now make it possible to save three-fourths of all electricity used in the United States (i.e., the output of all the oil, gas, and nuclear plants, and of most of the coal plants, too), at an average cost below 1 cent per kilowatt-hour. That's less than it costs just to *run* a coal or nuclear plant, even if building one cost nothing.

Nor are large, inexpensive electrical savings merely theories. If all Americans saved electricity as fast as the 10 million people served by Southern California Edison

Company have actually done in recent years, the nation's long-term power needs would decrease by the equivalent of about 41 one-thousand-megawatt (Chernobyl-sized) plants *per year*, at an actual cost to the utility of 0.1 or 0.2 cent per kilowatt-hour. And that's still without employing many of the latest technologies or delivery methods.

Not only, then, are coal and nuclear plants the slowest, costliest, and environmentally least attractive known ways to save oil; worse, America imports oil today precisely *because* it bought these plants *instead* of more energy efficiency. The cost of these plants can be measured in lost opportunities: The \$300+ billion spent on them could have been spent on rapid and direct oil savings in vehicles, buildings, and factories.

The reality of this competition for resources and attention is demonstrated by utility behavior. Many utilities built costly new coal and nuclear plants that now make far more electricity than people want to buy at the high prices the utilities charge in an effort to pay for the plants. Some overbuilt utilities, desperate to recover their costs, are now ordering their previous efficiency-promoting staffs to start marketing more electricity instead. As a result, the Electric Power Research Institute estimates¹² that some 35,000 megawatts of new, on-peak demand will have been deliberately created by 2000. Thus, buying more power plants in a misguided effort to save oil not only retarded more effective oil savings, but also resulted in artificially boosting energy demand, and the strenuous efforts of many utilities to prevent the completion of competing alternative-energy projects, many of them involving renewable energy sources. Before its recent bankruptcy, for example, Public Service Company of New Hampshire rebuffed offers of independent power generation exceeding *three times* its share of the supposedly indispensable Seabrook nuclear plant, and costing less.

Best buys first

The sad story of electric overcapacity has a wider moral. After two previous oil shocks, the federal government sought to spur supply, weaken environmental and procedural safeguards, and dispense lavish subsidies upon hopelessly uncompetitive options, while treating efficiency improvements mainly with benign (or, lately, malign) neglect. Those grandiose supply schemes collapsed of their own weight, strewing

fiscal wreckage across the land, while the market, noticing that energy can more cheaply be saved than made, cheerfully produced a gush of efficiency, drowning the supply industries in their own surpluses.

Many of the most vocal participants in today's energy-security debate seem determined to repeat this mistake for a third time. Those who advocate (at least rhetorically) pursuing expanded energy supplies *and* increased energy efficiency must consider the risk of getting neither — through their debilitating competition for resources — or, almost worse, the risk of getting both, and thereby bankrupting the energy industries, which cannot pay for expanding the supply without an even faster growth in demand.

Furthermore, indiscriminately producing “more energy,” without regard to kind, doesn't necessarily displace oil. Oil imports have risen recently even as most regions struggled with painful surpluses of electric capacity. The two are not equivalent: It's impractical, or grossly uneconomical, or both, to use electricity for nonrail transportation or for heat — the uses that consume 96 percent of all oil. Electricity, after all, is an extremely expensive form of energy: The 1986 average rate of 6.4 cents per kilowatt-hour is equivalent in heat content to buying oil at \$110 a barrel, or about six times the world oil price. Electricity cannot provide heat six times as efficiently as oil; three or four times would be pushing the limits of practical technology, and

ALL USES OF OIL CAN BE GREATLY REDUCED BY TECHNOLOGIES THAT COST FAR LESS THAN BUYING OPEC OIL TODAY, LET ALONE GOING TO THE ENDS OF THE EARTH TO DRILL FOR MORE.

a factor of two is more realistic. *New* coal or nuclear plants would be about two to three times *less* competitive still. And even in principle, electric cars cannot compete with efficient fueled cars.

Fortunately, all uses of oil — the 4 percent (as of 1985) burned in power plants, the 8 percent that directly heats buildings and water, the 25 percent directly used by industry, and the 63 percent that fuels vehicles — can be greatly reduced by technologies that cost far less than buying OPEC oil today, let alone going to the ends of the earth to drill for more. Just the savings available in American light vehicles, for example, are equivalent to discovering a new and inexhaustible domestic oil field bigger than the biggest in Saudi Arabia — one producing (not just extracting) some 5 million barrels a day for a few dollars a barrel.

Oil-saving opportunities

We at RMI have developed perhaps the most detailed and up-to-date information available on new ways to save electricity. Now we're starting to examine the analogous potential to substitute modern efficiency-raising technologies for oil. While the oil analysis is at a much earlier stage of development — we're attempting to do the kind of least-cost, all-options analysis that the far more resource-laden DOE has never done¹³ — our preliminary findings¹⁴ indicate an unexpected bonanza. For example:

- Improving the car fleet by 1 mpg from the 1986 level of 18.3 mpg would *eliminate* 1985 imports of oil from the Persian Gulf. DOE assumes a 28-mpg fleet in 2010 — slightly worse than the average new 1986 car, and exactly half as efficient as the most efficient American-made 1988 model — and projects a “potential” to achieve 39 mpg “with successful R&D [research and development] effort.” Yet at least seven manufacturers' prototypes already have beaten 67 mpg. Volvo's LCP-2000, for example, achieves a composite on-road performance of 71 mpg. It's reportedly a peppy, comfortable five-passenger model, meeting all safety and environmental standards with ease. Volvo is said to be ready to produce it on demand and estimates its extra production cost at approximately zero. A 71-mpg U.S. car fleet would eliminate 1986 Gulf imports more than three times over. Furthermore, Renault's four-passenger Vesta 2 prototype has been measured at 121 composite mpg (101 in the city, 146 on the highway), and the potential for further gains is far from exhausted.
- Today's most efficient commercial jetliners (the Boeing 757, the Boeing 767, and the McDonnell Douglas MD-80) are 2.6 times as efficient as the 1973 fleet and 1.4 times as efficient as the 1986 fleet, and the next generation of aircraft will save another 40+ percent. From the airlines' routine purchases of high-efficiency aircraft at prevailing fuel prices, one can infer that the marginal cost of these airliners' fuel savings is a few dollars a barrel.
- Available technologies can save about 60 percent of heavy-truck fuel and a comparable or larger fraction of light-truck fuel without affecting performance or safety.
- During 1980 and 1981, two National Laboratories showed a potential to save 50 percent of U.S. buildings' space-heating fuel at an average cost of \$10 a barrel (in 1986 dollars), or 75 percent at \$20 a

barrel.¹⁵ More recent advances include commercially available superwindows—insulating two to four times as well as triple glazing—the full use of which would save more oil and gas than Alaska now provides, at a cost of about \$2 to \$3 a barrel. (Solar gain through such windows heats RMI's headquarters in temperatures dropping as low as -47 degrees F). Thus, spending 1 year's U.S. military costs in the Persian Gulf to make American buildings more heat-tight would more than eliminate imports of oil from the Persian Gulf.

- The same National Laboratories analysis was ridiculed for projecting a 30-percent savings in industrial fuel during the period from 1977 to 2000. In fact, that saving was *achieved* by 1985, at an average cost of a few dollars a barrel. A similar potential remains untapped.
- RMI has documented how modern technologies can save three times as much electricity as all U.S. oil- and gas-fired power plants now make, at zero net cost to society (because the measures would pay for themselves via reduced maintenance costs).

Since the costs of attaining such savings range from zero to about \$10 a barrel (up to twice that for saving 75 percent of space-heating fuel), their *average* cost must be well under \$10 a barrel—less than the cost of finding new domestic oil. Yet collectively, these and similar measures appear to have a full practical potential to save about *three-fourths of all oil now used in the United States*, while providing unchanged or improved services—mobility, comfort, shaftpower, light, and the like. That potential is equivalent to finding the hoped-for mean reserves beneath the Arctic National Wildlife Refuge (ANWR) *every 9 months, forever*—at no dry-hole risk, with great environmental and security benefits rather than damage, and at an average cost less than one-third that of ANWR oil. Capturing a mere one-twelfth of that potential would eliminate the 1986 rate of U.S. oil imports from the Persian Gulf—a region where the direct costs of U.S. military force as of fiscal year 1985, not counting the associated risks of conflict, were running about \$495 a barrel, 18 times as much as for the oil itself.¹⁶

Of course, how much of the potential is *actually captured* is a policy variable, but capturing a lot of it is evidently considered feasible by at least some industry experts: Among scenarios considered plausible by Royal Dutch/Shell planners is one with zero U.S. oil imports in 2000. The first step in securing America's oil future is to consider how that result, or an even better one, can be achieved with confidence.

Policy implications

In competitive sectors, such as industry and deregulated public transportation, market forces can continue to drive rapid efficiency gains. Buying as much efficiency as is cost-effective can be aided by modest federal information programs and R&D investments, and by prices that tell the truth. (Desubsidizing the entire energy sector would be a good start, and would save about one-fourth of the entire federal deficit.) But these market-driven savings do not work well in the public sector, in much (particularly low-income rental) housing, and especially in the most important area of all: light vehicles.

Even in the early 1980s, when Americans paid (in effect) a heavy gasoline tax to OPEC, gains in car efficiency came mainly from federal Corporate Average Fuel Efficiency (CAFE) standards and gas-guzzler taxes, not price. Conversely, much of the 1986 dip in U.S. oil productivity came from the administration's rollback of these standards, cutting car-efficiency gains to their lowest level since 1976. That rollback, carried through the next car fleet, will assuredly *waste* oil faster than either ANWR or the currently closed lease areas off the coast of California could *yield* it. Indeed, the 1986 light-vehicle-standard rollbacks directly doubled 1985 U.S. imports of Persian Gulf oil.¹⁷

Gasoline taxes are the weakest possible signal to buy efficient cars, because most of the people who own the least efficient cars can't afford better ones; fuel cost is less than one-fifth of the total cost of owning and operating a car; and efficient new cars tend to cost about as much more to buy as they cost less to run, leaving the purchaser indifferent to efficiency over a range of perhaps 20 to 60 mpg.

The resulting market failure is severe and can scuttle any chance of successful long-term oil policy. It is so expensive, not the least in short-run military costs (such as the present \$50+ billion *per year* in the Persian Gulf), that correcting it by carefully targeted subsidies, which we generally dislike, would be a better buy. Balanced tax/rebate programs or standards or both would also suffice, and could cost the Treasury nothing. Whatever their form, the purpose of these interventions should be to influence car-buying decisions strongly and directly.

Federal standards (or, if the federal government continues to abdicate its responsibility in this area, perhaps state or regional standards) are quick, cheap, and predictable. Other options also merit attention. President Carter proposed rebating gas-guzzler taxes

to gas-sipper buyers. The idea was dropped because no efficient American cars were then available; but now they are, and tax/rebate combinations deserve an immediate new look. Existing car excise and ownership taxes could become efficiency-based. Bounties for scrapping Petropigs and replacing them with very efficient cars (or with nothing), so as to maximize the mpg spread between them, are also highly cost-effective: *Giving* people a free 40+mpg car in exchange for a scrapped Brantomobile would be cheaper than building synfuel plants, none of which would ever be built without huge federal subsidies. Yet no such incentives have ever undergone serious federal analysis.

These and related light-vehicle-efficiency policy initiatives are the crux of any coherent federal approach to insurance against oil risks. Yet inexplicably, policy remains overwhelmingly oriented toward costly, difficult, slow, risky, supply expansions — options that are the enemy of far cheaper, easier, faster, and surer investments to sustain and increase the 5-percent annual gain in oil productivity readily achieved during the period of 1977 to 1985. This lopsided emphasis on “worst buys first” is dithering away the scarcest resource in the decades-long transition beyond oil: not dollars, not barrels, but *time*.

FAR FROM *COSTING* MONEY, THE “EFFICIENCY OIL-INSURANCE POLICY” WOULD YIELD CONTINUAL “PREMIUM REBATES” — AND COULD SAVE TRILLIONS.

Time is of the essence. Accelerated oil savings could shrink or phase out oil imports while stretching domestic oil reserves to fuel the transition to sustainable alternatives. But delaying or muting efficiency gains, while diverting resources to unneeded power plants and frontier oil ventures, will deplete those domestic reserves fruitlessly, and throw America back onto the world oil market at the worst possible time, just as OPEC reasserts supply and price dominance. Very efficient use of oil is not just a sound insurance policy and a very profitable investment; it is essential for a smooth transition beyond oil. The nation needs as much efficiency as it can cost-effectively get, and needs it soon. All supply options are, by comparison, mere drops in the bucket,¹⁸ and a dangerous diversion.

Strong efficiency can secure America's oil and postoil future with room to spare. We don't need efficiency *and* elaborate supply expansions. We can't afford both — they compete for scarce resources — so it's time to pick what works and get on with it. Yet, far from

costing money, the “efficiency oil-insurance policy” yields continual “premium rebates” — net dollar *savings* — totaling, by 2000, several trillion of today's dollars: enough, if the nation so chose, to pay off the national debt. ●

1. Data presented here on historic energy and oil savings are from various issues of the U.S. Department of Energy's (DOE) *Monthly Energy Review*, supplemented by standard sources, such as the Edison Electric Institute's *Statistical Yearbook* and the Department of Commerce's *Economic Indicators*. Energy intensities are evaluated either by sector per unit of output, or in aggregate per unit of real Gross National Product (GNP), as indicated by the context. Most aggregate savings (reductions in ratios of energy or oil consumption to GNP) are due to technical improvements, less to compositional change, still less to behavioral change. There is strong evidence that nearly all of each kind of saving is irreversible; people do not deinsulate their houses when oil prices dip. This article's calculations are documented in detail in a technical paper, “Drill Rigs and Battleships Are the Answer! (But What Was the Question?),” to be published by Westview Press later in 1988 in an anthology edited by F. Fesharaki and R. Reed, tentatively entitled *The Petroleum Market in the 1990s*.

2. The 4-percent influence of downsizing is from Phil Patterson, *Periodic Transportation Energy Report 1*, DOE (Nov. 16, 1987), p. 1.

3. Amory B. Lovins and L. Hunter Lovins, *Brittle Power: Energy Strategy for National Security* (Andover, Mass.: Brick House, 1982). Our findings were summarized in “The Fragility of Domestic Energy,” *The Atlantic*, vol. 252, no. 5 (November 1983), pp. 118-126.

4. H. R. Holt, “Boom and Bust: Chaos in Oil Prices, 1901-1987: A Statistical Analysis,” unpublished preliminary analysis, DOE (Mar. 18, 1988).

5. Amory B. Lovins and L. Hunter Lovins, “Energy: The Avoidable Oil Crisis,” *The Atlantic*, vol. 260, no. 6 (December 1987), pp. 22-30.

6. We have explored this menu of options in appendixes 2 and 3 of *Brittle Power*, cited above; in an essay with Marty Bender in Wes Jackson *et al.*'s anthology, *Meeting the Expectations of the Land* (San Francisco: North Point Press, 1984), pp. 68-86; and less technically with S. Zuckerman in *Energy Unbound: A Fable for America's Future* (San Francisco: Sierra Club, 1986), a lighthearted introduction to running DOE more sensibly. The alternative fuels now in, entering, or ready for significant use include diverse alcohols, esters, and pyrolysates from biofuel wastes; vegetable oils and terpenes; and, for temporary transitional use, liquefied petroleum gases, compressed natural gas, and perhaps gasoline made from natural gas. Some cost less than today's oil; others can compete only with frontier and synthetic fuels.

7. This is because biomass carbon is “on current account,” being temporarily borrowed from the air by photosynthesis; it is immaterial whether the carbon returns to the air by being burned as a fuel, by rotting, or by being metabolized by insects and other animals.

8. We include the Gas Research Institute's (GRI) latest (1985) estimate of wood and wood-waste fuel use, 2.653 q (quadrillion Btus), consistent with DOE's last published estimate of 2.633 q in 1984, up from 1.528 q in 1973, from *Estimates of U.S. Wood Energy Consumption from 1949 to 1981*, Energy Information Administration, DOE/EIA-0341 (82) (Washington, D.C.: 1982), and *Estimates of U.S. Wood Energy Consumption, 1980-1983*, Energy Information Administration, DOE/EIA-0341 (83) (Washington, D.C.: November 1984). We also include DOE's last published estimate (0.251 q in 1984) for alcohol fuels and miscellaneous crop wastes from *Annual Energy Review 1986*, Energy Information Administration, DOE/EIA-0384 (86) (Washington, D.C.: 1987), p. 215; plus GRI's latest published estimate for direct solar capture by nonutilities (0.040 q in 1985); plus DOE's 1986 estimate of 0.01 q

- for renewable generation owned by utilities. (GRI, however, estimates the latter at 0.3 q. See Paul D. Holtberg et al., *1987 GRI Baseline Projection of U.S. Energy Supply and Demand to 2010*, GRI (Chicago: December 1987), p. 26.) We conservatively omit the 0.02+ q/y from private wind farms (1.4+ GW installed); non-electric uses of other renewables (DOE's *Energy Security* (Washington, D.C., March 1987) report estimates geothermal direct heating as >0.002 q) (see p. 203 of the report); small hydropower (the same DOE report estimates this fast-growing source at "nearly 0.4 primary q" in 1984 (p. 206), and GRI says DOE's summary statistics exclude it); municipal solid waste's recovered renewable energy component; and such miscellaneous sources as sewage and landfill gas (GRI says that these, along with refinery offgas, coke-oven gas, and blast-furnace gas, totaled 1.26 q in 1983, and believes all these are also excluded from DOE's totals).
9. Our colleague, H. R. Heede, has analyzed these subsidies in detail; see "A Preliminary Assessment of Federal Energy Subsidies in Fiscal Year 1984," RMI, Publication #85-7 (Snowmass, Colo.: June 1985) or, for a summary, H. R. Heede and Amory B. Lovins, "Hiding the True Cost of Energy Sources," *The Wall Street Journal* (Sept. 17, 1985), p. 28.
10. These are extensively analyzed in many publications by RMI staff, such as (1) Amory B. Lovins et al., *Least-Cost Energy: Solving the CO₂ Problem* (Andover, Mass.: Brick House Publishing Co., 1981); (2) Amory B. Lovins and L. Hunter Lovins, *Energy/War: Breaking the Nuclear Link* (San Francisco, Friends of the Earth, 1980); and (3) Patrick O'Heffernan et al., *The First Nuclear World War* (New York: William Morrow and Co., 1983). For summaries, see Amory B. Lovins, L. Hunter Lovins, and L. Ross, "Nuclear Power and Nuclear Bombs," *Foreign Affairs*, vol. 58, no. 5 (Summer 1980), pp. 1137-1177, and Amory B. Lovins, *Climatic Change* (Dordrecht, Holland, and Boston, Mass.: D. Reidel Publishing Co., 1982), pp. 217-220. A forthcoming RMI paper by W. N. Keepin and G. Kats shows in detail that nuclear power, far from being a potential solution to the carbon dioxide problem, is a logistically and economically impractical approach that actually *increases* net carbon releases.
11. RMI produces numerous popular and technical publications documenting in detail our assertions about the hardware, economics, and implementation of electric end-use efficiency. A list is available from RMI upon request.
12. *Impact of Demand-Side Management on Future Customer Electricity Demand*, Electric Power Research Institute, EM-48150SR (Palo Alto, Calif.: October 1986), pp. 4-9.
13. One of us (Amory B. Lovins) has been pressing unsuccessfully for such an analysis from DOE and its predecessor agencies for about the past 15 years, especially when he served from 1980 to 1981 on DOE's senior advisory board. An amendment to require such an analysis before the Congress would consider supply-side initiatives, such as opening new Alaskan and offshore areas to oil exploration, was recently offered in the Senate Energy Committee by Senators Wirth, Evans, and Bumpers; was defeated by only one vote; and will surely reappear.
14. These will be documented in the forthcoming "Drill Rigs and Battleships . . ." cited above.
15. Solar Energy Research Institute, *A New Prosperity: Building a Sustainable Energy Future* (Andover, Mass.: Brick House, 1981). This part of the analysis was done by Lawrence Berkeley Laboratory experts.
16. Amory B. Lovins and L. Hunter Lovins, "Energy: The Avoidable Energy Crisis," cited above. The corresponding figure today is probably closer to \$150 to \$300 a barrel, since imports probably rose by more than costs. Recent RMI analyses by T. Sabonis-Chafee ("Projecting U.S. Military Power: Extent, Cost and Alternatives in the Gulf," paper for Pugwash Conference in Gmunden, Austria, RMI, Publication #87-23 (Snowmass, Colo.: September 1987)) suggest that a major conventional war in the Gulf could cause the American military to *use* more oil there than the United States *gets* from the Gulf during an equivalent period. See also *Energy Security Reader* anthology, RMI, Publication #87-26 (Snowmass, Colo.: 1987).
17. This will be documented in the forthcoming "Drill Rigs and Battleships . . ." cited above. The annual increase in crude oil consumption caused by the rollbacks also equals the annual output hoped for from the ANWR over 30 years.
18. For example, the U.S. Department of the Interior in *Arctic National Wildlife Refuge, Alaska, Coastal Plain Resource Assessment* (Washington, D.C.: November 1986) claims a 19-percent chance of finding ANWR reserves averaging 3.2 billion barrels — enough to meet 1986 U.S. oil needs for 198 days. (See p. 72 of the publication.) That amount was halved by Alaska's own geologists using more complete data, and the probability of finding it was cut by three-fourths when a Wilderness Society mineral economist updated Interior's 1985 tax-law and price assumptions to 1987. (See W. Thomas Goerold, "Environmental and Petroleum Resource Conflicts," *Materials and Society*, vol. 11, no. 3 (1987), pp. 279-307). These corrections reduce the "risked mean" reserve in ANWR (i.e., the amount one might reasonably expect to find) to about 2 percent of 3.2 billion barrels, or about 5 days' U.S. demand. A Prudhoe-sized discovery 5 times that big would, Interior says, be about 19 times less likely still. Yet the wildest dreams of ANWR oil enthusiasts pale beside the realities of efficiency. About a week's worth of oil doesn't do much for a decades-long transition; the nation might as well get smart a week earlier.

John S. R. Shad

PRIVATE ENTERPRISE, PUBLIC RESPONSIBILITIES

There's a case to be made that high ethical standards make good business sense.

ETHICAL LAPSES in the business and financial community, academia, politics, and religion fill the daily press. Particularly disturbing was the rash of insider trading cases on Wall Street involving graduates of leading business and law schools. They were the cream of the crop — MBAs and JDs, Rhodes Scholars, and Phi Beta Kappas — with six-figure incomes and brilliant careers ahead of them. Now they are convicted felons, serving time in penitentiaries. Most appear to have been very bright, highly motivated overachievers, driven by peer rivalries to win a game in which the score had a dollar sign in front of it. While a few went after millions, most of them sold their futures for \$20,000 to \$50,000 in illicit profits.

They missed the point: Life is a marathon, not a sprint.

The media emphasize the incomes of MBAs rather than their contributions to society. Some graduate business schools have been characterized as training the next generation of financial schemers and manipulators. In fact, most graduates become first-rate executives, managing people and resources for the benefit of society. The rewards that draw the widest attention — the titles and the money — are merely the by-products of doing a good job.



Ethical attitudes are imbued in childhood, but graduate schools cannot, and have not, abdicated their responsibility to prepare their graduates to contribute to society, rather than abuse it. The flagrant abuses reported in the press have elevated ethics from a tertiary to a primary concern among leading schools of business, law, medicine, and government.

That new awareness notwithstanding, most of the 12,000 college and graduate business school courses in ethics are superficial, according to *Management* magazine. It is not enough for schools to certify that their graduates have mastered the fundamentals of their professions. Schools must hone their ability to certify that their graduates have the character and integrity to use the knowledge gained for the benefit, rather than the abuse, of society.

How can they do this? First, they can improve their admissions policies. They

JOHN S. R. SHAD, U.S. Ambassador to the Netherlands, was Chairman of the U.S. Securities and Exchange Commission from 1981 to 1987.

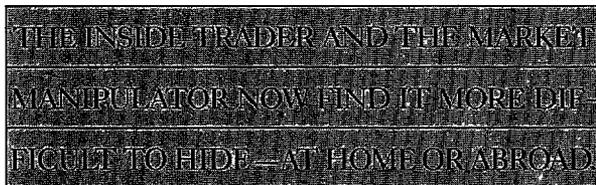
can do a better job of selecting candidates who aspire to the objectives and concepts they will be taught. Schools may not be able to rehabilitate ethical misfits, but they can do a better job of keeping the bad apples out of the barrel.

Next, through case studies and research, schools can test, refine, and ultimately teach the following and related concepts:

- Those executives, investment bankers, and lawyers who do a good job for their customers, clients, employees, and communities do a better job for themselves, their shareholders, and partners than those who try to take unfair advantage — of either these groups or the investing public — in their drive to maximize their immediate earnings.
- As demonstrated by most successful individuals and companies, the marketplace rewards quality, integrity, and ethical conduct.
- Those who go for edges, like high rollers in Las Vegas, are eventually wiped out.
- People reap the benefits of ethical conduct in the here and now, not just in the hereafter.

The results of such case studies and research should be incorporated into all courses — finance, marketing, and production — not merely into a single, separate, course on ethics.

Character and integrity are their own rewards. They also make good business sense, as Jim Burke, Chairman of Johnson & Johnson, pointed out last year in a talk on business ethics. Burke cited a Roper poll on the attributes we desire in friends — good looks, intelligence, a sense of humor, common interests, and honesty — that found that 94 percent of Americans rank honesty above all other attributes. At the same time, polls appearing in *The New York Times* indicate that only one-third of Americans believe business does a pretty good or better job of behaving ethically; 55 percent believe most corporate executives are dishonest. A Harris poll indicates that 82 percent of Americans believe business is motivated primarily by greed.



Burke then turned to a Johnson & Johnson study of 30 companies chosen for their above-average ethical behavior. Some of the firms have formal ethical codes similar to that of Johnson & Johnson, while others were chosen because of their reputations for service to the public or because Burke was familiar with the high standards of their management. The record of these 30 firms — firms known not for avarice but for honest business practices — shows that they have significantly outperformed the stock market. Thirty thousand dollars invested in the firms included in the Dow Jones Industrial Average 30 years ago would be worth about \$150,000 today — a five-fold increase. But \$1,000 invested in each of the 30 companies 30 years ago would be worth about \$700,000 today — a 23-fold increase.

The Johnson & Johnson findings should not surprise us. A survey by the *California Management Review* found that corporations ranking highest in social responsibility also had the best earnings growth records.

The point is unmistakable: All of us, as consumers or fellow businessmen, want to deal with individuals and companies we can trust. Granted that a great deal of research may be needed, but strong clues and reputable opinions indicate that the marketplace does indeed reward quality, integrity, and ethical conduct.

In my opinion, the erosion of ethical attitudes in America since the end of World War II is due to the dispersion of families; the rising number of divorces; the Vietnam War; the "permissive" and "me" generations; the drug culture; the affluent society; and, most important, television. Television has supplanted the family, church, and schools as the principal purveyor of social mores. We must redouble our efforts to induce television sponsors to increase the ethical content in interesting and entertaining television programs. The business and financial communities also need to inspire and enforce higher ethical standards throughout their organizations.

I mentioned the criticism of business in the news media. The problems of business are immediate and great, but they do not need to be exaggerated.

Wall Street has long been a favorite target, and yet Wall Street ethics compares favorably with that of other fields. An astronomical sum — over \$38 trillion of securities — changed ownership last year. A huge number of transactions took place over the telephone, each participant relying on nothing more than the other person's word — with paperwork to follow in 3 days. Think about that — over \$38 trillion — that's nine times the Gross National Product. By the highest conjecture, securities fraud touches a tiny fraction of 1 percent of the enormous volume of securities transactions.

There will continue to be periods of speculative excesses and serious market reactions, but today America has, by far, the best securities markets the world has ever known — the broadest, the most active and efficient, and the fairest.

In 1981, articles in leading publications stated that insider trading was so pervasive that nothing could be done about it. Many took such articles to be a license to engage in insider trading. If everyone else was doing it and nothing could be done about it, why not?

But something was being done. Since 1981, the Securities and Exchange Commission (SEC) has initiated 125 insider trading cases, compared with 77 during the previous 47 years. The large increase is due principally to the increase in tender offers and to improved surveillance and enforcement systems and techniques. With the help of the business and financial community, the administration and the Congress, the SEC's ability to expose and prosecute securities frauds has been greatly enhanced by electronic market surveillance systems and transaction audit trails, the Insider Trading Sanctions Act, closer coordination with the Justice Department and the self-regulatory organizations, and increasing cooperation from abroad.

Along with the other 122 cases brought by the SEC, the cases of Ivan Boesky, Dennis Levine, and Martin Siegel demonstrate that it has become increasingly difficult for the inside trader or the market manipulator to hide — at home or abroad. Those who engage in such activities assume enormous risks, not just of heavy fines and civil suits, of disbarment from the legal profession, and banishment from the securities industry, but of imprisonment and public disgrace.

Securities fraud has not been eradicated, but it has been inhibited. And the many millions of dollars of profits that Boesky and others had been siphoning off the markets are now flowing through to the investing public.

It is plain that business management still suffers from the image of the robber baron — the caricature of a fat, gout-ridden, greedy old man. But the few robber barons who existed were born over a century ago and buried in the crash of 1929. Their era is long gone. ●

REVENUE ESTIMATING: A MORE PROMINENT PART OF TAX POLICY

A useful tool, but not all revenue estimates are created equal.

THE TAX REFORM Act of 1986 brought a new dimension into the process of making tax policy. Under the constraint to produce a tax bill that was revenue-neutral over a 5-year period, decisionmakers had to consider each provision in light of its potential revenue effects, and to relate these effects to the tax-reform package as a whole. While revenue estimating had been a standard part of the tax-writing process for some time, it had never achieved the importance of such broader concerns as achieving a "level playing field" or creating a tax structure with just the "right" amount of progressivity. The revenue-neutrality requirement changed that.

Revenue estimating played a more prominent role in shaping the Tax Reform Act of 1986 than in any previous tax legislation. Moreover, under the Gramm-Rudman-Hollings budget process, this new prominence apparently will not diminish, as policymakers considering future changes in tax law continue to voice concern over revenue effects. With this heightened emphasis on revenue estimating, it is important that public policy analysts understand the basis, as well as the strengths and weaknesses, of these estimates. It is the purpose of this article to aid in this process by (1) discussing the evolving role that revenue estimating plays in tax policy; (2) surveying documents on the methods used to estimate revenues; and (3) trying to show, on the basis of published information for selected

provisions, just how accurate these estimates have been in the past. Not all revenue estimates are the same. We hope it will become clear not only that estimates for certain tax provisions are more reliable than others, but why this is so, and why it is likely to remain so in the near future.

Background

The roots of estimating revenues for specific tax provisions can be traced to the mid-1960s, when Treasury Department analysts developed the concept of tax expenditures, i.e., spending programs imbedded in the Internal Revenue Code.¹ Congressional decisionmakers had allowed taxpayers certain preferences deemed to be socially or economically beneficial, but the extent of these expenditures had not been systematically quantified. In 1968, the Treasury Department produced the first tax-expenditure budget. Six years later, the Congressional Budget Act of 1974 stipulated that tax-expenditure estimates should be included in the budgetary process. The Office of Management and Budget (OMB) publishes these estimates annually in *Special Analyses: Budget of the United States Government*.

Since the introduction of the tax-expenditure concept, government analysts and scholars have been continually refining the tax-expenditure estimates and discovering new ways to use them.² The sophisticated techniques used to estimate tax expenditures are, in many respects, the same used to produce revenue estimates. In fact, many of the changes enacted by the Tax Reform Act of 1986 were simply curtailments of tax

Revenue estimating played a larger role in shaping the Tax Reform Act of 1986 than in any previous tax legislation.

CHARLES L. VEHORN is a tax policy specialist and THOMAS J. MCCOOL an economist in the Tax Policy Administration Group of GAO's General Government Division. GERALD R. JANTSCHER, a tax policy analyst with the same group, passed away early in the writing of this article.

expenditures, so in these cases, the two estimates would be equivalent.

Numerous entities in the federal government are able to use economic models for various types of estimation. However, only three play key roles in estimating tax revenues: staff of the Joint Committee on Taxation (JCT) and the Congressional Budget Office (CBO) on the legislative side and the Treasury Department's Office of Tax Analysis (OTA) on the executive side. By law, only JCT and OTA have access to the most current taxpayer data base because of the legal requirement that tax returns be kept confidential. Both JCT and OTA have developed large-scale simulation models to produce estimates of the change in revenue for specific tax provisions. But JCT is the only official source of revenue estimates during congressional debate. In 1986, JCT's revenue estimators worked overtime, responding first to the House's, then to the Senate's, and finally to the Conference Committee's efforts to produce a revenue-neutral tax bill. Other entities, both public and private, have the capacity to produce revenue estimates, but they have access to only a sanitized and less complete version of the taxpayer data base.³

One controversial feature of the process is JCT's status as the monopoly provider of information. Couple this status with the highly technical, unpublished details of producing the actual estimates, and it becomes difficult to dispel a perception that the numbers could be subject to manipulation. While the JCT staff is well aware of this situation, the alternative, i.e., considering more than one official set of revenue estimates and engaging in a more open discussion of the staff's model, is not very appealing to them. They fear the process could become even more controversial than it is. The JCT's former Chief of Staff reportedly has said, "We're very reluctant about opening up in terms of the mechanics of what goes into any estimate. Because then all the outside groups are going to come in and they'll attack all of those assumptions that go against them and won't tell you anything about what goes with them."⁴

A recent development, beyond the control of the JCT, may in time reduce the intensity of this controversy. Many former government estimators are now doing revenue estimates in the private sector. These estimators understand the assumptions and technical complexities of large-scale simulation models. They also may have the time to develop new sources of information and concentrate on estimates that may not

have a high priority with the JCT staff. While this flow of talented estimators into the private sector might open up the process and produce better estimates, an increase in the number of "authoritative voices" might add to the confusion — especially if they say substantially different things.

The role of revenue estimates

Unprecedented federal budget deficits and the Gramm-Rudman-Hollings process have focused the attention of decisionmakers on the budgetary costs of any policy change. If they are to be taken seriously, proposals to increase outlays must include plans for offsetting reductions. The same concerns carry over into the area of tax policy. While the tax-reform process was officially viewed as an effort separate from measures intended to deal with the federal deficit, concern over the deficit played a role in creating a demand for detailed revenue estimates.

One benefit of the new emphasis on revenue estimates was that it put more discipline into the policy-making process. Decisions on various provisions were carefully considered under a framework in which trade-offs were explicitly quantified. Revised estimates in July of 1986 showed the House and Senate conferees that the Senate version of the tax bill would cost \$21.2 billion in lost federal revenues over the 1987-91 period, while the House bill would increase federal revenues by \$33.8 billion over the same period. These estimates, along with a list of noncontroversial items common to both bills, established the boundaries for deliberating the reconciliation of the two bills. For example, the estimates showed that the differences between the bills on items providing for middle class tax relief were small, but the differences with respect to taxes on business were still considerable.

While quantification aids decisionmakers, other non-quantifiable principles, such as fairness, may be just as important in achieving sound tax policy. However, some tax observers believe that these other factors were ignored during deliberations, and that the numbers drove tax-policy decision-making. They can cite, for example, the dramatic press conference Senator Packwood held on August 15, 1986. It had

While there is a danger that the numbers could drive decision-making on a specific tax provision, to say that the numbers drove the entire tax-reform process would be misleading.

appeared that the House and Senate conferees had finally worked out an agreement, when Senator Packwood was informed that the revenue estimators found the agreement to fall \$10 billion short of revenue neutrality. This shortfall occurred when the estimators revised their estimates on the basis of CBO's newly released quarterly economic forecast. As the Senator contemplated another meeting of the conferees, he expressed his exasperation with "the unknowable, untouchable estimators"⁵ and the continuous reestimation of revenues. Regarding one specific estimate that was revised during weekend negotiations, Packwood said, "I can't blame the Senate conferees for no longer relying on the numbers."⁶

While there is a danger that the numbers could drive decision-making on a specific tax provision, to say that the numbers drove the entire tax-reform process would be misleading. Revenue estimates did not play a prominent role in tax reform until the latter stages of the process. Other, nonquantifiable criteria, such as the desire to improve fairness and economic efficiency, were crucial in placing tax reform on the legislative agenda.⁷ Consider, for example, Treasury's initial report, published in November 1984. The introduction states, "The present U.S. tax system desperately needs simplification and reform. It is too complicated, it is unfair, and it retards savings, investment, and economic growth. . . . The Treasury Department's recommendation reflects the broad political consensus of the American people that the present system is too complicated and favors special interests at the expense of the general public."⁸ Revenue neutrality was not mentioned in the introduction, although it was later identified as 1 of 14 goals that should guide fundamental tax reform. The point is that revenue neutrality did not become a criterion until these other, more fundamental criteria had been reflected in the tax-reform package.

While the attention focused on estimating the revenues gained or lost by particular tax changes has no doubt increased, it is important that we develop a better sense of the degree of precision that should be ascribed to these estimates. The estimates can assist decisionmakers in various ways, such as establishing orders of magnitude or making comparisons between the revenue effects of policy proposals, but they should not be viewed in the same way as, say, the numbers in a

firm's balance sheet. Although estimates are obtained through a sophisticated modeling process, they are still estimates. Built into each model are assumptions about general economic activity and individual economic behavior. However, if aggregate economic activity, e.g., the growth in the Gross National Product, differs from what has been assumed, or if in response to a tax change, people switch the composition of their assets to a much greater degree than they had in the past, then the estimates will not be very accurate and, in fact, could be substantially incorrect.

Also, some estimates are more precise and more reliable than others. Revenue responses to changes in certain tax provisions can be fairly straightforward. If, for example, personal income tax rates rise, most of the additional revenue will come from increased withholding on wages and salaries. In general, taxpayers have relatively little control over receipt of income from this source, although some may change their hours worked or try to defer paying taxes on this year's bonus by receiving it early next year. But taxpayers have greater control over recognition of income from other sources, such as capital gains. Estimating the revenue responses to changes in provisions that tax income whose timing is subject to discretion is far less cut-and-dried. Less confidence should be attached to these more complicated estimates, simply because less precision can be built into them.

How revenue estimates are made

Revenue estimates are made using sophisticated economic models that project federal receipts on the basis of various economic factors. During tax reform, estimators used economic models to simulate how taxpayer liability would change if specific tax provisions were altered. In principle, the process is one of capturing the difference between two projections of federal revenue. One projection represents what would occur under present law; the other represents what would occur if a specific tax provision in current law were changed in a particular way. The accuracy of the

resulting estimate depends largely on the completeness of the data base and correctness of behavioral assumptions. The data base should reflect a broad cross section of taxpayers in as much detail as possible. Assumptions about the behavioral response of taxpayers should be incorporated into the estimate when there is evidence clearly indicating both the direction and degree of this response.

The Treasury Department invested a significant amount of time and effort in constructing an improved data base to assist decisionmakers during the tax reform process. One major improvement was to expand the data base so that it included economic and demographic data along with tax-return data. The previous data base had relied almost entirely on a sample of tax-return data.

The enhanced data base was created by merging the sample of tax-return data with data bases from several other sources. Social Security Administration (SSA) data provided the age, sex, and social security earnings of the taxpayer. Data from the Bureau of the Census' Current Population Surveys (CPS) provided items such as income from nontaxable sources and demographic characteristics of both taxpayers and those not required to file tax returns. The tax-return data base was merged with the SSA data base by social security number; this combined data base was then merged with information from the CPS, using a common set of core variables as the basis. The resulting data base was a sample containing nearly 200,000 observations representative of 122 million potential taxpayers: 97 million tax filers (of which 13 million were dependent filers) and 25 million nonfilers. Each observation contained about 500 data items. Another 250 data items that were not available on the previous data files were imputed from various sources. These items provided information regarding home-ownership, tax-exempt interest, earnings on pensions and life insurance funds, etc. All the data then were calibrated to ensure consistency with aggregate economic measures.⁹

The purpose of this effort was to create a data base that allowed an analysis of revenue effects on a provision-by-provision basis. If an item (medical and dental expenses, for instance) were currently deductible for tax purposes, it would be possible to simulate the effect on tax revenues of restricting or expanding this deduction. The results would show how the tax

burden would change for people in various income classes. In fact, various measures of income (from adjusted gross income (AGI) to various expanded measures of income) could be used, depending on the type of policy question asked. Taxpayers engaging in tax shelters, for example, appear to be poor under income measures such as taxable income. If, instead, total positive income were used as the measure of income, the distributional tables would change, reflecting economic income more closely.¹⁰

One often-voiced criticism of revenue estimates is that they are inaccurate because they fail to consider the behavioral response of taxpayers. Estimates produced in a "behaviorally neutral" context ignore the dynamic interaction between the enactment of a law and the change in a taxpayer's behavior to minimize his or her tax burden.¹¹ Revenue estimators have long recognized this important shortcoming in the estimation process. But the problem is difficult to correct. Revenue estimators at the Treasury Department have tried to introduce dynamic assumptions into the process when the evidence about taxpayer response was unambiguous. For example, the passive loss provisions of tax reform were enacted to restrict taxpayer efforts to shelter wage, salary, and other active income. Treasury's estimate of the revenue effects from changes in the passive loss provisions "reflected taxpayer behavior in the following areas: (a) changes in holding periods for existing investments, (b) induced selling (with resultant additional taxes in the current period), (c) changed investment plans for taxpayers in the future, (d) increased investment by corporations in these activities, and (e) shifting from debt to equity financing."¹²

Retrospective estimation

How accurate can we expect revenue projections to be? In an effort to evaluate the accuracy of past revenue estimates, we attempted to measure the actual revenue effects of various tax provisions. To do so, it was necessary to calculate what revenues would have been if the provision had not been introduced or altered, and to compare this with what revenues actually were. In other

One often-voiced criticism of revenue estimates is that they are inaccurate because they fail to consider the behavioral response of taxpayers. Revenue estimators have long recognized this important shortcoming. But the problem is difficult to correct.

words, as in any exercise in revenue estimation, we had to compare numbers against a baseline projection. We cannot claim any added measure of accuracy for our projected baseline of what revenues might have been had tax provisions not been introduced or altered. But we did have the luxury of being able to compare against that baseline a set of verifiable numbers that reflected actual experience. We can, therefore, get some clearer idea of how well the projections of revenue held up against what actually occurred. The provisions that we examined were selected because the annual IRS publication, *Statistics of Income*, had precise categories containing the relevant data. In the absence of these breakdowns, making retrospective estimates would have been substantially harder without constructing a new microsimulation model based on updated data. Our measures are not meant to be precise, but rather, to suggest orders of magnitude so that we can identify the types of tax changes for which revenue estimates have proved either more or less accurate.

Table 1 lists selected tax provisions from the Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA), the Economic Recovery Act of 1981 (ERTA), and the Tax Reform Act of 1976. From TEFRA we selected for examination the increase in the floor for the Medical Expense Deduction from 3 percent of AGI to 5 percent of AGI. We made two retrospective estimates, both of which attempted to measure the extent to which medical expenses above the 3-percent floor had been growing as a proportion of AGI. One projection was based on actual growth rates of AGI; the second was based on projections of AGI growth that came from the *Economic Report of the President for 1983*.¹³ In each case, we calculated the difference between this projected level of deductions and the actual medical expense deductions and applied a measure of the average marginal tax rate to this difference in order to estimate the revenue gained by this tightening of the provision for medical expense deductions. For the case in which we used actual growth rates, we found that the estimate for 1983 was about as accurate as one could hope for; however, the revenue estimate for 1984 was about \$380 million too low. This probably reflects overly pessimistic growth projections for 1984 during the 1982 deliberations on TEFRA. When we applied growth rates of AGI that were more consistent with those expected in 1982, we found that the revenue gains were overstated by 12 to 19 percent for the 2 years. Some or all of this, however, could be accounted for by people who would have itemized under the older, less restrictive ceiling, but who chose not to under the newer

provisions. This could not be captured using our methodology, but might be captured under a full microsimulation model.

The retrospective estimates for ERTA are more straightforward. The Marriage Deduction, the Charitable Contributions Deduction for Nonitemizers, and the All Savers Interest Exclusion were all new provisions and were all listed separately in the *Statistics of Income*. All that was required of us was to calculate an average marginal tax rate to apply to the amounts deducted. Certainly biases were introduced by our method, since taxpayers who took these deductions were not likely to be "average filers," but again, we were aiming only for approximations. As one can see from the table, the estimates of revenue loss were consistently too high. With one exception, our retrospective estimates are in the range of 65 to 83 percent of the estimates made in the tax bill. The only item that was beyond this range in any substantial way was the All Savers estimate for 1983. It seems as though people dumped All Savers (in favor of the many alternative tax-favored instruments that presented themselves) much faster than was anticipated.

The last two retrospective estimates for ERTA are those for KEOGH Accounts and Individual Retirement Accounts (IRAs). For these two measures we were forced to project what KEOGHs and IRAs would have been had the requirements not been relaxed. (Note that these are two new assets to the portfolio, allowing the individual additional choices.) To do this, we calculated the amounts claimed in 1981 as a proportion of AGI and projected this into the 1982-84 period. The difference between this projected amount and the actual amounts claimed in those years is the basis for our estimate. Again we applied an average marginal tax rate to calculate revenue losses. As can be seen from the table, the KEOGH estimates started out reasonably close for 1982, but in 1983 the estimates understated, and by 1984 substantially understated, the actual revenue losses. The estimates for revenue losses from IRAs were always much too low, and while the degree lessened over time, these estimates were always off by a factor of at least four. This indicates the need to better integrate portfolio analysis into the simulation models, and to devote particular attention to better estimating portfolio shifts.

The last estimate we considered was taken from the Tax Reform Act of 1976 and was chosen in order to provide some historical perspective. It is an estimate of the revenue losses from changing the Child Care deduction to a tax credit and the relaxation of the terms

Table 1

ESTIMATES OF REVENUE CHANGE BY SELECTED PROVISION

(Dollars in Millions)

<i>THE TAX EQUITY AND FISCAL RESPONSIBILITY ACT OF 1982</i>		<i>1983</i>	<i>1984</i>		
Medical Expense Deduction					
Bill estimate ¹		1,812	1,653		
Retrospective estimate I (actual AGI)		1,768	2,034		
Ratio		0.98	1.23		
Retrospective estimate II (projected AGI)		1,590	1,336		
Ratio		0.88	0.81		
<i>THE ECONOMIC RECOVERY TAX ACT OF 1981</i>					
	<i>1982</i>	<i>1983</i>	<i>1984</i>		
Marriage Deduction					
Bill estimate	-3,541	-8,477	-10,189		
Retrospective estimate	-2,881	-6,005	-6,616		
Ratio	0.81	0.71	0.65		
Contribution Deductions — Nonitemizers					
Bill estimate	-189	-188	-421		
Retrospective estimate	-125	-139	-320		
Ratio	0.66	0.74	0.76		
Exclusion of Interest (All Savers)					
Bill estimate	-1,680	-1,631			
Retrospective estimate	-1,393	-244			
Ratio	0.83	0.15			
Self-Employment (KEOGH)					
Bill estimate	-148	-171	-177		
Retrospective estimate	-122	-226	-493		
Ratio	0.83	1.32	2.79		
Retirement Savings (IRA)					
Bill estimate	-1,167	-1,623	-2,025		
Retrospective estimate	-7,513	-8,274	-8,900		
Ratio	6.44	5.10	4.40		
<i>THE TAX REFORM ACT OF 1976</i>					
	<i>1977</i>	<i>1978</i>	<i>1979</i>	<i>1980</i>	<i>1981</i>
Child Care Credit					
Bill estimate	-384	-368	-404	-444	-488
Retrospective estimate (a) ²	-182	-272	-357	-478	-608
Ratio	0.47	0.74	0.88	1.08	1.25
Retrospective estimate (b) ²	-157	-237	-309	-399	-512
Ratio	0.41	0.64	0.76	0.90	1.05

¹Bill estimates are the revenue changes that were predicted in the various tax bills; retrospective estimates are our calculations of the revenue changes based on the methods described in the text; the ratio is simply the ratio of the retrospective estimate to the bill estimate.

²For the Child Care Credit estimates, method (a) uses average marginal tax rates as calculated from the *Statistics of Income* (SOI) Marginal Tax Rate Tables whereas method (b) uses tax rates implicit in the data for child care deductions in 1975 and projected to account for increases in marginal tax rates over the period.

Sources: Bill estimates obtained from the Acts, retrospective estimates obtained from various SOI publications.

When a change in a tax provision allows taxpayers a number of alternative responses, economic models are less likely to yield an accurate prediction of how the change will play out in the "real world."

under which the credit could be claimed. For this retrospective estimate we tried two alternatives. The first, labeled "Retrospective Estimate (a)" in our table, calculated the projected revenue loss under the old deduction system, using our measures of average marginal tax rates and applying these rates to the estimated increase in Child Care deductions. These latter estimates took the proportion of child care deductions in 1975 as a proportion of AGI and maintained that proportion with respect to subsequent years' AGI. The second method employed a set of tax rates projected from the rate implicit in the deductions taken in 1975. The method of projection increased the implicit rate by the same proportion as the overall average marginal rate increased. Both methods yielded similar results, in that the estimated revenue losses appeared too large in the early years and too small in the latter. The disparity was somewhat less under the second alternative, since it was based on the lower implicit rate. All in all, these estimates seem quite good.

When policymakers put together a tax package involving several provisions, the fact that the estimates of revenue losses or gains for one provision are imprecise does not mean that revenue losses or gains for the entire package will be off by the same amount. This is because the underestimates in one provision may be offset by overestimates in another, and therefore balance out in the total. For example, some portion of the understatement of revenue losses for IRAs can be explained by the overstatement of revenue losses for All Savers Certificates. Two CBO studies found the errors in the estimation of total tax revenue to be quite small. In 1981, CBO concluded that the aggregate estimates between 1963 and 1978 "were accurate to within 1 percent of actual collections"¹⁴ when adjustments were made for changes in economic and legislative assumptions. In 1984, CBO found that the inaccuracies in aggregate revenue estimates were primarily due to errors in economic assumptions. In six of seven budget resolutions examined, the error was less than 2 percent, so again, errors in the aggregate estimates were not large.¹⁵

While, admittedly, we selected provisions on the basis of *Statistics of Income* data, other tax provisions could be estimated retrospectively only by using a microsimulation model with updated data. Take, for example, the revenue effects from a change in the tax rate on income from capital gains. This has been a recent point of contention because some estimators

believe an increase in the capital gains tax rate will yield an increase in federal revenues, while other estimators believe the opposite, e.g., that a decrease in the capital gains tax rate will increase federal revenue.

An individual who realizes income from capital gains may either spend the income or reinvest it. If instead, the capital gains tax rate causes the individual to hold onto the asset and delay realization, taxes are deferred. But when the gain is eventually realized, tax liability will have risen to the extent that the asset appreciated in value. Thus, changes in the tax rate may affect the holding period of an asset and the timing of tax revenue. In some cases, the individual escapes capital gains taxes by holding the assets until death. Current law allows an heir to use the market value at death, rather than the original purchase price, as the asset's new basis.

The fact that all of these options are available to investors makes it difficult to model economic behavior. Revenue estimators have tried to build these complexities into their models, but wide uncertainty exists over the extent and direction of taxpayer response. To illustrate the effects of this uncertainty, one researcher produced capital gains revenue estimates using various economic models. His long-run results for the 1987-91 period failed to establish even an order of magnitude, varying from a revenue gain of \$21.8 billion to a revenue loss of \$104.7 billion.¹⁶

Summary

While revenue estimating clearly played a more prominent role in the 1986 tax reform process, it did not drive the origins of the legislation. Equity and efficiency in the form of lower rates and a broader tax base helped to forge a coalition between those who wanted to remove the poor from the tax rolls and those who wanted to reduce the role taxes play in economic decision-making. Without a basic agreement on these principles, tax reform would not have gotten to the House-Senate Conference Committee in the summer of 1986. Here the revenue estimates played an important role in the negotiation process over specific provisions. At this point, many observers complained that the numbers were driving the process, forgetting the large number of noncontroversial items in which substantial agreement already had been reached.

Given revenue estimating's more prominent role, it is important to note that estimates of total revenue are more accurate than estimates of specific provisions, and that estimates for certain provisions are less reliable than others. When a change in a provision allows taxpayers a number of alternative responses, economic models are less likely to yield an accurate prediction of how the change will play out in the "real world." ●

1. Examples of tax expenditures include the exclusion of interest income on state and local tax-exempt bonds; the deductibility of mortgage interest payments; and the expensing of certain business costs, such as exploration costs for minerals and fuels.
2. For an interesting discussion of the development of the tax-expenditure concept, see Stanley S. Surrey and Paul R. McDaniel, *Tax Expenditures* (Cambridge, Mass.: Harvard University Press, 1985).
3. For example, CBO's model is much smaller in scale than JCT's or OTA's, but it still can produce revenue estimates for significant structural changes in the tax code. However, the model lacks the detail to produce revenue estimates on a provision-by-provision basis.
4. Jack Teuber, "With Revenue Estimators in the Spotlight, Their Methods Come Under Scrutiny," *Tax Notes*, vol. 33 (Dec. 1, 1986), p. 789.
5. Jack Teuber, "Revenue Estimators Play a New Role as Numbers Dictate Policy," *Tax Notes*, vol. 33 (Nov. 24, 1986), p. 698.
6. Jack Teuber, "The Suspicion That Results From the Revenue Estimators' Evolving Role Is Not Easily Overcome," *Tax Notes*, vol. 33 (Dec. 8, 1986), p. 883.
7. The President often voiced support for these same criteria in his

attempts to keep tax reform on track as it wove its way through the legislative process.

8. *Tax Reform for Fairness, Simplicity, and Economic Growth*, vol. 1, U.S. Department of the Treasury (Washington, D.C.: U.S. Government Printing Office (GPO), November 1984), p. vii.
9. For a more detailed description of the data base, see James M. Gilke, Susan C. Nelson, and Roy A. Wyscarver, "The Tax Reform Data Base," *Proceedings of the Seventy-Ninth Annual Conference on Taxation* (Hartford, Conn.: National Tax Association — Tax Institute of America, November 1986), pp. 201-208.
10. For a more detailed discussion, see Eugene Steuerle, "Lessons from the Tax Reform Process," *Tax Notes*, vol. 32 (July 14, 1986), pp. 145-146. He notes that tax shelter losses tend to show up on individual income tax returns as partnership losses, thus lowering both AGI and taxable income.
11. For an analysis that tries to consider taxpayer behavior, see Lawrence B. Lindsey, "Taxpayer Behavior and the Distribution of the 1982 Tax Cut," Working Paper No. 1760 (Cambridge, Mass.: National Bureau of Economic Research, November 1985).
12. Howard W. Nester, "Interpreting Revenue Estimates: Macro-Static/Micro-Dynamic," *Proceedings of the Seventy-Ninth Annual Conference on Taxation* (Hartford, Conn.: National Tax Association — Tax Institute of America, November 1986), p. 212.
13. *Economic Report of the President for 1983*, Council of Economic Advisors (Washington, D.C.: GPO), p. 144.
14. "A Review of the Accuracy of Treasury Revenue Forecasts, 1963-1978," CBO, Staff Working Paper (Washington, D.C.: GPO, February 1981), p. 17.
15. *An Analysis of Congressional Budget Estimates for Fiscal Years 1980-1982*, CBO (Washington, D.C.: GPO, June 1984), p. 32.
16. These estimates were prepared by Dr. Lawrence Lindsey and appear as an appendix in the June 5, 1987, letter from nine Republican Congressman to the Chief Counsel of the House Ways and Means Committee. See *Tax Notes*, vol. 35 (June 22, 1987), p. 1240.



NEEDS AND REALITIES

Forrest Chisman and Alan Pifer

GOVERNMENT FOR THE PEOPLE —
THE FEDERAL SOCIAL ROLE: WHAT IT IS,
WHAT IT SHOULD BE

New York: W. W. Norton & Company, 1987. 316 pp.

By Burma H. Klein

President Reagan expressed his view of the federal social role in his 1981 inaugural address: "Government is not the solution to our problem; government is the problem." In *Government for the People*, Forrest Chisman and Alan Pifer dispute this view with a look at history and an examination of the principles that guide decision-making at the federal level. Citing Abraham Lincoln, Theodore Roosevelt, Woodrow Wilson, and Franklin Roosevelt, they conclude that the government has been activist more often than not. They prescribe a more activist role in the future.

Chisman and Pifer assert that Presidents Carter and Reagan, in diminishing the federal social role, have created a crisis. They point to four major areas as inadequately addressed:

- *Threats to employment.* Many workers do not have the education or training necessary for keeping or changing jobs; domestic and foreign competition lead to downward pressure on wages; and increasing numbers of workers can find only part-time or contract work.
- *Threats to families and children.* These include unmet

BURMA H. KLEIN is Group Director of the Pension Equity Group in GAO's Human Resources Division.

needs for day care, flight from the public schools, increased personal debt, and problems associated with illegitimacy and divorce.

- *Growth of the underclass.* The poor often lose their jobs and cannot qualify for new ones; public programs for the poor are often inadequate; and the underclass is becoming increasingly segregated along racial lines.
- *Population aging.* Problems include the burgeoning costs of social security retirement benefits and health-care costs for the elderly; the need to increase the productivity of future workers so they can maintain their standard of living while supporting retired baby boomers; and the trend toward early retirement, under which people who are no longer contributing to their retirement and health-care costs receive benefits for a longer time.

The authors of *Government for the People* believe that the realities of American politics will make it extremely difficult to find support for federal programs to meet these needs. For one thing, social policy is guided by the belief that all people can and should work to support themselves, so it follows that the government's social role since the 1930s has been expressed through programs — social security, Medicare, and unemployment and disability insurance — designed for "average" Americans who hold steady jobs and earn good incomes for most of their working lives. These workers also tend to receive private pensions, which represent the largest category of tax expenditures (e.g., revenue lost to the Treasury because of tax preferences). The poor, however, are not so well protected. Social security benefits, for instance, are in themselves generally insufficient to provide an adequate standard of living; Medicare payments do not meet all the health-care costs of the elderly; unemployment insurance is based on the assumption that a person is employable.

Another problem in finding support for new social programs for such groups as the poor, minorities, working women, or children is that existing programs are hard to displace. Some, like social security, benefit vast segments of society. Others, like farm programs, benefit narrower but nonetheless powerful constituencies that support one another's interests.

Chisman and Pifer are also troubled by the federal government's reliance on other institutions to help solve social problems. Aid to Families with Dependent Children and Medicaid, for example, are administered in cooperation with the states; the needy receive differing services depending on where they

live. The authors also cite the reluctance of public officials to impose new burdens on the business community — mandated health benefits, for example, or unpaid maternity leave with a guaranteed job upon return — for fear of causing recession or corporate failures.

Government for the People provides useful insights into the political environment in which federal decisionmakers must operate. Its authors describe the types of groups — such as retirees, veterans, and poor people — who benefit from today's domestic programs, and argue passionately for making all Americans, not just "average" Americans, the recipients of federal largess.

Under the election-year barrage of "issues," the reader of *Government for the People* may be most interested in the authors' conception of the legitimate federal social role. They call for a full-employment policy consisting of three elements:

- *Security.* Adequate food, shelter, clothing, health care, and child support; on-the-job safety and protection from environmental hazards and dangerous products; and equal opportunity.
- *Education.* High-quality day care for preschool children of working parents; high-quality elementary and secondary education; access to higher education, retraining, and remedial training programs; and help with job placement.
- *Jobs.* More jobs with good pay and opportunities for advancement; reductions in unemployment stemming from irresponsible business practices; matching of jobs with workers; and providing public employment for those who need it.

Comprehensive as this list may appear, Chisman and Pifer claim they would pare the federal role to its essential elements. They would eliminate federal programs concerned with such activities as urban renewal, mass transit, and waste-water disposal, assigning these functions to the states and localities. But the number of programs the authors would maintain or introduce at the federal level is significant, as is their complexity and scope.

As they reluctantly note, the programs they advocate face significant obstacles: a lack of knowledge about how to help people become successful members of the work force, unacceptably high costs, and widely scattered resources if firm decisions are not reached as to which problems should be tackled and which people are most in need. The authors offer no way around these obstacles, nor do they discuss the successes or failures of past efforts to provide se-

curity, education, and jobs for all Americans. It is especially disappointing, having followed their argument so far into the book, to find them leaving the specifics of their proposals to a so-called Committee on Human Resources: a group of "committed public servants" patterned after the Committee on Economic Security that developed the Social Security Act of 1935.

Flawed as it may be, however, *Government for the People* raises interesting questions for the reader involved in evaluating federal social programs. Its broad perspective is a useful one, going as it does beyond the nuts and bolts of individual programs to the fundamental questions of government and the political realities of designing, refining, and in some cases eliminating items from the federal agenda.



EXPLORING THE FED

William Greider

SECRETS OF THE TEMPLE: HOW THE FEDERAL RESERVE RUNS THE COUNTRY

New York: Simon and Schuster, 1987. 798 pp.

By Harry S. Havens

This is an important, informative, and fascinating book. Some will find it infuriating. For those who read it, much of the mystique of the Federal Reserve System will evaporate. The key individuals, such as Paul Volcker, who have guided its policies, will be seen as mere mortals, managing machinery whose

HARRY S. HAVENS is Assistant Comptroller General.

complexity can never be fully understood. Many readers — particularly those who identify with the financial community, will also never feel the same about William Greider, whose previous claim to fame was the uproar generated by his candid interviews with then Office of Management and Budget Director David Stockman.

Greider's current book is particularly difficult to characterize because it contains several diverse elements. It is primarily an institutional study of the Fed, concentrating on Volcker's tenure as Chairman. But it also seeks to tell how monetary policy affects typical Americans, at times becoming a populist essay inveighing against high interest rates and the influence of the financial community.

Viewed separately, each of these elements is very well done. Greider relies heavily on numerous interviews, including several in which Fed officials appear to have been remarkably candid in discussing key decisions. The reader gets a strong sense of the nature of the institution, its development over time, its modes of operation and decision-making processes, its norms of behavior, and its relationships with outside persons and institutions.

When Greider covers the institutional aspects of the Fed, his style is analytical and dispassionate. He uses anecdotes liberally and effectively to illustrate major points. He clearly understands the Fed and tries to describe it objectively, in language accessible to the lay reader.

Greider takes great pains, for example, to describe the conflicting pressures faced by Volcker and the Fed in managing monetary policy in the early 1980s. The usual debate was under way over the appropriate priorities for monetary policy, intensified by the monetarist/pragmatist controversy. In addition, however, the results of earlier deregulation were raising doubts about the reliability of money-supply statistics as a guide for policy, and the very definition of money was in dispute. On top of all that, international factors were creating an entirely new environment for the conduct of monetary policy. This is a complicated piece of history, through which Greider proves a fair and reliable guide.

But the atmosphere changes when Greider describes the implications of monetary policy for working Americans; the dispassionate tone disappears altogether when he discusses the objectives of monetary policy and how he feels it should be changed. He argues that the Fed is a captive of the moneyed interests — represented by the financial community — that have sanctified money over people. In his view, this

group's only objective is self-enrichment through high interest rates, in total disregard for the welfare of others or of the nation. Thus, in his eyes, when the Fed hiked interest rates, Wall Street grew rich while the rest of the nation was driven into recession, unemployment, and bankruptcy.

Greider makes no secret of his own beliefs: High interest rates are a moral evil and yield economic disaster. Inflation is not a danger, but a blessing because of its power to reduce the real burden of debt. Monetary policy should be controlled by elected officials, not by unelected technicians and those who dominate the financial markets.

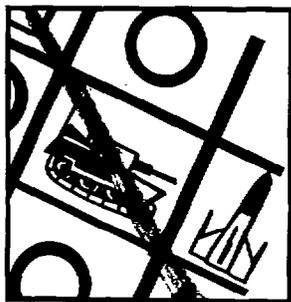
These ideas are not, of course, new to the history of political and economic thought. They were the central tenets of the Populist movement and emerged with greater intellectual stature during the Keynesian revolution in economics. Today, after the rapid, disruptive inflation of the 1970s, it is rare to find these views expressed so unambiguously, but this reader found it rather refreshing. The "money question" often dominated the nation's political life in the 19th century, in debates over such issues as the Bank of the United States and the free coinage of silver. Today's counterparts to those issues can be found in debates over the rescue of the Farm Credit System and of the Federal Savings and Loan Insurance Corporation. The rhetoric has changed, but the central question remains the same: Who will control the flow of credit? Whether one agrees with Greider or not, it is a valuable contribution to have the Populist side of the debate argued effectively.

Greider offers evidence that the Fed is biased toward price stability at the expense of economic growth. He links this with compelling anecdotes about the tragic effects of high interest rates on typical Americans. While many will disagree, Greider's basic point should not be dismissed out of hand. In the first half of the 1980s, the Fed clearly accepted substantial unemployment to minimize the risk of another inflationary surge. The conventional wisdom is that the effect was worth the cost. But that cost was substantial, and Greider is not alone in questioning the conventional wisdom.

But when he raises these issues in *Secrets of the Temple*, Greider the dispassionate observer becomes Greider the ideologically committed pamphleteer. Images are vivid and emotional; words are chosen and arguments are exaggerated for rhetorical effect; conflicting arguments and facts are casually dismissed. This contrasting mode of thought and style emerges at almost random intervals throughout the book. It is

unfortunate that the author chose not to collect his emotional oratory and his more value-laden policy prescriptions in a separate section of the book. The unresolved tone and purpose of *Secrets of the Temple* sometimes makes it difficult for the reader to follow Greider's argument; the overall effect is to diminish somewhat the effectiveness of the work as a whole.

This weakness notwithstanding, *Secrets of the Temple* is an important contribution. The role of the Fed in our economy is too central for it to remain cloaked in awe and mystery. And the "money question" is too central to American political life not to be debated openly. Bankers with high blood pressure should steer clear of this book, but it should be required reading for the rest of us.



HEAVY GOING

Edward N. Luttwak

STRATEGY: THE LOGIC OF WAR AND PEACE

Cambridge, Mass.: The Belknap Press of Harvard University Press, 1987. 283 pp.

By Allan I. Mendelowitz

I remember watching the late Eric Hoffer on television some years ago. The longshoreman-philosopher told of being telephoned by a publisher with news

ALLAN I. MENDELOWITZ is Senior Associate Director in the Trade, Energy, and Finance Subdivision of GAO's National Security and International Affairs Division.

that his manuscript had been accepted for publication. The text, however, ran a bit short; would the author be willing to make it somewhat longer? As I recall, Hoffer told him this: The book had 10 chapters; each contained at least 1 well-written paragraph and 1 original idea. That, Hoffer said, was more than most books could claim, regardless of size.

I recount the episode not just for the lasting impression it made, but for the standard it gave me for judging the books I've read. I have applied the same standard to Edward N. Luttwak's *Strategy*.

Luttwak, a Senior Fellow at the Center for Strategic and International Studies in Washington, D.C., says that his purpose is "to uncover the universal logic that conditions all forms of war as well as the adversarial dealings of nations in peacetime." His "large claim," as he calls it, is that "strategy does not merely entail this or that paradoxical proposition, contradictory and yet recognized as valid, but rather that *the entire realm of strategy is pervaded by a paradoxical logic of its own*, standing against the ordinary linear logic by which we live in all other spheres of life. . . ."

According to Luttwak, only in situations of actual or possible armed conflict does common sense not hold true, and it is only in the "conflictual realm of strategy" that good becomes bad, strength becomes weakness, and success becomes failure. The author's claim for conceptual insight in *Strategy* gives the impression that it represents a seminal contribution not unlike Einstein's contributions to physics or Keynes's to economics.

I cannot with certainty deny that claim. I am an economist, not a strategist. But on the Hoffer scale, *Strategy* scores low. With respect to the first criterion — a few well-written paragraphs — things begin ominously and grow worse. The second sentence of the first paragraph of the introduction runs to 57 words. After that, the reader contends with 70- and 80-word sentences of the kind usually associated with translations from German. The obtuseness of Luttwak's style is all the more striking when compared to his sprinkling of clear and incisive quotations from the great military strategist Karl von Clausewitz — quotations that were, ironically, translated from German.

With respect to the second criterion — a modicum of original ideas — the book does no better. The basic thesis of *Strategy* is that the logic of situations involving actual or potential armed conflict is unique compared with that of all other endeavors. It is not a convincing claim.

Luttwak contrasts the "unique" paradoxical logic

of strategy with the commonsense “linear logic” of business and economics. Only in matters of war, he says, are commonsense outcomes confounded, because success itself contains the seeds of failure, strength can be turned into weakness, and outcomes are impossible to predict. On paper, for example, a certain array of weapons — antiarmor missiles confronting tanks, for instance — will yield a certain logical outcome. In actual combat, however, factors such as terrain, weather, and human performance come into play, making the outcome unpredictable. And more important, any success on the field would prompt the losing side to come up with a countermeasure: Effective antitank missiles simply led to the development of reactive armor. This is one reason, Luttwak says, that in the realm of strategy, what appears to be wasteful redundancy and duplication in weapon systems is in fact efficient: The more varied the technological threat they pose, the more difficult they are to counter.

Unfortunately, Luttwak’s claim that commonsense “linear logic” applies everywhere but in war, and that the pervasiveness of paradoxical logic is unique to war, does not hold up. The whole world contains much that is paradoxical. Microeconomics, for instance, has demonstrated that increasing an excise tax can *lower* tax revenues. Macroeconomics has demonstrated that if everyone in a country tries to save more, the nation as a whole will save *less*.

It is not just the military that finds efficiency in duplication and redundancy; why else would the 3 American automobile manufacturers produce over 250 different makes and models of cars? Similarly, ag-

ricultural engineers purposely develop redundant strains of seed grains. Through redundancy, they reduce the chance that a single organism will wipe out an entire crop.

Childrearing offers all-too-numerous examples of paradoxical logic: “Yes, you may,” of course, is often the best way to get a child *not* to do something. And just as military successes carry the seeds of failure, so a small firm that succeeds and grows may find itself overwhelmed for lack of working capital and the management expertise to operate on an expanded scale.

Strategy betrays a certain narrowness of approach, a phenomenon not unusual in academic circles in which true interdisciplinary work is rarely undertaken and even more rarely rewarded. Luttwak’s bibliographical references include none of the wealth of analytical material from other disciplines that would have enriched his book, and whose synthesis might have formed the basis for a genuinely original contribution.

But this consideration — and the Hoffer scale — aside, does *Strategy* have anything to recommend it? Yes. In the course of his discussions, Luttwak poses hypothetical scenarios involving North Atlantic Treaty Organization (NATO) and Soviet moves and counter moves. The reader emerges better equipped to assess NATO’s problems and opportunities. Further, Luttwak is at his best when, to illustrate his argument, he draws on his vast knowledge of the history of war to portray personalities and events. Even his discouraging prose cannot detract from their fascination. ●

Illustration Credits — Pages 3, 4: Rosanne Bono. Pages 13-30: Lew Azzinaro. Page 31: Ken Krawczyk. Pages 39, 53: Christopher Bing. Pages 72, 73, 75: Les Kanturek.

UNITED STATES
GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

Official Business
Penalty for Private Use \$300

First Class Mail
Postage & Fees Paid
GAO
Permit No. G100