OFFICE OF MANAGEMENT AND BUDGET

Draft Report to Congress on the Costs and Benefits of Federal Regulations

AGENCY: Office of Management and Budget, Executive Office of the President.

ACTION: Notice and request for comments.

SUMMARY: OMB requests comments on the attached Draft Report to Congress on the Costs and Benefits of Federal Regulations. The draft report is divided into four chapters. Chapter I sets the context and provides the background for the next three chapters. Chapter II presents OMB's best estimate of the total costs and benefits of Federal regulation. Chapter III provides data on the costs and benefits of each of the economically significant regulations reviewed by OMB under Executive Order 12866 in the last year. Chapter IV provides recommendations aimed at further developing the information, methodologies, and analyses necessary for improving the efficiency, effectiveness and soundness of regulatory programs and program elements.

DATES: To ensure consideration of comments as OMB prepares this Draft Report for submission to Congress on or before September 30, 1997, comments must be in writing and received by OMB no later than September 1, 1997.

ADDRESSES: Comments on this Draft Report should be addressed to John F. Morrall III, Office of Information and Regulatory Affairs, Office of Management and Budget, NEOB, Room 10235, 725 17th Street, N.W., Washington, D.C. 20503.

Comments may also be submitted by facsimile to (202) 395–6974, or by electronic mail to MORRALL__J@A1.EOP.GOV (please note that ''1'' in ''A1'' is the number one and not the letter ''l''). Be sure to include your name and complete postal mailing address in the comments sent by electronic mail. If you submit comments by facsimile or electronic mail, please do not also submit them by regular mail.

Electronic availability and addresses: This **Federal Register** Notice is available electronically from the OMB Homepage on the World Wide Web: ''http://www.whitehouse.gov/WH/EOP/OMB/html/fedreg.html.''

FOR FURTHER INFORMATION CONTACT: John F. Morrall III, Office of Information and Regulatory Affairs, Office of Management and Budget, NEOB, Room 10235, 725 17th Street, N.W., Washington, D.C. 20503. Telephone: (202) 395–7316.

SUPPLEMENTARY INFORMATION: Congress directed the Office of Management and Budget (OMB) to prepare a Report to Congress on the Costs and Benefits of Federal Regulations. Specifically, under Section 645 of the Treasury, Postal Services and General Government Appropriations Act, 1997 (Pub. L. 104–208), the Director of OMB is to submit to Congress, no later than September 30, 1997, a report that, in summary, provides (1) estimates of the total annual costs and benefits of Federal regulatory programs, (2) estimates of the costs and benefits of each rule that is likely to have a gross annual effect on the economy of $100,000,000 or more in increased costs, (3) an assessment of the direct and indirect impacts of Federal rules, and (4) recommendations from OMB and a description of significant public comments to reform or eliminate any Federal regulatory program that is inefficient, ineffective, or is not a sound use of the Nation's resources.

The attached document is a draft of this report to Congress. OMB is to provide public notice and an opportunity to comment on the report before it is submitted to Congress no later than September 30, 1997.

Issues for Comment

Accordingly, OMB seeks comments on all aspects of the attached draft report, but in particular is interested in comments and suggestions pertaining to the following:

1. The validity and reliability of the quantitative and qualitative measures of the costs and benefits of regulations in the aggregate, as well as of the individual regulations issued between April 1, 1996, and March 31, 1997, discussed in the attached draft report;

2. The discussion of the direct and indirect effects of regulation;

3. Any additional studies that might provide reliable estimates or assessments of the annual costs and benefits, or direct and indirect effects, of regulation in the aggregate or of the individual regulations that are discussed in the draft report; and

4. Programs or program elements on which there is objective and verifiable information that would lead to a conclusion that such programs are inefficient or ineffective and should be eliminated or reformed.

Sally Katzen,

Administrator, Office of Information and Regulatory Affairs.

Draft Report to Congress on the Costs and Benefits of Federal Regulations

Introduction

The Federal Government affects the lives of its citizens in a variety of ways—through taxation, spending, grants, and loans, and through regulation. Over time, regulation has become increasingly prevalent in our society, and the importance of our regulatory activities cannot now be overstated.

Both proponents and opponents of regulation have resorted to grand characterizations of either the benefits or the costs of regulation, without much substantiation and very little agreement on the underlying facts. In order to help further the debate on the nation's regulatory system, Congress adopted Section 645 of the Treasury, Postal Services and General Government Appropriations Act, 1997 (Pub. L. 104–208) on September 30, 1996. Section 645(a) directs the Director of the Office of Management and Budget to submit to Congress, no later than September 30, 1997, a report that provides—

''(1) estimates of the total annual costs and benefits of Federal Regulatory programs, including quantitative and nonquantitative measures of regulatory costs and benefits;

''(2) estimates of the costs and benefits (including quantitative and nonquantitative measures) of each rule that is likely to have a gross annual effect on the economy of $100,000,000 or more in increased costs;

''(3) an assessment of the direct and indirect impacts of Federal rules on the private sector, State and local government, and the Federal Government; and

''(4) recommendations from the Director and a description of significant public comments to reform or eliminate any Federal regulatory program or program element that is inefficient, ineffective, or is not a sound use of the Nation's resources.''

The request for this report reflected a consensus that it could be productive to assemble the information available, and acknowledge the data gaps and the limits of the information at hand, all for the purpose of improving the quality of the debate. The goals of this statutory charge are worthwhile and important, but also very ambitious. Having spent a considerable amount of time, we must acknowledge at the outset that what we

present is neither a complete response to the mandate, nor in many respects as much as we would have liked to have done had we had more time and resources. But it is, we believe, a useful step in the process and will enable, we hope, a more constructive dialogue on this issue.

To be more specific, we found enormous data gaps in the information available on regulatory benefits and costs. Accurate data is particularly sparse on benefits, a fact that has been noted often by commentators in the literature and analysts in the field. We were not surprised by this finding. First, the limited quantified or monetized data is partly a result of the obvious technical difficulties, many of which we will discuss below (e.g., the problem of establishing baselines or valuing qualities not generally traded in the marketplace). Just as important, however, are the significant ''cultural'' or ''philosophical'' barriers to reducing values, equities, and a myriad of physical or emotional effects to dollars and cents. There are few agreed upon conventions for doing this, and agencies are understandably reluctant to spend scarce time and resources on what may be perceived as a not very informative exercise. This is compounded by the belief of some that it is morally or politically difficult or wrong to engage in such seemingly uncaring calculations. Some also fear a tyranny of numbers—that is, ''if it is quantified, the decision will necessarily be determined solely by the numbers.'' Their understandable response is not to quantify or monetize.

Nevertheless, the fact remains that explicitly quantifying and monetizing benefits and costs significantly enhances the consideration of alternative approaches to achieving regulatory goals, ultimately producing more benefits with fewer costs. As explained more fully below, President Clinton's Executive Order 12866, ''Regulatory Planning and Review,'' recognizes and incorporates this principle, requiring agencies to quantify both costs and benefits to the best of their ability and to the extent permitted by law. This report takes up the challenge of the Executive Order and Section 645 and candidly presents the available information on both the total costs and benefits of regulation and the costs and benefits of the recent major individual regulations. We hope that this is just the beginning of an important dialogue to improve our knowledge about the effects of regulation on the public, the economy, and American society.

This document is only a draft of our report. Section 645(b) requires the Director of OMB to provide public notice and an opportunity to comment on the report before it is submitted to Congress at the end of September 1997. Accordingly we seek comments on all aspects of this document, but in particular are interested in comments and suggestions pertaining to the following:

- The validity and reliability of the quantitative and qualitative measures of the costs and benefits of regulations in the aggregate, as well as of the individual regulations discussed;
- Our discussion of the direct and indirect effects of regulation;
- Any additional studies that might provide reliable estimates or assessments of the annual costs and benefits, or direct and indirect effects, of regulation in the aggregate or of the individual regulations issued between April 1, 1996, and March 31, 1997, that we discuss; and;
- Programs or program elements on which there is objective and verifiable information that would lead to a conclusion that such programs are inefficient or ineffective and should be eliminated or reformed.

All comments received will be carefully considered in preparing the final report that will be submitted to Congress.

The draft report is divided into four chapters: chapter I sets the context and provides the background for the next three chapters. It discusses the development of our regulatory system and demonstrates the breadth of activity that is called regulation, which ranges from economic regulation such as price supports of agricultural products to social regulation such as the protection of workers and the environment. It tracks the use of benefit-cost analysis to evaluate specific regulations, with the recognition of the limits of quantification and its permitted use under the law. Chapter I concludes by presenting the outline of the ''best practices'' guidance that the current regulatory review program under Executive Order 12866 uses in conducting economic analyses and estimating costs and benefits of economically significant regulations.

In accordance with Section 645(a)(1), chapter II presents our best estimate of the total costs and benefits of Federal regulation. We use a well recognized, peer reviewed study (Hahn and Hird 1991) for the costs and benefits of regulations as of 1988, supplemented by an Environmental Protection Agency (EPA) report to Congress (Cost of Clean 1990); we then add information about costs and benefits from agency regulatory impact analyses (RIAs) for regulations that have been issued since 1988. In almost all cases, the RIAs have gone through notice and comment and been reviewed by OMB for accuracy and reliability. The figures derived are approximately $200 billion in annual costs and $300 billion in annual benefits for environmental and social regulation and about $90 billion in annual costs and nominal benefits for economic regulation. While this information is useful, we cannot over emphasize the limitations of these estimates for use in making recommendations about reforming or eliminating regulatory programs. As discussed in this chapter, aggregate estimates of the costs and benefits of regulation offer little guidance on how to improve the efficiency, effectiveness or soundness of the existing body of regulation. This chapter also discusses the possible indirect effects of regulation on the economy as directed by Section 645(a)(3) and concludes that the effects are ambiguous theoretically, not well understood empirically, and offer little content for making recommendations about regulatory policy.

In fulfillment of Section 645(a)(2), chapter III provides data on the costs and benefits of each of the economically significant regulations reviewed by OMB under Executive Order 12866 over the period from April 1, 1996, to March 31, 1997. These data were developed by the agencies as required by the Executive Order. For the most part, these data were subject to notice and public comment and reviewed by OMB. We conclude that although the agency analyses described in Chapter III provide much useful information on Federal regulatory programs and provisions of regulations, there should be further improvement in providing high quality data and analyses before decisions about modifying regulatory programs can be made.

Chapter IV provides recommendations aimed at further developing the information, methodologies, and analyses necessary for improving the efficiency, effectiveness and soundness of regulatory programs and program elements as required by Section 645(a)(4). We also propose several ways for the agencies and OMB to work together to improve the quality of the data and analysis found in the economic impact studies submitted to OMB under Executive Order 12866, including ''best practices'' training sessions and interagency peer reviews of selected regulatory programs.

Chapter I. The Role of Economic Analysis in Regulatory Reform

1. Federal Regulatory Programs

The regulatory programs that exist today are the product of many different forces, often operating independently of one another, but with the support—over many decades—of both major political parties in both the Legislative and Executive branches.

The History of Major Regulatory Programs

Federal regulation as we know it began in the late 19th century with the creation of the Interstate Commerce Commission, which was charged with protecting the public against excessive and discriminatory railroad rates. The regulation was economic in nature, setting rates and regulating the provision of railroad services. Having achieved some success, this administrative model of an independent, bipartisan commission, reaching decisions through an adjudicatory approach, was used for the Federal Trade Commission (FTC) (1914), the Water Power Commission (1920) (later the Federal Power Commission), and the Federal Radio Commission (1927) (later the Federal Communications Commission). In addition, during the early 20th century, Congress created several other agencies to regulate commercial and financial systems—including the Federal Reserve Board (1913), the Tariff Commission (1916), the Packers and Stockyards Administration (1916), and the Commodities Exchange Authority (1922)—and to ensure the purity of certain foods and drugs, the Food and Drug Administration (1931).

Federal regulation began in earnest in the 1930s with the implementation of wide-ranging New Deal programs. Some of the New Deal economic regulatory programs were implemented by the Federal Home Loan Bank Board (1932), the Federal Deposit Insurance Corporation (FDIC) (1933), the Commodity Credit Corporation (1933), the Farm Credit Administration (1933), the Securities and Exchange Commission (SEC) (1934), and the National Labor Relations Board (1935). In addition, the jurisdiction of both the Federal Communications Commission (FCC) and the Interstate Commerce Commission were expanded to regulate other forms of communications (e.g., telephone and telegraph) and other forms of transport (e.g., trucking). In 1938, the role of the Food and Drug Administration (FDA) was expanded to include prevention of harm to consumers in addition to corrective action. The New Deal also called for the establishment of an agency to enforce the Fair Labor Standards Act of 1938 in the Department of Labor, which is now called the Employment Standards Administration.

A second burst of regulation began in the late 1960s with the enactment of comprehensive, detailed legislation intended to protect the consumer, improve environmental quality, enhance work place safety, and assure adequate energy supplies. In contrast to the pattern of economic regulation adopted before and during the New Deal, the new social regulatory programs tended to cross many sectors of the economy (rather than individual industries) and affect industrial processes, product designs, and by-products (rather than entry, investment, and pricing decisions).

The consumer protection movement of that era led to creation in the then newly formed Department of Transportation (DOT) of several agencies designed to improve transportation safety. They included the Federal Highway Administration (1966), which sets highway and heavy truck safety standards; the Federal Railroad Administration (1966), which sets rail safety standards; and the National Highway Traffic Safety Administration (1970), which sets safety standards for automobiles and light trucks. Regulations were also authorized pursuant to the Truth in Lending Act, the Equal Credit Opportunity Act, the Consumer Leasing Act, and the Fair Debt Collection Practices Act. The National Credit Union Administration (1970) and the Consumer Product Safety Commission (1972) were also created to protect consumer interests.

In 1970, the Environmental Protection Agency (EPA) was created to consolidate and expand environmental programs. Its regulatory authority was expanded through the Clean Air Act (1970), the Clean Water Act (1972), the Safe Drinking Water Act (1974), the Toxic Substances Control Act (1976), and the Resource Conservation and Recovery Act (1976). This effort to improve environmental protection also led to the creation of the Materials Transportation Board (1975) (now part of the Research and Special Programs Administration in the DOT) and the Office of Surface Mining Reclamation and Enforcement (1977) in the Department of the Interior (DOI).

The Occupational Safety and Health Administration (1970) was established in the Department of Labor (DOL) to enhance work place safety. Major mine safety and health legislation had been passed in 1969, following prior statutes reaching back to 1910. Enforcement responsibility now lies with the Mine Safety and Health Administration, also in the DOL. The Pension Benefit Guaranty Corporation and the Pension and Welfare Administration were established in 1974 to administer and regulate pension plan insurance systems.

Also in the 1970s, the Federal Government attempted to address the problems of the dwindling supply and the rising costs of energy. In 1973, the Federal Energy Administration (FEA) was directed to manage short-term fuel shortage. Less than a year later, the Atomic Energy Commission was divided into the Energy Research and Development Administration (ERDA) and an independent Nuclear Regulatory Commission (NRC). In 1977, the FEA, ERDA, the Federal Power Commission, and a number of other energy program responsibilities were merged into the Department of Energy (DOE) and the independent Federal Energy Regulatory Commission.

Another significant regulatory agency, the Department of Agriculture (USDA) (1862), has grown over time so that it now regulates the price, production, import, and export of agricultural crops; the safety of meat, poultry, and certain other food products; a wide variety of other agricultural and farm-related activities; and broad-reaching welfare programs. Agriculture regulatory authorities have changed over time, but now include the U.S. Forest Service (1905), the Natural Resources Conservation Service (1935), the Farm Service Agency (1961), the Food and Consumer Service (1969), the Agricultural Marketing Service (1972), the Federal Grain Inspection Service (1976), the Animal and Plant Health Inspection Service (1977), the Foreign Agricultural Service (1974), the Food Safety and Inspection Service (1981), and the Rural Development Administration (1990).

In addition to the regulatory agencies listed above, most Departments and agencies also issue regulations that affect the public in a variety of ways such as:

- Eligibility standards and documentation requirements for government benefit programs, i.e., USDA's Food and Nutrition Service, Health and Human Services' (HHS) Health Care Financing Administration, Housing and Urban Development's (HUD) Federal Housing Administration, DOL's Employment and Training Administration, and DOI's Bureau of Indian Affairs as well as Veterans Affairs, Education, the Department of

Defense, and the Social Security Administration;

- Use and leasing requirements for Federal lands and resources, i.e., USDA's Forest Service and DOI's Bureau of Land Management and National Park Service; and
- Revenue collection requirements, i.e., Treasury's Internal Revenue Service, Customs Service, and Bureau of Alcohol, Tobacco and Firearms.

The consequence of the long history of regulatory activities is that Federal regulations now affect virtually all individuals, businesses, State, local, and tribal governments, and other organizations in virtually every aspect of their lives or operations. Some rules are based on old statutes; others on relatively new ones. Some regulations are critically important (such as the safety criteria for airlines or nuclear power plants); some are relatively trivial (such as setting the times that a draw bridge may be raised or lowered). But each has the force and effect of law and each must be taken seriously.

The Nature of Regulation

It is conventional wisdom that competition in the marketplace is the most effective regulator of economic activity. Why then is there so much regulation? The answer is that markets are not always perfect and when they are not, society's resources may be imperfectly or inefficiently used. The advantage of regulation is that it can improve resource allocation or help obtain other societal benefits. For example, consider the following situations:

—Certain markets may not be sufficiently competitive, thus potentially subjecting consumers to the harmful exercise of market power (such as higher prices or artificially limited supplies). Regulation can be used to protect consumers by regulating prices charged by natural monopolies or preventing firms from restricting competition through mergers, collusion or creating entry barriers.

—In an unregulated market, firms and individuals may impose costs on others—including future generations—that are not reflected in the prices of the products they buy and sell. They may pollute streams, cause health hazards, or endanger the safety of their workers or customers. Regulation can be used to reduce these harmful effects by prohibiting certain activities or imposing the societal costs of the activity in question on those causing the harm. One goal of regulation is to induce private parties to act as they would if they had to bear the full costs that they impose on others.

—Similarly, in an unregulated market, firms and individuals may not have incentives to provide individuals with accurate or sufficient information needed to make intelligent choices. Firms may mislead consumers or take advantage of consumer ignorance to market unsafe or risky products. Regulation may be needed to require disclosure of information, such as the possible side effects of a drug, the contents of a food or packaged good, the energy efficiency of an appliance, or the full cost of a home mortgage.

—Even when consumers have full information, the Government may wish to protect individuals, especially children, from their own actions. Regulation may thus be used to restrict certain unacceptable or harmful practices such as substance abuse.

—Regulation can also be beneficial in achieving goals that reflect our national values, such as equal opportunity and universal education, or a respect for individual privacy.

There are also many potential disadvantages of regulating—to the Government, to those regulated, and to society at large—that can give rise to significant costs.

—The direct costs of administering, enforcing, and complying with regulations may be substantial. Some of these costs may be borne by the Government, while others are paid for by firms and individuals, eventually being reflected in the form of higher prices, lower wages, and foregone investment, research, and output.

—There are also disadvantages of regulation that are difficult to measure, such as adverse effects on flexibility and innovation, which may impair productivity and competitiveness in the global marketplace, and counterproductive private incentives, which may distort investment or reduce needed supporting activities.

In short, regulations (like other instruments of government policy) have enormous potential for both good and harm. Well-chosen and carefully crafted regulations can protect consumers from dangerous products and ensure they have information to make informed choices. Such regulations can limit pollution, increase worker safety, discourage unfair business practices, and contribute in many other ways to a safer, healthier, more productive, and more equitable society. Excessive or poorly designed regulations, by contrast, can cause confusion and delay, give rise to unreasonable compliance costs in the form of capital investments, labor and ongoing paperwork, retard innovation, reduce productivity, and accidentally distort private incentives.

The only way we know to distinguish between the regulations that do good and those that cause harm is through careful assessment and evaluation of their benefits and costs. Such analysis can also often be used to redesign harmful regulations so they produce more good than harm and redesign good regulations so they produce even more net benefits. The next section describes how regulatory analysis has evolved to do just that.

2. Development of the U.S. Regulatory Analysis Program

As discussed above, the late 1960's and early 1970's marked a period in U.S. history of major expansion of health, safety and environmental regulation. Numerous new government agencies were set up to protect the American workplace, the environment, highway travelers, and consumers. As with almost every political development, the significant growth in the amount and kinds of regulation created a counter political development that ultimately produced a companion program to evaluate the regulatory system.

The Nixon and Ford Review Programs

The Nixon Administration established in 1971 a little known review group in the White House called the ''Quality of Life Review'' program. The program focused solely on environmental regulations to minimize burdens on business. These reviews did not utilize analysis of the benefits and costs to society. The controversy that resulted from the program began a debate about both Presidential review of regulations and the use of benefit-cost analysis that would continue for two decades and to some extent continues today.

Soon after Gerald Ford became President in 1974, he held an economic summit that included top industry leaders and economists to seek solutions to the stagflation and slow growth that the nation was then facing. Out of that summit came proposals to establish a new government agency in the Executive Office of the President, called the Council on Wage and Price Stability (CWPS), to monitor the inflationary actions of both the government and private sectors of the economy. It also led President Ford to issue Executive Order 11821, requiring government agencies to prepare inflation impact statements before they issued costly new regulations. The innovative aspect

of the Ford program was the creation of a specific White House agency to review the inflationary actions, mainly regulations, of other government agencies. CWPS was staffed primarily by economists drawn from academia and had little authority beyond the influence of public criticism.

The economists at CWPS quickly concluded that a regulation would not be truly inflationary unless its costs to society exceeded the benefits it produced. Thus the economists turned the inflation impact statement into a benefit-cost analysis. This requirement, that agencies do an analysis of the benefits and costs of their ''major'' proposed regulations—generally defined as having an annual impact on the economy of over $100 million—was adopted in modified form by each of the four next Presidents.

The Administrative Procedure Act requires agencies to give the public and interested parties a chance to comment on proposed regulations before they are adopted in final form. The agency issuing the regulation must respond to the comments and demonstrate that what it is intending to do is within its scope of authority and is not ''arbitrary or capricious.'' CWPS used this formal comment process to file its critiques of the agencies' economic analyses of the benefits and costs of proposed regulations. CWPS would also issue a press release summarizing its filing in non-technical terms. The CWPS analyses attracted considerable publicity. But while this system was effective in preventing some unsupportable regulations from becoming law, it had little success in preventing the issuance of poorly thought out regulations that had strong interest group support.

Nevertheless, one of the legacies of this approach was that it slowly built an economic case against poorly conceived regulations, raising interest particularly among academics and students who began to use the publicly available analyses in their textbooks and courses. When benefit-cost analysis was first introduced, it was not welcomed by the political establishment, especially the lawyers and other non-economists who comprised many agencies and congressional staffs. But over time, as these analyses became standard fare in textbooks, the value and legitimacy of benefit-cost analysis became evident, and it slowly gained acceptance among the public.

The Carter Review Program

After President Carter came to office in 1977, the regulating agencies argued that the Executive Office of the President should not have a role in reviewing their regulations. On the other hand, the President's chief economic advisers argued that a centralized review program based on careful economic analysis was necessary to assure that regulatory burdens on the economy were properly considered and that the regulations that were issued were cost effective. Rapidly escalating inflation in 1978 convinced President Carter of the need to act. In March of 1978, he issued Executive Order 12044, ''Improving Government Regulations.'' It established general principles for agencies to follow when regulating and required regulatory analysis to be done for rules that ''may have major economic consequences for the general economy, for individual industries, geographical regions or levels of government.''

President Carter also set up a new group, called the Regulatory Analysis Review Group (RARG), with instructions to review up to ten of the most important regulations each year. The RARG was chaired by the Council of Economic Advisors (CEA) and was composed of representatives of OMB and the economic and regulatory agencies. It relied on the staff of CWPS and the CEA to develop evaluations of agency regulations and the associated economic analyses and to place these analyses in the public record of the agency proposing to issue the regulation. The analyses were reviewed by the RARG members and reflected the views of the member agencies, including the agency that proposed the regulation.

In this way, the Carter Administration helped to institutionalize both regulatory review by the Executive Office of the President and the utility of benefit-cost analysis for regulatory decision makers. Also, in an important legal ruling, the U.S. Court of Appeals for the District of Columbia in *Sierra Club* v. *Costle* (657 F. 2d 298 (1981)) found that a part of the President's administrative oversight responsibilities was to review regulations issued by his subordinates.

The Reagan/Bush Reform Effort

During the Presidential campaign of 1980, the issue was not whether to continue a regulatory review oversight program, but whether to strengthen it. President Reagan had made regulatory relief one of his four pillars for economic growth—in addition to reducing government spending, tax cuts, and steady monetary growth. He specifically used the term ''regulatory relief'' rather than ''regulatory reform'' to emphasize his desire to cut back regulations, not just make them more cost effective. One of his first acts as President was to issue Executive Order 12291, ''Federal Regulation'' (February 17, 1981).

The Reagan regulatory oversight program differed from the Carter Program in a number of important respects. First, it required that agencies not only prepare cost-benefit analyses for major rules, but also that they issue only regulations that maximize net benefits (social benefits minus social costs). Second, OMB, and within OMB the Office of Information and Regulatory Affairs (OIRA), replaced CWPS as the agency responsible for centralized review. Third, agencies were required to send their proposed regulations and cost-benefit analyses in draft form to OMB for review before they were issued. Fourth, it required agencies to review their existing regulations to see which ones could be withdrawn or scaled back. Finally, President Reagan created The Task Force on Regulatory Relief, chaired by then-Vice President Bush, to oversee the process and serve as an appeal mechanism if the agencies disagreed with OMB's recommendations. Together these steps established a more formal and comprehensive centralized regulatory oversight program.

In 1985, President Reagan issued Executive Order 12498, ''Regulatory Planning Process,'' that further strengthened OMB's oversight role by extending it earlier into the regulatory development process. The Order required that agencies annually send OMB a detailed plan on all the significant rules that they had under development. OMB coordinated the plans with other interested agencies and could recommend modifications. It also compiled these detailed descriptions of the agencies' most important rules—usually about 500—in one large volume called the Regulatory Program of the U.S. Government.

The Bush Administration continued the regulatory review program of the Reagan Presidency. Nonetheless, the pace of new health, safety, and environmental regulations that had begun to increase at the end of the Reagan Administration continued during the first two years of the Bush Administration. In 1990, President Bush responded to expressions of concern about increasing regulatory burdens by returning to the approach used by the Reagan Task Force on Regulatory Relief. Vice President Quayle was placed in charge of a task force—now called the Competitiveness Council—whose mission was to provide regulatory relief.

The Clinton Review Program

On September 30, 1993, President Clinton issued Executive Order 12866, ''Regulatory Planning and Review.'' The Order reaffirmed the legitimacy of centralized review but reestablished the primacy of the agencies in regulatory decision making. It retained the requirement for analysis of benefits and costs, quantified to the maximum extent possible, and the general principle that the benefits of intended regulations should justify the costs. In addition, while continuing the basic framework of regulatory review established in 1981, it made several changes in response to criticisms that had been voiced against the Reagan/Bush programs.

One of the changes was to focus OMB's resources on the most significant rules, allowing agencies to issue less important regulations without OMB review. OMB had been reviewing about 2,200 regulations per year with a staff of less than 40 professionals. This change enabled OMB to add greater value to its review by focusing on the most important rules.

A second change was the establishment of a 90-day period for OMB review of proposed rules. Executive Order 12291 contained no strict limit on the length of review, and some reviews had dragged on for several years before resolution. The Clinton Executive Order also set up a mechanism for a timely resolution of any disputes between OMB and agency heads.

A third change was to increase the openness and accountability of the review process. All documents exchanged between OIRA and the agency during the review are made available to the public at the conclusion of the rulemaking. The Executive Order also requires that records be kept of any meetings with people outside of the Executive branch on regulations under review by OMB, that agency representatives be invited to attend the meetings, and that all written communications be placed in the public docket and given to the agency.

OMB has produced three reports on its implementation of this Executive Order. On May 1, 1994, OMB published a six month assessment of the Executive Order that the President had requested when he issued the Order (Report to the President On Executive Order No. 12866, 1994). The report concluded that many initial improvements in the regulatory review system had been made, but that in some areas it was taking longer to show results than expected. Among other things, the report documented that the new Executive Order was resulting in increased selectivity. The 578 rules reviewed by OMB over the six-month period was about one half the rate of review under the previous Executive Order. Freeing up limited staff resources to concentrate on the more significant rules resulted in a higher percentage of changes to the rules reviewed. Second, the new time limits for OMB review were for the most part being met. Of the 578 reviews completed in the first six months of the Executive Order, only three had gone beyond 90 days and those delays were requested by the agencies. Third, the report concluded that the new requirements for openness and accountability were being met. During the six-month period, 36 meetings were held with outsiders about specific rules under review. These meetings were disclosed to the public and agency representatives were always invited.

In October 1994, OIRA produced a second report entitled, The First Year of Executive Order No. 12866, that basically confirmed the findings of the first report. The number of significant rules that OIRA was reviewing fell to a rate of about 900 per year, 60 percent lower than the 2200 per year average reviewed under the previous Executive Order, and the number of rules that were changed continued to increase. About 15 percent of the rules were ''economically significant''—meaning in general that the regulation was expected to have an effect on the economy of more that $100 million per year. The 90-day review period was generally observed, and there were about 70 meetings during the first year, to which agency representatives were invited. The report concluded that the new openness and transparency policy had served to defuse, if not eliminate, the criticism of OIRA's regulatory impact analysis and review program.

The third report, More Benefits Fewer Burdens: Creating a Regulatory System that Works for the American People, was issued in December 1996. The report provided a series of examples of how the agencies and OMB had worked together to produce regulations that adhered to the principles of Executive Order 12866. The examples were organized around six broad themes, several of which emphasize economic analysis and efficiency:

- Properly identifying problems and risks to be addressed, and tailoring the regulatory approach narrowly to address them;
- Developing alternative approaches to traditional command-and-control regulation, such as using performance standards (telling people what goals to meet, not how to meet them), relying on market incentives, or issuing nonbinding guidance in lieu of rules;
- Developing rules that, according to sound analysis, are cost-effective and have benefits that justify their costs.
- Consulting with those affected by the regulation, especially State, local, and tribal governments;
- Ensuring that agency rules are well coordinated with rules or policies of other agencies; and
- Streamlining, simplifying, and reducing burden of Federal regulation.

The report included examples of incremental improvements in the regulatory systems across the government. Although few major eliminations or reforms of regulatory programs were listed, the sum of the improvements indicated that significant benefits were attained with lower costs. A key recommendation of this report was the continued use by the agencies, and vigorous promotion by OMB, of the principles of the Executive Order.

An appendix to More Benefits Fewer Burdens contained information on the costs of regulations issued between 1987 and 1996, which we use below to estimate the aggregate costs of regulation. Another appendix included a discussion of regulatory reform legislation that President Clinton had supported and was passed by Congress during the three-year period, including three statutes that require agencies to follow certain procedures and/or consider various economic impacts before taking regulatory action: the Unfunded Mandates Reform Act of 1995, the Paperwork Reduction Act of 1995, and the Small Business Regulatory Enforcement Fairness Act of 1996.

3. Basic Principles for Assessing Benefits and Costs

In order to help agencies prepare the economic analyses required by Executive Order 12866 or the various statutes enacted by the Congress in the last few years, OMB developed, through an interagency process, a ''Best Practices'' manual that was issued on January 11, 1996. Best Practices sets the standard for high quality economic analysis of regulation—whether in the form of a prospective regulatory impact analysis of a proposed regulation, or in the form of a retrospective evaluation of a regulatory program. The principles that are described in detail in Best Practices are summarized here because they can serve as an introduction to how we have evaluated the studies on the costs and benefits of regulation discussed in the following chapters. We discuss those principles in Best

Practices that are general in nature, then those that pertain to benefits, and then those that pertain to costs.

General Principles

Costs and benefits must be measured relative to a baseline. Typically, this baseline is constructed to reflect policy in the absence of the regulation being evaluated, consistent with pending government actions, and applied equally to benefits and costs. In some instances where the likelihood of government actions is uncertain, analysis with multiple baselines is appropriate.

Costs and benefits should be presented in a way to maximize their consistency or comparability. Costs and benefits can be monetized, quantified but not monetized, or presented in qualitative terms. A monetized estimate is one that either occurs naturally in dollars (e.g., increased costs by a business to purchase equipment needed to comply with a regulation) or has been converted into dollars using some specified methodology (e.g., the number of avoided health effects multiplied by individuals' estimated willingness-to-pay to avoid them). A quantitative estimate is one which is expressed in metric units other than dollars (e.g., tons of pollution controlled, number of endangered species protected from extinction). Finally, a qualitative estimate is one which is expressed in ordinal or nominal units or is purely descriptive. Presentation of monetized benefits and costs is preferred where acceptable estimates are possible. However, monetization of some of the effects of regulations is often difficult, if not impossible, and even the quantification of some effects may not be easy. As discussed below, aggregating costs and benefits is particularly difficult, if not impossible, where they are not presented in consistent or comparable units.

An economic analysis cannot reach a conclusion about whether net benefits are maximized—the key economic goal for good regulation—without consideration of a broad range of alternative regulatory options. To help decision-makers understand the full effects of alternative actions, the analysis should present available physical or other quantitative measures of the effects of the alternative actions where it is not possible to present monetized benefits and costs, and also present qualitative information to characterize effects that cannot be quantified. Information should include the magnitude, timing, and likelihood of impacts, plus other relevant dimensions (e.g., irreversibility and uniqueness). Where benefit or cost estimates are heavily dependent on certain assumptions, it is essential to make those assumptions explicit, and where alternative assumptions are plausible, to carry out sensitivity analyses based on the alternative assumptions.

The large uncertainties implicit in many estimates of risks to public health, safety or the environment make treatment of risk and uncertainty especially important. In general, the analysis should fully describe the range of risk reductions, including an identification of the central tendency in the distribution; risk estimates should not present either the upper-bound or the lower-bound estimate alone.

Those who bear the costs of a regulation and those who enjoy its benefits often are not the same people. The term ''distributional effects'' refers to the distribution of the net effects of a regulatory alternative across the population and economy, divided in various ways (e.g., income groups, race, sex, industrial sector). Where distributive effects are thought to be important, the effects of various regulatory alternatives should be described quantitatively to the extent possible, including their magnitude, likelihood, and incidence of effects on particular groups. There are no generally accepted principles for determining when one distribution of net benefits is more equitable than another. Thus, the analysis should be careful to describe distributional effects without judging their fairness.

Benefits

The analysis should state the beneficial effects of the proposed regulatory change and its principal alternatives. In each case, there should be an explanation of the mechanism by which the proposed action is expected to yield the anticipated benefits. As noted above, an attempt should be made to quantify all potential real benefits to society in monetary terms to the maximum extent possible, by type and time period. Any benefits that cannot be monetized, such as an increase in the rate of introducing more productive new technology or a decrease in the risk of extinction of endangered species, should also be presented and explained.

The concept of ''opportunity cost'' is the appropriate construct for valuing both benefits and costs. The principle of ''willingness-to-pay'' captures the notion of opportunity cost by providing an aggregate measure of what individuals are willing to forgo to enjoy a particular benefit. Market transactions provide the richest data base for estimating benefits based on willingness-to-pay, as long as the goods and services affected by a potential regulation are traded in markets.

Where market transactions are difficult to monitor or markets do not exist, analysts should use appropriate proxies that simulate willingness-to-pay based on market exchange. A variety of methods have been developed for estimating indirectly traded benefits. Generally, these methods apply statistical techniques to distill from observable market transactions the portion of willingness-to-pay that can be attributed to the benefit in question. Contingent-valuation methods have become increasingly common for estimating indirectly traded benefits, but the reliance of these methods on hypothetical scenarios and the complexities of the goods being valued by this technique raise issues about its accuracy in estimating willingness to pay compared to methods based on (indirect) revealed preferences.

Health and safety benefits are a major category of benefits that are indirectly traded in the market. The willingness-to-pay approach is conceptually superior, but measurement difficulties may cause agencies to prefer valuations of reductions in risks of nonfatal illness or injury based on the expected direct costs avoided by such risk reductions. The primary components of the direct-cost approach are medical and other costs of offsetting illness or injury; costs for averting illness or injury (e.g., expenses for goods such as bottled water or job safety equipment that would not be incurred in the absence of the health or safety risk); and the value of lost production.

Values of fatality risk reduction often figure prominently in assessments of government action. Reductions in fatality risks as a result of government action are best monetized according to the willingness-to-pay approach for small reductions in mortality risk, usually presented in terms of the value of a ''statistical life'' or of ''statistical life-years'' extended.

It is important to keep in mind the larger objective of consistency—subject to statutory limitations—in the estimates of benefits applied across regulations and agencies for comparable risks. Failure to maintain such consistency prevents achievement of the most risk reduction from a given level of resources spent on risk reduction.

Costs

The preferred measure of cost is the ''opportunity cost'' of the resources used or the benefits forgone as a result of the regulatory action. Opportunity costs include, but are not limited to, private-

sector compliance costs and government administrative costs. Opportunity costs also include losses in consumers' or producers' surpluses, discomfort or inconvenience, and loss of time. The opportunity cost of an alternative also incorporates the value of the benefits forgone as a consequence of that alternative. For example, the opportunity cost of banning a product (e.g., a drug, food additive, or hazardous chemical) is the forgone net benefit of that product, taking into account the mitigating effects of potential substitutes. All costs calculated should be incremental—that is, they should represent changes in costs that would occur if the regulatory option is chosen compared to costs in the base case (ordinarily no regulation or the existing regulation) or under a less stringent alternative. As with benefit estimates, the calculation of costs should reflect the full probability distribution of potential consequences.

An important, but sometimes difficult, problem in cost estimation is to distinguish between real costs and transfer payments. As discussed below, transfer payments are not social costs but rather are payments that reflect a redistribution of wealth. While transfers should not be included in the estimates of the benefits and costs of a regulation, they may be important for describing the distributional effects of a regulation.

Chapter II. Estimates of the Total Annual Costs and Benefits of Federal Regulatory Programs

1. Overview

This chapter discusses the total annual costs and benefits of existing Federal regulatory programs called for by Section 645(a)(1). Before doing so, however, it is important to place the subject in perspective. First, we need to keep in mind the discussion in chapter I on best practices for estimating costs and benefits. Second, it is important to ask: What public policy purposes do aggregate estimates serve? And, in particular: In what ways can these estimates help support the recommendations to reform the regulatory system required of the Director by Section 645(a)(4)? Clearly, knowing the costs and benefits of proposed regulatory actions and their alternatives, including the alternative of no action, enables policy officials to make decisions that improve society's well being. But for reasons discussed below, knowing the total costs and total benefits of all of the many and diverse regulations that the Federal government has issued provides little specific guidance for regulatory decisions.

For example, four possible outcomes can result from totaling up the costs and benefits of all existing Federal regulations:

(1) High costs and high benefits.
(2) High costs and low benefits.
(3) Low costs and high benefits.
(4) Low costs and low benefits.

Given the intensity of the debate over regulatory reform, categories (3) and (4) are not likely outcomes of careful and fair accounting. *A priori*, it is not clear which of the remaining two categories is most likely. But does it matter? In each case, the policy guidance would be the same. Real economic improvement comes from expanding those significant regulatory programs that provide benefits that are greater than costs and contracting those programs that provide benefits that are less than costs. The substance is in the details, not in the total.

The implication of this discussion is that an excessive amount of resources should not be devoted to estimating the total costs and benefits of all Federal regulations. To the extent that the costs and benefits of specific regulatory programs can easily be combined, some indication of the importance of regulatory reform can be inferred by the magnitude of these estimates, but knowing the exact amounts of total costs and benefits, even if that were possible, adds little of value.

This proposition is important because it is extremely difficult, if not impossible, to estimate the actual total costs and benefits of all existing Federal regulations with any degree of precision. There are at least two types of intractable problems that make this so.

The Baseline Problem

In order to estimate the impact of regulations on society and the economy, one has to determine the counterfactual—that is, how things would have been if the regulation had not been issued. In other words, what is the baseline against which costs and benefits should be measured? With respect to estimating total costs and benefits of all Federal regulations, the baseline problem has several dimensions.

First, it is impossible to determine the true counterfactual, since it never happened. What would have happened in the absence of regulation can only be an educated guess. Furthermore, the greater the hypothesized difference between reality and the counterfactual, the more problematic the exercise. For example, some estimates of the total cost of regulation include the cost of compliance with our tax system. But to twist a phrase, one can no more easily imagine a world without taxes than one can imagine a world without death. It is also difficult to imagine a world without health, safety, and environmental regulation. Could a civil society even exist without regulation? In other words, what do we use as the baseline for a world without any regulation?

Second, even disregarding the problem of modeling large changes, there are significant difficulties in determining the counterfactual for individual regulations that one could begin to aggregate. One can survey firms and other regulated entities on their expected compliance costs either *ex ante*, before the regulation is implemented, or *ex post*, after the regulation has gone into effect. For both types of studies, the problem of potential bias must be kept in mind. It is often alleged that strategic behavior may color both regulators' and the regulated's estimates of the cost of regulation (Hahn and Hird 1991, Hopkins 1991, and Hahn 1996). Agencies are generally advocates of their programs and businesses generally are not in favor of regulation. In the ordinary course, therefore, the best studies are *ex post* studies done by individuals who do not have vested interests, but do have reputations as objective analysts to uphold.

Often only *ex ante* cost estimates are available, but even if firms' or agencies' estimates are unbiased at the time, technological change or ''learning-by-doing'' may result in those estimates overstating compliance costs (Hahn and Hird 1991 and Hahn 1996). In fact, there is much evidence that competition among regulated firms often reduces expected compliance costs once real time and effort is directed at the problem (Office of Technology Assessment 1995).

While *ex post* studies are likely to be more accurate than *ex ante* studies because firms should by then have had experience with actual regulatory compliance costs, *ex post* cost estimates have their own problems. Properly done they are likely to be resource and time intensive. Firms do not usually keep their cost accounting estimates according to what regulations are driving them. Thus, when surveyed, firms have to reconstruct causality. A recent General Accounting Office (GAO) report details the difficulties the GAO had in trying to determine the total cost of Federal regulation by surveying a sample of firms. The firms reported great difficulty in estimating their own costs of compliance because they could not easily separate Federal from State and local regulation and because they

did not keep records on incremental costs of regulation (See GAO 1996, pp. 49–51). Some studies have attempted to address this problem reasonably successfully by comparing the results of different degrees of regulation in different localities or time periods.

Moreover, virtually all of the studies of the costs of regulation produced to date are measuring the expenditures of firms required (*ex ante* or *ex post*) by regulation, whereas the cost to society of regulation should be measured by the change in consumer and producer surplus associated with the regulation and with any price and/or income changes that may result (Cropper and Oates 1992). At one extreme, ignoring the consumer surplus loss produced by a ban understates costs to society because although no compliance expenditures are required, consumers can no longer buy the product. At the other extreme, calculating compliance expenditures based on pre-regulation output overstates costs because if the firm raises prices to cover compliance costs, consumers will shift to other products, which reduces their welfare losses (Cropper and Oats 1992, p. 722).

A third problem relates to the economy and the appropriateness of the baseline for the purpose for which it is expected to be used. If the objective is to reduce the burden of existing regulation, even *ex post* evaluation surveys may be inadequate for they would reflect the cost of gearing up to comply, not the cost saving of no longer having to comply with a given regulatory program. While the former is relevant for deciding whether to regulate, the latter would be the relevant concept if one is considering reducing regulation. There is also the dynamic nature of the economy, whereby technological advances over time are likely to reduce the start-up cost of compliance the firm originally faced. In addition, sunk costs, such as specialized capital costs and the cost of changing procedures already in place, make the cost savings from eliminating regulation less than the cost of complying with those regulations. Very few studies exist, especially for health, safety and environmental regulation, that attempt to determine the cost savings that would result from reducing or eliminating existing regulation.

It is important to note that this dynamic nature of the economy may affect the estimation of benefits as well as costs. Technological improvements could reduce predicted benefits. For example, medical progress can reduce the future benefits estimated for health, safety and environmental regulations, just as productivity improvements in manufacturing reduces the costs of compliance of some regulations. New drugs or medical procedures can reduce the benefits of regulations aimed at reducing exposure to certain harmful agents such as an infectious disease or even sunlight. Regulations aimed at increasing the energy efficiency of consumer products or buildings may see their expected benefits reduced by new technology that reduces the cost of producing energy. Furthermore, productivity improvements lead directly to higher incomes, which lead people to demand better health and more safety. Business responds to these demands by providing safer products and workplaces, even in the absence of regulation. Individuals with rising incomes may also purchase or donate land to nature conservancies to provide ecological benefits. Yet as on the cost side, the baseline that is used is almost always the status quo, not what is likely to be true in the future.

Fourth, the construction of a baseline may be complicated where, as frequently occurs, there are several causes of the change in behavior attributed to a Federal regulation. State and local regulations may also require some level of compliance. The tort system, voluntary standards organizations, and public pressure also cause firms to provide a certain degree of public protection in the absence of Federal regulation. As GAO points out, determining how much of the costs and benefits of these activities to attribute solely to Federal regulation is a difficult undertaking (GAO 1996). Adding to the complexity, the degree to which these other factors cause firms and other regulated entities to provide safe and healthful products and workplaces and engage in environmentally sound practices changes over time, generally increasing with increasing *per capita* incomes and knowledge about cause and effect.

Thus, although the National Highway Traffic Safety Administration has significantly increased the safety of automobiles, it is not likely that if the agency's regulations were eliminated the automobile companies would discontinue the safety features that had been mandated. Consumers demand safer cars than they used to and automobile companies are concerned about product liability. This same phenomenon exists with the environment, although probably to a lesser extent. Environmentally responsible behavior has become good for the bottom line. One paper company interviewed by GAO said that it would have incurred a substantial amount of its compliance costs even if there were no regulations, simply as good business practices (GAO 1996, p. 51). Over time, this ''rising baseline'' phenomenon reduces the true costs of health, safety, and environmental regulations. Estimates of the aggregate costs of regulations that include the unadjusted cost estimates from aging studies are thus likely to be overestimates of the real costs of those regulations.

The Apples and Oranges Problem

The studies that have attempted to tote up the total costs and benefits of Federal regulations have basically added together a diverse set of individual studies. Unfortunately, these individual studies vary in quality, methodology, and type of regulatory costs included. Thus we have an apples and oranges problem, or, more aptly, an apples, oranges, kiwis, grapefruit, etc., problem.

Part of the problem arises because of the nature of regulation itself. There are over 130,000 pages of regulations in the Code of Federal Regulations, with about 60 Federal agencies issuing regulations at the rate of over 1,800 per year. For our purposes, a ''regulation'' or ''rule'' means an agency statement of general applicability and future effect, which the agency intends to have the force and effect of law, that is designed to implement, interpret, or prescribe law or policy or to describe the procedure or practice of an agency. Clearly, ''regulation'' encompasses a lot of territory. The Hopkins series of studies (1991, 1992, 1995, 1996), which are the latest attempts to aggregate the costs of all regulations for which estimates are available and which we discuss in detail later, include five major categories of regulation:

Environmental. As the EPA points out, the true social cost of regulations aimed at improving the quality of the environment are represented by the total value that society places on the goods and services foregone as a result of resources being diverted to environmental protection. (Cost of a Clean Environment, pp. 1–2 to 1–3.) These costs include the direct compliance costs of the capital equipment and labor needed to meet the standard, as well as the more indirect consumer and producer surplus losses that result from lost or delayed consumption and production opportunities resulting from the higher prices and reduced output needed to pay for the direct compliance costs. In the case of a product ban or prohibitive compliance costs, almost all of the costs represent consumer and producer surplus losses. Most of the cost estimates used in this report do not

include consumer and producer surplus losses because it is difficult to estimate the demand and supply curves needed to do this type of analysis.

Further indirect effects on productivity and efficiency result from these price and output changes as they filter through other sectors of the economy. According to EPA in the Cost of Clean report, recent research indicates that compliance cost estimates may understate substantially the true long-term costs of pollution control (p. 1–3). The estimates used in this report do not include these indirect and general equilibrium effects.

The benefits of environmental protection are represented by the value that society places on improved health, recreational opportunities, quality of life, visibility, preservation of ecosystems, biodiversity, and other attributes of protecting or enhancing our environment. As discussed in chapter 1, the value is best measured by society's willingness to pay for these attributes. Because most types of improvements in environmental quality are not traded in markets, benefits must be estimated by indirect means using sophisticated statistical techniques that generally make benefit estimation more problematic than cost estimation.

Although the EPA issues the great majority of environmental regulations, DOI, DOT, and the DOE, among others, also issue rules aimed at improving the environment.

Other Social. This category of regulation includes rules designed to advance the health and safety of consumers and workers, as well as regulations aimed at promoting social goals such as equal opportunity and equal access to facilities. They are often lumped together with environmental regulation in the category of ''Social Regulation.'' Social regulation is mainly concerned with controlling the harmful or unintended consequences of market transactions, such as air pollution, occupationally induced illness, or automobile accidents. These consequences are commonly called ''negative externalities'' and regulation designed to deal with them attempts to ''internalize'' the externalities. This can be done by regulating the amount of the externality, e.g., banning a pollutant or limiting it to a ''safe'' level, or by regulating how a product is produced or used. The techniques and methodological concerns involved in the estimation of the social costs and benefits generated by these rules are similar to those involved in the estimation of costs and benefits of environmental regulation discussed above.

Economic. Economic regulation is so-called because it directly restricts firms' primary economic activities, e.g., its pricing and output decisions. It may also limit the entry or exit of firms into or out of certain specific types of businesses. The regulations are usually applied on an industry basis such as banking, trucking, or securities. In the United States, much of this type of regulation at the Federal level is administered by what are referred to as ''independent'' commissions, e.g., the FCC or the SEC, whose members are appointed but not removable without good cause by the President. The economic loss caused by this type of regulation results from the higher prices and inefficient operations that often result when competition is prevented from developing.

The costs of such regulation are usually measured by modeling or comparing specific regulated sectors with less regulated sectors, estimating the consumer and producer surplus losses that result from higher prices and lack of service, and estimating the excess costs that may result from the lack of competition. In contrast to social regulatory cost estimates, these estimates are mainly indirect costs.

Economic regulation, including antitrust, may produce social benefits when natural monopolies are regulated to simulate competition or when firms are prevented from anticompetitive collusion and mergers. In a dynamic economy, however, the dollar amount of such economic efficiency benefits are thought to be small (Hahn and Hird 1991). Much of the motivation for economic regulation is based on equity and fairness considerations, but often it is based on enhancing one group at the expense of another. These considerations are not social costs or benefits, but do need to be factored into regulatory decisions.

Transfer. As discussed in chapter 1, transfers are payments from one group in society to another and therefore are not real costs to society as a whole. One person's loss is another person's gain. Examples of transfers include payments to Social Security recipients from taxpayers and the higher profits that farmers receive as a result of the higher prices consumers must pay for farm products limited by production quotas. Nevertheless, Hopkins (1991) includes transfer costs in the total cost of regulations. He does place them in a separate category and points out that they are different from the real social costs that result from economic efficiency losses. As discussed in Chapter 1, OMB's guidance states that transfers should not be added to the cost and benefit totals included in regulatory assessments but should be discussed and noted for policymakers.

Process. Process costs, according to Hopkins, are the administrative or paperwork costs of filling out government forms such as income tax, immigration, social security, etc. Although there are benefits to the services that these government programs provide and some minimum amount of process cost is necessary to deliver these services, it makes little sense to try to place a separate value on administration. Rather, process costs should be viewed as a ''cost of doing business'' that should be minimized for a given level or quality of service.

Adding these various categories together, as Hopkins and others have done, does two things. It produces large numbers and it creates confusion. It produces large numbers by including ''costs'' that are not normally considered as part of the regulatory reform debate. For example, costs such as the burden of filling out income tax forms or doing the paperwork needed to get visas, passports, small business loans, and veterans benefits are not what one usually thinks about when worrying about the cost of regulation. Nor do we usually think that the income gained by farmers from price support programs or the increased sales by domestic businesses as a result of trade protection are costs of regulation. Congress did not seek oversight of these types of costs when, in the last Congress, it debated legislative proposals for comprehensive regulatory reform, such as S. 343 and H.R. 9, or when it passed the Unfunded Mandate Reform Act of 1995 or the Small Business Regulatory Enforcement Fairness Act of 1996.

Adding these categories of regulation together with health, safety and environmental regulation also creates confusion because the appropriate policies to reduce any adverse effects from these programs are very different. To reduce price supports, modify international trade protectionism, and minimize non-cost-effective health, safety, and environmental regulation would take very different paths. Lumping them together does not enlighten the search for appropriate reforms.

In sum, adding up the costs and benefits of the various regulatory programs may give us a rough estimate of the magnitude of the impact of regulatory activities on the economy and make it clear that regulation plays an important role in our economy. Indeed, we can use the total cost figures to begin to track the extent of this activity relative to other aggregate data.

For example, our calculations indicate that regulatory costs are about 4% (3.8%) of GDP in 1997. We have also looked at 1988, and found that regulatory costs were then roughly the same percentage. From this comparison, we can say that there has been no material growth in the cost of regulation relative to the size of the economy in the last decade.

However, these data provide little useful information about what to do next. If what is intended is to make regulation more efficient, one needs to estimate the incremental costs and benefits of individual regulations, or specific provisions of individual regulations, on a case-by-case basis. If what is intended is to reduce the burden of existing, health, safety and environmental regulation, one needs to estimate how firms would react to the removal of requirements, not how they acted when the requirements were originally imposed. If what is intended is to improve the cost-effectiveness of new regulations, one needs to know what factors are preventing future regulations from being more cost-effective. But none of this information is found in the aggregate estimates of the costs and benefits of regulation done to date.

2. Our Estimates of the Costs and Benefits of Existing Regulations

To meet the requirements of Section 645(a)(1), we surveyed the existing literature on the total costs and benefits of regulation, supplementing it with information we have obtained from reviewing regulatory impact analyses over the last ten years under Executive Orders 12291 and 12866. Our review of the literature revealed only one comprehensive study that attempted to estimate the total costs and benefits of all Federal regulations (Hahn and Hird 1991). Hahn and Hird's estimates were peer reviewed and published in one of the top economics/legal journals specializing in regulatory issues, the Yale Journal on Regulation. In addition, EPA issued a report to Congress at about the same time known as the Cost of Clean report (EPA 1990). The Cost of Clean report is recognized as the most thorough and careful attempt to estimate the compliance cost of environmental regulation published to date.

The Hahn and Hird study compiled cost and benefit estimates from over 25 studies published mostly by academics in peer reviewed journals, e.g., Hufbauer (1986) for international trade, Wenders (1987) for telecommunications, Gardner (1987) for agricultural price supports, Morrison and Winston (1986 and 1989) for airlines, Crandall (1986) for highway safety, and Crandall (1988), Denison, (1979), and Viscusi (1983) for Occupational Safety and Health. It should be noted that although all of these studies are generally recognized as the best available, they are not without shortcomings. For example, the Crandall (1988) and Denison (1979) studies relied upon for the cost of OSHA regulations used survey data that included expenditures that firms would have made on safety in the absence of OSHA regulation.

The Cost of Clean report's estimates of costs are based on annual survey data from the Department of Commerce's ''Pollution Abatement and Control Expenditures'' (PACE) reports, regulatory impact analyses of major EPA regulations, and special analyses by EPA program offices or contractors. The PACE report surveys, which were conducted through 1994, but discontinued thereafter, cannot be used without careful adjustments because they contain pollution control expenditures that are not Federally mandated. EPA is continuing efforts to review the costs and benefits of certain of its regulatory programs. It has completed reports on drinking water (EPA 1993) and surface water (EPA 1995) and is presently working on a report required by the Clean Air Act Amendments of 1990 on the costs and benefits of the Clean Air Act, which it plans to submit to Congress in October of 1997. A draft of this report indicates that some of the numbers we report below may be understated (EPA 1997).

In addition, we used information about the costs of major regulations reviewed by OMB under Executive Order 12291 and 12866, which were recently published by OMB in More Benefits Fewer Burdens (1996). (We include the cost of rules published in 1987 and 1988 to allow for a lag between publication of the rule and the expenditure of funds for compliance.) The rules included are generally all final rules with annual costs of $100 million or more issued by Executive Branch agencies, which we believe capture at least 90 percent of the costs added by all rules. The cost estimates themselves are agency estimates that have gone through OMB review and the Administrative Procedure Act requirements for notice and comment by the public.

Total Costs

Using the estimates for Federally mandated regulatory costs from the Cost of Clean report (1990, Table 8–9D) for environmental regulation and Hahn and Hird's estimates for other social regulation for a 1988 base, we added the cost of all major regulations reviewed by OMB under Executive Orders 12291 and 12866 and issued by the agencies between 1987 and 1996. The following table shows our calculations for the costs of social regulations:

TABLE 1.—ESTIMATES OF THE ANNUAL COST OF SOCIAL REGULATION FOR 1997

[Billions of 1996 dollars]

	Environmental	Other social	Total social
1988 Baseline:			
(EPA, Hahn and Hird)	101	35	136
Cost of rules 1987–96 (OMB)	43	19	62
Total for 1997	144	54	198

While our estimates do not include the costs of regulations with costs below $100 million and there is a possibility that agencies understate the costs of proposed rules (Hopkins, 1992, p. 13), we believe that, if anything, the estimates overstate actual direct costs because of the rising baseline phenomenon discussed above. For example, as a sensitivity analysis, it does not seem implausible that, for environmental and other social regulations over ten years old, no more than half of compliance costs would likely be saved if these Federal regulations magically disappeared over night. The automobile companies are not likely to make their cars less safe or less fuel efficient. Similarly, the great majority of firms are not likely to stop controlling asbestos and cotton dust

fibers or lead dust and benzene emissions in the workplace if these regulations were abolished. Nor would the judicial tort system likely tolerate increased levels of harmful pollution or harmful products. If this scenario is correct, then the cost of social regulation in 1997 would fall to $130 billion (136/2+62=130), or $93 billion for environmental regulations and $37 billion for other social regulation.

To the cost estimates for environmental and other social regulation, we must add the costs of the other types of regulation, i.e., economic and process regulation. We use the Hahn and Hird estimate for the efficiency cost of economic regulation for 1988. Because the great majority of these regulations are issued by independent regulatory agencies (e.g., the FCC, the FTC, the SEC, the FDIC and the NRC that were not required under Executive Orders 12291 or 12866 to submit information on benefits and costs of regulations to OMB, we did not have our own data to update the 1988 baseline. Instead, we relied on a study by Hopkins (1992) who derived an estimate of $81 billion for the efficiency costs of economic regulation for 1997.

Hopkins made several additions to Hahn and Hird to update economic regulation costs to 1997: $10 billion for surface transportation costs, $5 billion for the Jones Act, and $5 billion for banking regulations (p. 27). We have no basis to question these estimates and therefore have included them. On the other hand, we do not include Hopkins' estimate of the transfer costs of economic regulation, because, as noted above, we do not believe that transfers are costs that should be included in total cost of regulation estimates. In addition, we do not include the process or paperwork cost estimated by Hopkins and others (Hopkins 1991 and 1992 and Weidenbaum and DeFina 1978) because these costs are for the most part already included in cost estimates supplied by the agencies and reviewed by OMB. However, there are costs of paperwork imposed by the independent agencies that should be added. According to OMB's latest Information Collection Budget, the burden hours of paperwork imposed by the independent agencies was about 390 million hours (or about $10 billion in costs using a $26.50 per hour estimate to take into account the fact that these agencies' paperwork often require some professional expertise to fill them out). Since these costs are mostly for economic regulation (the NRC paperwork is only two percent of the total), we add the $10 billion to the $81 billion estimate for the cost of economic regulation.

Our best estimate of the total cost of regulation for 1997 is thus the following:

TABLE 2.—ESTIMATE OF THE ANNUAL TOTAL COST OF REGULATION FOR 1997

[Billions of 1996 dollars]

Environmental	144
Other Social	54
Economic	91
Total	289

Total Benefits

Aggregating benefits from individual regulations poses special problems even beyond those discussed above for aggregating costs. There are several important limits to such an exercise. First among these is uncertainty. Because so much of the uncertainty in possible benefit estimation is unknown, and so little is known about the relationships among benefit estimates of different regulations, analysts have virtually no basis for aggregating benefits in a manner that might preserve information about the likely distribution of aggregate benefits.

Second, as noted above, benefits, like costs, may be presented as monetized, quantified, or in narrative forms. For a variety of reasons, many of them understandable, if not legitimate, agencies often do not express beneficial effects in monetizable terms that can easily be aggregated. What is being described may not be readily amenable to quantification or monetization (e.g., the value of greater national security or of increased individual privacy), or the agency may have chosen not to develop monetized estimates because of resource or time constraints. Moreover, while some of the effects are present as quantified estimates, these cannot be summed if they are not expressed in common units. Of course, when effects are not expressed in quantitative terms, this aggregation problem is even more acute. We can only conclude that estimates of the total benefits of regulation will be understated by an unknown amount until all significant benefits are monetized.

Because of the difficulty of estimating benefits, there are very few studies that attempt to estimate the total benefits as well as costs of regulation. Indeed the only study that has attempted to estimate the total benefits of all regulations is the study by Hahn and Hird that we relied upon for the 1988 cost baseline. Hahn and Hird present the following broad range of estimates of the annual benefits of regulation in billions as of 1988, which we have converted to 1996 dollars using the CPI:

TABLE 3.—HAHN AND HIRD'S 1988 BENEFIT ESTIMATES

[Billions of 1996 dollars]

	Low	High
Environmental	21.8	179.3
Other Social	33.5	60.3
Economic	0	0
Total	55.3	239.6

Note that while Hahn and Hird do not include any benefits from economic regulation (on the grounds that they are negligible in most cases), they state that the regulation of natural monopolies and antitrust can theoretically produce efficiency gains (p. 253). When Hahn and Hird take the midpoints of their benefit and cost estimates, they find net benefits of regulation of about $2 billion, which leads them to conclude that ''* * * net benefits of social regulation are positive but small.'' (p. 253, f. 74).

Since the Hahn and Hird study, the only systematic study of the benefits together with the costs of major social regulations, of which we are aware, is a study by Hahn, published jointly by Oxford University Press and the AEI Press in 1996. In that study, Hahn reviewed the regulatory impact statements required by Executive Orders 12291 and 12866 for major regulations produced by agencies between 1990 and mid-1995. Hahn accepted the agency estimates of benefits at face value, used consensus estimates from the academic literature to value the benefits (e.g., the Viscusi 1992, estimate for a ''statistical life'') and used consistent assumptions across agencies to produce monetized benefit estimates (pp. 214–217). He found that 54 regulations had produced almost $500 billion in benefits in present value (discounting at 5 percent and using his middle value consensus estimates) (p. 218). Hahn also calculated that these regulations produced $220 billion in net costs (gross costs minus any costs savings produced by regulation).

Unfortunately, we do not have enough information to convert Hahn's present value estimates to annual estimates so that we could compare them to our annual cost estimates presented above. However, we can use Hahn's benefit/cost ratio ($500b/$220b) or 2.5, assume that it holds for the full period since 1988, and calculate an aggregate benefit estimate. It should be noted , however, that Hahn believes his aggregate net benefit estimates '' * * * are likely to

substantially overstate actual net benefits'' (p. 224). Both our estimates and Hahn's estimates would most likely include almost the same set of regulations issued between 1990 and 1995 because we both attempted to be exhaustive in our cost collection effort. According to our sample, about 80% of the costs of social regulation issued between 1989 and 1996 were issued between 1990 and 1995. Assuming that in 1988, social regulation produced net benefits of $2 billion as Hahn and Hird suggest, and using Hahn's benefit-cost ratios for environmental (1.4) and other social regulation (5.3), we calculate that the benefits of regulation in 1996 were as follows, and we present our cost estimates for comparison:

TABLE 4.—ESTIMATES OF THE TOTAL ANNUAL BENEFITS AND COSTS OF REGULATION FOR 1997

[Billions of 1996 dollars]

	Benefits	Costs
Environmental ...	162	144
Other Social	136	54
Economic	0	91
Total	298	289

As explained above, these are very rough estimates, probably overstating both the benefits and costs, and viewed alone not very informative. The total numbers on costs and benefits indicate that regulation has produced about as much in benefits as in costs, but this is because economic regulation produces negligible benefits. Disaggregating the totals a little reveals that ''Other Social'' regulation produces very large net benefits, but if one digs into both the Hahn and Hird, and Hahn studies in greater detail, it becomes clear that most of the benefits of this category are produced by highway safety regulation. Hahn and Hird state that they found very little ''credible evidence'' that as of 1988, OSHA regulations had produced any significant benefits (275–276), although Hahn's 1996 study found that OSHA regulations had produced over $50 billion (present value) in net benefits by 1995.

Hahn makes clear that even though his study found that the 53 regulations issued between 1990 and 1995 produce very large net benefits, only 23 would ''pass'' a cost-benefit test. He also points out that if the rules that had not passed the test had not been issued, net benefits would have been $115 billion, or about 40 percent greater (p. 221). He also finds that all safety regulations have benefits greater than costs, and that regulations based on the Clean Air Act and the Safe Drinking Water Act had positive net benefits (p. 221) (which is corroborated by the EPA Drinking Water study (1993)). An analysis of the costs and benefits of regulations based on other regulatory programs produced mixed results. The message is clear: the policy content is in the details.

3. Other Estimates of the Total Costs of Regulation

As noted, the estimates of total costs and benefits that we have provided overstates, we believe, both the benefits and most certainly the costs of regulation. Nonetheless, our cost estimates are substantially less than other numbers that are often cited and have gained a certain credibility in the debate. We would note that, apart from the Hahn and Hird study we used, all other estimates of total costs do not present benefit estimates. We believe that presenting costs without benefits is not very informative and potentially misleading. In any event, some explanation of the difference between our numbers and other numbers that have been cited is appropriate.

According to a 1995 report to Congress by the Small Business Administration's (SBA) Office of Advocacy, there are estimates of the total cost of regulation generated by the Heritage Foundation as high as $810 billion to $1.7 trillion for 1992 with benefits reportedly netted out. We cite this study because it is the largest estimate of the costs of regulation that we are aware of. Our reference to it should not be construed as any endorsement of it; indeed, it has not been peer reviewed, it has not been published in a reputable journal, and most importantly, the basis for the estimate has not been made publicly available. Our own view is that the numbers are either wrong or are measuring something other than what we are talking about.

On the other hand, there is a series of Hopkins studies of the total cost of regulation (1991, 1992, 1995, and 1996), which is both well known and better documented. The Hopkins estimates have also received attention from the Congress. A recent GAO study, Regulatory Reform: Information on Costs, Cost-Effectiveness, and Mandated Deadlines for Regulation (1995), was asked to focus on the Hopkins study because of its prominence and the fact that it was the only game in town.

Hopkins relied on the paper by Hahn and Hird (1991) that provided estimates of the costs and benefits of economic and social regulation for 1988, on the 1990 study by the EPA, The Cost of a Clean, and various reports from OMB: The Information Collection Budget (various years)—that is, the same materials that we used for our 1988 cost baseline. Hopkins also reviewed two earlier attempts at adding up the total costs of regulation as of 1976–77 by Weidenbaum and DeFina (1978) and Litan and Nordhaus (1983) to make estimates of the trend in total regulatory costs over this decade. He also projected cost to the year 2000, based on estimates from the Cost of Clean, extrapolations of past trends, and some educated guess work about the future costs of compliance with regulations required by statutes such as the Clean Air Act Amendments of 1990 and the Americans with Disabilities Act of 1990. Because we focus our attention on the state of regulation as of 1997, we do not directly critique the earlier studies by Weidenbaum and DeFina or Litan and Nordhaus, nor do we discuss Hopkins' extrapolations beyond 1997.

Hopkins' cost estimate for 1997 (presented by us in 1996 dollars using the CPI), is as follows:

TABLE 5.—HOPKINS' ESTIMATE OF THE ANNUAL COSTS OF REGULATION

[Billions of 1996 dollars]

Environmental	185
Other Social	62
Economic: Efficiency Costs	81
Economic: Transfer Costs	148
Process	232
Total	708

One important problem with these estimates is that, with the exception of the Process estimate, they are based on individual studies that were published, for the most part, between 1975 and 1990 and then, as mentioned above, extrapolated to 1997 based on the Cost of Clean cost projections for future years for environmental regulation and his own *ad hoc* ''guesstimates'' (his words (1991, p. 11)) for other social and economic regulation. Note that although we also use data from 1988 and earlier, his approach differs significantly from ours. Rather than extrapolation, we used timely information supplied by the agencies over the period 1987 to 1996 that was subject to notice and public comment and OMB review to update the estimates on benefits and costs to 1997. Ideally, to get a realistic picture of the total costs of regulation, one needs to do a comprehensive study of all regulatory costs facing the economy at a given point in time. But that would be prohibitively expensive and, as pointed out above, ex post surveys of the costs of existing regulations have their own problems.

A second problem relates to the appropriateness of Hopkins' adjustments. Specifically, Hopkins' adds to EPA's Cost of Clean report (the 1988 base), $10 billion for the Clean Air Act Amendments, $8 billion for Superfund/RCRA, and $1 billion for several DOT environmental regulations. It is not clear, however, how these figures are derived. Similarly, Hopkins' estimate for ''other'' social regulation costs starts with Hahn and Hird (as we did), but adds an additional $1 billion and an assumed rise of 5% percent per year for OSHA regulations, and adds $4 billion for the new universal accessibility standards, $500 million for food labeling regulations, $200 million for energy conservation standards, and $1.6 billion for clinical lab regulations. These amounts are taken from a combination of agency and industry sources, although again it is not clear how the specific numbers were derived.

As noted above, we used Hopkins' updates for the changes in economic costs to 1997. Moreover, we added $10 billion to his estimate of the cost of economic regulation to account for the paperwork costs imposed by the independent agencies. But we did not include Hopkins' estimate of transfer costs. Hopkins acknowledges that transfers are exchanges of funds from one group to another, but he argues that the existence of transfers creates real social costs because they give rise to ''rent-seeking behavior.'' (''Rent seeking behavior'' is behavior that attempts to capture or create excess profits usually by influencing government actions, such as regulations.) He states that the existence of transfers creates real costs that exhausts the amount of the transfer as interest groups and their lobbyists, lawyers and experts campaign for those funds (p. 29). We believe that Hopkins has the causality wrong. Rather than the existence of a transfer program causing rent-seeking behavior, rent-seeking behavior causes the transfer. It is the possibility that rent-seeking behavior may result in a gain that causes special interests to form and campaign for special treatment. The transfer program does not have to exist, just the possibility that one could be set up. Thus to the extent that rent-seeking behavior imposes real costs on society, those costs would be more appropriately attributable to our democratic political system than to a particular regulation.

We also believe that Hopkins' has overstated the costs of process regulation, which for the most part either represents double counting or more appropriately belongs elsewhere. Most of Hopkins' estimate is based on the burden hour estimates reported in OMB's annual Information Collection Budgets (various years) of the time it takes the public to comply with information requests made or generated by the Federal government. He multiplies burden hours by $26.50 per hour (in 1996 dollars), an estimate of the public's opportunity cost for filling out forms and gathering information. While average private nonagricultural hourly earnings was $11.82 in 1996 (less than 45 percent of the number he used), Hopkins argues that his time cost estimate is not too high because about 85 percent of the burden hour estimate is from the Treasury Department, much of which represents the time it takes high priced tax accountants to fill out income and corporate tax forms.

We believe the paperwork costs of the tax code should not be included in an estimate of the total cost of regulation. First, filling out tax forms is not the result of ''regulations'' but rather of the tax code itself, with most regulations merely providing interpretations and clarifications of tax law. Second, Hopkins assumes a zero baseline—that is, he implicitly assumes that replacing the revenue generated by the present tax code could be done with no record keeping or reporting costs. The implicit baseline is a world without taxes. Third, reforming the tax code is an entirely different public policy area than regulation, and lumping the two together, especially when the tax numbers are so large relative to social and economic regulatory costs, just confuses the issue.

Hopkins has removed the cost of procurement paperwork, such as that imposed by DOD and GSA, based on an OMB estimate that in 1990 the procurement paperwork burden was about 30 percent of the total non-tax-related paperwork. He correctly points out that those costs are mostly paid by taxpayers through higher procurement costs, and thus it would be double counting to include them as private sector regulatory costs. However, most of the remaining paperwork costs also represent double counting, because the estimates of regulatory costs for individual social and economic regulations that he uses already include these costs as a cost of compliance. Specifically, the compliance cost estimates submitted to OMB and included in our estimate for the cost of social regulation include associated paperwork costs. Although Hopkins admits the likelihood of double counting, he dismisses it because ''the dominance in this category of tax-related paperwork suggests this is not likely a serious problem'' (1991, p. 14). But once tax-related paperwork is removed, it becomes a serious problem.

Hopkins also adds to his process costs estimates $10 billion in 1997 as the amount that State and local government spent to comply with Federal mandates. However, we cannot determine a clear basis for his estimate. Because our approach of adding the costs of all social regulations issued since 1987 should capture State and local regulatory costs, there should not be a special provision for State and local mandates.

The final piece of Hopkins' process cost estimate is an estimate of how much more overhead the U.S. multi-payer health care system generates than Canada's single-government-payer system. His argument here is that because the United States has less regulation, it has higher regulatory costs. It is certainly true that regulation can improve efficiency, but it seems disingenuous to argue that because regulations have not mandated a single payer system or restricted private payment systems, etc., regulatory costs are increased. These increased cost estimates (Woolhandler and Himmelstein, 1991), if they are true (they are controversial), are more properly treated as benefits of regulation (or of a government program), not as costs of not regulating. Additionally, as discussed above, including these costs confuses the regulatory reform debate.

In sum, in our view, Hopkins' total cost estimate is about 240% greater than ours because he includes inappropriate transfers and process costs and less accurate estimates of the growth of social regulation since 1988.

4. Assessment of the Direct and Indirect Impact of Federal Rules

A proper assessment of the costs and benefits of regulation would have to take into account both the direct and indirect impact of regulation on the economy. As reported above, our estimate of the direct effect is that, in the aggregate, the net benefits of regulation issued to date is positive. The few studies that have attempted to determine the indirect effects of regulation on productively and welfare have found significant indirect effects, implying that the direct effects reported above are significant understatements of the full costs of regulation (Hazilla and Kopp 1990 and Jorgenson and Wilcoxen 1990). However, as Hahn and Hird (1991) point out, it is not clear how to evaluate these studies and others like them, which are based on huge, complex and often proprietary models of the U.S. economy. This makes it almost impossible to validate the

models or to view the assumptions on which they are based.

These studies have another major problem because they only take into account indirect cost effects and do not include the indirect beneficial effects that may result from better health and safer lives. Yet it is generally agreed that healthier people tend to work harder and longer and save and invest more, thereby increasing the growth of the economy. Therefore, without knowing what the indirect and general equilibrium benefits of regulation are, one should not draw conclusions by only looking at the indirect costs. Models that take into account the indirect benefits and general equilibrium effects of longer life spans, higher levels of environmental quality, and more equal opportunities remain to be developed.

The best survey of what we know about the full range of indirect costs and benefits of social regulation was recently published in one of the leading economic journals: the Journal of Economic Literature (Jaffe, Peterson, Portney, and Stavins 1995). Although concentrating on environmental regulation, their discussion should apply to health and safety regulation as well because they are similar in their economic effects and the direct costs of health and safety regulation are only about one third the amount of environmental regulation. The authors conclude from a survey of the literature that environmental regulation has little impact on ''competitiveness as measured by net exports, overall trade flows, and plant location decisions (p. 157), '' modest adverse impacts on productivity'' (p. 151) and ''significant dynamic impacts * * * in the form of costs associated with reduced investment'' based on computable general equilibrium models (p. 151). However, they also point out that, for the most part, these estimates do not take into account the feedback effect from improvements in the environment (p. 153).

Jaffe et al. also examine the contention that environmental and other social regulation may actually enhance economic growth and competitiveness by stimulating improvements in productivity as firms compete among themselves to comply with regulations in the least cost way. We discussed this proposition above as a reason why the actual costs of compliance ex post often turns out to be less than predicted ex ante. Several authors have extended this proposition beyond the ad hoc to include the economy as a whole (Porter 1991 and Gardiner 1994). This line of reasoning claims that the country that leads in environmental protection will gain a lasting comparative advantage in international trade in the supplier industries because of having been the ''first mover'' into an area that other countries must follow.

We are cautious about extending such claims to the economy as a whole. To be sure, certain sectors benefit and we may even develop a comparative advantage in them, but other sectors must invariably lose their comparative advantage because resources are drawn from them and comparative advantage is by definition a relative phenomenon. Jaffe, et al., (p. 157) conclude:

> Thus, overall, the literature on the ''Porter hypothesis'' remains one with a high ratio of speculation and anecdote to systematic evidence. While economists have good reason to be skeptical of arguments based on nonoptimizing behavior where the only support is anecdotal, it is also important to recognize that if we wish to persuade others of the validity of our analysis we must go beyond tautological arguments that rest solely on the postulate of profit-maximization. Systematic empirical analysis in this area is only beginning, and it is too soon to tell if it will ultimately provide a clear answer.

We agree with this statement and hope that this report stimulates ''systematic empirical analysis'' in this area, as well as work on as the broader issue of how to improve the estimation of the costs and benefits of regulatory programs discussed in this report.

Chapter III. Estimates of Benefits and Costs of ''Economically Significant'' Rules

1. Scope

In this chapter, we examine the benefits and costs of ''each rule that is likely to have a gross annual effect on the economy of $100,000,000 or more in increased costs,'' as required by Section 645(a)(2). We have included in our review those final regulations on which OIRA concluded review during the 12-month period April 1, 1996, through March 31, 1997. We chose this time period to ensure that we covered a full year's regulatory actions as close as practicable to the date our report is due, given the need to compile and analyze data and publish the report for public comment. In addition, we thought it would be useful to adopt a time period close to that used for the annual OMB report required by the Unfunded Mandates Reform Act of 1995.

The statutory language categorizing the rules we are to consider for this report is somewhat different from the definition of ''economically significant'' rules in Executive Order 12866 (Section 3(f)(1)). It also differs from similar statutory definitions in the Unfunded Mandates Reform Act and Subtitle E of the Small Business Regulatory Enforcement Fairness Act of 1996—Congressional Review of Agency Rulemaking. Given these varying definitions, we interpreted Section 645(a)(2) broadly to include all final rules promulgated by an Executive branch agency that meet any one of the following three measures:

- Rules designated as ''economically significant'' under Section 3(f)(1) of Executive Order 12866;
- Rules designated as ''major'' under 5 U.S.C. 804(2) (Congressional Review Act);
- Rules designated as meeting the threshold under Title II of the Unfunded Mandates Reform Act (2 U.S.C. 1531–1538).

We did not include rules issued by independent regulatory agencies because we do not review their rules under Executive Order 12866. In any case, we believe that few of their individual regulations meet the statutory criteria of Section 645(a)(2).

During the time period selected, OIRA reviewed 41 final rules that met these criteria. (Table 6.) For 9 of these 41 final rules, OIRA also reviewed a proposed rule during the time period. (OIRA reviewed 13 additional proposed rules that met one or more of the three criteria listed above.)[1] Of the 41 final rules, USDA submitted 12; HHS submitted 8; EPA submitted 7; and the remainder were from the Departments of the Commerce (1), Housing and Urban Development (2), Interior (2), Justice (1), Labor (2), and Transportation (3), and the Social Security Administration (2). Also included is one multi-agency rule from HHS, DOL, and Treasury. These 41 rules represent about 15% of the final rules reviewed by OIRA during this period, and less than 1% of all final rules published in the **Federal Register** between April 1, 1996, and March 31, 1997. Nevertheless, because of their greater scale and scope, we believe that they represent the vast majority of the costs and benefits of new Federal regulations during this period.

[1] These proposals include several particularly significant proposals reviewed by OIRA: EPA's two proposals in November 1996 to revise the National Ambient Air Quality Standards for Particulate Matter and Ozone; EPA's proposal in the summer of 1996 expanding the industries covered by the Toxic Release Inventory; and FDA's January 1997 proposal regarding Animal Proteins Prohibited in Ruminant Feed. These proposals are not discussed because they were not yet final during the time frame on which we are reporting.

TABLE 6.—ECONOMICALLY SIGNIFICANT FINAL RULES

[4/1/96–3/31/97]

Department of Agriculture

Foreign Agriculture Service:
- CCC Supplier Credit Guarantee Program
- Dairy Tariff-Rate Import Quota Licensing

Farm Service Agency:
- 1995-Crop Sugarcane and Sugar Beet Price-Support Loan Rates
- Farm Program Provisions of the 1996 Farm Bill
- Peanut Poundage Quota Regulations—7 CFR Part 729 (Interim Final)
- Conservation Reserve Program—Long Term Policy

Federal Crop Insurance Corp.:
- Catastrophic Risk Protection Endorsement
- General Administrative Regulations—Subpart T

Animal and Plant Health Inspection Service: Karnal Bunt

Food Safety and Inspection Service: Hazard Analysis and Critical Control Points

Food and Consumer Service:
- Certification Provisions (Mickey Leland Childhood Hunger Relief Act), Food Stamp Program
- Child and Adult Care Food Program: Targeting of Day Care Home Reimbursements (Interim Final)

Department of Commerce

Bureau of Export Administration: Encryption Items Transferred from the U.S. Munitions List to the Commerce Control List

Department of Health and Human Services

Health Care Financing Administration:
- Limits on Aggregate Payments to Disproportionate Share Hospitals
- Hospital Inpatient Prospective Payment Systems FY 1997 Rates
- Medicare Revisions to Policies Under Physician Fee Schedule 1997
- Requirements for Physician Incentive Plans in Prepaid HCOs
- Individual Market Health Insurance Reform (Interim Final)

Food and Drug Administration:
- Food Labeling Nutrition Labeling, Small Business Exemption
- Medical Devices: CGMP Quality Systems Regulation
- Sale and Distribution of Tobacco

Department of Housing and Urban Development

Office of Housing:
- Single-Family Mortgage Insurance (Interim Final)
- Sale of HUD-Held Single-Family Mortgages

Department of Interior

Fish and Wildlife Service:
- Migratory Bird Hunting—Final Frameworks Early Season
- Migratory Bird Hunting—Final Frameworks Late Season

Department of Justice

Immigration and Naturalization Service: Inspection and Expedited Removal of Aliens (Interim Final)

Department of Labor

Employment Standards Administration: Service Contract Act Standards for Federal Service Contracts

Occupational Safety and Health Administration: Methylene Chloride

Department of Transportation

National Highway Traffic Safety Administration:
- Occupant Crash Protection (Airbag Depowering)
- Light Truck Corporate Average Fuel Economy MY 1999

Federal Railroad Administration: Roadway Worker Protection

Environmental Protection Agency

Office of Solid Waste and Emergency Response:
- Accidental Release Prevention—112(r)
- Financial Assurance for Local Gov't. Owners of MSW Landfills

Office of Air and Radiation:
- Deposit Control Gasoline
- Acid Rain Phase II NO_X
- Federal Test Procedure Revisions
- Voluntary Standards for Light Duty
- Vehicles (49-State)

Office of Prevention, Pesticides, and Toxic Substances: Lead-Based Paint Activities in Target Housing

Social Security Administration

Cycling Payment of Social Security Benefits

Determining Disability for Individuals Under Age 18 (Interim Final)

Common Rule—Health and Human Services/Labor/Treasury: Health Insurance Portability of Group Health Plans (Interim Final)

2. Overview

As noted in chapter I, Executive Order 12866 ''reaffirms] the primacy of Federal agencies in the regulatory decision-making process'' because agencies are given the legal authority and responsibility for rulemaking under both their organic statutes and certain process-oriented statutes, such as the Administrative Procedure Act, the Unfunded Mandates Reform Act, and the Small Business Regulatory Enforcement Fairness Act. The Executive Order also reaffirms the legitimacy of centralized review generally and in particular review of the agencies' benefit-cost analyses that are to accompany their proposals. The Executive Order recognizes that in some instances the consideration of benefits or costs is precluded by law. For example, the National Ambient Air Quality Standards under the Clean Air Act are to be health-based standards set by EPA solely on the basis of the scientific evidence. In addition, under the Clean Water Act, technology-based standards must be established without regard to benefits. A variation is the Occupational Safety and Health Act, where health standards must be based on significant risks to the extent they are economically and technologically feasible. However, the Executive Order requires agencies to prepare and submit benefit-cost analysis even if those considerations are not a factor in the decision-making process. Again, it is the agencies that have the responsibility to prepare these analyses, and it is expected that OIRA will review (but not redo) this work.

Reviewing for this report the benefit-cost analyses accompanying the 41 final rules listed in Table 6, we found a wide variety in the type, form, and format of the data generated and used by the agencies. For example, agencies developed estimates of benefits, costs, and transfers that were sometimes monetized, sometimes quantified but not monetized, sometimes qualitative, and, most often, some combination of the three. Generally, the boundaries between these types of estimates are relatively well-defined.

As discussed above, all monetized estimates are, by definition, given in dollars and permit ready comparison and aggregation. Monetized estimates of effects are what is most generally thought of as the basis of benefit-cost analysis. Even when such figures are available, however, care must be taken when interpreting them because they depend for comparability on a number of distinct elements. Specifically, monetized estimates consist of: (1) the dollar value itself; (2) the base year of the dollar used; (3) the initial year in which the effects occur; (4) the final year after which the effects disappear; (5) the discount rate used (whether explicitly or implicitly) to convert future into current values (or vice versa); and (6) the format in which the monetized value is represented.

Format means the characterization of the monetized or quantified effects over time. In the rules on which we are reporting, we found that agencies used a variety of formats:

1. Annualized values, which spread out variable effects into yearly sums that are financially equivalent to the actual temporal schedule, regardless of how ''lumpy'' it might be;
2. Present values, which convert over time into an immediate lump-sum;
3. Constant annual values, in which effects have been estimated (or are assumed) to be fixed each year over the time horizon in which the regulation applies;
4. Other formats, such as varying annual values or values reported only for selected years, which can be converted into annualized or present value format under certain specified conditions and assumptions; and
5. Unknown formats, which cannot be interpreted without additional information.

From the perspective of benefit-cost analysis, annualized and present value formats are always preferred because they permit aggregation and comparisons within and across regulatory actions. Constant annual values are slightly less desirable insofar as they require the additional step of discounting to permit such aggregation and comparison. Constant annual values are typically found in monetized cost estimates involving federal budget outlays, and in quantified benefit estimates where agencies have chosen not to discount; aggregation and comparison within and across regulations generally cannot be performed without a common discounting methodology. Where an agency's estimation methodology follows an unknown format, further research needs to be performed to ascertain how to convert or reconstruct annualized or present value estimates.

Quantified estimates may take the form of a variety of different units, but they share in common a numeric measure. Generally, quantified estimates of benefits, costs, and transfers must be interpreted with the same elements noted above in mind. The most important difference, of course, is that quantified estimates are expressed in units other than dollars. Such estimates may be aggregated only if they are presented in the same or similar units. Also, a quantified estimate should identify the applicable time period (e.g., tons of pollution controlled per year, number of endangered species protected from extinction per decade). Quantified estimates that lack reference to the time periods to which they apply may be highly misleading, and should be converted to similar time periods to be comparable. Indeed, even when estimates of similar type include explicit reference to their underlying time periods, care must be taken when aggregating or comparing them because of the risk of summing estimates based on different time periods or inconsistent base years.

In contrast, qualitative estimates may not have any units at all, or they may be expressed in units that do not lend themselves to simple comparisons. As has often been observed, it is more frequently the case that costs are monetized and benefits are more often quantified or presented in qualitative form. Qualitative effects should be evaluated in terms of their uniqueness, reversibility, timing, and geographic scope and severity. These effects are the most difficult to interpret, and this may lead some to give them short shrift. The fact that an effect has not been monetized or quantified does not, however, necessarily mean that it is small or unimportant. In discussing agencies' descriptions of qualitative effects, we use the first year in which such effects are expected to occur where it can be determined.

Qualitative effects must be used with care for other reasons as well. Because they tend to be general and descriptive, they may be broader than the incremental effects of the particular regulation being analyzed. For example, in developing a rule designed to address a particular safety problem, an agency may describe the extent of the problem—that is, so many persons injured per year from this particular cause. While important in estimating the benefits of the rule, this figure itself is not a benefit estimate unless and until it is linked to the likely effectiveness of the proposed rule. Finally, qualitative estimates cannot be aggregated at all because they do not contain units that permit arithmetic operations. In addition, not infrequently they fail to contain relevant information about the period of time during which they apply.

Cost-effectiveness measures and break-even analyses, which are frequently used in regulatory analyses, are not equivalent to either monetized or quantified estimates. Unlike benefits and costs, which are expressed with

time as the explicit or implicit denominator, cost-effectiveness estimates (e.g., dollars per ton of pollution controlled) are expressed in terms of cost per unit of benefit—that is, as ratios in which ''cost'' is the numerator and ''benefit'' is the denominator. Frequently, such estimates are quite useful, particularly when comparing alternative methods of achieving a predetermined objective. Nevertheless, cost-effectiveness estimates cannot be compared with either cost or benefit estimates, nor can they themselves be aggregated in any manner.

Similarly, break-even analyses reveal the minimum level of benefits necessary for net benefits to be positive. For example, if a regulation is estimated to prolong one ''statistical life'' at a cost of $X million, break-even analysis reveals that if society's willingness-to-pay to prolong one statistical life is greater than $X million, then the benefit of the regulation exceeds its cost. Likewise, if we know that society's willingness-to-pay to prolong one statistical life is $X million, and that the regulation will cost $X million then break-even analysis reveals that benefits exceed costs if more than one statistical life is saved. While this form of analysis is often useful to decision makers, it does not address either the absolute or marginal magnitude of benefits and costs.

3. Benefits and Costs of Economically Significant Final Rules

A. Social Regulation

Of the 41 rules reviewed by OIRA, 22 represent major new regulatory initiatives requiring substantial additional private expenditures and/or providing new social benefits. (See Table 7). EPA issued 7 of these rules; USDA issued 4; HHS and DOT each issued 3; and the remaining 5 were spread among DOC, DOI, DOJ, and DOL. Agency estimates and discussion are presented in a variety of ways, ranging from an extensive qualitative discussion of benefits, e.g., USDA's rules implementing the 1996 Farm Bill, to a more complete benefit-cost analysis, e.g., the HHS rule on the Sale and Distribution of Tobacco.

Benefits Analysis. Of the 22 rules listed in Table 7, agencies provided monetized benefit estimates in 8 cases. Monetized benefit estimates included items such as: (1) FDA's estimated $275 to $360 million per year in annualized cost savings from its deregulatory food labeling rule (these are savings in the costs associated with compliance with labeling requirements on low-volume products that FDA estimated would be enjoyed by small businesses); (2) FDA's estimated $9.2 to $10.4 billion per year reduced incidence of morbidity and mortality from its rule restricting cigarette sales and marketing; (3) EPA's estimated $174 million per year in reduced damage to chemical and other facilities from its accidental release prevention rule; and (4) USDA's estimated $2 billion per year in the value of improved soil productivity, water quality, and wildlife from rules implementing its Conservation Reserve Program.

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TABLE 7: SUMMARY OF AGENCY ESTIMATES FOR FINAL RULES 4/1/96 - 3/31/97
(As of the date of completion of OMB review)

AGENCY / Rule	BENEFITS	COSTS	OTHER INFORMATION
USDA			
1996 Farm Bill Farm Program	Not Estimated	Not Estimated	"Net farm income (including crop and livestock sectors) during the 1996-2002 calendar years is expected to be about $15 billion higher under the 1996 Act than under the FY 1997 President's Budget baseline. This largely reflects higher Government payments to farmers under the 1996 Act as production flexibility contract payments exceed projected deficiency payments. Additionally, changes in the timing of payments to farmers provide an additional boost to farm income in the first year of the program--pushing 1996 net income up about $4 billion. However, net farm income is up by less than the increase in Government payments due to changes in the dairy and peanut programs. Crop sector receipts are down slightly under the 1996 Act due to lower plantings and production of the eight major commodities. Livestock sector receipts are lower due primarily to lower dairy sector receipts. Cash production expenses are up slightly due to increases in net cash rents, which offset lower crop production expenses from lower plantings. "Farmland values are higher under the 1996 Act compared with the FY 1997 President's Budget, reflecting the capitalized value of higher income. Land values average about 3 percent higher under the 1996 Act compared with FY 1997 President's Budget estimates. "Consumer costs are expected to be only slightly lower under the 1996 Act. Because grain prices, on average, are expected to be essentially unaffected, no appreciable change in grain-based food product costs, such as cereal and meat products, is expected." 61 FR 37544-5. "Alternatively, the 1996 Act can be compared to a 'no program" baseline. Under the 1996 Act, contract commodity payments represent a large portion of the benefits received by producers and there are few planting restrictions. The major differences between a no-program scenario (if the CRP and export programs were continued) and the 1996 Act are that producers would no longer receive contract commodity payments of about $35.9 billion and would no longer be subject to farm conservation and wetland protection requirements. The loss in farm income would likely entail substantial short-term adjustments and financial stress. However, over the longer term, a no-program scenario is expected to have little or no impact on supply, demand, and prices compared with the 1996 Act for most commodities except for peanuts, sugar, and, in the initial years of the period, dairy. "Plantings would be expected to decrease marginally with little or no change in market prices. Farm income would likely be lower, but lost revenue from eliminating contract commodity payments would be partially offset by lower cash rents. Land values would be lower if there were no program. In the aggregate, compared with a no-program scenario, impacts of the 1996 Act on the livestock industry, input industry, consumers, and the general economy would be minimal in the long run. However, impacts in some sectors, such as those dependent on the peanut program and sugar program, may be more significant.." 61 FR 37545-46.

TABLE 7: SUMMARY OF AGENCY ESTIMATES FOR FINAL RULES 4/1/96 - 3/31/97
(As of the date of completion of OMB review)

AGENCY / Rule	BENEFITS	COSTS	OTHER INFORMATION
USDA			
Conservation Reserve Program	$2 billion/yr, 1997- 2002	$900 million/yr, 1997 - 2002	Other miscellaneous (unquantified) benefits: swimming, boating, wetland conservation, human health impacts, and reduced nutrients in habitats; $5.8 billion/yr in transfers from consumers and taxpayers to farmers.
Karnal Bunt	Not Estimated	Not Estimated	"This rule is being published on an emergency basis in order to give affected growers the opportunity to make planting decisions for the 1996-97 crop season on a timely basis...This rule may have a significant economic impact on a substantial number of small entities. If we determine this is so, then we will discuss the issues raised by section 604 of the Regulatory Flexibility Act in our Final Regulatory Flexibility Analysis, which we will publish in a future Federal Register." 61 FR 52206.
Hazard Analysis and Critical Control Points	$0.71-$26.59 billion present value discounted over 20 years	$0.97-1.16 billion present value discounted over 20 years	"The benefits are based on reducing the risk of foodborne illness due to Campylobacter jejuni/coli, Escherichia coli 0157:H7, Listeria monocytogenes and Salmonella. ... these four pathogens are the cause of 1.4 to 4.2 million cases of foodborne illness per year. FSIS has estimated that 90 percent of these cases are caused by contamination occurring at the manufacturing stage that can be addressed by improved process control. This addressable foodborne illness costs society from $0.99 to $3.69 billion, annually. The high and low range occurs because of the current uncertainty in the estimates of the number of cases of foodborne illness and death attributable to the four pathogens. Being without the knowledge to predict the effectiveness of the requirements in the rule to reduce foodborne illness, the Department has calculated projected health benefits for a range of effectiveness levels, where effectiveness refers to the percentage of pathogens eliminated at the manufacturing stage..." 61 FR 38956. "The link between regulatory effectiveness and health benefits is the assumption that a reduction in pathogens leads to a proportional reduction in foodborne illness. FSIS has presented the proportional reduction calculation as a mathematical expression that facilitates the calculation of a quantified benefit estimate for the purposes of this final RIA. FSIS has not viewed proportional reduction as a risk model that would have important underlying assumptions that merit discussion or explanation. For a mathematical expression to be a risk model, it must have some basis or credence in the scientific community. That is not the case here. FSIS has acknowledged that very little is known about the relationship between pathogen levels at the manufacturing stage and dose, i.e., the level of pathogens consumed." 61 FR 38945-6.

TABLE 7: SUMMARY OF AGENCY ESTIMATES FOR FINAL RULES 4/1/96 - 3/31/97
(As of the date of completion of OMB review)

AGENCY / Rule	BENEFITS	COSTS	OTHER INFORMATION
COMMERCE			
Encryption Items Transferred from the U.S. Munitions List to the Commerce Control List	Not Estimated	$834,000 (govt admin cost FY97), $591,850 (paperwork burden costs)	Unquantified benefits in terms of improved national security, law enforcement and public safety benefits, and economic benefits for industry: "This initiative will support the growth of electronic commerce; increase the security of the global information infrastructure; protect privacy, intellectual property and other valuable information; and sustain the economic competitiveness of U.S. encryption product manufacturers during the transition to a key management infrastructure. 61 FR 68573.
HEALTH AND HUMAN SERVICES			
Food Labeling/ Nutrition Labeling: Small Business Exemption	$275-360 million/yr	$4 million in first year, expected to decline thereafter	None reported.
Restriction on the Sale and Distribution of Cigarettes and Smokeless Tobacco	$9.2-10.4 billion/yr at 7% discount rate; $28.1-43.2 billion/yr at 3% discount rate	$180 million/yr at 7% discount rate	Unspecified costs of mandatory consumer education program. "These totals do not include the benefits expected from fewer fires (over $160 million annually), reduced passive smoking, or infant death and morbidity associated with mothers' smoking...." "In addition, while FDA could not quantify the benefits that will result from the projected decline in the use of smokeless tobacco, they would be considerable." 61 FR 44396ff.

TABLE 7: SUMMARY OF AGENCY ESTIMATES FOR FINAL RULES 4/1/96 - 3/31/97
(As of the date of completion of OMB review)

AGENCY / Rule	BENEFITS	COSTS	OTHER INFORMATION
HEALTH AND HUMAN SERVICES			
Medical Devices: Quality Systems Regulation	$29 million/yr; 44 deaths avoided/yr; 484 to 677 serious injuries avoided/yr;	$82 million/yr	"The medical device industry would gain substantial economic benefits from the proposed changes to the [Comprehensive Good Manufacturing Practices, "CGMP"] regulation in three ways: Cost savings from fewer recalls, productivity gains from improved designs, and efficiency gains for export-oriented manufacturers who would now need to comply with only one set of quality standards. "These estimates of the public health benefits from fewer design-related deaths and serious injuries represent FDA's best projections, given the limitations and uncertainties of the data and assumptions. The above numbers, however, do not capture the quality of life losses to patients who experience less severe injuries than those reported in [medical device recalls, "MDR's"], who experience anxiety as a result of treatment with an unreliable medical device, or who experience inconvenience and additional medical costs because of device failure. "Medical device malfunctions are substantially more numerous than deaths or injuries from device failures and also represent a cost to society. Malfunctions represent a loss of product and an inconvenience to users and/or patients. Additionally, medical device malfunctions burden medical personnel with additional tasks, such as repeating treatments, replacing devices, returning and seeking reimbursement for failed devices, and providing reports on the circumstances of medical device failures. No attempt was made to quantify these additional costs." 61 FR 52602ff.
INTERIOR			
Migratory Bird Hunting (Early Season Frameworks)	Not Estimated	Not Estimated	Reports that duck hunters spend an estimated $416 million/yr; unquantified economic stimulus benefits derived from spending on duck hunting; unquantified benefit of value to hunters (consumer surplus) from more than 11 million hunting days per year; unquantified benefit to bird population by reducing overcrowding and ensuring continued use of resource in future.
Migratory Bird Hunting (Late Season Frameworks)	Not Estimated	Not Estimated	Reports that duck hunters spend an estimated $416 million/yr; unquantified economic stimulus benefits derived from spending on duck hunting; unquantified benefit of value to hunters (consumer surplus) from more than 11 million hunting days per year; unquantified benefit to bird population by reducing overcrowding and ensuring continued use of resource in future.

TABLE 7: SUMMARY OF AGENCY ESTIMATES FOR FINAL RULES 4/1/96 - 3/31/97
(As of the date of completion of OMB review)

AGENCY / Rule	BENEFITS	COSTS	OTHER INFORMATION
JUSTICE			
Inspection and Expedited Removal of Aliens	Not Estimated	$235 million/yr	None reported.

TABLE 7: SUMMARY OF AGENCY ESTIMATES FOR FINAL RULES 4/1/96 - 3/31/97
(As of the date of completion of OMB review)

AGENCY / Rule	BENEFITS	COSTS	OTHER INFORMATION
LABOR			
Exposure to Methylene Chloride (MC)	31 cancer cases/yr avoided; 3 deaths/yr avoided from acute central nervous system effects and carboxyhemo-globinemia	$101 million/yr	"MC exposures above the level at which the final rule's STEL is set--125 ppm--are also associated with acute central nervous system effects, such as dizziness, staggered gait, and diminished alertness, all effects that can lead to workplace accidents. OSHA estimates that as many as 30,000 to 54,000 workers will be protected by the final rule's STEL from experiencing CNS effects and episodes of carboxyhemoglobinemia every year. Moreover, exposure to the liquid or vapor forms of MC can lead to eye, skin, and mucous membrane irritation, and these material impairments will also be averted by compliance with the final rule. Finally, contact of the skin with MC can lead to percutaneous absorption and systemic toxicity and thus lead to additional cases of cancer that have not been taken into account in the benefits assessment. " 62 FR 1567-68.
TRANSPORTATION			
Airbag Depowering	83-101 fewer fatalities, 5,100 - 8,800 fewer serious injuries over lifetime of one full model-year's vehicles	$0	50 - 431 more fatalities and 171 - 553 more serious/severe chest injuries over lifetime of one full model-year's vehicles; substantial unquantified reduction in minor/moderate injuries.
Light Truck CAFE Model-Year 1999	Not Estimated	Not Estimated	None reported.
Roadway Worker Protection	$240 million present value discounted over 10 years	$229 million present value discounted over 10 years	Possible increased capacity of rail lines and improved morale.
EPA			
Accidental Release Prevention	$174 million/yr	$97 million/yr	Unspecified value of information made available through disclosure/reporting requirements; efficiency gains, increased technology transfer, indirect cost savings, and increased goodwill; possible damage reductions attributable to offsite consequence analysis and to a reduction in routine emissions.

TABLE 7: SUMMARY OF AGENCY ESTIMATES FOR FINAL RULES 4/1/96 - 3/31/97
(As of the date of completion of OMB review)

AGENCY / Rule	BENEFITS	COSTS	OTHER INFORMATION
EPA			
Financial Assurance for Municipal Solid Waste Landfills	$105 million/yr	$0	None reported.
Deposit Control Gasoline	AVG EMISSION REDUCTIONS PER YEAR, 1997-2001: 25,000 t HC, 474,000 t CO, 95,000 t NOx	AVG COST/YR, 1997 - 2000: $138 million/yr	Fuel economy benefits are also expected as a result of the detergent program, amounting to nearly 450 million gallons during the 1995-2001 period. The savings associated with this fuel economy benefit are expected to partially offset the costs of the program. This rule should result in increased sales and business opportunities within the fuel additive industry. EPA anticipates that this program may result in significant vehicle maintenance benefits. However, due to uncertainties in their magnitude, and for other reasons, they were not considered quantitatively in the analysis.
Acid Rain Phase II Nitrogen Oxides Emission Controls	EMISSION REDUCTIONS PER YEAR: 890,000 t NOx	$204 million/yr	None reported.
Federal Test Procedure Revisions	EMISSION REDUCTIONS: In 2005: 30,994 t NMHC 1,937,114 t CO 164,112 t NOx In 2010: 54,892 t NMHC 3,430,769 t CO 290,655 t NOx In 2015: 72,025 t NMHC 4,501,555 t CO 381,372 t NOx In 2020: 81,977 t NMHC	$199-245 million/yr	Analysis does not include potential fuel savings of $13.45 discounted over the lifetime of the average vehicle, or about $202 million/yr.

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TABLE 7: SUMMARY OF AGENCY ESTIMATES FOR FINAL RULES 4/1/96 - 3/31/97
(As of the date of completion of OMB review)

AGENCY / Rule	BENEFITS	COSTS	OTHER INFORMATION
EPA			
Voluntary Standards for Light-Duty Vehicles	EMISSION REDUCTIONS (tons/ozone season-weekday): In 2005: 279 t NMOG, 3,756 t CO, 400 t NOx In 2007: 399 t NMOG, 5,302 t CO, 600 t NOx In 2015: 778 t NMOG, 9,723 t CO, 1,249 t NOx	$600 million/yr	None reported.
Lead-Based Paint Activities in Target Housing	Not Estimated	$1.114 billion present value over 50 years discounted at 3%	Will provide consumers with greater assurance that they will be able to purchase abatement services of reliable quality.

ABBREVIATIONS: CO = carbon monoxide, HC = hydrocarbons, Kt = kilotons, NMHC = non-methane hydrocarbons, NMOG= non-methane organic gases, NOx = nitrogen oxides, t = tons.

An innovative feature of FDA's estimate for monetized benefits from the tobacco rule is explicit recognition of the increases in longevity, the timing of these increases, and their value. In part of its benefits analysis, FDA estimated more than 900,000 years of life would be gained by each cohort (about 4 years per would-be smoker). FDA discounted these life-years to account for the delay associated with smoking related health effects, and then monetized the life-years gained at $117,000 per life-year, an estimate derived from academic literature.

In 6 cases, agencies provided benefit estimates that were quantified but not monetized. These included: (1) OSHA's estimated 31 cancer cases per year avoided and 3 deaths per year avoided from acute central nervous system effects and carboxyhemoglobinemia from its methylene chloride rule; (2) NHTSA's estimated 83 to 101 fatalities prevented and 5,100 to 8,800 fewer serious injuries (primarily to children) over the lifetime of one model year's vehicles from its airbag depowering rule; and (3) EPA's estimated number of tons of hydrocarbons, carbon monoxide, and nitrogen oxide emissions which it expected would be reduced annually from several of its rules. In one case, the medical device rule, FDA provided some of its benefit estimates in monetized form; other benefits were quantified.

In a number of cases where agencies reported monetized or quantified benefit estimates, they also provided a qualitative description of unquantified effects. For example, DOT discussed the possibility that its railroad worker protection rule could increase the carrying capacity of the nation's railroads and boost railroad employee morale. OSHA reported that its methylene chloride rule would lower exposure for as many as 30,000 to 54,000 workers, reducing the risk of adverse central nervous system effects (other than death) of carboxyhemoglobinemia every year. FDA reported that its medical device rule would yield additional benefits in the form of fewer injuries in other less severe categories (that were not quantified by the FDA), reduced inconvenience to users and/or patients, and reduced burden on medical personnel in terms of having to repeat treatments, replace devices, and complete the paperwork and reporting associated with medical device failures. EPA reported that the accidental release prevention rule would result in efficiency gains by providing the public with additional information on accident prevention plans for manufacturing facilities and by improving the transfer and adoption of new technologies between industries.

Finally, in 8 cases, agencies reported neither monetized nor quantified benefit estimates. In some (but not all) of these cases, the agency provided a qualitative description of benefits. For example, USDA's analysis of the 1996 Farm Bill program rules included a qualitative discussion of the benefits of increased efficiency due to the additional flexibility the rule provided for farmers to decide which crops to plant. In its rule establishing training requirements for lead abatement contractors, workers, etc., EPA discussed in qualitative terms the value to consumers of being able to purchase abatement services of reliable quality.

Cost Analysis. In 17 of the 22 cases, agencies provided monetized cost estimates. These include such items as: (1) USDA's estimated $900 million per year in consumer ''deadweight'' losses from restrictions on farm output under its Conservation Reserve Program; (2) EPA's estimated $138 million per year for gasoline detergent additives under its deposit control gasoline rule; and (3) OSHA's estimated $101 million per year to reduce occupational exposures to methylene chloride. For 2 deregulatory rules—FDA's food labeling rule and EPA's municipal solid waste landfill financial assurance rule—agencies' monetized cost estimates were very small or zero.

In 4 of the 22 cases, agencies provided estimates of non-monetized, quantitative effects that were intended to better inform decision makers, but which were not identified as benefit or cost estimates per se. For example, NHTSA estimated that its airbag depowering rule would result in 50 to 431 more fatalities and an increase of 171 to 553 serious chest injuries (primarily to adults not wearing seatbelts) over the lifetime of one full model-year of vehicles, and DOI estimated that duck hunters spend over $400 million per year on duck-hunting activities.

Seven (7) of these 22 rules have positive net monetized benefits—that is, the estimated monetized benefits exceed the estimated monetized costs of the rules. For example, FDA estimated its tobacco rule would result in $9 to 10.2 billion per year in net benefits (benefits minus costs). EPA estimated its Accidental Release Prevention rule would generate $77 million per year in net benefits. For the remaining 15 rules, agency analysis did not provide enough information to allow an estimate of net benefits. Five (5) of the rules provided quantified estimates of the expected benefits in terms of tons of emissions reduced or injuries avoided; but in those cases, the agencies did not assign values to these effects. Five (5) additional rules identified qualitative benefits associated with the rule; but in these cases, the agencies did not develop any quantified estimates of the likely magnitude of these effects. Finally, in 5 cases, we classified a rule as economically significant although little economic data on the effects of the rule existed. These deserve comment.

USDA Karnal Bunt: Karnal bunt is a fungal disease that infects wheat, and during the past year was closely controlled to prevent potential losses in wheat exports. Fear of widespread Karnal bunt infestation led USDA's Animal and Plant Health Inspection Service (APHIS) to take several emergency quarantine actions beginning in March 1996. The quarantine severely restricted the movement of wheat grown in Arizona, two counties in Southern California, New Mexico, and portions of west Texas. It also directed the plowing under of several thousand acres of wheat and instituted mandatory disinfection procedures for combines and wheat handling equipment. APHIS instituted these procedures on an emergency basis to prevent the spread of the disease. These restrictions were known to be expensive, but estimates of how expensive were not developed at the time the actions were taken.

In October 1996, APHIS issued the rule included on Table 7, which continued the quarantine and its restrictions, and established provisions for compensating wheat farmers and handlers who suffered losses. The rule was designated economically significant because, although economic data were not then available, both agency and OIRA staff agreed that the impacts associated with the rule were significant. For the same reason, it was designated ''major'' under SBREFA. While needing to issue this rule promptly APHIS agreed that it would conduct a Regulatory Flexibility Analysis and an economic analysis. In an analysis developed after the time period of our report, USDA estimated one-year costs totaling about $42 million. The Federal government paid $24 million to affected parties to compensate for these losses. However, the Department acknowledged that other potentially significant costs had not been formally estimated. The Department estimated the benefits of the rule to be approximately $2 billion—based upon the potential loss of export markets if our trading partners chose not to buy U.S. wheat—clearly making it an economically significant rule.

DOI Migratory Bird Hunting (2 rules): These are unusual rules in that they are permissive rather than restrictive—that is, migratory bird hunting is prohibited absent these annual regulations which allow hunting, setting bag limits and other controls on both early and late season hunts. Thus the rules permit spending rather than requiring the expenditure of private resources. DOI reports that the National Survey of Fishing, Hunting, and Wildlife Associated Recreation indicated that expenditures by migratory bird hunters (exclusive of licenses, tags, permits, etc.) totaled $686 million in 1991. Based on this estimate, DOI estimated expenditures by duck hunters would be over $400 million per year in 1995. However, this figure is not a social benefit in the commonly used sense of the term.

DOT Light Truck CAFE: Each year DOT must establish a Corporate Average Fuel Economy (CAFE) standard for light trucks, including sport-utility vehicles and minivans, (DOT also sets a separate standard for passenger cars). For the past two years, however, appropriations language has prohibited NHTSA from spending any funds to change the standards. In effect, Congress has frozen the light truck standard at its existing level of 20.7 miles per gallon (mpg) and has prohibited NHTSA from analyzing effects at either 20.7 mpg or alternative levels. Although benefits and costs are not estimated, DOT's experience in previous years indicates that they may be substantial. Over 5 million new light trucks are subject to these standards each year, and the standard, at 20.7mpg, is binding on several manufacturers; some are just above the standard and at least one is currently below 20.7 mpg. Because of these likely substantial effects, the rule was designated as economically significant even though analysis of the effects was prohibited by law.

DOC Encryption: Commerce's encryption rule allows the exportation of more effective encryption products, subject to certain conditions such as the development of a key management infrastructure. Although quantitative estimates are not available, the rule is economically significant, because, as commerce's analysis notes,

> The initiative addresses important foreign policy and national security concerns identified by the President. Export controls on cryptographic items are essential to controlling the spread abroad of powerful encryption products which could be harmful to critical U.S. national security, foreign policy and law enforcement interests. This initiative will preserve such controls and foster the development of a key management infrastructure necessary to protect important national security, foreign policy and law enforcement concerns.

(61 FR 68573).

Aggregate Effects. As noted above in chapter II, the substantial limitations of the available data on the benefits and costs of this set of rules make it virtually impossible to develop an aggregate estimate of benefits and costs for even a single year's regulation. First, there are no quantified or monetized estimates for 6 of the rules. In addition, since many effects are not expressed in monetized terms, there is a problem of apples and oranges in aggregating estimates. Eight (8) of the rules listed in Table 7 have quantified estimates of significant effects. Some of the quantified effects—premature deaths and serious injuries avoided—are not unique to these rules but rather are frequently identified in the RIAs for a variety of rules, and other agencies have assigned monetized estimates to these outcomes. In any event, the different quantitative effects cannot be summed because they are not expressed in common units. Finally, when effects are only described in a qualitative way, the aggregation problem becomes all the more problematic.

Because of the substantial variation in the presentation of agency estimates and the differences in their discussion of benefits and costs, Table 8 takes some initial steps in presenting agency estimates in a more consistent way. This presentation re-formats the monetized benefit and cost information on a rule-by-rule basis to enhance their comparability. One key factor involves discounting where the timing of effects matters. In order to make the agency estimates more consistent, we performed some basic adjustments to agency estimates. For example, the FRA presented monetized benefit and cost numbers in the form of a present value over 10 years ($240 million in benefits and $229 million in costs). We converted these to equal annual payments of $33 million and $32 million respectively, using the 7 percent discount rate FRA used to generate the present value estimates. We performed a similar procedure for EPA's Lead-Based Paint rule, using the 3 percent discount rate the agency used in calculating the rule's $1.114 billion present value cost over 50 years. In the case of EPA's Federal Test Procedure rule, the agency reported emission reductions for only four specific years (2005, 2010, 2015, and 2010); in order to facilitate comparisons with other emission-reducing rules, we used a linear interpolation procedure to infer emission reductions in the interim years, and then generated an equivalent annual stream of emission reductions.

TABLE 8.—SUMMARY OF AGENCY ESTIMATES FOR FINAL RULES

[4/1/96–3/31/97]

Agency/rule	Benefit estimate	Cost estimate	Other quantitative effects
USDA:			
1996 Farm Bill			
Farm Program Conservation	$2 Billion/Yr	$900 Million/Yr	
Reserve Program	(1997–2002)	(1997–2002).	
Karnal Bunt	(1)		
Hazard Analysis and Critical Control Points.	$.065–2.43 Billion/Yr	$88–106 Million/Yr	
Commerce:			
Encryption Items Transferred from the U.S. Munitions List to the Commerce Control List.		$1.4 Million/Yr	
Health and Human Services:			
Food Labeling/Nutrition Labeling: Small Business Exemption.	$275–360 Million/Yr	$4 Million/Yr [2]	
Medical Devices: Quality Systems Regulation.	$29 Million/Yr; 44 deaths and 484–677 serious injuries avoided/Yr.	$82 Million/Yr	

TABLE 8.—SUMMARY OF AGENCY ESTIMATES FOR FINAL RULES—Continued

[4/1/96–3/31/97]

Agency/rule	Benefit estimate	Cost estimate	Other quantitative effects
Restriction on Sale and Distribution of Tobacco.	$9.2–10.4 Billion/Yr[3]	$180 Million/Yr	$160 Million/Yr in reduced house fire damage.
Interior:			
Migratory Bird Hunting (Early Season Frameworks).			
Migratory Bird Hunting (Late Season Frameworks).			
Justice:			
Inspection and Expedited Removal of Aliens.		$235 Million/Yr	
Labor:			
Methylene Chloride	31 Cancer Cases/Yr; 3 Deaths/Yr from acute central nervous system effects.	$101 Million/Yr	30,000 to 54,000 workers protected from central nervous system effects and episodes of carboxyhemoglobinemia.
Transportation:			
Airbag Depowering	83–101 fatalities and 5,100–8,800 serious injuries prevented over lifetime of one full model year's vehicles.	$0	Increases of 50–431 fatalities and 261–842 serious chest injuries over lifetime of one full model year's vehicles.
Light Truck CAFE Model Year 1999.			
Roadway Worker Protection	$33 Million/Yr	$32 Million/Yr	
EPA:			
Accidental Release Prevention	$174Million/Yr	$97 Million/Yr	
Financial Assurance for Municipal Solid Waste Landfills.	$105 Million/Yr	$0	
Deposit Control Gasoline	25,000 tons hydrocarbons; 474,000 tons carbon monoxide; 95,000 tons nitrogen oxides average annual emission reductions (1997–2001).	$138 Million/Yr average (1997–2000).	Average savings of 64 million gallons of gasoline/Yr (1995–2001).
Acid Rain Phase II NO_X Controls.	890,000 tons nitrogen oxide annual emission reduction.	$204 Million/Yr	
Federal Test Procedure Revisions.	41,280 tons hydrocarbons; 2,580,000 tons carbon monoxide; 218,582 tons nitrogen oxides annualized emission reductions.	$199–245 Million/Yr	$202 Million/Yr in potential fuel savings.
Voluntary Standards for Light-Duty Vehicles.	279 tons hydrocarbons; 3,756 tons carbon monoxide; 400 tons nitrogen oxides DAILY emission reductions in 2005.	$600 Million/Yr	
Lead-Based Paint Activities in Target Housing.		$33 Million/Yr[4]	

[1] Agency performed analysis after the fact and released it after 3/31/97.
[2] Maximum first-year cost; expected to decline thereafter.
[3] Benefits and cost at 7% discount rate. FDA also provided estimates at 3%.
[4] Using EPA's 3% discount rate.

Any comparison or aggregation across rules must also consider a number of factors which the presentation in Table 8 does not address. First, for example, these rules may use different baselines in terms of the regulations and controls already in place, the initial year for the rule, and the time period over which the rule was considered to be effective. In addition, these rules may well treat uncertainty in different ways. In some cases, agencies may have developed alternative estimates reflecting upper and lower bound estimates. In other cases, the agencies may offer a mid-point estimate of benefits and costs, and in some cases the agency estimates may reflect only upper bound estimates of the likely benefits and costs. Also, in order for comparisons or aggregation to be meaningful, benefit and cost estimates should correctly account for all substantial effects of regulatory actions, including potentially offsetting effects, which may or may not be reflected in the available data.

A final reason that any regulatory accounting effort has limits is the treatment of the effects of regulations on distribution or equity. None of the analyses addressed in this report provide quantitative information on the distribution of benefits or costs by income category, region, or any other factor. As a result, there is no basis for quantifying distributional or equity impacts.

Transfer Regulations

Of the 41 rules listed in Table 6, 19 were rules necessary to implement Federal budgetary programs. (See Table 9.) The budget outlays associated with these rules generally provided ''transfers'' or reduced transfers to program beneficiaries. Of the 19, 8 are USDA rules that implement federal appropriations regarding agricultural and food stamp policies; 7 are HHS and SSA rules that implement Medicare, Medicaid, and Social Security policy; 2 are HUD rules associated with Federal mortgage protections; 1 is a DOL rule

associated with Federal service contracts; and 1 is a joint HHS, Treasury, and DOL action setting standards for health insurance portability group health plans.

TABLE 9.—TRANSFER RULES

Department of Agriculture:
Commodity Credit Corporation Supplier Credit Guarantee Program
Dairy Tariff-Rate Import Quota Licensing
1995-Crop Sugar Cane and Sugar Beet Price-Support Loan Program
Peanut Poundage Quota Regulations
Catastrophic Risk Protection Endorsement
General Administrative Regulations * * * Subpart T
Food Stamp Program Certification Provisions
Child and Adult Care Food Program: Day Care Home Reimbursements
Housing and Urban Development:
Single-Family Mortgage Insurance
Sale of HUD-Held Single-Family Mortgages
Labor:
Service Contract Act Standards for Federal Service Contracts
Health and Human Services:
Limits on Aggregate Payment to Disproportionate Share Hospitals
Hospital Inpatient Prospective Payment Systems (FY 1997)
Medicare Revisions to Policies Under Physician Fee schedule 1997
Requirements for Physician Incentive Plans in Prepaid Health Care Organizations
Individual Market Health Insurance Reform: Portability from Group to Individual Coverage
Social Security Administration:
Cycling Payment of Social Security Benefits
Determining Disability for Individuals Under Age 18
Multi-Agency Common Rule—HHS/Treasury/Labor: Interim Rules for Health Insurance Portability for Group Health Plans

The transfers arising from these programs represent payments from one group to another (often from the Federal government to program beneficiaries, but also within beneficiary groups and from recipients back to taxpayers) that redistribute wealth; they are not social costs (or social benefits) and do not directly reflect the ''opportunity cost'' of resources used or benefits foregone. Social costs may arise indirectly from these transfers, however, because they must be financed through mechanisms—for example, income and payroll taxes—that affect the use of real resources. Similarly, social benefits may arise from these transfers if the beneficiaries realize marginal benefits from the payments that are greater than the loss for those who finance the payments (i.e., taxpayers).

Estimates of the magnitude of the social costs and benefits associated with these rules are typically not available. As a practical matter, the transfers arising form these rules are a product of the Federal program authorization and budget appropriations processes, and the social costs involved are generally viewed as subsidiary to the transfers involved. For these reasons, the Best Practices document specifically notes that instead of a complete benefit-cost analysis, a different form of regulatory analysis may be appropriate for regulations implementing these Federal programs.

Chapter IV. Recommendations

This report is to include ''recommendations from the Director of OMB and a description of significant public comments to reform or eliminate any Federal regulatory program or program element that is inefficient, ineffective, or is not a sound use of the Nation's resources'' (Section 645 (a)(4)). As indicated in the Introduction, we are soliciting comment on a wide range of issues related to our discussions of the methodology we use in evaluating total annual benefits and costs of Federal regulatory programs; estimates of the benefits and costs of ''economically significant'' or ''major'' rules; and direct and indirect impacts of Federal rules on the private sector and governmental bodies. We are also seeking comment on regulatory programs or program elements that are ''inefficient, ineffective, or * * * not a sound use of the Nation's resources.''

As we indicated in chapter II, the current state of knowledge of benefits and costs of Federal regulatory programs is limited, although growing. While some aggregate estimates of the benefits and costs of Federal regulations have been made based on adding the results from various studies, these aggregate estimates are best viewed as valiant first attempts to summarize existing knowledge. They may be viewed as general indicators of the importance of regulation to the American people and to the economy, but not as guides to specific regulatory reforms.

Although many difficult methodological problems have yet to be solved, we presented in chapter II our own aggregate estimates of the costs and benefits of regulation to further the discussion and generate comments that we hope will lead to better estimates. Except for the consensus among economists that there appear to be little long run economic benefits from most economic, as opposed to environmental and other social, regulation, we do not believe that the existing evidence on aggregate costs and benefits rises to the level that would support a recommendation to eliminate any regulatory programs. Virtually all of the evidence discussed above is based either on estimates for proposed regulations or on dated studies of existing regulations. These data are not appropriate for determining whether existing regulations should be repealed or significantly modified because of the sunk cost and rising baseline problems discussed above. Before supportable recommendations are made to eliminate existing regulatory programs or elements of programs, empirical evidence based on analytical techniques designed to solve the methodological problems discussed above must be developed. We are interested in receiving studies and suggestions for methodological approaches appropriate for evaluating existing regulations in

order to develop the strong empirical evidence necessary to propose supportable recommendations for eliminating or reforming regulatory programs.

Chapter III points out that we also need better evidence for determining whether proposed regulations are cost-effective and produce the greatest net benefits. Agencies have had difficulties generating sufficient data to make these determinations for individual regulations. In some instances, there are significant technical problems to assessing costs and, in particular, benefits. In other instances, the ability of the government to conduct analysis is limited by factors that direct use of limited agency resources—for example, statutory and judicial deadlines—forcing agency action within time frames that preclude adequate analysis. In some other instances, it is not at all clear that given limited financial and human resources, additional analysis would be useful. Finally, there are occasionally emergencies that demand swift federal action, where the public expect their elected officials to respond as best they can without the delay that careful analysis would entail.

In summary, based on our discussion and findings in chapters I, II and III above, we see three major themes:

- Our estimates of the total costs and benefits of regulation in the $300 billion (4 % of GDP) range clearly indicate that regulation is important in providing both health, safety, and environmental benefits and a well functioning economy.
- It is very difficult to draw strong conclusions about how to improve regulatory policy from macro data on benefits and costs. Micro data on individual regulations are needed.
- Although considerable progress has been made in providing micro data in advance of regulatory proposals and in developing best practice guidance, further progress is needed to continue improving regulatory decisions. Specifically, we need to ensure that the quality of data and analysis used by the agencies improves, that standardized assumptions and methodologies are applied more uniformly across regulatory programs and agencies, and that data and methodologies designed to determine whether existing regulations need to be reformed is developed and used appropriately.

Consequently, at this stage, we do not believe substantial economic evidence exits on which to base proposals for major reforms or eliminations of social regulatory programs or their elements. We specifically solicit comment on such programs or program elements on which members of the public may have information that would lead to a conclusion that such programs are inefficient or ineffective and should be eliminated or reformed. In particular, we solicit studies or comments on studies that provide strong, objective and verifiable evidence on the true social benefits and costs of eliminating or reforming specific regulatory programs or their elements using appropriate methodology.

We are proposing for comment the following recommendations designed to improve the quality of data and analysis on individual regulations and on regulatory programs and program elements as a first step toward developing the evidence needed to propose major changes in regulatory programs.

- OIRA should lead an effort among the agencies to raise the quality of agency analyses used in developing new regulations by promoting greater use of the Best Practice guidelines and offering technical outreach programs and training sessions on the guidelines.
- An interagency group should subject a selected number of agency regulatory analyses to *ex post* disinterested peer review in order to identify areas that need improvement and stimulate the development of better estimation techniques useful for reforming existing regulations.
- OIRA should continue to develop a data base on benefits and costs of major rules by using consistent assumptions and better estimation techniques to refine agency estimates of incremental costs and benefits of regulatory programs and elements.
- OIRA should continue to work on developing methodologies appropriate for evaluating whether existing regulatory programs or their elements should be reformed or eliminated using its Best Practices manual as the starting point.
- OIRA should work toward a system to track the net benefits (benefits minus costs) provided by new regulations and reforms of existing regulations for use in determining the specific regulatory reforms or eliminations, if any, to recommend.

Regulation and regulatory reform have the potential to do much good for society or much harm. The key to doing the former is having the information and analysis necessary for wise decision-making. The steps outlined above are aimed at continuing our efforts to improve our ability to make better regulatory decisions.

Bibliography

Crandall, Robert W., Howard Gruenspecht, Ted Keeler and Lester Lave. Regulating the Automobile (Washington D.C.: Brookings Institution, 1986).

Crandall, Robert W. ''What Ever Happened to Deregulation?'' in David Boaz (ed.) Assessing the Reagan Years (Washington D.C.: Cato Institution, 1988).

Cropper, Maureen L. and Wallace E. Oates. ''Environmental Economics: A Survey,'' Journal of Economic Literature, Vol. 30, No. 2 (June 1992).

Denison, Edward F. Accounting for Slower Economic Growth: The U.S. in the 1970's (Washington D.C.: Brookings Institution, 1979).

Eads, George C. And Michael Fix. Relief or Reform? Reagan's Regulatory Dilemma (Washington, DC: The Urban Institute Press, 1984).

Gardner, Bruce L. Protection of U.S. Agriculture: Why, How, and Who Loses? (University of Maryland Dept. Agriculture and Resource Economics Working Paper No. 87–15).

Gray, W. B. ''The Cost of Regulation: OSHA, EPA, and the Productivity Slowdown,'' American Economic Review, (December 1987).

Hahn, Robert W. and John A. Hird. ''The Costs and Benefits of Regulation: Review and Synthesis,'' Yale Journal on Regulation, (Vol. 8, No. 1, Winter 1991).

Hahn, Robert W. ''Regulatory Reform: What do the Numbers Tell Us?,'' in Hahn, Robert W., ed., Risks, Costs, and Lives Saved: Getting Better Results From Regulation, (New York: Oxford University Press and AEI Press, 1996).

Hazilla, Michael and Raymond Kopp. ''Social Cost of Environmental Quality Regulations: A General Equilibrium Analysis,'' Journal of Political Economy, (Vol. 98, No. 4, 1990).

Himmelstein, David U. And Steffie Woolhandler. ''Cost Without Benefit: Administrative Waste in U.S. Health Care,'' The New England Journal of Medicine, (Vol. 314, No. 7, February 13, 1986).

Hopkins, Thomas D. ''Cost of Regulation,'' Report Prepared for the Regulatory Information Service Center, Washington DC, (August 1991).

Hopkins, Thomas D. ''Cost of Regulation: Filling the Gaps,'' Report Prepared for the Regulatory Information Service Center, Washington DC, (August 1992).

Hopkins, Thomas D. ''Profiles of Regulatory Costs,'' Report to U.S. Small Business Administration, (November 1995).

Hopkins, Thomas D. ''Regulatory Costs in Profile,'' Policy Study No. 132, Center for the Study of American Business, (August 1996).

Hufbauer, Gary C., Diane T. Berliner and Kimberly Ann Elliot. Trade Protection in the United States (Washington, D.C.: Institute for International Economics, 1986).

Jaffe, Adam B., Steven R. Peterson, Paul R. Portney and Robert Stavins. ''Environmental Regulation and the Competitiveness of U.S. Manufacturing,'' Journal of Economic Literature, Vol. 33, No. 1 (March 1995).

James Jr., Harvey S. Estimating OSHA Compliance Costs, Center for the Study of American Business (October 1996).

Jorgenson, Dale W. and Peter J. Wilcoxen. ''Environmental Regulation and U.S. Economic Growth,'' Rand Journal of Economics (Vol. 21, No. 2, Summer 1990).

Litan, Robert E. and William D. Nordhaus. Reforming Federal Regulation (New Haven, Ct.: Yale University Press, 1983).

Morrison, Steven A. and Clifford Winston. The Economic Effects of Airline Deregulation (Washington, D.C.: Brookings Institution, 1986).

Morrison, Steven A. and Clifford Winston. ''Enhancing Performance of the Deregulated Air Transportation System,'' Brookings Papers on Economic Activity: Microeconomics, 1989.

U.S., Council of Economic Advisers. Economic Report of the President (February 1997).

U.S., Environmental Protection Agency. Environmental Investments: The Cost of a Clean Environment (December 1990).

U.S., Environmental Protection Agency. Technical and Economic Capacity of States and Public Water Systems to Implement Drinking Water Regulations—Report to Congress (1993).

U.S., Environmental Protection Agency. 1972–1992 Retrospective Analysis: Impacts of Municipal Treatment Improvement for Inland Waterways (1995).

U.S., Environmental Protection Agency. The Benefits and Costs of the Clean Air Act, 1970–1992—Draft Report for Congress (April 1997).

U.S., General Accounting Office. Regulatory Burden: Measurement Challenges Raised by Selected Companies (November 1996).

U.S., General Accounting Office. Regulatory Reform: Information on Costs, Cost-Effectiveness, and Mandated Deadlines for Regulations (March 1995).

U.S., Office of Management and Budget. More Benefits Fewer Burdens: Creating a Regulatory System that Works for the American People (December 1996).

U.S., Office of Management and Budget. Information Collection Budget of The United States Government (Various Years).

U.S., Office of Technology Assessment. Gauging Control Technology and Regulatory Impacts in Occupational Safety and Health (September 1995).

U.S. Small Business Administration. The Changing Burden of Regulation, Paperwork, and Tax Compliance on Small Business: A Report to Congress (October 1995).

Viscusi, W. Kip. Fatal Tradeoffs: Public and Private Responsibilities for Risk (New York: Oxford University Press, 1992).

Viscusi, W. Kip. Risk by Choice: Regulating Health and Safety in the Workplace (Cambridge Mass.: Harvard University Press, 1983).

Weidenbaum, Murray L. and Robert DeFina. ''The Cost of Federal Regulation of Economic Activity,'' American Enterprise Institute, Washington, D.C.

Wenders, J. The Economics of Telecommunications: Theory and Practice, 83 (1987).

[FR Doc. 97–19082 Filed 7–21–97; 8:45 am]

BILLING CODE 3110–01–P