

GENERAL DISTRIBUTION

OCDE/CD(92)176

REGULATORY MANAGEMENT AND REFORM SERIES NO. 2

CONTROLLING REGULATORY COSTS: THE USE OF REGULATORY BUDGETING

JOHN F. MORRALL III
U.S. OFFICE OF MANAGEMENT AND BUDGET

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

Paris 1992

002210

COMPLETE DOCUMENT AVAILABLE ON OLIS IN ITS ORIGINAL FORMAT

GENERAL DISTRIBUTION

OCDE/GD(92)176

PUBLIC MANAGEMENT

OCCASIONAL PAPERS

REGULATORY MANAGEMENT AND REFORM SERIES No. 2

**Controlling Regulatory Costs:
The Use of Regulatory Budgeting**

by

**John F. Morrall III
U.S. Office of Management and Budget***

Paris 1992

COMPLETE DOCUMENT AVAILABLE ON OLIS IN ITS ORIGINAL FORMAT

* The views expressed in this paper do not necessarily represent the views of the Office of Management and Budget.

OTHER PUBLICATIONS IN THE REGULATORY MANAGEMENT AND REFORM SERIES

No. 1

- **Regulatory Management and Reform: Current Concerns in OECD Countries (1992)**

FOREWORD TO THE SERIES ON REGULATORY MANAGEMENT AND REFORM

Regulations are the sinews of modern government, the legal instruments that connect abstract government policies with the day-to-day activities of commerce and private life. To put it more precisely, **regulations make government decisions operational**, and hence perform a key role in the governing process. In the highly-developed administrative states characteristic of OECD countries, government effectiveness has become to a significant degree dependent on the systems that develop, monitor, enforce, adjudicate, and terminate regulations.

The pervasiveness of regulation has become one of the defining aspects of contemporary life in OECD countries. Governments in the OECD area have, over the years, constructed massive and complex regulatory systems through which they attempt to serve and balance the economic and social values of their citizens. Yet few governments are satisfied with the quality, effectiveness and cost of regulation. New demands -- from opening world markets and international integration, from problems of unprecedented scale such as environmental degradation, and from emerging interest groups such as consumers, to mention only a few -- have focused considerable attention on the role of regulation in causing and solving problems.

In the 1980s, most OECD countries launched new public sector initiatives aimed at improving the performance, impact and institutions of regulation. These initiatives vary greatly in objective and design, but they have distinctive features that mark them as genuinely new management capacities enabling governments to regulate more carefully. This development can be compared to, and may be no less important than, the adoption of modern fiscal budgeting agencies by governments earlier in this century to better control and manage national expenditures.

The work of the OECD Public Management Committee (PUMA) on regulatory management and reform attempts to respond to the specific needs of the new reform initiatives. The purpose is to provide better information -- drawn from practical experience, comparisons, and international exchanges -- on the benefits, costs, and risks of reforms in the management, processes and institutions of regulation.

The series of occasional papers on regulatory management and reform is intended to disseminate more widely the background papers, reports, and preliminary results prepared for the programme. The regulatory management and reform work and series of papers is led by Mr. Scott Jacobs of the Public Management Service.

The papers are published on the responsibility of the Secretary-General. The views expressed in the papers are those of the authors, and do not commit or necessarily reflect those of governments of OECD Member countries.

TABLE OF CONTENTS

Introduction	7
Public Sector Management and Controlling Regulation	8
Estimating the Costs of Regulation	9
Managing Social Regulation	11
The Fiscal Budget Analogy	12
Problems with the Regulatory Budget	13
Possible Solutions	14
Development of a Data Base for a Regulatory Budget	15
Implementing the Regulatory Budget Concept	16
The Application of Regulatory Budgeting to the Regulation of Risks to Life and Limb	17
Suggestions For Implementing the Regulatory Budget	20
Ten Steps	21
Conclusion	21
References	23
Table 1. Annualized U.S. Regulatory Costs in Billions of 1988 Dollars	25
Table 2. Regulatory Costs of Major Rules, 1987-1991 [Annual costs in millions of dollars]	26
Table 3. Regulatory Budgeting for Health and Safety Regulation (Assuming a \$3 Billion Budget)	27
Table 4. Quality Adjusted Life Year (QALY) of Completing Therapies: Some Tentative Estimates	29

CONTROLLING REGULATORY COSTS: THE USE OF REGULATORY BUDGETING

Introduction

In providing social and economic benefits, government regulation imposes costs on national economies. The cost of regulation is a form of indirect taxation, and hence regulation is a mechanism for government spending. From this perspective, regulatory costs are best viewed as regulatory expenditures.

Regulatory costs are the major government expenditure still off-budget, that is, not included in the accounting and control system called the fiscal budget. Few countries keep itemised accounts of the projected compliance costs of regulations. No country currently uses such an account with the goal of staying within an overall ceiling of expenditures. Many believe that, because private regulatory costs are not accounted for in the fiscal budget, a tendency toward excessive regulation is inevitable, especially in the presence of stringent fiscal budget constraints for other forms of government spending.¹ One answer may be to develop a budget for regulatory expenditures similar to that used for fiscal expenditures.

This paper discusses the reasons for and potential benefits of a regulatory budget. In setting the problem, it discusses the aggregate costs of regulation and in particular the special concerns that an increase in "social regulation" poses for economic growth. A brief discussion of how the United States has attempted to manage regulation through a regulatory review and reform program located in the Office of Management and Budget (OMB) is presented. Although the U.S. program has been successful in improving the cost-effectiveness of new regulations, the continued growth of social regulation has generated discussion about using budgeting concepts to better manage regulatory expenditures.

The paper then analyses regulatory budgeting by discussing the history and theory of budgeting, some practical problems with the approach, and some suggested steps for implementation. A hypothetical example of how regulatory budgeting might be applied to a set of regulations aimed at reducing health and safety risks is also presented and compared to a benefit-cost approach. The paper concludes by suggesting that the ultimate policy goal is to combine regulatory and fiscal expenditures into a "super budget" that treats national economic resources, no matter how allocated by governments, equally.

¹ For a discussion of how the Member countries of the OECD have attempted to deal with this problem, see Jacobs (1992).

Public Sector Management and Controlling Regulation

In 1989, general government outlays as a percent of GDP averaged 39.8 percent for OECD Member countries.² An unknown additional amount of output of OECD economies is also allocated by the public sector through regulation and state ownership of various enterprises. For the United States, if the estimated costs of federal regulation borne by the private sector are added to general government expenditures, the percent of GDP allocated by the government increases from 36.5 percent to 46.2 percent.³ If regulatory costs in the other OECD countries are proportional to those in the United States, about one half of the total of OECD countries' output is directed by governments.⁴

As the economic advantages of free markets and private incentives have become more apparent in recent years, most OECD countries, joined by many developing and formerly communist countries, have sought to reduce the amount of resources absorbed and directed by the public sector.⁵ Various OECD publications have documented that the trend towards privatization, regulatory reform and restraint of government expenditures is well underway. Success is apparent in several areas. Government expenditure as a percent of GDP is down from 41.1 percent in 1982 to 39.8 percent in 1989 in OECD countries (OECD, 1990). "Economic regulation" (the regulation of prices and/or quantities of goods, usually in specific industries) has declined as deregulation of trucking, airlines, telecommunications and natural gas has advanced, especially in the United States, United Kingdom, Canada, and New Zealand. Privatization in the United Kingdom, Portugal, France, Germany, and New Zealand, among others, has also been actively pursued (OECD 1990).

These developments suggest that government direction of economic resources may have peaked. However, there appear to be at least two areas where government intervention in the private sector is expanding rather than contracting -- although the evidence of this for most countries is anecdotal not empirical. In particular, "social regulation" (the regulation of the terms and conditions under which goods and services may be produced or sold, usually for the purposes of promoting health, safety, consumer protection, equal opportunity, the environment or other goals) has continued to grow, if not accelerate, in the

² See OECD (1990) p. 38.

³ Calculated using the upper estimate of the cost of federal regulation (\$508 billion) from the Regulatory Program of the U.S. Government 1991-1992 (1990) Table 2, p. 5. This does not include the cost of state and local government regulation.

⁴ The output of OECD countries is combined by using 1985 purchasing power parities and excluding Turkey and New Zealand. See OECD (1990) page 38.

⁵ For a comprehensive discussion of the trends, consequences and need to control the public sectors in OECD countries see The Role of the Public Sector OECD (1985).

1980's and early 1990s, at the same time that "economic regulation" has declined.⁶

Another major form of regulation not usually discussed may also be increasing. Process or administrative regulation specifies how the government collects, manages and allocates its funds and property. To the extent that private parties bear a part of the costs of these regulations, these costs should also be counted in any determination of the aggregate impact of government. For the United States the major components of these types of regulatory costs are the time and effort required to fill out tax forms and the private administrative costs of the health care system.⁷

Estimating the Costs of Regulation

Table 1 presents estimates of the cost of three categories of regulation -- economic, social and process -- in the United States for the years 1977 to 1990.⁸ A clear pattern emerges: economic regulatory costs are dropping and social and process regulatory costs are rising during this period. The costs of economic regulation as a percentage of the costs of all regulation declined from 72 percent in 1977 to 46 percent in 1990, in part due to extensive deregulation in the transport and energy sectors. This percentage is projected to decline further to 38 percent by the year 2000, as social regulatory costs increase by 67 percent and process costs increase by 19 percent while economic regulatory costs hold constant.⁹

Table 2, which lists the costs of major regulations proposed and issued by the U.S. Federal Government for the last five years, adds further detail to these estimates. It shows that new environmental regulations, accounting for about \$27 billion of the \$41 billion cost of regulations proposed over the last five years¹⁰, are the main reason for the large projected increase in the costs of social regulation.

⁶ For a discussion of the differences between economic and social regulation see Commonwealth of Australia (1989) pp.1-2. For a list of the different types of economic and social regulations and estimates of their costs and benefits for the U.S. economy see Hahn and Hird (1990).

⁷ For a discussion of the process regulation see the Regulatory Program of the U.S. Government (1985) pp. xiv-xxiii and Hopkins (1991).

⁸ Calculated from Hopkins (1991) Table 5a.

⁹ Estimated by Hopkins (1991) Table 5a. Also see Hahn and Hird (1990), Hopkins (1992) and Chapter 17 of the Budget of the U.S. Government FY 1993 (1992).

¹⁰ In the United States, regulations are first "proposed," that is, published for public scrutiny and comment, before they are promulgated as "final" rules. Costs are estimated for both proposed and final rules.

The relative increase in the cost of social and process regulation compared to that of economic regulation may be even greater than Table 1 suggests. Costs presented in Table 1 for economic regulation combine two types of costs: economic efficiency losses and transfer costs. Economic efficiency losses are losses to the economy that can never be recouped. Transfer costs are losses to one group in society that, theoretically, are exactly offset by gains to another group.¹¹ They are included here to measure the full impact of government intervention on society. According to Hahn and Hird (1990), transfer costs average about 3 to 4 times the size of the efficiency losses for the U.S. economic regulations they examined. Estimates of such transfer costs are not, however, available for social and process regulation and hence are not included in the estimates in Table 1 for social and process regulation. Therefore, the costs in Table 1 for these types of regulation are estimates only of the economic efficiency losses, which are thought by most economists to be, dollar for dollar, more harmful to the economy.

For other reasons, the cost of social regulation may be even further underestimated in Tables 1 and 2. Many economists now believe that the full cost of social regulation on society is not captured by the summation of the compliance costs of individual regulations, as was done for Tables 1 and 2.¹² In particular, effects on productivity and labor supply and the adjustments that nonregulated industries must make to the changes required of regulated industries are not taken into account in these cost estimates.¹³ Using a macro model to measure the productivity slowdown caused by worker safety and environmental regulation, Gray (1987) found that 0.44 percentage points or 31 percent of the decline in U.S. manufacturing productivity in the 1970's was due to these kinds of regulation. Using a general equilibrium model, Hazilla and Koop (1990) estimated that the full cost of environmental regulation in the United States in 1990 was about two and one half times larger than indicated by the engineering costs estimates of the sort used in Table 1. Jorgenson and Wilcoxon (1992) estimate that by the year 2005, environmental regulation -- including the Clean Air Act Amendments of 1990 -- will reduce U.S. GDP by about 3 percent annually, indicating that the indirect costs of

¹¹ In reality, transfers are probably not costless to society because of resources expended attempting to influence the political process (called rent seeking by economists) and because of harmful incentive effects on labor and investment. Some economists believe that practically all transfer costs due to economic regulation are a net (dead weight) loss to society because they believe rent seeking exhausts the entire amount transferred.

¹² For example see Jorgenson and Wilcoxon (1990 and 1992), Hazilla and Koop (1990) and Gray (1987 and 1991).

¹³ To estimate these effects, complex data-intensive macro or general equilibrium models are required. For a discussion of the various ways and problems encountered in measuring the costs of social regulation, see Hahn and Hird (1990).

environmental regulation are more significant than the direct costs shown in Table 1.¹⁴

Managing Social Regulation

If further progress is to be achieved in managing the size and economic influence of the public sector, restraint of government outlays, privatization and economic deregulation is not enough. Social regulation must be better managed. Although the United States has actively pursued a regulatory reform and review strategy designed to rationalize social and administrative regulation, primarily by subjecting newly proposed regulations to benefit-cost tests, Tables 1 and 2 indicate that the costs of social regulation continue to grow quite rapidly.

For 20 years, the United States has been trying, with modest success, various ways of managing the growth and improving the cost-effectiveness of social regulation. The last five Presidents have maintained and continuously strengthened centralized regulatory management program in the Executive Office of the President.¹⁵ Regulatory budgeting was discussed in the late 1970's by both the executive and legislative branches of government in the United States, but was not implemented.¹⁶

The basic structure of the current regulatory reform program of the U.S. government was established by President Reagan in 1981 through a presidential (Executive) order issued one month after he took office. The order required that proposed regulations pass a benefit-cost analysis. A key procedural innovation was the requirement that agencies submit to OMB for review drafts of regulations before publication. For each regulation with a potential economic impact of \$100 million or more per year, the agencies are to also supply a regulatory impact analysis that confirms that the regulation will produce more benefits than costs, and that it will maximize net social benefits (benefits minus costs) compared to alternative approaches. Since legislation by its nature does not permit the executive full discretion, maximizing net social benefits is not always legally permissible. In these cases the Executive order requires that agencies meet legislative objectives in the most cost-effective ways.

¹⁴ Although these indirect effects are significant, they are probably similar to the indirect effects of defense expenditures in the fiscal budget that also direct resources away from private market activities.

¹⁵ For a brief history of these efforts see Regulatory Program of the U.S. Government (1988).

¹⁶ Probably the first proponent of the regulatory budget was Robert Crandall (1978) of the Brookings Institution. In 1979 two members of the Joint Economic Committee of the U.S. Congress, Senator Lloyd Bentsen and Congressman Clarence Brown introduced a bill to establish a regulatory budget. See DeMuth (1980) for an early history of the concept.

Although there is much anecdotal evidence that this program has improved the cost-effectiveness of many regulations, the rising costs of social regulations indicated in Tables 1 and 2 led President Bush in 1992 to propose a further tightening of the regulatory oversight program. As part of a moratorium on new regulations, he ordered agencies to review existing and planned regulations in order to speed up growth-enhancing and cost-effective regulations and to weed out regulations that were no longer cost-beneficial. The President set up a Working Group on Regulatory Reform in the White House to oversee agency reform efforts. The hiatus of the moratorium also allowed his advisors to consider additional steps to streamline and focus regulatory oversight. In particular, efforts to improve and expand benefit-cost analyses and requirements are under development, and regulatory budgeting is receiving new consideration.

The Fiscal Budget Analogy

The regulatory budget is modelled on the fiscal budget approach, in which an agency or program head is given a budget ceiling within which he or she can allocate funds among competing needs. The logic and workings of budgets are well known, and would produce three major benefits when applied to regulatory expenditures.

First, placing a fixed limit on the amount of resources available to an agency or program head with a defined mission should result in more cost-effective allocations of those resources. Allowing resources to be treated as a "free good" offers little hope that those resources will be allocated in a cost-effective manner. In the United States, the budgeting approach is thought to "get the most bang for the buck."

Second, a budgeting approach would require an explicit consideration of the aggregate economic cost of regulation. It is hoped that if the democratic process establishes the budget ceiling, then that process should balance the public benefits of the expenditures with the social costs of the private resources used.

Third, the regulatory budget, like the fiscal budget, would rely more on decentralized decision-making rather than the centralized decision-making of the centralized regulatory oversight model. The advantage of the decentralized approach, as opposed to having each proposed funding decision reviewed by the central budget office, is that a decision-maker at the program level should have more and better information with which to make cost-effective decisions within the budget constraint.

One difference between fiscal budget and regulatory expenditures is that the total costs of the fiscal budget are well known and debated. As discussed above, no one really knows the total costs of regulation and neither the legislature nor the executive is forced to make trade-offs among the regulatory expenditures of different programs. Agencies frequently view regulation as "a free lunch"; that is, they are aware that the political costs of imposing diffuse and often unseen

regulatory costs pale in comparison to the political costs of violating fiscal spending ceilings even when the economic costs and benefits of the two policy approaches are the same. Nor is a systematic concern for the aggregate impact of regulation on the economy effectively represented.

Yet the effects of fiscal and regulatory expenditures are directly analogous in several important ways. First, the expenditures required by regulation have many of the same overall macro effects, i.e., effects on output, employment, prices, and growth, as do budget expenditures. The federal government finances expenditures by diverting resources from the private sector through taxation and borrowing. Similarly, business firms finance expenditures required by regulation (e.g., for pollution control) by borrowing, increasing prices, reducing other expenditures, and reducing dividends. These, of course, are the same ways firms finance taxes and thus have the same broad effects on the economy as do many taxes. The incentive effects on working, investing, and saving may differ from income taxes, however, to the extent that tax liability is more directly tied to earnings, profits, and interest income than is regulation. Thus, regulatory expenditures may be closer to user fees and excise taxes in such impacts than to income taxes.

Second, the micro effects of regulatory expenditures on the allocation of economic resources are also similar to the effects of fiscal budget expenditures. Most fundamentally, both regulation and budget outlays divert private resources to public purposes. Furthermore, in many cases expenditures required by regulation may be an alternative means of achieving the same public policy objectives as budget expenditures. For example, firms can be required by regulation to treat their effluent before dumping. Alternatively, public waste water treatment facilities can be constructed by direct expenditures of government. The basic allocative effects are similar, although the efficiency of the method may differ from one policy instrument to another, and implications for the distribution of income might also vary.

Problems with the Regulatory Budget

Several accounting problems are often held up as reasons why the regulatory budget is a concept whose time has not yet come.¹⁷ One practical problem is that in order to validate projected budget estimates, it would be necessary to ask private firms and individuals to keep detailed records of actual expenditures. These records might not necessarily be accurate and could create a considerable and expensive compliance burden.

Second, estimating which expenditures were made because of regulatory requirements -- compared to which would have occurred in the absence of regulation -- is often extremely subjective. For example, in the absence of regulations for automobile safety standards some level of safety would still be built

¹⁷ DeMuth (1980) for the U.S. and Gill (1990) for New Zealand make this point.

into vehicles, but since the amount is unknown the additional cost of regulation cannot be calculated accurately.

A third type of problem arises because the indirect costs of regulation are extremely difficult to estimate and may be relatively more important for regulation than for spending and taxing. Indirect costs result when regulation reduces otherwise desirable economic activities by raising production or product costs, by making products less desirable, or, in the extreme, by banning products or making them unprofitable to produce. These are the costs discussed earlier that do not appear in Tables 1 and 2. Another important class of indirect costs is the decline in innovation that may occur with some types of regulation.

The economic loss caused by these declines in economic activity is the excess of the value to consumers of the lost output above the costs of production. Since this indirect cost is not directly measurable, and can only be estimated by complicated statistical models, some argue that it would be problematic to combine estimates of these indirect costs with the direct compliance costs of regulation. Yet measuring only the direct expenditure costs of regulation for use in an oversight program may create a bias toward banning substances and products rather than controlling them, since banning a product, service, or manufacturing process gives rise mainly to indirect costs and avoids direct costs.

Possible Solutions

These practical problems, however, are not insurmountable and mainly differ in degree from their fiscal analogue. For example on the first point, the spending forecasts for fiscal budgets do not have to be perfectly accurate for the fiscal budget process to be effective in controlling spending. As long as they are not systematically underestimated, projected cost ceilings serve as a constraint. Likewise the spending forecasts for regulatory budgets do not necessarily have to be accurate for the regulatory budget process to act as a constraining device for regulatory spending. Auditing costs for the regulatory budget can be kept to a minimum since all that is needed is *ex post* evaluations of a sample of situations in order to improve economic forecasting models.

The second measurement problem -- estimating the counterfactual -- diminishes if an incremental budget approach is used. For example, the amount of workplace safety that firms provide is not likely to change much from one year to the next in the absence of new regulations.

Finally, the problem that there might be a tendency to ban products and processes to avoid the constraints on direct spending should be less damaging than the current tendency to impose direct and indirect costs on the public without any regulatory budget constraint at all. Furthermore, cost estimation technology is improving and its costs are falling with the rapid decline in the price of computing power. Simple rules based on econometric modelling of demand and supply relationships of regulated or banned products could be developed and used to

proxy for the value of the loss to consumers of the foregone output caused by regulation.

Development of a Data Base for a Regulatory Budget

One way to address any remaining concerns about measurement methodologies is to begin implementation of an accounting system that makes use of such information. The fiscal budgetary process for outlays and receipts evolved in this fashion. Since the U.S. Budget Act of 1921, the accounting principles, standards and forecasting methodologies for the budget have continued to evolve and improve as a result of both executive and legislative action.

Over the last 20 years, successive regulatory oversight programs located in the Executive Office of the President have slowly refined cost accounting standards and broadened the base of regulations covered by required cost impact statements. For the 1991 Regulatory Program of the U.S. Government, agencies were asked to provide to OMB cost and benefit estimates for all significant regulations. Prior to that request, agencies were generally only required to provide cost and benefit information for "major" regulations, defined as regulations with cost impacts of over \$100 million per year. This latest requirement increased the number of rules requiring cost and benefit information from about 80 to 500 per year.

The FY 93 Budget of the U.S. Government published these data for rules the agencies expected to issue in 1992. These rules are expected to add \$15 billion per year to the regulatory costs that the private sector must bear. Benefit data were also provided, but the quality was variable and often not expressed in monetary terms. Although improvements over the last several years in cost estimation techniques, in particular, are evident, more improvement is needed before true regulatory budgeting can begin.

Most recently, during the 1992 moratorium on new regulations, President Bush also addressed the legislative side of the problem. As part of his program to strengthen regulatory review and cost control, he directed the agencies to estimate the likely costs and benefits of legislative proposals under active consideration by the Congress or proposed by the agencies. OMB in consultation with the Council of Economic Advisors will provide the technical guidance needed to make these estimates.

Once a legislative data base has been established and accepted as reasonably accurate, the regulations implementing new statutes can be reviewed according to how their costs compare to the costs estimated for the organic statutes. Eventually, control mechanisms could be developed so that regulations that impose costs beyond the estimate for the legislation could receive special scrutiny. The goal would be to follow the model of the fiscal budget and include a "regulatory cost ceiling" in any new legislation that imposes private sector costs. Under this scheme, each new statute would include a ceiling on the total private

sector costs that agencies could impose in implementing the statute. Agencies would then keep track of the estimated costs imposed by the regulations. Once the statutory ceiling was reached, new regulations would require either additional legislation to raise the ceiling or offsetting changes in other regulations that would keep total private sector regulatory costs within the ceiling.

This regulatory cost ceiling system would increase the accountability of the legislature and provide even more incentive to make accurate estimates of the likely costs of regulation than simply requiring cost estimates of the proposal. Regulatory cost ceilings that were excessively low would frustrate the purpose of the statute because agencies could not issue implementing regulations. Although Congress might be tempted to authorize excessively generous amounts, it would have to declare itself willing to impose a specific level of costs on the public. Moreover, Congressional estimates would have a real effect on agency decision-making, and would give agencies strong incentives to choose regulatory approaches that produce benefits at the least possible cost.

Implementing the Regulatory Budget Concept

In an informal way, a cost ceiling was used as a benchmark for negotiation between the President and the U.S. Congress of the content and structure of the Clean Air Act Amendments of 1990. The agreed-upon ceiling, about \$25 billion in annual costs, served to focus the negotiations on the most highly valued alternatives and may have been responsible for some of the innovative provisions of the Act.¹⁸

A second pilot test of a form of the regulatory budget involving the Clean Air Act's implementing regulations is also being tested by the U.S. government.¹⁹ The Environmental Protection Agency (EPA), the Council of Economic Advisors (CEA) and OMB are working cooperatively to establish nonbinding cost caps for certain industrial categories effected by the Act. In implementing the regulations required by the Act, EPA and OMB will try to keep the projected costs of the various options considered below the budget cap. OMB, CEA and EPA will work together to resolve some of the estimating and accounting problems discussed above.

The pilot test has apparently worked well enough that the U.S. government stated in its FY 1993 Budget that it would "... use the regulatory budget techniques in 1992 in negotiating legislation with significant regulatory costs and seek program specific cost caps in appropriate regulatory areas."²⁰

¹⁸ See Starobin (1990) for a discussion of this process.

¹⁹ This discussion relies on the Regulatory Program (1991).

²⁰ Budget of the U.S. Government FY 1993 (1992) Part one-401. The following section is based on that report.

In areas where the President has the discretion to implement policy without Congressional approval, the FY 1993 Budget suggests that several ideas are under consideration. For example, the Executive branch could also give agencies allowances that would set ceilings on increased regulatory compliance costs they would be allowed to impose each year on the private sector for regulatory requirements that go beyond requirements in law; "mandatory" regulatory spending would not be covered. Agencies could also be given "credit," which they could add to their allowances, for cutting regulatory spending by reducing the costs of existing regulations.

Another approach, patterned after the fiscal budget process, would be for OMB to set agency-wide cost reduction goals for final regulations. Such an approach would provide a framework within which the agency would decide regulatory tradeoffs. The goal could be expressed in percentage or dollar terms relative to a baseline consisting of the costs of the regulations at the proposal stage. Only cost reductions resulting from regulatory changes, not cost estimation changes, would count toward the cost reduction goal, and the regulatory changes would have to be within the discretion allowed by the rulemaking record and in accord with the requirements of the Administrative Procedure Act. Gaming of the system could be a problem if agencies anticipate the required cut at the final rule stage by building in a cushion at the proposal stage. This, of course, is a problem found in most budgeting systems -- to which analysts and decision-makers must be sensitive.

The U.S. Congress has also been interested in regulatory budgeting. Several bills have recently been introduced that develop this concept. A bill introduced in the Senate would require both Congress and the executive branch to assess the costs and impact on the private sector of both new legislation and regulations that cost over \$10 million. Another bill under consideration would freeze regulatory costs at current levels so that any new regulations that impose costs on the private sector could not be issued unless dollar for dollar offsets with existing regulatory costs could be found and eliminated.

The Application of Regulatory Budgeting to the Regulation of Risks to Life and Limb

In 1991, the U.S. Government announced that it was also beginning to apply a variant of the budgeting approach to risk-reducing regulation.²¹ The approach will use cost-effectiveness analysis across a wide variety of regulatory programs, all aimed at reducing health and safety risks faced by members of society, to identify those activities that are most cost-effective, e.g., that save lives or prevent illnesses/injuries at the lowest cost. At first, budgeting will be applied to resource allocation decisions within individual programs, but as risk assessment and cost

²¹ This section relies on information from the Budget of the United States Government Fiscal Year 1992 (1991).

analysis improve it may be possible in subsequent years to allocate resources (both private and public) in a cost-effective way across programs. Eleven pilot programs were selected for the first year, ranging from nuclear waste clean up and immunization programs to the regulation of seafood safety and workplace cadmium exposure.

Table 3 based on data from past regulatory actions on health and safety regulations illustrates how regulatory budgeting might work once it is fully implemented. It shows the annual costs and the cost per life saved for various regulations that were issued or rejected by the U.S. government over the last few decades. These estimates have been calculated and standardised by the author mainly from agency benefit-cost analyses.

Table 3 clearly shows the need for regulatory budgeting. The cost per premature death averted varies from about \$100,000 for safety regulations such as auto steering column protection to billions of dollars for certain regulations aimed at reducing cancer risks. The upper portion of the Table lists the most cost-effective regulations, that is, regulations that cost the least per statistical life saved. To save the maximum number of lives with a limited budget, therefore, regulations should be issued first from the top of the Table. For example, \$1 billion spent on auto safety would save 10,000 lives, but would prevent only 13.7 cases of cancer if spent on a ban of certain asbestos products.²²

These wide divergences in cost per life saved indicate that the existing regulatory programs could have been more cost-effective. The reasons why they have not been more cost-effective include the strength of interest groups, the differences in the statutory requirements under which the different regulations are issued, and the political sensitivities connected to explicitly valuing human life.

The way a regulatory budgeting approach could have worked with these regulations is as follows: A fixed budget amount is allocated for health and safety regulations for a given period of time. Regulations under consideration are ranked by cost-effectiveness, as in Table 3. If the budget ceiling is \$3 billion, the first 20 regulations are issued since their total cost is \$2.970 billion and the next regulation costs \$35 million.

The advantage of this approach is that regulations compete among themselves for priority compared to the case-by-case approach of the benefit-cost system, where each regulation is judged simply on whether it passes the benefit-cost threshold, regardless of whether other regulations might have produced more benefits at lower cost. In the \$3 billion budget example above, the least cost-

²² There are other considerations that should be taken into account before such regulatory budgeting decisions based solely on cost per life saved are made, including the years and quality of the lives prolonged and the different circumstances of the individuals and their situations. See Morrall (1986) and Broder and Morrall (1983) and (1991) for discussions of the economic approach to risk reduction through regulation. Note that U.S. courts recently overturned the EPA ban on asbestos.

effective regulation spends \$9.3 million to save a life, compared to the billions of dollars spent to save a life by some regulations under the present program.

This regulatory budgeting example is only hypothetical and assumes that the actual budgeting decisions will be made on cost-effectiveness grounds. That is not assured, nor is it absolutely necessary. Decision makers could vary the priorities depending upon nonquantifiable considerations. In cases where some social benefits are not easily quantified, that might be an advantage.

In an ideal world, benefit-cost analysis would be superior to the budgeting approach, even when budgeting is used along with a cost-effectiveness standard. The reason is that the budget amount -- in our example above, \$3 billion -- may not be the appropriate amount to produce maximum benefits for society. Benefit-cost analysis relaxes the budget constraint and would put into place all regulations whose benefits exceed their costs.²³ But in a world of over-regulation where the costs of regulations are often under-valued or treated as if they were "free goods," regulatory budgeting may produce a more desirable outcome.²⁴

Regulatory budgeting has another real-world advantage over the benefit-cost approach in improving the cost-effectiveness of health and safety regulation: it does not use explicit, politically charged "value of life" numbers in screening regulations. Benefit-cost analysis typically uses a "willingness to pay" standard to measure benefits.²⁵ According to Viscusi (1992), the most reasonable estimates of the value of life based on this approach are in the range of \$3 to \$7 million. Thus benefit-cost analysis using this range of value of life would cut off regulations

²³ Technically, this is true only for a set of mutually exclusive regulations.

²⁴It should be noted that regulatory organisations, such as legislatures and agencies, are able to produce only a limited number of regulations each year, due to an effective "budget ceiling" of administrative and personnel resources. Hence, under existing conditions, these organisations have the incentive to rank rules by a much narrower cost-effectiveness standard; that is, benefits per dollar of their administrative budget. Even if social benefits were properly counted, these organisations would tend to choose easily-written and enforced standards, such as complete bans, over more complex but more socially-beneficial regulations. In practice, moreover, "benefits" often become political benefits to the regulatory body, perhaps in response to interest group pressures, further distorting the cost-effectiveness ranking. The regulatory budget approach would avoid each of these pitfalls.

²⁵Willingness to pay is measured by econometric techniques using actual market data or simulated market data derived from advanced survey methods. In valuing the reduction of risks of fatalities and injuries, labor market data is used to calculate the risk premium workers demand for accepting small statistical risks. For example, if fully informed and mobile workers are willing to work for a \$500 premium in jobs where annual fatality risks are one in 10,000 greater than average then 10,000 workers would require \$5 million for an increase in risk of one fatality per 10,000 workers -- or \$5 million per statistical fatality. For a discussion of this concept and an exhaustive survey of the literature on willingness to pay for risk reduction, see W. Kip Viscusi (1992). He presents data on the willingness to pay for the U.S., U.K., Canada, Japan, Australia, and New Zealand.

after No. 19 in Table 3, one regulation before our hypothetical \$3 billion regulatory budgeting example would cut off regulations.

In practice, policy officials who are attempting to maximize the number of lives saved are likely to consider both the amount of society's resources available for saving lives (the budget constraint) and how much society is willing to pay to save lives in establishing general policies toward risk reduction.

Table 4, based on cost-effectiveness data from the British National Health Service, illustrates an approach to this problem that may be even more politically palatable and is also more sophisticated.²⁶ Table 4 ranks competing therapies for saving lives by cost per quality adjusted life year (QALY). Using QALY's rather than lives saved is technically superior since it takes into account the amount of time and the quality of that time that these procedures produce. The technical nature of QALY's also may make them less objectionable than reviewing regulations based on the "value of life." Since there are long queues for many of these therapies, the budgeting approach shows promise of providing a greater amount and quality of public health.

Suggestions For Implementing the Regulatory Budget

As discussed above, the United States has taken a number of steps toward the regulatory budget although no official policy to implement a full scale regulatory budget, other than studying the concept, has been adopted. Many of these steps have been taken because they make sense in their own right; they should improve regulatory decision-making even if a full scale regulatory budget is not adopted.

The ten steps listed below have been taken or are needed for the United States to implement a successful regulatory management and budgeting program. Other countries may find that a different order of steps or even different steps are needed to improve their own regulatory management programs. Individual countries may wish to assess their own progress against these milestones.

²⁶ See Maynard (1991) for details on the construction of this table and for a discussion of how he hopes such information could be used to improve the cost effectiveness of the National Health Service.

Ten Steps

1. Establishment of a regulatory review program.
2. Formation or designation of a central regulatory review unit.
3. Development of a regulatory agenda or calendar to keep track of and coordinate the flow of new regulations.
4. Investiture of the review unit with strong advisory or veto powers over promulgation of individual regulations.
5. Requirement for impact analyses for major regulations.
6. Requirement for quantitative cost analyses for major regulations.
7. Development of oversight and quality control capability of regulatory cost analyses by the review unit.
8. Development of ability to aggregate costs of new regulations and to estimate the costs of existing regulations and legislation.
9. Enactment of target or mandatory budget ceilings for program categories, legislation, agencies and/or all regulation.
10. Refinement of the ability to estimate the benefits of individual regulations and legislation.

The United States has probably reached Step 8 and is currently working on Step 9 by testing programs that use cost ceilings for selected categories of regulations and by developing regulatory cost estimates for new statutes. The United States has also worked on Step 10 by convening interagency groups to assess what is known about risk assessment techniques and issue guidelines for agencies to use in performing the risk assessments needed to calculate the benefits of proposed health, safety, and environmental regulations and legislation.

Conclusion

The long term goal is to develop a management or budgeting system that treats fiscal and regulatory expenditures in an equal manner since both ultimately are diverted from the private sector, albeit by different policy instruments. Budgeting is almost universally used to manage fiscal resources; hence, integrating the fiscal budget with a regulatory budget appears to be the logical final step.

A "super budget" is clearly a long way off; however, in the interim the successful management of regulatory expenditures can be advanced by taking the regulatory reform steps outlined above. Regulatory oversight based on cost-benefit and cost-effectiveness analysis and accountability for the aggregate costs of regulation are important reforms that should be pursued in their own right.

References

- Broder, I. and J. F. Morrall (1983), "The Economic Basis for OSHA's and EPA's Generic Carcinogen Regulation," What Role for Government, Richard Zeckhauser and D. Leebaert, eds. Durham, N.C., Duke University Press.
- Broder, I. and J. F. Morrall (1991), "Incentives for Firms to Provide Safety: Regulatory Authority and Capital Market Reactions," Journal of Regulatory Economics, 3:3090-322.
- Commonwealth of Australia (1989), Major Changes in Business Regulation During 1988, Canberra.
- Crandall, R. (1978), "Federal Government Initiatives to Reduce the Price Level," Curing Chronic Inflation, A. Okun and G. Perry (eds.) Washington, D.C.: The Brookings Institution.
- Crandall, R. (1992), Why is the Cost of Environmental Regulation So High, Center for the Study of American Business, Washington University, St. Louis.
- DeMuth, C. (1980), "The Regulatory Budget," Regulation, March/April pp. 29-44.
- Eads, G. and M. Fix (1984), Relief or Reform? Reagan's Regulatory Dilemma, Washington, D.C. The Urban Institute Press.
- Gill, D. (1990), "Regulatory Budget," Report Prepared for the Secretary to the Treasury. New Zealand.
- Gray, W. (1987), "The Cost of Regulation: OSHA, EPA and the Productivity Slowdown," American Economic Review, December, 77(5) pp. 998-1006.
- Gray, W. (1991), "The Impact of OSHA and EPA Regulation on Productivity Growth." Journal of Regulation and Social Costs, June, 1(3), pp. 25-47.
- Hahn, P. and J. Hird (1991), "The Costs and Benefits of Regulation: Review and Synthesis." Yale Journal of Regulation, 8(1) pp. 233-278.
- Hazilla, M. and R. Kopp (1990), "Social Cost of Environmental Quality Regulations," Journal of Political Economy, 98(4) pp. 853-873.
- Hopkins, T. (1991), Cost of Regulation, A Report to the U.S. Regulatory Information Service Center, Rochester Institute of Technology, Rochester, N.Y.
- Hopkins, T. (1992) "The Cost of Federal Regulation," Journal of Regulation and Social Cost. Vol. 2, No. 1.
- Jacobs, S. (1992) "Controlling Government Regulation: A New Self-Discipline" The OECD Observer, No. 175, April/May.

Jorgenson, D. and P. Wilcoxin (1990), Environmental Regulation and U.S. Economic Growth, Rand Journal of Economics, 21(2).

Jorgenson, D. and P. Wilcoxin (1992), "Impact of Environmental Legislation on U.S. Economic Growth, Investment, and Capital Costs," American Council for Capital Formation, Washington, D.C.

Litan, R. and W. Nordhaus (1983), Reforming Federal Regulation, New Haven, CT: Yale University Press.

Maynard, H. (1991), "Developing the Health Care Market," The Economic Journal, September 101(4) pp. 1277-1286.

Morrall, J. F. (1986) "A Review of the Record," Regulation, Vol. 10, No.2.

OECD (1985), The Role of the Public Sector, Paris.

OECD (1987), The Control and Management of Government Expenditure, Paris.

OECD (1988), Survey of Public Management Developments, Paris.

OECD (1989), Directory of Regulating Review and Reform Organizations in OECD Member Countries, Paris.

OECD (1991), OECD Economic Outlook, Paris.

Oxley H., et al. (1990), "The Public Sector: Issues for the 1990's," OECD Department of Economics and Statistics, No. 90.

Peltzman, S. (1989), "The Economic Theory of Regulation After a Decade of Deregulation," Brookings Papers: Microeconomics 1989, pp. 1-59.

Stanbury, W. and I. Vertensky (1989), Guide to Regulatory Impact Analysis, Office of Privatization and Regulatory Affairs, Government of Canada.

Starobin, P. (1980), "Foggy Forecasts," National Journal, pp. 1212-1215.

U.S. Office of Management and Budget, Budget of the U.S. Government, (1986 through 1992) U.S. Government Printing Office, Washington, D.C.

U.S. Office of Management and Budget, Regulatory Program of the U.S. Government, (1985, 1986, 1987, 1988, 1990, and 1991) U.S. Government Printing Office, Washington, D.C.

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

Table 1

Annualized Regulatory Costs in Billions of 1988 Dollars

Year	Social Regulation	Economic Regulation	Process Regulation	Total Regulatory Costs
1977	66	448	107	621
1978	72	429	108	609
1979	78	410	108	596
1980	82	391	112	585
1981	84	371	115	571
1982	84	352	114	550
1983	88	333	115	535
1984	91	314	118	522
1985	95	294	120	510
1986	101	275	121	497
1987	107	256	140	503
1988	112	237	138	487
1989	120	237	144	500
1990	128	237	145	510

Source: Hopkins (1991).

Table 2

**Regulatory Costs of Major Rules, 1987-1991
(Annual Costs in millions of dollars)²⁷**

	1987	1988	1989	1990	1991	Total
ENVIRONMENT						
Final.....	2,000	8,400	970	1,748	4,340	17,458
Proposed...	7,200	2,100	1,500	6,918	9,267	26,985
TRANSPORTATION						
Final.....	None	50	550	920	1,042	2,562
Proposed...	None	85	400	849	878	2,212
LABOR						
Final.....	270	30	1,270	80	821	2,471
Proposed...	280	1,200	1,080	1,320	131	4,011
Other Agencies²⁸						
Final..... ²⁹	104	78	147	41	1,300	1,670
Proposed...	None	None	None	6,092	1,695	7,787
Total						
Final.....	2,374	8,558	2,937	2,789	7,503	24,161
Proposed...	7,480	3,385	2,980	15,179	11,971	40,995

Source: Budget of the U.S. Government FY 1993, Table 17-2.

²⁷Cost estimates are based upon regulatory impact analyses prepared by the agencies for major rules that impose societal (i.e., off-budget) costs. These costs of regulation are understated because not all major rules have quantified cost estimates and the costs of nonmajor rules are not included.

²⁸Other agencies with major rules include the Department of Health and Human Services, the Department of Housing and Urban Development, the Department of Justice, and the Department of Agriculture.

²⁹Averaged cost estimate from Government Accounting Office Report GGD-90-62.

Table 3 -- Part 1

**Regulatory Budgeting for Health and Safety Regulation
(Assuming a \$3 Billion Budget)**

Budgeted Regulations	Year	Agency	Status	Annual Costs (Millions of 1992 \$)	Cost Per Life Saved (Millions of 1992 \$)
1. Steering Column Protection	1967	NHTSA	F	225	0.1
2. Unvented Space Heaters	1980	CPSC	F	4	0.1
3. Cabin Fire Protection	1985	FAA	F	3	0.3
4. Passive Restraints/Belts	1984	NHTSA	F	124	0.4
5. Fuel System Integrity	1975	NHTSA	F	741	0.4
6. Trihalomethanes	1979	EPA	F	35	0.4
7. Underground Construction	1989	OSHA-S	F	5	0.4
8. Alcohol & Drug Control	1985	FRA	F	11	0.7
9. Servicing Wheel Rims	1984	OSHA-S	F	3	0.7
10. Seat Cushion Flammability	1984	FAA	F	27	0.8
11. Floor Emergency Lighting	1984	FAA	F	4	0.9
12. Crane Susp. Pers. Platform	1988	OSHA-S	F	8	1.2
13. Children's Sleepware Flammability	1973	CPSC	F	216	1.8
14. Side Doors	1979	NHTSA	F	886	1.8
15. Concr. & Masonry Constr.	1988	OSHA-S	F	23	1.9
16. Hazard Communication	1983	OSHA-S	F	491	2.4
17. Asbestos	1986	OSHA-H	F	81	2.8
18. Benzene/Fugitive Emiss.	1984	EPA	F	1	3.8
19. Grain Dust	1987	OSHA-S	F	81	8.8
20. Radionuclides/Uran. Mines	1984	EPA	F	1	9.3
				Total	2,970

Source: Calculations by the author. F means a final rule.
R means rejected

Table 3 -- Part 2

Regulatory Budgeting for Health and Safety Regulation
(Assuming a \$3 Billion Budget)

Non Budgeted Regulations	Year	Agency	Status	Annual Costs (Millions of 1992 \$)	Cost Per Life Saved (Millions of 1992 \$)
21. Benzene	1987	OSHA-H	F	35	23.1
22. Ethylene Oxide	1984	OSHA-H	F	35	34.6
23. Uran. Mill Tailings/Inact.	1983	EPA	F	14	37.3
24. Acrylonitrile	1978	OSHA-H	F	51	50.8
25. Uran. Mill Tailings/Active	1983	EPA	F	35	71.6
26. Asbestos	1989	EPA	F	350	72.9
27. Coke Ovens	1976	OSHA-H	F	385	83.4
28. Arsenic	1978	OSHA-H	F	219	125.0
29. DES (Cattlefeed)	1979	FDA	F	4,641	178.0
30. Arsenic/Glass Manufact.	1986	EPA	F	7	192.0
31. Benzene/Storage	1984	EPA	R	1	273.0
32. Radionuclides/DOE Facility	1984	EPA	R	1	284.0
33. Radionuclides/Elem. Phos.	1984	EPA	R	4	365.0
34. Acrylonitrile	1978	OSHA-H	R	90	416.0
35. Benzene/Ethylbenz./Styr.	1984	EPA	R	1	652.0
36. Benzene/Maleic Anhydride	1984	EPA	R	4	1,107.0
37. Formaldehyde	1987	OSHA-H	F	162	119,000.00

Source: Calculations by the author. F means a final rule.
R means rejected

Table 4**Quality Adjusted Life Year (QALY) of Competing Therapies:
Some Tentative Estimates**

	Cost/QALY (1990 Pounds)
Cholesterol testing and diet therapy only (all adults, aged 40-69)	220
Neurosurgical intervention for head injury	240
GP advice to stop smoking	270
Neurosurgical intervention for subarachnoid hemorrhage	490
Anti-hypertensive therapy to prevent stroke (ages 45-64)	940
Pacemaker implantation	1100
Hip replacement	1180
Valve replacement for aortic stenosis	1140
Cholesterol testing and treatment	1480
CABG(1) (left main vessel disease, severe angina)	2090
Kidney transplant	4710
Breast cancer screening	5780
Heart transplantation	7840
Cholesterol testing and treatment (incrementally) of all adults 25-39 years	14150
Home hemodialysis	17260
CABG(1) (1 vessel disease, moderate angina)	18830
CAPD(2)	19870
Hospital hemodialysis	21970
Erythropoietin treatment for anaemia in dialysis patients (assuming a 10% reduction in mortality)	54380
Neurosurgical intervention for malignant intracranial tumors	107780
Erythropoietin treatment for anaemia in dialysis patients (assuming no increase in survival)	126290

Notes: 1. CABG = coronary artery by-pass graft.
2. CAPD = continuous ambulatory peritoneal dialysis.

Source: Maynard (1991)

This series of '*Occasional Papers on Public Management*' has been launched following the establishment in 1990 of the OECD's Public Management Committee.

The series will complement the *Public Management Studies* being published by the OECD. It will include short or interim reports prepared as contributions to the work of the Committee. The papers will focus on specific issues of administrative modernisation, in areas such as budgeting, human resource management, regulatory reform, and the management of information technology.