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ARTICLE: Regulatory Analysis and Regulatory Reform.*

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SUMMARY:

... In the late 1960s and early 1970s, critics of federal regulation complained about the cumbersome adjudicatory procedures that agencies used to implement many regulatory actions. ... Advocates of regulatory analysis, therefore, may be motivated by instrumental concerns for better regulation, or may embrace regulatory analysis as a means of furthering the substantive goal of less regulation. ... Advocates of regulatory analysis argue that the regulatory analyst will be more candid about the policy preferences that motivate her choice of assumptions. ... The most ambitious regulatory analysts would argue that after subjecting all available alternatives to a rigorous cost-benefit analysis, the decision maker should adopt the option with the highest benefit-to-cost ratio, for only in this way can society best use its scarce resources. ... The regulatory analyst's participation in the subordinate decision-making sessions should ensure that policy considerations are communicated in the briefing documents even if the analyst does not prepare a written regulatory analysis document. ... Alternatively, the assumption may be that fewer rules can pass the substantive tests of regulatory analysis, including cost-effectiveness and

cost-benefit analyses. ... The regulatory analyst likewise must communicate to upper level decision makers the extent to which each regulatory option implements particular policies. ...

TEXT:

[*1243] I. Introduction

In the late 1960s and early 1970s, critics of federal regulation complained about the cumbersome adjudicatory procedures that agencies n1 used to implement many regulatory actions. n2 In response, many agencies invoked the Administrative Procedure Act's n3 moribund informal rule-making procedures n4 to promulgate general rules to govern private conduct. At about the same time, Congress enacted a new generation of regulatory statutes that imposed new social and environmental responsibilities on entire sectors of the economy. n5 These "social regulation" statutes often required federal agencies to govern through informal rule [*1244] making. n6 The shift in the older agencies from the adjudicatory to the rule-making mode and the emergence of the new rule-making agencies combined in the early 1970s to produce a rule-making revolution with a potential to expand greatly the federal government's role in American society. n7

The rule-making revolution had been under way for less than a decade when regulated industries and unsympathetic commentators from academia began to complain about perceived abuses by overzealous agencies. Critics argued that federal agencies operated beyond the range of effective political control and were irrationally imposing burdensome requirements on regulated entities without considering the social costs of the regulations. n8 These criticisms and their corresponding prescriptions for change paraded under the broad banner of "regulatory reform." n9

Some critics yearned for less burdensome times when administrative agencies were more sympathetic to the regulated industries. n10 Unconvinced of the social utility of government intervention in the marketplace, these critics argued that social regulation was an "unwarranted intrusion by the federal government into private decisionmaking." n11 To these critics, regulatory reform meant substantial regulatory relief. n12 Criticism naturally focused on the statutes that empowered the agencies [*1245] to promulgate burdensome rules, n13 but attempts to persuade Congress to ease the substantive regulatory burden were largely unsuccessful. n14

Most critics of the new social regulation, however, agreed that some form of regulation was necessary to a properly functioning modern society, n15 although some believed that the "nation had gone overboard in its use." n16 Some of these critics argued that bureaucrats made bad decisions and tended to overregulate because they were not sufficiently accountable to the President, to Congress, and ultimately to the voters. n17 Thus, to these critics, regulatory reform meant bureaucratic accountability. n18 Prescriptions for improved accountability included more stringent presidential oversight of administrative rule making n19 and broadened public participation in the rule-making process. n20

Other critics believed that agency personnel were not sufficiently analytical in thinking about regulation and its social impact. n21 If internal agency decision-making procedures could apply comprehensive analysis to regulatory problems, agencies would reach more reasoned, and perhaps less burdensome, results. n22 Regulatory reform, in this view, consisted of restructuring agency decision-making processes to include rational-thinking policy analysts, preferably with training in economics, to ensure appropriate sensitivity to the economic impact of regulatory efforts. n23

By the beginning of the 1980s the regulatory reform movement had [*1246] achieved a high political profile. n24 Yet the reform movement lacked a unifying theme. Proponents of regulatory reform disagreed over whether regulatory relief, bureaucratic accountability, or rational analysis was the most appropriate method of reform. Although these themes might complement one another, they do not easily converge, and they can in practice conflict. For example, a rational analysis of an existing regulation might suggest that the agency should apply the regulation more stringently, a result that would run counter to the regulatory relief theme and undermine a White House determined to reduce the role of the federal government. Similarly, political accountability to Congress or the President might require an agency to implement an irrational regulatory scheme designed to redistribute wealth from consumers to a favored political constituency. Such a scheme, however, would conflict with both the rational analysis and the regulatory relief themes. One of the first and most enduring regulatory reform efforts of the Reagan administration, Executive Order 12,291 (E.O. 12,291), n25 attempts to implement all three themes by imposing extensive analytical requirements on agencies, vesting the Office of Management and Budget (OMB) with review powers to ensure political accountability, and imposing substantive criteria on agencies to provide regulatory relief for regulated industries. n26

This Article examines the rational analysis strain of regulatory reform. Its thesis is that the analytical enterprise itself warrants analysis. Drawing upon a broad survey of the existing literature on analysis in regulatory policy making and upon extensive interviews with the people who write, use, and

are affected by regulatory analysis, the Article will explore advantages of, impediments to, and limitations of regulatory analysis in bureaucratic decision making.

Like most analyses, the Article concludes on an equivocal note: although regulatory analysis unquestionably has enhanced regulatory decision making in many instances, it also has led to some poor decisions. It has sometimes reduced the role that extrinsic bureaucratic and political considerations play in regulatory decision making, but also occasionally has enhanced that role. Analysis occasionally has starkly revealed to [*1247] Congress and the public the way that regulation redistributes wealth in society, and it has frequently hidden such effects in an incomprehensible sea of "cooked" numbers. When used within its considerable limitations, regulatory analysis can improve regulatory decision making, but when pressed beyond its limitations, it can distort the decision-making process. Like any tool, regulatory analysis can be used to advance illegitimate as well as legitimate ends.

This Article first will describe the history of regulatory analysis in the federal government. Next, it will examine the technique of "regulatory analysis" in the context of a larger body of experience and thought devoted to the broader practice of "policy analysis." This Article will then discuss the virtues of and impediments to analysis, and explore some inherent limitations on regulatory analysis as a vehicle for bureaucratic and social change. Recognizing that unrealistic expectations doom the enterprise to failure, this Article concludes that structuring regulatory analysis into the regulatory decision-making process can achieve modest gains toward the achievement of statutory goals, but also concludes that it is impossible to determine as an objective matter whether the analytical enterprise is worth the effort. That determination is better left to the policy makers who are elected and paid to make such decisions.

II. The Evolution of the Regulatory Analysis Program

Although agencies were probably never free to disregard completely the impact of their rules on regulatees and the public, n27 agencies have been formally required to prepare documents detailing regulatory impacts for about a decade. The idea that agencies should prepare a separate regulatory analysis document describing the costs and benefits of proposed and final rules and credible rule-making alternatives probably originated with the National Environmental Policy Act of 1969 (NEPA), n28 which required federal agencies to prepare "Environmental [*1248] Impact Statements" (EIS) for all "major federal actions significantly affecting the quality of the human environment." n29

Observing the power of this new tool to enlighten agency action and, perhaps more importantly, to delay agency initiatives, OMB persuaded President Nixon to require the Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), and several other agencies to send their proposed regulations through an interagency "Quality of Life Review." n30 President Ford followed with E.O. 11,821, which for the first time required agencies to prepare a formal analysis, called an Inflation Impact Statement (IIS), of the economic impact of major regulations on regulated industries. n31 President Carter replaced E.O. 11,821 with E.O. 12,044. n32 This new order expanded upon the formal regulatory analysis requirement of its predecessor, n33 and detailed OMB's role in the regulatory analysis process. n34 President Reagan, in turn, replaced E.O. 12,044 with E.O. 12,291. n35 The Reagan Executive Order elaborated on the threshold requirements for regulatory analysis preparation, n36 specified a cost-benefit format for the analysis, n37 and expanded OMB's role in overseeing and monitoring the regulatory impact assessment process. n38

In addition to these executive branch efforts, Congress has actively considered during the last seven years regulatory reform legislation that would impose similar regulatory analysis requirements on both executive and independent agencies. Although most of these efforts have been unsuccessful, n39 Congress in 1980 enacted the Regulatory Flexibility Act, n40 [*1249] which directs agencies to analyze the impact of proposed regulations on small businesses, small nonprofit organizations, and small governmental entities. n41 This Part of the Article will describe the essential features of E.O. 12,291 and the Regulatory Flexibility Act as a preface to a detailed examination of the implementation of the regulatory analysis requirements in the federal bureaucracy.

A. E.O. 12,291 and the Regulatory Impact Analysis Program

The purpose of E.O. 12,291 is "to reduce the burdens of existing and future regulations, increase agency accountability for regulatory actions, provide for presidential oversight of the regulatory process, minimize duplication and conflict of regulations, and insure well-reasoned regulations" n42 Although E.O. 12,291 primarily focuses on regulatory analysis, n43 it also expresses particular substantive goals for regulation. n44 Regulatory analysis is to be used to implement the Reagan administration's philosophy of limited government.

E.O. 12,291 requires an agency to prepare a Preliminary Regulatory Impact Analysis (PRIA) for proposed "major" rules and a Final Regulatory Impact Analysis (FRIA) for final "major" rules. n45 The Regulatory [*1250] Impact Analysis (RIA) must (1) describe the rule's potential costs and benefits,

including any adverse and beneficial effects that cannot be quantified in monetary terms, and identify the likely beneficiaries and losers; (2) determine the potential net benefits; (3) describe alternative approaches that could substantially achieve the same regulatory goal at lower cost, analyze the costs and benefits of such alternatives, and explain briefly the legal reasons why such alternatives, if proposed, could not be adopted; and (4) explain, if necessary, any legal reasons why the rule cannot be based on E.O. 12,291's cost-benefit requirements. n46

OMB plays the role of chief enforcer under E.O. 12,291 and may waive the RIA requirements for any major rule. n47 OMB also has a general oversight role. It may prescribe detailed threshold criteria for determining whether a rule is major, n48 and it may also review the content of RIAs for adequacy. n49 An agency may not proceed with a proposed or final rule until all disputes with OMB are resolved. n50 Finally, E.O. 12,291 explicitly addresses the subject of judicial review, stating that the Executive Order was not intended to create any additional right to judicial review. n51

Shortly after President Reagan promulgated E.O. 12,291, OMB issued a memorandum entitled Interim Regulatory Impact Analysis Guidance n52 to guide the agencies in preparing and using RIAs. n53 Proceeding [*1251] on the assumption that the unimpeded market is the norm, the Interim RIA Guidance is strongly oriented toward economic analysis. It requires an agency to consider alternative levels of stringency, alternative effective dates, alternative methods of ensuring compliance, alternative market-oriented regulatory approaches, and even alternatives that are beyond its authority. n54 The Interim RIA Guidance also expresses a strong preference for quantification and monetization and suggests a ten percent discount rate for long-range effects. n55 Nonmonetary considerations are to be listed only after monetary comparisons are completed. n56 If uncertainties plague cost and benefit estimations, the agencies are to use the most likely assumptions in quantitative modeling, but they must also examine reasonable alternative assumptions to test the sensitivity of the results to changes in assumptions. n57

B. The Regulatory Flexibility Act

The Regulatory Flexibility Act n58 is Congress' only attempt to require agencies to engage in systematic regulatory analysis. The Act, however, applies only to regulations that affect small businesses, n59 small organizations, n60 and small governmental jurisdictions, n61 collectively referred to as "small entit[ies]." n62 Aptly labeled "a stunning achievement for the small business community and its representatives," n63 the Act's goal is to ensure that agencies "fit regulatory and informational requirements to the scale of the businesses, organizations, and governmental jurisdictions subject to

regulation." n64 To achieve this goal, the Act [*1252] requires each agency to publish a semi-annual "regulatory flexibility agenda" of all proposed or pending rules that are "likely to have a significant economic impact on a substantial number of small entities." n65 For all such rules, the agency must prepare an "Initial Regulatory Flexibility Analysis" (IRFA) describing the impact of the proposed rule on small entities. n66 A Final Regulatory Flexibility Analysis (FRFA) must be published with the final rule. n67 Agency heads are empowered to waive or delay the completion of the IRFA in emergencies, n68 but they may not waive the FRFA. n69

The Act specifies in some detail the contents of the initial and final analyses. The IRFA must contain: (1) the reasons for taking the action; (2) "the objectives of, and legal basis for, the proposed rule"; (3) "an estimate of the number of small entities to which the proposed rule will apply"; (4) a description of the "projected reporting, recordkeeping, and other compliance requirements of the proposed rule"; (5) a list of all possibly duplicative or conflicting federal rules; and (6) an analysis of "significant" alternatives to the agency's proposed action. n70 The analysis of alternatives, however, need only be undertaken to the extent that it is "[c]onsistent with the stated objective of applicable statutes." n71

When the agency promulgates its final rule, it must prepare a FRFA containing:

(1) a succinct statement of the need for, and the objectives of, the rule; (2) a summary of the issues raised by the public comments in response to the initial regulatory flexibility analysis, a summary of the assessment of the agency of such issues, and a statement of any changes made in the proposed rule as a result of such comments; and (3) a description of each of the significant alternatives to the rule . . . designed to minimize any significant economic impact of [*1253] the rule on small entities [that the agency] considered and a statement of the reasons why [these] alternatives [were] rejected. n72

The agency may adopt a quantitative description of the rule's effects or "more general descriptive statements if quantification is not practicable or reliable." n73

The Regulatory Flexibility Act explicitly forbids judicial review of an agency's threshold decision whether to prepare a Regulatory Flexibility Analysis (RFA) and the adequacy of the RFA except to the extent that the RFA's adequacy is germane to the larger determination of the adequacy of the entire record to support the agency's final rule. n74 Liberal reference throughout the Act to the Chief Counsel for Advocacy of the Small Business Administration n75 indicates that Congress anticipated that he would

provide an oversight function, but he is not empowered to do more than jawbone with an agency. n76 E.O. 12,291 gives OMB a coordinating role with respect to "the analysis, transmittal, review, and clearance provisions" of the Regulatory Flexibility Act, n77 and OMB has promulgated an interim guidance document to help agencies in implementing the RFA program. n78

III. Regulatory Analysis as a Vehicle for Regulatory Reform

Regulatory reformers who advocate "rational agency decision making" mean to infuse the established bureaucratic culture with a new and different way of thinking. n79 Regulatory analysis is the primary vehicle for this undertaking. Borrowing from the policy sciences, this kind of thinking may be labeled "comprehensive analytical rationality." n80

The term "comprehensive" describes the ideal of exploring all possible [*1254] routes to the solution of a problem. The word "analytical" suggests an attempt to sort out, break down, and analyze all the relevant components of a problem and its possible solutions. Less obviously, it manifests a preference for quantitative analysis. The term "rationality" signifies the objectivity and dispassion with which it analyzes social problems without regard to whose ox is being gored. Although there is no reason in principle that comprehensive analytical rationality should rely heavily upon any particular discipline, the paradigms of neoclassical microeconomics have dominated it in the past. n81

This new manner of thinking contrasts sharply with the thinking that traditionally has dominated the rule-making culture, which I shall label "techno-bureaucratic rationality." I use the term "techno-bureaucratic" to distinguish the thinking that dominates highly technical and complex rule-making activities from bureaucratic thinking in general. Techno-bureaucratic thinking is a special brand of bureaucratic thinking that arises in the context of bureaucratic activities that grapple with highly complex and often unresolvable issues of science, engineering, and public policy. When OSHA regulates benzene, for example, it simply is not engaged in the same type of activity undertaken by the Postal Service when it operates the post office. Although there are many similarities in the way that bureaucrats in OSHA and the Postal Service think, there are also important differences. Some models of bureaucratic thinking, such as the perceptive "muddling through" model, n82 are relevant to techno-bureaucratic rationality but do not have as much explanatory power in the technical rule-making context as they do in other bureaucratic contexts.

I use the word "rationality" because I do not believe that techno-bureaucratic thinking is per se irrational. Like comprehensive analytical rationality, it can produce irrational regulatory results. But health scientists, engineers, and other practitioners of techno-bureaucratic rationality are no less rational for that. Techno-bureaucratic rationality is a form of rationality built on a unique understanding of the regulatory universe that develops solely through hands-on experience. It is a rationality born of frustrating attempts to deal with unanswerable questions of extraordinary complexity. In a sense, it is a "second best" rationality that recognizes the limitations that inadequate data, unquantifiable values, mixed [*1255] societal goals, and political realities place on the institutional capacity for structured rational thinking, and responds by doing the best it can with what it has.

A. Techno-Bureaucratic Thinking in the Traditional Rule-Making Process

Under the traditional rule-making model, a statute, an external petition, public pressure, or the internal discovery of a problem provides the initial stimulus for rule making. A program office within the regulatory agency has the responsibility for determining the initial institutional response to the stimulus. Once assigned to the program office, the issue loses whatever visibility it once had and is submerged within the agency until the program office generates a "solution" to the problem.

The program office is staffed largely by persons with technical training. Most have graduate degrees, but generally do not rank at the top of their fields. Instead, they are rule managers with technical training in the subject area of the rules. Their primary responsibilities consist of gathering technical information, evaluating its quality, assembling it into a coherent whole, participating in intra-agency working group meetings, drafting rule-making documents for publication in the Federal Register, reading and analyzing public comments, and drafting memoranda summarizing the contents of various documents for upper level decision makers.

Because the information available to the program office almost invariably proves inconclusive, the office faces the familiar choice between regulating in the face of substantial uncertainty or doing nothing and studying the matter further. Convinced that it is ultimately judged by the number of rules that it produces over time, the staff's natural tendency is to forge ahead. Despite uncertainties, the engineers and scientists in the program office attempt to solve the problem. The process of defining and gathering information about the problem generally will suggest at least crude solutions. After identifying a few possible solutions, the staff may roughly estimate the costs of implementing the solutions and exclude one

or more as economically infeasible. The staff, however, does not devote time or resources to quantitative analyses of costs and benefits.

Most program office determinations rely heavily upon professional judgment, a kind of intuition informed by technical training and experience. The technical experts do not analyze the problem and derive an optimal solution so much as they feel their way through to an answer, accommodating affected interests along the way to reduce external resistance [*1256] to their ultimate solution. The suggestion that the solution could emerge from a careful balancing of costs and benefits is fanciful to the program office staffer, who probably is inclined to regard economics as a soft science in any event. Because the program office is under constant pressure to achieve results and believes that it can realistically consider only a very limited range of options, it is naturally reluctant to expand the universe of alternatives that require study. For the same reasons, the engineers in the program office rarely devote much intellectual effort to defining problems in innovative ways.

Once the program office has chosen a solution to the problem, it resists suggestions that it consider different vehicles to achieve the same regulatory ends and especially resists any suggestions that would require it to go back to the drawing board. This institutional resistance to change solidifies as a proposal advances up the chain of command.

This characterization of the techno-bureaucratic rule-making model is not intended to describe accurately all rule-making operations. Some program office technicians are sufficiently educated in economics to use marginal analysis in choosing among options. Agency heads who avoid capture by the bureaucracy may demand that the program office staff consider a broader range of options, whether or not the staff is so inclined. Finally, program offices often study regulatory problems further, rather than attempt to solve them immediately. Still, this description of the internal rule-making culture prior to the mid-1970s bears a reasonable resemblance to reality, and remains a fairly accurate description of the decision-making processes in many agencies today.

B. Comprehensive Analytical Thinking in Regulatory Reform

The regulatory reformers of the mid-1970s who called for more rational regulatory decision making had comprehensive analytical rationality in mind.ⁿ⁸³ The ideal regulatory bureaucracy, under the comprehensive [*1257] analytical model, would react to a petition for rule making, a statutory command, or public pressure by assigning the matter to a regulatory analyst -- a professional with training

in policy analysis or economics. The regulatory analyst would first carefully define the regulatory problem. Because comprehensive analytical thinking as currently employed depends so heavily upon the paradigms of neoclassical microeconomics, n84 the regulatory analyst probably would define the problem in terms of market failure. For example, an environmental problem would be defined in terms of externalities, and a consumer fraud problem or a worker safety problem would be defined in terms of information inadequacies. If no market failure could be identified, the analyst would conclude that no problem existed, and she would recommend that the market be allowed to function unimpeded.

After identifying a problem, the regulatory analyst next would clarify and rank the agency's goals. Congress may have done this, but very often it articulates several inconsistent goals for a particular regulatory regime. If so, the analyst would seek the guidance of upper level policy makers.

The regulatory analyst next would request that the agency's scientists and engineers identify as many technical options for addressing the problem as possible and might suggest some economic alternatives. Economists in the program office or the regulatory analysis office would be asked to "cost out" the options. This effort ideally would produce an assessment of both the primary costs of the regulation to the regulated industry and the secondary costs in terms of increased prices to consumers, lost jobs, and foreign trade deficits.

Other scientists and engineers would conduct studies, assemble data, and construct models to predict as precisely as possible the benefits of the various alternatives. If the benefits could be reduced to monetary terms, then costs and benefits would be computed for each option, and the analyst would recommend that the upper level decision makers adopt the alternative for which the benefits exceeded costs by the greatest amount. If benefits could not be stated in monetary terms, then they would be stated in equivalent units so that the analyst still could assess the cost-effectiveness of different options for achieving a given benefit.

The culture of comprehensive analytical rationality is thus very different from that of techno-bureaucratic rationality. The preceding description of the characteristics of techno-bureaucratic rationality derives from the actual decision-making process in the real world, but the description [*1258] of the comprehensive analytical rationality model is based upon an abstract ideal that may never be achieved.

In the abstract, comprehensive analytical rationality has much to offer to the regulatory decision-making process. In practice, regulatory analysis has proved useful to upper level decision makers. The

next Part of this Article will describe in greater detail the theoretical and practical virtues of regulatory analysis, saving for the following Part a discussion of the theoretical and practical limitations of comprehensive analytical rationality.

IV. The Virtues of Regulatory Analysis

Policy analysis is the process of applying comprehensive analytical rationality to a social problem.ⁿ⁸⁵ Regulatory analysis is the application of policy analysis to regulatory problems.ⁿ⁸⁶ Regulatory analysis is thus a processⁿ⁸⁷ consisting of at least two critical functions. First, it consists of applying comprehensive analytical rationality to a regulatory problem. In institutions like regulatory agencies, this analytical effort is seldom the work of an individual; rather, it is a collective effort of many people in several institutional subentities. Second, it consists of the analyst communicating orally or in writing the results of her analytical efforts to persons or institutional entities that use those results in making decisions. The written communication can be located in a separate document, the "regulatory analysis document," or it can be incorporated into the explanatory document, the "rulemaking document," that the agency prepares for publication in the Federal Register as a preamble to a proposed or final rule. The analyst can accomplish her communication function by being part of the day-to-day decision-making process or by communicating with the decision maker from a distance.

Regulatory analysis can play at least four broad roles in the regulatory process. First, its primary function is to bring comprehensive analytical rationality to bear on regulating. Second, regulatory analysis can be useful in policy management within an agency. Third, regulatory analysis can perform an informational role outside the agency's doors by [*1259] informing Congress and the public of the likely effects of regulatory programs. Finally, some have viewed regulatory analysis as a vehicle for achieving regulatory relief for the regulated industry.

Although decision makers can use regulatory analysis in reaching substantive decisions, regulatory analysis is instrumental in nature,ⁿ⁸⁸ not an intended vehicle for prescribing regulatory goals. Nevertheless, to the extent that applying comprehensive analytical rationality to regulatory problems results in less burdensome regulations, regulatory analysis can advance the goal of regulatory relief. Advocates of regulatory analysis, therefore, may be motivated by instrumental concerns for better regulation, or may embrace regulatory analysis as a means of furthering the substantive goal of less regulation. Although it might be difficult to find anyone opposed to the first goal, the second goal is likely to create strong opposition from those who perceive themselves to be beneficiaries of regulation.

A. Applying Comprehensive Analytical Rationality to Regulatory Decision Making

Rational analysis is essential to the integrity of the Administrative Procedure Act's rule-making process. n89 A reviewing court probably will find that an agency has been arbitrary and capricious in promulgating a rule n90 unless the agency demonstrates both that the rule is rationally related to goals that Congress intended for the agency to consider and that it has support in the data, assumptions, and reasoning in the rule-making record. Techno-bureaucratic rationality is fully capable of producing regulatory decisions that can survive this minimum rationality requirement of judicial review without the aid of regulatory analysis.

One of the fundamental tenets of the regulatory reform movement, however, is to reject as no longer sufficient the crafting of regulations capable of surviving the bare minimum requirements for judicial review. n91 Congress, in enacting the Regulatory Flexibility Act, n92 the President, in promulgating E.O. 12,291, n93 and some states, in requiring [*1260] regulatory analysis as part of agency decision making, n94 have all directed agencies to analyze regulatory problems in more detail and especially to examine the economic impact of regulations. Similarly, some of the more recent congressional proposals for regulatory reform require agencies to devote greater analytic efforts to regulatory decision making. n95

The intellectual techniques of regulatory analysis, detailed below, can supply just the sort of additional assurance of rationality that Congress, the President, the courts, and the public seem to be demanding.

1. Options Identification. -- E.O. 12,291, the Regulatory Flexibility Act, regulatory reform proposals, and NEPA all require agencies to consider alternatives to initially favored actions. n96 Yet agency regulatory analysts often complain of the tendency of technical staffs to adopt a conveyer-belt mind set: the staff focuses upon a single option early in a rule's germination and adheres to that option throughout the entire rulemaking process. n97 When pressed, the program office staff dutifully sandwiches its preferred option between two post hoc red herrings. In contrast, regulatory analysts, in theory, attempt to identify fresh options and pressure the program office staff to look harder for alternatives. n98 Relying upon their training in economics, regulatory analysts search for less burdensome, market-oriented solutions to regulatory problems and explore [*1261] alternative timing strategies to correspond more closely to production cycles. n99 Incorporating regulatory analysis into the

regulatory decision-making process should help expand the horizons of technical staffs in program offices. n100

2. Gathering and Analyzing Information. -- Another frequently expressed virtue of regulatory analysis is its capacity to bring information about the beneficial and detrimental aspects of regulatory alternatives to the attention of the decision maker in a coherent and systematic format. n101 The program office technical staff can, of course, provide information to decision makers and in fact is the source of much of the information that the regulatory analysts use. The regulatory analyst, however, brings a unique quantitative perspective to the information-providing task n102 and an objective posture n103 that seeks out a broader range [*1262] of information and nuance, n104 especially upon the detriment side of the ledger. n105 Moreover, the regulatory analyst often has training in techniques for displaying information, such as charts, tables, and graphs, that make existing data more accessible to the harried upper level decision maker and the general public. n106

A well-prepared regulatory analysis can focus the attention of upper level decision makers on the impacts that their rules have upon society, n107 making them more sensitive to the costs and other economic impacts of regulation. n108 It can also raise the decision maker's "comfort level" with the correctness of his final decisions. n109 By explicitly probing the distributional impacts of a rule, regulatory analysis can forewarn the decision maker of the groups that are likely to support and oppose the rule. n110 In short, the analysis can tell the decision maker in a systematic way what the staff does and does not know about the relevant regulatory issues, which allows the decision maker to make an informed decision. n111

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3. Justification by Explicit Reference to Articulated Policies. -- Busy agency staff can lose sight of broad agency policy goals by conveniently adhering to precedent and unarticulated bureaucratic folk wisdom. n112 Regulatory analysts resist this tendency by measuring regulatory alternatives against articulated policy goals. n113 This procedure in turn induces decision makers to think periodically about the ultimate purposes of their rule-making efforts, thereby enhancing agency accountability and credibility. n114

4. Explicit Identification of Information Gaps and Assumptions. -- Advocates of comprehensive analytical rationality acknowledge that analysts rarely have enough information to undertake purely

objective analyses of every advantage and disadvantage of each regulatory option. n115 An effective analysis, however, identifies information gaps, draws appropriate inferences from the available data, and specifies the assumptions that the analyst has relied upon in extrapolating across information gaps. n116 The techno-bureaucratic thinker also encounters information gaps and fills them with assumptions based on his professional judgment. Although the program office staff's assumptions and inferences may be informed by experience and received professional wisdom, its predictions often are based upon an outcome-oriented policy judgment about how the world should be arranged. n117

Regulatory analysts believe that the technical staff too often hides [*1264] this policy judgment behind a veneer of technical judgment. Advocates of regulatory analysis argue that the regulatory analyst will be more candid about the policy preferences that motivate her choice of assumptions. n118 Moreover, the regulatory analyst can draw upon several analytical techniques to demonstrate how predictions depend upon particular assumptions. Agency decision makers and the public will thus better understand how particular assumptions affect regulatory policy choices.

5. Identifying Research Needs. -- Identification of information gaps often reveals research needs. n119 Many questions that arise in rule-making proceedings can be answered by further research. n120 When fully integrated into agency standard operating procedures, analysis can provide perspective on future research needs, as well as input on individual rules.

6. Restraint upon Inappropriate Political Considerations. -- Comprehensive analytical rationality clashes with the pluralistic view that regulatory decisions should reflect the interplay among the political forces that are affected by those decisions. n121 Insisting that decisions be based upon more than the exercise of raw political power, comprehensive analytical rationality distinguishes between politics and policy. n122 Regulatory analysts believe that their method can lead to regulatory conclusions that are more than mere political accommodations. n123 Moreover, regulatory analysts can shield agency decisions from parties who consider only their own narrow interests. While a regulatory analysis document may not satisfy the losers of the regulatory battle, it can reassure [*1265] remote decision makers in the White House, Congress, and reviewing courts that the decision was reached in a consistent and nonpartisan fashion.

7. Identification of "Correct" Regulatory Results. -- Many proponents of regulatory analysis believe that it can significantly aid in specifying a result that is the "correct" solution to the regulatory problem. n124 The most ambitious regulatory analysts would argue that after subjecting all available

alternatives to a rigorous cost-benefit analysis, the decision maker should adopt the option with the highest benefit-to-cost ratio, n125 for only in this way can society best use its scarce resources. n126

B. Facilitating Policy Management

Although rarely mentioned in the policy analysis literature, regulatory analysis can be an effective management tool for ensuring bureaucratic accountability. n127 This type of accountability is not the personnel management typically associated with public administration -- ensuring that lower level officials perform their jobs well and on time. Rather, regulatory analysis can be an instrument of policy management by helping politically appointed upper level policy makers ensure that lower level officials are implementing the policy makers' preferences, and not their own hidden agenda.

Policy management might appear to consist largely of hiring people of the "correct" policy persuasion and monitoring their efforts as proposed rules circulate through upper level management for final clearance. But bureaucratic decision making is in reality much more complicated.

First, an upper level policy maker has neither sufficient time nor technical skill to monitor every rule to ensure that the underlying rationale for the rule adheres to her view of appropriate agency policy. Even [*1266] monitoring only selected major rules would strain the personal resources of upper level policy makers in many regulatory agencies.

Second, upper level policy makers cannot hire and fire lower- and mid-management officials at will. Civil service laws protect career civil servants, and only a limited number of uncooperative officials can be shunted to irrelevant way stations off the primary rule-making track. More importantly, the upper level policy maker must depend on lower-level officials; these officials are indispensable to the rule-making effort and can obstruct an upper level political appointee's policy initiatives. They may belong to the professional staff that manages the technical contracts, writes the background documents, and drafts the preambles to the Federal Register notices. They possess technical skills and experience with past rule-making efforts that are essential to the rule-making enterprise.

Third, the lower level staff often has surprisingly powerful allies among the regulated industries, the beneficiary constituency groups, the media, and members of Congress. Thus, the upper level policy maker can replace these subordinate policy makers only at considerable risk to the agency's equilibrium.

Fourth, and most importantly, almost every aspect of the rule-making enterprise involves some form of policy making. The professionals on the technical staff routinely make policy as a matter of necessity when they resolve ambiguities in the technical data one way rather than another, adopt one untested assumption over another, draw one inference rather than another, and demand one level of certainty rather than another. Although they rarely draw attention to this subtle policy-making function, and may not even realize that they are actually making policy when they engage in these judgmental activities, lower level officials actually influence agency policy in outcome-determinative ways.

A particular policy viewpoint also may be inherent in the very discipline that the staff practices. For example, health scientists may be more risk averse than economists and thus more likely to resolve ambiguities and uncertainties in favor of protecting public health, with relative disregard for the economic consequences. Lawyers in an agency enforcement division are likely to prefer command and control technology-based standards because they are easier to understand and enforce.ⁿ¹²⁸ Agency economists are more likely to suggest taxes and performance standards, because their experience teaches that such standards are more efficient [*1267] than command and control standards.ⁿ¹²⁹

Thus, upper level policy makers cannot effectively manage policy through traditional personnel management tools. Instead, they need a different policy management apparatus that is capable of spotting policy making as it happens at all stages in the internal rule-making process and providing them with an effective opportunity to exercise discretion as policy choices are being made. Regulatory analysis, because it explicitly measures regulatory alternatives against previously articulated policy goals, can provide this policy management apparatus.

Policy management for rule making requires communication.ⁿ¹³⁰ Upper level policy makers must communicate policy preferences to lower level technical staff, and lower level staff must communicate the policy motivations behind their discretionary decisions to upper level policy makers. If the ultimate agency decision maker could participate in all of the lower level working group meetings, in which much agency policy is determined and applied, he could effectively communicate his policy preferences orally to the staff at the meetings. Such hands on participation, however, is rarely feasible in a busy administrative agency. Periodic meetings with the staff at certain critical decision points in a rule's evolution also could facilitate policy communication, especially if the meetings occurred when the staff was choosing among significant regulatory options. But even this approach requires that busy decision makers be fully informed periodically about a rule's progress.

Regulatory analysis can correct communication deficiencies by quickly informing upper level decision makers of the policy aspects of important agency rule-making initiatives. The analyst can communicate the results of her analysis to upper level decision makers in meetings or in briefing documents prepared in advance of meetings. If the regulatory analyst assigned to a subordinate decision-making entity such as a working group is performing her job properly, the participants in the subordinate entity should have devoted some attention to determining the policies that they are implementing in the individual rule-making effort, identifying several options for implementing those policies, and discussing the advantages and disadvantages of those options in light of the available information. The explicit attention given to policy in the subordinate decision-making entity should facilitate policy communication between lower level officials and upper level policy makers in the rare meetings in which they are all participants.

[*1268] For most rules, the upper level decision maker does not even have time to monitor the decision-making process at frequent intervals. He is in effect limited to reviewing near-final drafts of the work of subordinate decision-making entities and reading briefing papers summarizing their deliberations. The regulatory analyst's participation in the subordinate decision-making sessions should ensure that policy considerations are communicated in the briefing documents even if the analyst does not prepare a written regulatory analysis document. Many agencies, however, are sufficiently convinced of the value of a written document that their internal regulations require analysts to prepare some kind of regulatory analysis document even for many nonmajor rules. n131

At the end of the internal rule-making process, the upper level policy maker can examine the written regulatory analysis documents and the briefing documents, observe how the subordinate decision-making entity resolved particular policy issues, and decide whether he agrees with that resolution. If he does agree, the rule may proceed, and the participants in the lower level decision-making process can assume that they resolved important policy questions in an acceptable fashion. If the upper level policy maker disagrees, he can remand the rule to the subordinate decision-making entity with instructions to apply a different policy, thereby sending the lower level personnel a direct message about his policy preferences.

In the same way that regulatory analysis can facilitate policy management within agencies, it can facilitate White House policy management for those agencies subject to Presidential control. n132 Although it is impossible for a representative from the White House or OMB to attend agency meetings with respect to even important rules, regulatory analysis can still communicate administration policy. The

Regulatory Impact Analysis that accompanies major rules should inform White House or OMB personnel of the policy considerations that motivated the agency to [*1269] make its regulatory choices. Administration officials can in turn communicate policy downward by remanding rule-making efforts for being inconsistent with E.O. 12,291. Policy preferences also can be communicated through direct threats to delay the rule at the OMB review stage unless the agency implements OMB's preferred policy. Even without a written document, policy managers at the White House or OMB can convey administration policy preferences orally to their counterparts at the agencies and to lower level policy analysts who participate in the subordinate decision-making entities.

C. Informing Congress and the Public

Although Congress is not technically a manager of the federal bureaucracy, it is intensely interested in how agencies make and implement regulatory policy. Thus, Congress also has a policy management function, and regulatory analysis can aid Congress in the same way that it aids upper level agency policy makers and OMB. n133 Oversight committees and individual congressmen want to be aware of the impacts of important rules, and they are especially interested in any distributional effects that agency rules might have upon their important constituencies. Committees that write legislation for agencies similarly have an obligation to oversee agency policy implementation to monitor fidelity to congressional intent. Regulatory analysis documents can thus perform an important role in ensuring agency accountability to Congress.

Regulatory analysis documents also can enhance public accountability by informing affected persons n134 and encouraging them to participate effectively in the public rule-making process. n135 Most agency employees are unimpressed with the quality of public participation in rule-making proceedings, observing that the typical public comment is a tirade against the agency without factual or analytical support. Occasionally, a public comment will provide some estimate of the rule's anticipated costs, but rarely does it provide background information and analysis to justify [*1270] such estimates. In such a case, the agency must either accept the estimate and redraft the rule accordingly, or ignore it and risk catastrophic economic losses.

A regulatory analysis of a proposed rule, however, conveys some idea of the costs and benefits of the rule. These estimates are presumptively valid, and commentators have the burden of demonstrating that the agency's estimates are erroneous. Ideally, the regulatory analysis "will shape the outcome of the

rulemaking because it will be the focal point of an orderly and structured dialogue between the agency and the persons who must live with the rule after its promulgation." n136

D. Providing Regulatory Relief

Another suggested virtue of regulatory analysis is its potential to induce agencies to provide relief for regulated entities. n137 If regulatory analysis is an effective policy management tool, and policy makers in the White House and the upper reaches of the agencies desire to effectuate regulatory relief, regulatory analysis may yield that result. n138 The preparation of an RIA in anticipation of review by OMB might cause the agency to abandon or significantly modify the substance of an anticipated rule. n139 Moreover, simply because an agency must expend limited time and resources in analysis, rather than in promulgating rules, the flow of rules will decrease accordingly. n140

Some regulatory relief advocates suggest that better analysis will beget fewer rules, because analysis will reveal more often that a rule should not be promulgated than it will suggest that a rule is needed. n141 This [*1271] assumption is probably based on a belief that agencies have promulgated too many regulations in the past without providing adequate attention to their economic impacts. From this perspective, better analysis may convince decision makers to issue fewer or at least less burdensome rules. n142 Alternatively, the assumption may be that fewer rules can pass the substantive tests of regulatory analysis, including cost-effectiveness and cost-benefit analyses. In any event, many regulatory analysis advocates are convinced that this essentially instrumental process can advance particular substantive ends.

E. Conclusion

The previous summary of the virtues of regulatory analysis indicates that it can be a very valuable component of regulatory decision making. It has been endorsed by many past and present agency leaders and heralded by prominent students of the regulatory process. n143 Indeed, many agencies have been so impressed with its effectiveness as a decision-making tool that they routinely prepare regulatory analyses for nonmajor rules, even when not required by statute or executive order. n144 Yet like any decision-making aid, regulatory analysis is not perfect. As discussed in the next Part, it has its flaws and inconsistencies, and practical problems impede its usefulness in the real world. Nevertheless, its potential in the decision-making process is significant, and it should not be dismissed too easily, as many

professionals in agency program offices are inclined to do, as merely another burdensome paperwork requirement for the bureaucracy.

V. Limitations of Regulatory Analysis

The ideal view of comprehensive analytical rationality in regulatory decision making suffers considerably in the real world of conflicting values, inadequate information, and substantial uncertainties.ⁿ¹⁴⁵ Even its most ardent proponents acknowledge its limits,ⁿ¹⁴⁶ and many observers [*1272] believe that comprehensive analytical rationality should be abandoned as a decision-making tool and that more realistic notions of "bounded rationality"ⁿ¹⁴⁷ be adopted instead. Decision makers are rarely able to do much more than muddle through the decision-making process, exploring a limited range of options, relying heavily upon intuition and back-of-the-envelope predictions, and depending on rapid feedback to meet limited short-term goals.ⁿ¹⁴⁸ Other critics argue that bureaucratic decision making necessarily must retain an important policy component, and thus purely scientific decision making in accordance with comprehensive analytical rationality would deprive agency decisions of an important democratic dimension.ⁿ¹⁴⁹

Regulatory analysts, not surprisingly, strongly disagree with such criticism. Members of the program office staff also believe that rationality, not intuition, should guide the decision-making process to the greatest possible extent. Yet the muddling-through model often appears to fit the reality of agency decision making better than the comprehensive analytical rationality paradigm, despite some heroic attempts to write standard operating procedures requiring comprehensive analytical input at virtually every step in the decision-making process. Nevertheless, the goal of rational decision making should not be abandoned too quickly. The politically dominated muddling-through model also has its vices, not the least of which is inefficiency.ⁿ¹⁵⁰ And there are many instances of successful incorporation of comprehensive analytical rationality into regulatory decision making.ⁿ¹⁵¹

The discussion that follows probes the limitations of regulatory analysis and explores several impediments to its successful implementation [*1273] in the real-world bureaucratic context. At the same time, the Article will suggest ways around some of the existing impediments. Some limitations are attributable to the cost of gathering and analyzing information. Although such impediments are theoretically surmountable, they cannot as a practical matter be overcome in an era of limited agency budgets. Some impediments are institutional in nature. These, too, can be overcome in theory, but they are very difficult to navigate in the real world. Finally, some limitations are inherent in the paradigm

itself. Pushed to its purest extremes, regulatory analysis is subject to the same theoretical limitations that plague utilitarianism as a theory of political economy. Nevertheless, it has great practical and theoretical virtues as well. n152 If its limitations are recognized and impediments removed, the output of the decision-making process is likely to be more objective, and perhaps less acrimonious. n153

A. Impediments and Limitations in Preparing Regulatory Analysis

1. Conflicting Goals. -- Many critics of policy analysis suggest that applying regulatory analysis to administrative rule making is doomed at the very first step -- clarifying and ranking the goals for the regulatory process. n154 In this pluralistic society, no single regulatory goal or ranking of goals can command a consensus. n155 Although a broad consensus about goals may not exist, someone must decide which goals will prevail over others in the context of particular programs. Standing alone, regulatory analysis offers no criteria for ranking those goals. n156

The analyst nevertheless can aid upper level decision makers by measuring the available options against each of several goals. n157 The upper level policy maker can then rank agency goals either explicitly, in explaining his action in some decision-making document, or implicitly as the agency decides similar regulatory questions over time. The analytical exercise will at least draw the decision maker's attention to agency goals and subtly encourage consistency in goal ranking over time and across agency programs.

[*1274] Upper level decision makers can greatly simplify the analyst's task by communicating the agency's policy preferences in advance, rather than remanding regulatory analyses on an ad hoc basis. The regulatory analyst should not be left entirely without moorings. An agency's goals may change as statutes and upper level personnel change and as different interests prevail in the ebb and flow of the political tides. But given adequate communication between the analyst and upper level policy makers, regulatory analysis should be helpful to agency decision makers and to reviewing entities such as OMB, Congress, and ultimately the public as they attempt to ascertain the direction that agency policy is taking.

2. Identifying Options. -- One virtue of regulatory analysis is its insistence that agencies explore a wide range of options before choosing a single solution to a regulatory problem. Yet there are "inherent limitations on the capacity of a complex bureaucracy to explore alternatives." n158

First, the record of the agencies studied for this Article suggests that regulatory analysts rarely design novel options worthy of further consideration. Although regulatory analysts are trained to consider regulatory alternatives, they may lack sufficient technical expertise to propose creative options when available technologies, not novel theories, determine realistic regulatory choices. Even when they understand the technical issues, regulatory analysts are not very creative. Because many regulatory analysts in the agencies do not view options identification as one of their primary roles, "the analyst is very much a processor of other people's alternatives." n159

Second, the options identified by the regulatory analysts are not always viable as a practical matter. An option may be beyond the agency's statutory authority, n160 technologically infeasible, or utterly unenforceable. Whatever the reason, the technical staff and upper level decision makers will probably resist expending the agency's scarce resources to study options that cannot be implemented. As a result, agencies generally initiate and explore a fairly narrow range of options defined largely [*1275] by precedent and agency experience. As one midlevel regulatory analyst observed, "What you can do now is very much limited by what you have done in the past." n161

Third, agency analysts are not immune to the tunnel vision that often afflicts program office staff. For example, one early study of Regulatory Impact Analyses from several agencies concluded that they showed a general tendency not to explore alternatives that would involve more stringent regulation. n162

Fourth, an agency's regulatory analysts often do not become a part of the decision-making process until after the program office has already considerably limited the possible options. Suggesting innovative options late in the decision-making process would force the program office to explore the technical aspects of the new options and thus delay rule implementation. An office with responsibility for promulgating rules in a timely fashion is unlikely to view regulatory analysts' suggestions and the attendant delay with much enthusiasm.

Fifth, assuming that agency analysts do identify a broad range of realistic options, agencies will rarely have sufficient resources to explore the advantages and disadvantages of each option. n163 The time consumed in analyzing even a limited range of options inevitably delays the issuance of many important rules. n164 And even if regulatory analysts could analyze rapidly a large range of available options, upper level decision makers have only a limited capacity to consider them.

Despite these limitations, the analysts' efforts may still be worthwhile to some extent. Upper level decision makers are rarely sufficiently involved with the rule-making process to play a large role in seeking out innovative regulatory options. n165 Yet when a staff recommendation contains only one realistic option, the decision maker loses much of his actual decision-making authority. Combining the perspectives of both the regulatory analysts and the program staff early in the rule-making process in subordinate decision-making entities can expand the horizons of both groups and thereby expand the realistic options available to upper level decision makers.

[*1276] Resource constraints will, of course, limit the extent to which the staff can comprehensively analyze the costs and benefits of regulatory options. Thus, agencies rarely will be able to examine thoroughly more than three or four options. This limitation should not, however, dissuade the program office staff from casting its net broadly at first. Initially, the staff should identify a variety of options. As resources are later devoted to studying options, the staff gradually can narrow the choices to the three or four most realistic alternatives. All the options initially considered by the staff should then be listed in the regulatory analysis and staff briefing documents with brief explanations of why they were not included for further study. n166

3. Inadequate Information. -- The sophistication of regulatory analysis depends upon the availability of relevant information. E.O. 12,291 sets ambitious goals for the regulatory analysts in the agencies. n167 Unfortunately, ambitious informational goals rarely can be achieved in the real world.

The most frequently cited impediment to regulatory analysis is the lack of adequate information for making the projections required of good analysis. n168 Because agency regulatory analysts rarely have sufficient [*1277] time and resources to undertake original research, they must rely on existing cost studies, unvalidated health and safety information, and even anecdotal evidence. n169 Existing studies are usually undertaken for entirely different purposes, and therefore rarely satisfy the informational needs of regulatory analysis. Indeed, much of the available information cannot legitimately be afforded the dignity of the label "study." Rather than conducting comprehensive research, analysts piece together snatches of information from a government statistic here, a corporate report there, and add a liberal sprinkling of anecdotal evidence derived from frequent telephone calls and perhaps a site visit or two.

Having collected the available information, agency analysts attempt to massage the data to make it more usable, but this practice principally consists of heroic attempts to gloss over glaring weaknesses in the data. n170 The net result is an analysis laced with guesswork and plagued by uncertainties. n171

(a) Inadequate cost and economic impact studies. -- Agencies usually have sufficient resources to conduct or contract for primary cost studies. n172 These studies attempt to predict the reaction of regulated industries to each of the proposed regulatory alternatives and estimate the cost of each alternative. n173 Agencies compile cost estimates from vendors of compliance equipment, from the agency's own pilot projects, and from the industry's estimates of compliance costs. n174 The accuracy of [*1278] these assessments is sometimes difficult to verify, n175 although the assessments are usually undertaken with some measure of objectivity.

Even primary cost studies, however, pose difficulties for evaluating the impact of performance standards that gives regulated entities much discretion in designing compliance schemes, because the agency cannot know in advance how the individual entities will react to the standard. n176 In determining costs, the agency can make worst-case assumptions based upon expensive technologies that are currently available, but this pessimistic approach denies the agency any credit for its flexibility when it later compares costs to benefits.

Agency analysts also face significant obstacles in assessing the costs of complying with regulations that may require regulatees to redesign production processes. n177 In many instances the industries subject to a regulation already may have planned to redesign production process for market reasons unrelated to regulation. n178 Regulatory analysts in the agencies thus have great difficulty "sorting out various costs attributable to a specific regulation from those due to changing market demand, other regulatory requirements or broader-purpose redesign of production processes." n179

Cost assessments also can be very difficult for broad standards that affect several industries. The costs of an environmental standard for the eight to ten copper smelters in the United States are more easily assessed than the costs of a workplace hazard identification standard that applies to thousands of firms in several industries. Even marginally sophisticated cost analyses for such broad standards consume significant time and resources. n180

Once primary costs are assessed, regulatory analysis should assess [*1279] the overall financial impact of imposing those costs on the regulated entities. This analysis, too, can be extremely complicated. Companies are not always willing to share financial information with agencies, because many of the companies believe that financial records are trade secrets that might find their way into the hands of competitors. n181 Although many agencies have statutory authority to demand financial

information, n182 many do not. Agency analysts are then forced to make ballpark estimates or worst-case predictions that the regulated entities can criticize in their public comments. Even when the agency gains access to financial information, differing accounting systems can prevent the agency from making accurate predictions of the effect of particular regulations on individual companies.

Despite the difficulties with undertaking direct cost and economic impact studies, an ideal regulatory analysis would go further to predict indirect impacts, including "effects on prices, productivity, employment, capital availability, research and innovation, balance of trade, and the . . . supply of energy and other scarce natural resources." n183 These projections, however, depend upon an extraordinarily complicated array of unquantified and interrelated factors. n184 A serious attempt to analyze these indirect impacts would take years and consume enormous resources; moreover, the factors would continue to change as the calculations were being made. Given their resource constraints, agencies can make only crude estimates of these impacts, based upon broad assumptions about economic behavior, few of which are subject to verification or rejection. n185

(b) Inadequate benefit studies. -- The analytical difficulties that plague cost and economic impact assessments pale by comparison to the problems of objectively analyzing the benefits of many regulations. n186 Regulatory benefits vary considerably with the particular regulatory effort. [*1280] The following discussion thus focuses upon three different kinds of regulation: (1) economic regulation; (2) civil rights regulation; and (3) health, safety, and environmental regulation.

(i) Economic regulations. -- Although economic regulation benefits are perhaps the easiest to assess, even they are often difficult to quantify. The benefit of reducing monopoly or oligopoly power is simply the value of those goods that would have been produced in a free, unimpeded market. n187 Although relatively sophisticated models exist for calculating these benefits, n188 many of their assumptions are controversial. n189

The value to consumers of accurate information about products and investment securities is even more difficult to calculate. Such a calculation requires an estimate of the amount of consumer dollars lost to fraud, unfair trade practices, and misleading advertising in the absence of regulation. n190 Because the regulations are meant to be prophylactic in nature, n191 their value is difficult to verify empirically.

Similarly, regulations aimed at maintaining adequate consumer services produce benefits that are difficult to calculate. For example, the benefits of obtaining a diversity of views in television

programming are not easily quantifiable. n192 And, the benefits of deregulatory initiatives that produce improved service or lower prices, which were two goals of airlines and telecommunications deregulation, are not easily reduced to precise dollar values. n193

(ii) Civil rights regulations. -- The value of regulations aimed at providing equality of opportunity for victims of racial, religious, sex, and national origin discrimination is extremely difficult to quantify. n194 [*1281] Although literature often describes the theoretical inefficiencies of discrimination, n195 few models, if any, predict the exact extent to which allocative efficiency would be enhanced by various antidiscrimination devices. n196 The analytical effort is complicated because antidiscrimination rules are intended to advance unquantifiable values, such as justice, fairness, and autonomy. n197 There are no scales, no units of measurement, and no standards of comparison. Yet these are precisely the tools that are required for comprehensive analytical standards to be useful in guiding decision makers to optimal regulatory results.

(iii) Health, safety, and environmental regulations. -- The difficulties in obtaining information on the benefits of health, safety, and environmental regulations have been documented extensively in the literature. n198 The complex interrelationships between toxic substances and health and environmental effects are currently poorly understood, and, indeed, they may never be completely comprehended. n199 The benefits of workplace and highway safety regulations are also often difficult to predict. n200

Controlled studies done on human beings or in the natural environment would be the best source of direct information on the health and environmental effects of regulations of private activities. Ethical considerations, [*1282] however, preclude many kinds of experiments with human beings, n201 and experiments on disruptions of natural ecosystems are very difficult to design and conduct. n202 Epidemiological studies can provide some direct evidence of risk, but they are notoriously inconclusive. n203 Information on the causes of automobile accidents is similarly elusive and of varying quality. n204 Even information on relatively straightforward benefits, such as reducing the effects of corrosive pollutants on metals, is difficult to find. n205 Consequently, agency analysts have access to little direct evidence on the benefits of health, safety, and environmental regulation. n206

Although tests in surrogate systems such as animals and greenhouses are often available, they are not directly relevant to real-world experience. n207 Often expensive to undertake, n208 these tests raise a host of technical considerations that cloak the analytical enterprise in uncertainty. n209 Even if such tests

were directly relevant, agency analysts would encounter further uncertainties in estimating the extent of human and environmental exposure to technological risks. n210

[*1283] Regulatory analysts face even greater uncertainties in assessing the remote and indirect benefits of regulation. n211 For example, although the public may derive an emotional benefit from knowing that the Great Lakes and the Gulf of Mexico are being protected from destruction by water pollution, such a benefit is extremely difficult to quantify. Agencies have devoted little attention to even more easily calculated indirect benefits, such as sickness prevented, worker absenteeism avoided, and pain and suffering attributable to environment- and workplace-induced diseases averted. n212

Perhaps for these reasons, the agencies have not always complied with E.O. 12,291's requirement that they undertake benefits analyses for their major rules. n213 In addition to frustrating agency analysts and OMB reviewers, the failure to prepare benefits analysis has contributed to the perception that the agency analyses focus predominantly upon the costs of their regulations to the exclusion of benefits.

(c) Conclusion. -- Because many of the informational impediments to regulatory analysis are simply intractable, agency analysts and upper level decision makers simply will have to accept these informational limitations and the consequent uncertainties. Still, some initiatives can be undertaken to improve the quality of the information available to the agencies.

First, trade secrecy claims should never shield relevant information from regulatory decision makers. Although much of the financial information that is necessary to an adequate economic impact study is unquestionably entitled to protection from disclosure to competitors, analysts are capable of sanitizing the information for use in regulatory analysis documents without revealing trade secrets. Trade secrets and commercial and propriety data are also protected from disclosure under the Freedom of Information Act. n214 Regulated companies should not be allowed to criticize agency economic impact assessments if they are unwilling to share accurate financial data with the agency.

Second, agencies can enhance the quality of economic impact and [*1284] benefits analyses by coordinating research efforts with analytical needs. Agency employees in charge of agency research budgets should be included in subordinate decision making bodies from the outset so that they may respond to the research needs of the technical staff and the agency's regulatory analysts. In addition, agency regulatory analysts should help define overall research priorities. Unlike major research funding organizations such as the National Science Foundation and the National Cancer Institute, regulatory

agency research offices, because of their public responsibility, must devote their limited resources to producing information that is useful in agency rule-making efforts.

In the final analysis, however, agencies will never have enough information. Faced with the uncertainties left by large informational gaps, agency decision makers must proceed with the information they have. Agency analysts can utilize existing information in conventional ways even with the attendant uncertainties. But the time will probably never come when the analysis will dictate one particular choice among regulatory options.

4. Bias in Cost and Benefit Studies. -- Even if information is available, the agency may need to be concerned about the information's possible bias toward particular regulatory results. This observation, which appears to have some factual basis,ⁿ²¹⁵ surfaces frequently in the literature on regulatory analysis.ⁿ²¹⁶ Because a party naturally desires that its submissions be cast in the most favorable light,ⁿ²¹⁷ an interested party will hire experts who exercise their professional judgment in a way that reflects that party's view of the world.ⁿ²¹⁸ Thus, any analytical regime that depends upon information from sources interested in the regulatory outcome must expect to encounter bias in the information that those sources submit.ⁿ²¹⁹ Yet given the scarcity of available information, agency analysts cannot ignore studies simply because they come from sources interested [*1285] in the outcome.ⁿ²²⁰

The possibility of bias in regulatory analysis threatens its viability as a decision-making tool. Agency cost estimates may depend heavily upon information that is exclusively in the hands of the regulated industries and therefore not subject to independent verification.ⁿ²²¹ Industries' double-counting costs and failing to consider cost savings from retooling and mass production of health and safety technologies are frequently cited criticisms.ⁿ²²² Public interest group observers also have noted that companies may use one set of cost assessments when dealing with federal agencies and another when communicating with their shareholders.ⁿ²²³ These practices undermine faith in the objectivity of regulatory analysis.

Regulatory analysts recognize this potential for bias.ⁿ²²⁴ But because they believe that they can independently verify industry-submitted cost estimates,ⁿ²²⁵ analysts do not consider the possibility of bias to be a great threat to the integrity of the analytical enterprise.ⁿ²²⁶ Some agencies, however, lack authority to gather information from the regulatees and are therefore hampered in their attempts to assess the accuracy of industry-submitted information.ⁿ²²⁷ In any event, an agency's assurance that it has

independently validated industry-submitted cost information is unlikely to assuage a public interest group that trusts the agency little more than the industry it regulates.

[*1286] In addition to monitoring carefully information from potentially biased sources, agencies can reduce the impact of possible bias by collecting information from multiple sources.ⁿ²²⁸ For example, because cost data on pollution control technologies submitted by industry might overestimate technology costs, an agency could consult vendors of those technologies, whose interests in the imposition of pollution control technologies might lead to underestimation of costs. In extreme cases, agencies can contract for independent studies to verify or refute studies from potentially biased sources.

Agencies also can reduce the possibility of bias by exposing all submitted information to intense scrutiny.ⁿ²²⁹ The scientific community guards against bias by subjecting scientific studies to peer review,ⁿ²³⁰ and several statutes also require that scientific studies supporting regulations likewise experience peer review.ⁿ²³¹ Although no statute currently mandates that agencies subject regulatory analysis documents or the studies underlying those documents to peer review, agencies that suspect potential bias in supporting studies can do so voluntarily. Agencies also could establish advisory committees to review submitted information and regulatory analysis documents,ⁿ²³² or submit them to independent analysts for skeptical examinations.

Finally, agencies could experiment with cooperative regulatory impact assessments. Under this novel approach, representatives from the agency and all affected parties would review the available information, assess its strengths and weaknesses, and agree upon the extent to which it should be relied upon in regulatory analysis documents. The experiment could even establish cooperative mechanisms for setting research agendas for future rule-making initiatives.ⁿ²³³

Cooperative regulatory analysis, however, will not be effective in every rule-making initiative. For example, it is unlikely to be successful [*1287] for rules involving numerous affected parties. Too many parties would interfere with the consensus-building that is vital to such an effort. In addition, because cooperative analysis can only work in an atmosphere of mutual trust, it is unlikely to be productive in a regulatory program that has historically been characterized by highly adversarial rule-making proceedings.ⁿ²³⁴ Finally, a cooperative regulatory impact assessment process will work only if an agreed-upon mechanism exists for preparing the analysis in the absence of a consensus.

Although cooperative regulatory analysis may be doomed to failure in the highly charged atmosphere of many major rule-making initiatives, n235 it is probably worth attempting. All parties to a proceeding have an interest in providing the decision maker and the public with an objective assessment of regulatory impacts. Absolute objectivity is impossible, but cooperative regulatory impact assessment may assure the affected parties that the assessments are not systematically biased.

5. Inadequate Models. -- When analysts lack adequate information, they typically resort to mathematical approximations of reality. n236 Unfortunately, the complexity of social and environmental interactions confounds attempts to mathematically approximate reality for most of the phenomena that interest the regulatory analyst. n237 Although analysts have created sophisticated computer models of reality, stretching available [*1288] knowledge to its limit, n238 the resulting models still leave much to be desired.

The impossibility of deriving models for complex phenomena forces regulatory analysts to make significant, and frequently questionable, assumptions about reality. n239 Because cost and benefit projections tend to be highly sensitive to these assumptions, n240 minor changes in assumptions can significantly affect a model's predictions. n241 Once the model's assumptions are programmed into a computer algorithm, they may be inaccessible to those who are affected by the model's predictions.

Models tend to oversimplify reality. Simplification begets inaccuracy, and inaccuracies multiply as a model's projections extrapolate from real-world data. n242 Nevertheless, the results of the modeling effort are often stated with deceptive precision, leading decision makers to believe that they know more than they really do. n243 Sophisticated models may be only marginally informative at best. When pressed beyond their considerable limitations, they can severely harm the decision-making process.

Regulatory analysis documents should be explicit about the assumptions of the models on which they rely. Too often, however, the regulatory analysis document merely identifies a model without explaining its critical assumptions. Close examination of the literature or original computer program may reveal those assumptions, but upper level decision makers and the public lack the time and expertise to divine modeling [*1289] assumptions from primary sources. Therefore, the regulatory analysis documents themselves should identify and explain the subtle but important assumptions that undergird the model or models upon which the analysts base their predictions. n244

6. Inadequate Tools for Quantification. -- Quantification is the regulatory analyst's stock in trade. n245 Without an ability to reduce complicated considerations to numbers, the analyst would be only a trusted advisor, speculating on the consequences of various options with few standards for comparison. Yet while quantification permits comparisons and facilitates prioritization, n246 some essential considerations of a rational decision making are immune to quantitative analysis. n247 An excessive preoccupation with quantification can dwarf "soft" variables, such as fairness, autonomy, and justice, as well as historic, recreational, and aesthetic values, yielding a narrow view of the world that biases decision makers against such values. n248 Because unquantifiable effects may never appear in the regulatory analyst's quantitative predictions, quantitative analysis may disproportionately influence the policy judgment of upper level decision makers, n249 and deceive the public as well.

Agency decision makers should insist that their regulatory analysts resist the tendency to dismiss unquantifiable variables and instead discuss them thoroughly in the text of regulatory analysis documents, even if the discussion detracts from the precision of the analyst's predictions. A comprehensive discussion of such variables necessarily will seem soft and unanalytical, but the effort must be undertaken, if only to preserve the [*1290] credibility of the analytical exercise. n250 Although a discussion of soft variables may not completely substitute for quantification, agency decision makers should not be subtly induced to ignore unquantifiable factors. n251

7. Characterizing Uncertainties. -- Inadequate data, inaccurate models, and the infirmities of quantitative analysis collectively leave regulatory analysts awash in a sea of uncertainties. n252 Adequate characterization of these uncertainties presents a significant challenge to the regulatory analyst, n253 for if the analyst confronts the inherent uncertainties of her predictions and alerts the decision maker to her general lack of confidence, she risks rejection by decision makers who demand greater accuracy. Thus, the analyst faces almost irresistible pressures to gloss over uncertainties in making quantitative predictions. n254 Yet if the analyst overstates her confidence in his predictions, she will mislead the decision maker, with perhaps disastrous results. Uncertainties must therefore be characterized in a way that retains the usefulness of analysis to decision makers without causing it to be misleading. n255 Unfortunately, many of the regulatory analysis documents prepared by agencies emphasize single value estimates of costs and benefits and do not seriously [*1291] attempt to characterize uncertainties. n256

Analysts should utilize many of the tools available for characterizing uncertainty. n257 The most effective mechanism for characterizing uncertainties is the "confidence interval" that is characteristic of scientific reports. n258 The analyst provides a quantitative prediction that is his best estimate and also

predicts with some predetermined degree of confidence, usually ninety-five percent, that the result lies between two other points along the same spectrum. n259 The width of this confidence margin can at times be more revealing than the best estimate prediction. n260

When the analysis consists of using mathematical models to make predictions, analysts can characterize uncertainties by applying two or more models to the same data. n261 The analyst can identify and explain his preferred model for the decision maker, but the decision maker is free to base a decision on any or all of the models.

Still another method for characterizing uncertainties is to subject a model's assumptions to "sensitivity analysis," in which the analyst makes predictions under several different assumptions to determine how sensitive [*1292] the predictions are to any given assumption. n262 Once the decision maker is aware of the prediction's sensitivity to particular assumptions, he can evaluate the assumptions to determine how much credence to give a particular prediction.

If more sophisticated techniques for dealing with uncertainty fail, the analyst may prepare a worst case analysis of the costs and benefits of regulatory alternatives. n263 This technique, which has achieved some prominence in the Environmental Impact Statement context, n264 can be useful when margins of error cannot be calculated and when the regulatory activity could have disastrous impacts. n265 In performing a worst case analysis, the analyst simply calculates the consequences of the worst credible scenarios and attaches a rough probability to each scenario. One obvious drawback to this technique is that it tends to skew the analysis by focusing attention on the worst side effects of regulatory action or inaction, n266 even though the worst case scenarios are not likely to occur. n267 Nevertheless, as the Bhopal and Chernobyl tragedies illustrate, worst cases do happen, and the decision maker should be aware of the extreme downsides of regulatory alternatives.

Occasionally, the available data or existing models are so imprecise that the analyst can do no more than qualitatively characterize the confidence with which she predicts particular results. Even a qualitative characterization, such as "give or take a few thousand," however, can help the decision maker decide how much weight to give to the analyst's efforts and how much to rely upon other kinds of analysis and intuition.

[*1293] 8. Problems of Cost-Benefit Analysis. -- Although the particular brand of regulatory analysis that has acquired the label "cost-benefit analysis" is not essential to comprehensive analytical

rationality, it is so closely associated with regulatory analysis in the minds of its principal practitioners that its special problems must be examined in any general discussion of the limitations of regulatory analysis. n268 Attention to the problems of cost-benefit analysis further seems warranted in light of E.O. 12,291's explicit requirement that agencies utilize such analysis in the absence of direct statutory prohibitions against its use. n269 Because of the extensive literature available on the advantages and disadvantages of cost-benefit analysis, however, only a brief discussion of the most important arguments follows. n270

(a) Valuation problems. -- Perhaps the most troublesome problem with cost-benefit analysis is valuing benefits. Dollar values are relatively easily assigned to the benefits of economic regulation, which are primarily dollar savings to consumers and regulated industries, n271 but placing dollar values on health and environmental benefits is much more controversial. n272 Although the most heated debate centers on valuing the benefits of regulations that significantly reduce mortality and morbidity risks, n273 the same arguments apply to attempts to reduce environmental, historical, and aesthetic values to dollar amounts. n274

Proponents of cost-benefit analysis argue that, however distasteful it first appears, valuing lives and important amenities is unavoidable, and is [*1294] done implicitly in thousands of everyday decisions. n275 Placing an explicit monetary value on human life can prevent regulatory decision makers from inconsistently placing a high implicit value on life in one case and a low value in another. n276 Moreover, forcing decision makers to monetize values eliminates a variable that can range from zero to infinity in cost-benefit calculations and thereby justify any regulatory decision. n277

Opponents of cost-benefit analysis question the morality of placing a value on human life, arguing that the process itself belittles life's intrinsic value. n278 Other opponents, ranging across the political spectrum from the Chemical Manufacturers Institute n279 to labor unions and environmental groups, n280 argue that deriving a useful number for the value of a human life is simply impossible, even if it were desirable. n281 They also argue that monetizing health and environmental benefits is, at the extreme, "incoherent" n282 or "schizophrenic." n283 It cannot yield a single [*1295] numerical value for extremely valuable things, such as the reduction of significant mortality risks and risks to endangered species, that are not frequently traded in markets. n284 Thus, analysts should quantify the impact of regulations on morbidity, mortality, and environmental and aesthetic values without reducing those benefits to coin. n285

(b) Valuing the future. -- Another valuation conundrum is the rate that analysts use to discount future costs and benefits. The discount rate is an estimate of how much more a dollar in hand is worth than the promise of a dollar in the future. Most analysts agree that future costs n286 should be discounted to present value. n287 The correct rate of discounting benefits, however, is more controversial. n288

Many health and environmental regulations are intended to benefit future generations. n289 Using a high discount rate in strict cost-benefit analysis biases the analysis against future benefits. n290 Thus, some have [*1296] suggested that it may be inappropriate to discount future benefits at all, because future generations may value health and environmental amenities even more than today's population. n291 Nevertheless, OMB has traditionally insisted that agencies use a high discount rate of ten percent in calculating the benefits of environmental regulations. n292 Thus, the benefits of a regulation that would prevent catastrophic loss in fifty years are very low in today's dollars and are therefore likely to be outweighed by even modest costs. n293

Although the discount rate is useful for comparing present costs and future benefits, the actual discount rate used is a policy question that should be left to upper level decision makers in the agencies. Decision makers can experiment, of course, with different discount rates, and need not establish a single discount rate for all regulatory decisions. Regulatory analysts should, however, be explicit about the discount rates used so that they do not create the impression that discount rates are being manipulated to reach predetermined regulatory results. n294

Regulatory analysts could help ensure against this potential misuse of discount rates by using two or more discount rates in every regulatory analysis document that addresses regulations with short-term costs and long-term benefits. Explicitly factoring several discount rates into intergenerational comparisons could reveal the sensitivity of the calculations to the discount rate. The choice of the upper level decision makers between several discount rates could also reveal a great deal about how they value future generations.

[*1297] (c) Distributional impacts. -- Cost-benefit analysis is concerned with the efficient allocation of resources, not with the manner in which society distributes resources. n295 So long as a policy maximizes the aggregate wealth, cost-benefit analysis does not take into account who the winners and losers are or how much wealth changes hands. n296 A politically accountable decision maker, however, must consider distributional impacts. For economic regulation in particular, distributional considerations can be the primary rationale for the regulatory program. n297 Distributional concerns also

motivate environmental regulators to establish stringent media quality standards to protect sensitive populations. n298

Although E.O. 12,291 requires RIAs to identify those who are likely to enjoy the benefits and bear the costs of regulations, n299 many RIAs do not address distributional considerations. n300 Critics have charged that the Executive Order's express preference for cost-benefit analysis reveals a bias against distributional concerns that are important politically. n301 Whether or not these charges are valid, the regulatory analyst ill serves his client if the analysis does not attempt to identify the winners and losers of a regulatory activity and assess its distributional impact. n302

[*1298] (d) Conclusion. -- The considerable deficiencies of cost-benefit analysis have led many observers to doubt its usefulness in guiding decision makers. n303 Agency program offices are particularly resistant to cost-benefit analysis, and few agencies have standardized guidelines for evaluating the costs and benefits of their regulations. n304 Less pessimistic observers recognize that cost-benefit analysis cannot yield precise regulatory results, but suggest that decision makers can still use it as one of several considerations in the decision-making process. n305 Cost-benefit analysis thus would be "a kind of organized common sense" n306 -- a useful tool in marshaling and analyzing information, but not a device for dictating precise regulatory results. Cost-benefit analysis probably is most useful in the modest role of aiding policy makers in defining priorities and structuring options. n307

Many analysts argue that agencies should employ a less ambitious analytical tool called "cost-effectiveness" analysis. Cost-effectiveness analysis accepts a predetermined nonmonetary goal and seeks the least costly regulatory approach for obtaining that goal. n308 Although cost-effectiveness analysis avoids many of the difficult valuation problems of cost-benefit analysis, n309 it suffers from most of the other impediments to [*1299] regulatory analysis. n310 Moreover, it presumes that a single agreed upon goal exists for a particular regulatory effort, which is rarely true. n311 In addition, cost-effectiveness analysis may simply be irrelevant to a regulatory effort aimed exclusively at shifting wealth or at eliminating inequalities, thus entailing few net costs. n312 Finally, cost-effectiveness analysis can focus the decision maker's attention too narrowly upon the costs to regulatees, and thus exclude other important qualitative considerations, such as saving human lives and avoiding injuries. n313 Although cost-effectiveness analysis is probably more useful than cost-benefit analysis, it should not exclusively determine regulatory action.

9. Hidden Policy Agendas. -- Comprehensive analytical rationality in itself says nothing about how goals should be ranked. n314 Many regulatory analysts, however, hold definite opinions about proper regulatory goals and their relative priorities. These opinions are partially inherent in the economic training of most regulatory analysts. n315 Yet when regulatory analysts attempt to rank goals, they are behaving as political actors and not as objective analysts, and their input should be treated as such. When goal ranking becomes muddled in the instrumental operation of measuring alternative policies against pre-existing goals, however, the regulatory analyst's political participation may be hidden behind a veneer of objectivity.

The uncertainties that plague regulatory analysis provide ample opportunities for analysts to apply hidden policy agendas to regulatory problems. n316 The choice between one assumption or inference and another, between a prediction at the high end or low end of a plausible range, and between liberal or conservative mathematical models is usually a policy choice. n317 Regulatory analysts, therefore, have considerable discretion to apply policy preferences to the available data and analytical techniques to yield predictions at any point along a very large range. The [*1300] possibility of political input by analysts raises important questions of accountability for the policy choices that must necessarily guide the analytical effort.

(a) Internal accountability. -- Use of regulatory analysis to advance hidden policy agendas presents problems of internal accountability. By manipulating assumptions to aim predictions at the high or low end of the available range and by soft-peddling uncertainties, analysts can produce apparently objective analyses that considerably narrow the decision makers' effective range of choice. n318 Not all regulatory analysts are Machiavellian manipulators intent upon advancing their policy preferences by deceiving unsuspecting upper level policy makers. Most regard themselves as professionals without particular goals to advance. n319 They generally are willing to apply the policy preferences of the upper level decision makers, and actively urge upper level policy makers to communicate policy preferences. When policy preferences are accurately communicated, most analysts feel constrained to apply them, whatever their individual views or perspectives. n320 But when policy is not well communicated, analysts are likely to advance their own policy preferences.

Upper level policy makers should understand regulatory analysis so that they can be aware of the uncertainties surrounding it. They should, for example, be suspicious of single number estimates. Requiring a range of predictions can reveal hidden agendas. n321 The choice of models also may reveal the analysts' policy preferences. n322 If policy considerations [*1301] must govern the choice

among available models, upper level policy makers should be making these choices, not regulatory analysts.

(b) External accountability. -- The ability of regulatory analysts to hide policy agendas in regulatory analyses also poses problems of external accountability. n323 Failing to reveal the policy preferences that inform predictions may persuade an unsophisticated public that facts and analysis, rather than policy, dictated a particular regulatory result. Because the decision maker's policy preferences remain hidden, he is not held publicly accountable for policy choices. The upper level decision maker can avoid accountability by subtly pressuring agency analysts to hedge predictions so that the decision appears better supported by facts and analysis than it really is.

Because of significant uncertainties, regulatory analysts may fudge data without actually misrepresenting the available information or misapplying the available analytical tools. n324 At the extreme, the analysis may be a post hoc rationalization for decisions reached on unarticulated policy grounds. n325

Policy analysis is thus abused in two ways. First, there are limits to which honest analysis can be stretched to meet predetermined policy needs. In those rare cases in which the available information permits relatively confident projections, the analyst should not manipulate the analysis to suggest otherwise. n326 Second, if the sources of policy preferences remain hidden, the policy makers themselves cannot be held accountable to Congress, the public, and other reviewing agencies.

10. Retrospective Analysis. -- The accuracy of predictions can be enhanced if analysts obtain feedback from the real world. n327 Retrospective analysis of the actual impact of regulatory requirements can provide this feedback. n328 Retrospective analysis can evaluate the effectiveness of [*1302] existing regulations, a function that E.O. 12,291 requires agencies to undertake. n329 Over time, retrospective analysis could be useful in evaluating the entire regulatory analysis enterprise. If the regulatory analyst's predictions are always inaccurate, an agency might devote fewer resources to the endeavor.

Interestingly, regulatory analysts, who analyze others' work, rarely evaluate their own work. n330 The agencies studied in connection with this Article devoted few resources to retrospective evaluations of their regulatory analysts' previous predictions. As one EPA analyst candidly observed, "How is my career going to be advanced by doing a study that shows that three years ago the agency made a wrong prediction? It is not in my best interest." n331 In most agencies analytical resources are strained by day-

to-day work on new rule-making initiatives without adding responsibilities for retrospective analysis. n332 Still, the few existing retrospective analyses indicate that agencies could profit from evaluating the accuracy of past analysis. n333

11. Deadlines and Delay. -- For any decision-making body there is always a "tension between timeliness and analysis." n334 Time-consuming regulatory analysis can delay agency rule-making managers in the program offices who complain of "paralysis by analysis." n335 Regulatory [*1303] analysis can also be used to postpone making important decisions. n336 The need for further study and analysis can also be a convenient conflict-avoidance device. n337 Issues that cannot be amicably resolved can be delayed pending further analysis that may eliminate the conflict. n338

Although regulatory efforts face time constraints, analysts should not need more time to complete their tasks than does the technical staff in the program office. Most timing problems probably occur because the services of the regulatory analysts usually are not requested until after much of the technical work on the rule is complete. Having finished the bulk of its work, the technical staff pressures the analysts to expedite their efforts. The analysts believe that they cannot do an adequate job under such time constraints and too often must make back-of-the-envelope predictions based upon little information and even less analysis. n339 Involving regulatory analysts at an early stage of the decision-making process, when they can help set research agendas and allocate resources, would help alleviate this aspect of the timing problem.

12. Insufficient Analytical Resources. -- Agency regulatory analysts frequently complain of the paucity of resources that agencies devote to analysis. n340 Less partial observers also have identified inadequate resources as a significant impediment to regulatory analysis. n341 But because no analysis is as thorough as it ideally could be, n342 whether agency analysis receives adequate resources is, like most resource issues, a question of trade-offs.

[*1304] (a) Current analytical resources. -- The nonindependent regulatory agencies subject to E.O. 12,291 devote substantial resources to regulatory analysis. n343 Surprisingly few efforts, however, have been made to determine exactly how many resources regulatory analysis consumes. In a systematic attempt to answer this question, the House Judiciary Committee directed a questionnaire to fifteen agencies in connection with its hearings on regulatory reform legislation. n344 The questionnaire asked the agencies to provide information about, among other things, the average time and cost of regulatory

impact analysis. n345 The questionnaire elicited responses of varying quality and precision from the agencies, and the results are summarized in Table 1.

Less systematic attempts have yielded similar results, although their accuracy is questionable. The Congressional Budget Office has estimated that the average Regulatory Impact Analysis for major rules costs \$ 100,000. n346 The General Accounting Office surveyed thirty-eight regulatory analyses prepared by eight departments and agencies pursuant to E.O. 12,044 n347 during the Carter administration and found the average cost per analysis to be \$ 212,000, n348 although it cautioned that this should be regarded as a low cost estimate. n349 The costs for RIA preparation under E.O. 12,291 are probably considerably higher because that Executive Order requires both benefits and costs analyses. n350

(b) Adequacy of existing resources. -- Whether the agencies devote sufficient resources to regulatory analysis depends upon what society receives in return and upon how society could otherwise be spending the resources. Some observers believe that the expense of regulatory analysis is justified if the results persuade an agency to adopt a standard that saves the regulated industry, and ultimately consumers, sufficient costs. n351 Others believe that resources are wasted on "gold plated studies" [*1307] that have little impact in a regulatory world dominated by political forces. n352 At best a good analysis will have little influence, and a poor or biased analysis can harm society. n353 Regulatory analysis, therefore, may not be cost effective. n354 [*1305]

	E.O. 12,044 1		E.O. 12,291 2		Both 3	
	In-house 5	Outside 6	In-house	Outside	In-house	Outside
U.S.D.A. 4	\$ 1000s					
Agricultural Marketing Service	45 (3) 7					
Farmers Home Administration	44 (22)					
Federal Grain Inspection Service	25 (1)					

Food & Nutrition Service	11.9 (6)					
Food & Safety Inspection Service	208 (56)					
Foreign Agricultural Service	8 (3)					
Forest Service	9 (7)					
Office of Minority Affairs	3.1 (2)					
Packers & Stockyards Administration 10						
E.P.A.	In-house	Outside	In-house	Outside	In-house	Outside
	\$ 1000s					
Toxic Substances		667 (3)				
Air Programs	240 (4)	1934 (3)				
Water Programs		100 (1)		563 (2)		
Radiation Programs	20 (1)					
Solid Waste Programs				2,610 (2)		
Pesticide Programs			40 (1)			
Drug Administration					290 (5) 11	
Department of Health & Human Services (except FDA)					190 (11) 12	25 (3)
Mine Safety & Health	8.4		4.2			

Administration						
	13					
O.S.H.A.		-1	454 (9) 14	-7	545,992	
					15 (3)	
[*1306]						
DOT 16		In-house	Outside	In-house	Outside	In-house Outside
		\$ (x1000)				
NHTSA		288 (9)		435 (6)		
Office of the Secretary		1,159 (1)		2,934 (1)		
U.S. Coast Guard		359.1 (3)				
Federal Aviation Administration						
	17					
Federal Highway Administration		199,809 (20)		20,998 (1)	312,768 (1)	
Federal Railroad Administration			101,049 (1)			

1. Rules proposed or promulgated between 1978 and 1980 -- the total cost of regulatory analyses, under E.O. 12,044.
2. Rules proposed or promulgated in 1981 and 1982 -- the total cost of regulatory analyses under E.O. 12,291.
3. When the agency fails to distinguish between the two specified time periods.
4. U.S.D.A. completed 198 regulatory analyses under E.O. 12,044 at an average cost of \$ 5,638. The agency completed 46 regulatory analyses under E.O. 12,291 at an average cost of \$ 22,643. The data for analyses under E.O. 12,044 is broken down among departments.
5. The regulatory analyses were performed by in-house agency personnel.
6. The regulatory analyses were performed by outside contractors.
7. Indicates number of regulatory analyses performed making up total cost.

8. No dollar amount given -- notation that analyses were performed by agency personnel.
9. Analyses required under E.O. 12,044 were integrated into Environmental Assessments or Environmental Impact Statements. Therefore, data do not exist to compute their costs.
10. Figures not given.
11. FDA figures cover the period from 1976-82. Cost estimates are approximate, based on estimated professional person -- months involved in preparation of each analysis times assumed salary and overhead cost of \$ 5,000 per month.
12. Department of Health and Human Services figures cover the period from 1976-82. Cost estimates are approximate, based on estimated professional person -- months involved in preparation of each analysis, times assumed salary and overhead cost of \$ 5,000 per month.
13. None of MSHA's rules were subjected to the requirements of E.O. 12,044 or 12,291, therefore no regulatory analyses were conducted. Economic assessments were prepared in-house and averaged \$ 8,400 (1978-80) and \$ 4,200 (1981-82).
14. Time period used to answer was March 24, 1978 through February 17, 1981. The costs are those of the contract effort related primarily to data gathering. No separate estimate of the time spent by OSHA regulatory analysts or standards-development personnel was made.
15. Time period used to answer was December 18, 1981 through April 26, 1983. The costs are those of the contract effort related primarily to data gathering. No separate estimate of the time spent by OSHA regulatory analysts or standards-development personnel was made.
16. To compute costs of in-house analyses, DOT estimated the numbers of hours worked on each analysis by persons at various pay levels, multiplied that by 1983 hourly pay levels, and added fourteen percent as an estimate of the value of Federal Civil Service fringe benefits. To the extent that pay increased since 1976, these estimates are overstated. To the extent they were unable to allocate to each analysis its share of overhead (rent, utilities, etc.) the cost estimates are understated. Additionally, the estimates do not include the required review by the Office of the Secretary and to that extent are understated.
17. Figures not given.

Source: Regulatory Reform Act: Hearings Before the Subcomm. on Administrative Law and Governmental Relations of the House Comm. on the Judiciary, Supplement, 98th Cong., 1st Sess. (1983).

Although OMB has increased the analytical burdens upon agencies, it has not recommended that they be given additional resources to perform the required analyses. n355 Many observers suspect that OMB desires to reduce the flow of regulations by forcing agencies to shift existing resources out of

regulatory programs and into analysis. n356 If true, the status of regulatory analysis among agency employees, regulatees, and the general public is thereby reduced.

Another, probably unanticipated, consequence of imposing burdensome analytical requirements is that it provides an incentive for agencies to abandon rule making and attempt to achieve the same ends through agency adjudications. n357 In pursuing regulatory aims agencies that can choose between rule making and adjudication may conclude that the latter is less burdensome. Adjudication almost surely would be more burdensome to the individual targets of adjudication, however, and would certainly reduce the extent of public participation in agency policy making. Nevertheless, the danger of wholesale shifts from rule making to adjudication is probably insignificant. Many agencies do not have a [*1308] choice to adjudicate in lieu of rule making, n358 and most have acquired habits and implemented procedures that are geared toward rule making.

B. Impediments to Communicating Analysis

Much of an analyst's job consists of communicating effectively the results of her analysis. Because the analyst's personal communications skills are beyond this Article's scope, this subpart of the Article will focus upon institutional impediments to policy communication.

1. Intra-agency Policy Management. -- For regulatory analysis to be an effective policy management tool, the upper level decision makers must communicate to the regulatory analysts a clear sense of the priority ranking of the agency's competing goals. n359 The regulatory analyst likewise must communicate to upper level decision makers the extent to which each regulatory option implements particular policies.

Impediments to using regulatory analysis as a policy management tool partly stem from upper level decision makers' inability or unwillingness to rank explicitly competing policy goals. n360 When this is true, there are no easy procedural or structural solutions to the policy management problem. Unwilling policy makers cannot be forced to manage policy, other than through personnel decisions that are also beyond the scope of this Article.

2. Communication with Reviewing Institutions and the Public. -- Regulatory analysts must communicate with reviewing institutions such as OMB and Congress. E.O. 12,291 ensures that OMB reviews the agency's regulatory analysis of major rules. n361 Indeed, the existing process for

communicating analysis to OMB and for conveying OMB policy preferences back to the agencies has generated a wealth of often acrimonious policy communication. n362

[*1309] Many agencies have adopted the practice of placing written communications from OMB in the public record, and OMB has apparently acquiesced. n363 This practice is commendable for two reasons. First, it helps insulate agencies from charges that OMB has usurped their decision-making powers. n364 Second, it helps make OMB, and ultimately the President, accountable to the public. n365 If the President has a particular policy agenda, the regulatory analysis document can effectively communicate that policy to the executive agencies. The President, however, should be responsible to the public for both the good and bad consequences of his agenda. n366 Placing written communications in the rule-making record can make the public aware of the sources of public policy in regulatory decision making. Accountability could be enhanced further by requiring recipients of OMB oral communications to reduce their content to writing and place them in the rule-making record. n367

Many regulatory analysts believe one of the most important benefits of regulatory analysis is that it enhances the quality of public participation [*1310] in the rule-making process. n368 This can only be accomplished if regulatory analysis is accessible to the public, and it is accessible only if sources of data are identified clearly. Regulatory analysis documents rarely contain original research; they generally draw upon and collect the work of others. n369 On some occasions, however, the regulatory analysis documents do not reveal clearly the sources of the information upon which they rely. n370 Agency analysts should identify fully the sources of all information, including consultants who aided the analytical effort. Although some sources of information, such as telephone surveys, may not have the respectability of a published scientific report, they should be identified and included in the public record. Interested members of the public must be able to examine the entire technical and economic basis for a rule and form their own opinions about the validity of the regulatory analysts' conclusions.

C. Impediments to the Use of Analysis

Even after the regulatory analysts have prepared and communicated a regulatory analysis to the agency decision makers, considerable institutional impediments to its effective use in the decision-making process remain. Technical staff in the program offices n371 and some upper level decision makers resist using analysis in regulatory decision making. n372 Political considerations n373 and the agency's structure n374 also may impede severely the extent to which agency decision makers can use

analysis. Finally, its use is hampered because it can be manipulated for purposes unrelated to applying comprehensive analytical rationality to regulatory problems. n375

1. Technical Staff Resistance to Analysis. -- Many agency analysts believe that technical staff resistance is the most significant barrier to using regulatory analysis effectively in regulatory decision making. n376 Technical personnel in the program offices often believe that analysis [*1311] wastes agency time and resources. They feel both superior to and threatened by the agency analysts. They feel superior because they believe that regulatory analysis lacks rigor in the sense that an engineer or health scientist understands that concept. They believe that regulatory analysis is instead a loose amalgam of cost and benefit projections stitched together from unscientific surveys of published and unpublished literature and resting on unsupportable assumptions.

The technical staff also feels threatened by analysis because it directly challenges the status quo approaches to regulatory problem solving that the technical staff historically has dominated. An effective analyst always asks questions, challenges assumptions, and suggests new options. The analyst may even challenge the basic premises underlying the entire regulatory program. Finally, when upper level decision makers follow analysts' advice, the technical staff's traditional dominance of the decision-making process is further threatened.

This resistance of program office personnel to analysis is similar to the resistance encountered in agency program offices by personnel responsible for preparing Environmental Impact Statements (EISs) in the early 1970s. Like the RIA, the EIS was intended to be a comprehensive analytical document that fundamentally changed agency thinking processes. From its inception, critics confidently predicted that resistance in the program offices would doom the EIS innovation. n377 Although more recent reviews of that process are mixed, n378 many current observers believe that NEPA has significantly affected agency decision making, despite the early resistance of development-oriented personnel in the agency program offices. n379 Whether regulatory analysis can overcome technical staff resistance depends on the inherent limitations of analysis, the commitment of upper level decision makers to comprehensive analytical rationality, and the manner in which regulatory analysis is integrated into the decision-making process.

[*1312] 2. Resistance of Upper Level Decision Makers and Political Considerations. -- Agency analysts also complain of resistance from upper level decision makers. n380 Upper level resistance to analysis, however, is not easily explained. The upper level decision maker may be unfamiliar with analytical thinking or may have adopted a techno-bureaucratic approach to decision making n381 much

like that of the program office staff. Indeed, upper level decision makers in some agencies are chosen from the program office. n382

Although upper level resistance to analysis may sometimes be explained by ignorance or narrow-mindedness, n383 the more likely explanation is a concern for the political viability of agency decisions, a concern that is sometimes incompatible with comprehensive analytical rationality. Analysts frequently complain that political considerations overwhelm their analyses. n384

Regulatory analysis has much to do with policy, but is in many ways antithetical to politics. n385 Analysis is unconcerned with the conflicting interests that are intensely affected by rule-making initiatives. Regulatory analysis can do little to facilitate the inevitable compromises among competing interest groups that are fundamental to successfully implementing any regulatory strategy. Agency analysts consequently believe that political considerations cause upper level decision makers to give little weight to their analyses.

Students of the regulatory process almost unanimously conclude that politics plays a prominent role in administrative policy making. n386 Many would argue that such a role is desirable in a representative democracy. n387 Given the capacity of regulatory analysis to mask policy preferences behind a facade of objective rationality, n388 the regulatory analysts' protests may reflect more than a little hypocrisy. Politics and regulatory analysis probably will always be at odds with one another in much the same way that comprehensive analytical rationality and techno-bureaucratic rationality are competing conceptions of rule-making [*1313] rationality. n389 That regulatory analysis plays any role in controversial rule-making actions is a victory for comprehensive analytical rationality. n390 The best decision making may in fact reflect the interplay of comprehensive analytical rationality, techno-bureaucratic thinking, and consideration of political concerns. n391

3. Alternatives Beyond the Agency's Statutory Authority. -- Brainstorming sessions among regulatory analysts and technical staff can yield alternatives that the agency lacks authority to implement. The agency's inability to implement these alternatives obviously impedes the use of analysis in the decision-making process. n392

Because the agency cannot lawfully choose a forbidden alternative, it arguably should not consume scarce resources analyzing that option. n393 Yet considering alternatives outside the agency's statutory authority can help inform Congress and the public of the effects of regulation. n394 If the

regulatory analysis reveals that the agency could not adopt a less costly or more stringent alternative because it lacked statutory authority, Congress might grant the agency more authority or more flexibility in implementing its existing authority. n395 Largely for this reason, OMB's regulatory analysis guidelines require regulatory analysts to search for options not authorized by the agency's statute. n396

Although considering unimplementable alternatives entails expense, [*1314] the value of the additional information may outweigh the cost. As with the EIS requirement, however, agencies should follow a rule of reason in selecting alternatives worthy of detailed study. n397 They should not waste scarce analytical resources studying approaches so far-fetched that they stand no reasonable chance of implementation in the near future. n398

4. Use of Analysis to Advance Substantive Goals. -- One of the important themes of recent regulatory reform is the substantive goal of regulatory relief. n399 Many regulatory reformers believe that the ability to secure regulatory relief is the primary measure of regulatory analysis' effectiveness. n400 There are, however, several objections to this use of regulatory analysis.

First, regulatory relief can conflict with declared congressional policy. n401 There are statutory limits to the regulatory decision maker's broad discretion. If regulatory analysis indicates that the preferred option would provide relief to the regulated industry and if that option runs counter to the agency's statute, the agency is not free to adopt it. Hence, regulatory analysis may not be used to provide regulatory relief that Congress has not authorized. n402

Second, promoting regulatory relief threatens the integrity of regulatory analysis. Analysis measures regulatory options against predetermined policy goals; it is incapable of defining those goals. Thorough analysis may indirectly advance regulatory relief goals, but good analysis need not necessarily yield that result. A thorough analysis may instead indicate that the regulatory response should be even more stringent. To rely upon regulatory analysis when it points toward one substantive end but deny it when it points to another is hypocritical.

Many critics believe that regulatory analysis currently is being used to provide regulatory relief by impeding or delaying the issuance of protective rules. n403 The review process for some important rules has consumed [*1315] several months or even years. n404 Thus, although regulatory analysis has stemmed the flow of rules, n405 it frequently has done so by brute force, rather than through the persuasiveness of its reasoning. n406

Critics also have challenged OMB's practice, sanctioned in E.O. 12,291, n407 of granting waivers from the regulatory analysis requirement for rules that provide regulatory relief. n408 Waiver proponents claim that no analysis is needed for a rule that demonstrably reduces the burden of government regulation. n409 They emphasize that many existing rules were promulgated without the benefit of analysis, and argue that it would be unfair to require an analysis before reducing the burdens of those rules. n410 They also argue that regulatory analysis requirements could delay major deregulatory initiatives. n411 Finally, they caution that the benefits of deregulatory actions may be more difficult to quantify than the [*1316] costs, thereby biasing the analysis against deregulation. n412

Critics of deregulatory waivers argue that it is duplicitous to complain of delays involved in preparing regulatory analysis documents for deregulatory actions and not be concerned about similar delays for regulatory actions. n413 Quantifying benefits is a difficulty that plagues both regulation and deregulation; n414 if regulatory analysis is inappropriate for deregulatory action, that rationale suggests the same for health, safety, and environmental regulation. Critics further warn that deregulatory initiatives can have hidden detrimental effects on some segments of regulated industries and that such initiatives therefore should be examined in a rational analysis before they are implemented. n415 Perhaps more significantly, deregulatory initiatives also can detrimentally affect human health and environmental quality. n416

Using regulatory analysis to secure relief for regulated industries discredits the analytical enterprise. If regulatory beneficiaries perceive analysis as a tool for furthering regulatory relief goals, they will object to both the tool and the goals. Because they mistrust regulatory analysis, they will condemn all decisions based upon regulatory analysis as politically motivated, thereby depriving the analysis of its primary virtue -- perceived objectivity. n417

Many program office officials strongly believe that regulatory analysis is currently used to advance particular substantive ends. This impression is almost universally shared by representatives of regulatory beneficiaries. n418 Even many regulatory analysts in the agencies agree [*1317] that regulatory analysis occasionally has been used as a weapon in a war against regulation, rather than as a tool to produce better regulation.

Regulatory analysis should be applied even-handedly. n419 If regulatory analysis is used to provide regulatory relief, it becomes merely another tactic in the endless conflicts over the outcome of

rule-making initiatives. This is a poor use of regulatory analysis, even if for no other reason than its considerable expense to the taxpayer. If regulatory analysis is not a useful analytical tool for shaping better regulations, it should be abandoned and not cynically deployed as a barrier to further regulation. Despite the frequent identification of regulatory analysis with the regulatory relief prong of the regulatory reform movement, regulatory relief is an inappropriate use for regulatory analysis.

VI. Regulatory Analysis and Judicial Review

The primary sources of regulatory analysis requirements for federal agencies, the Regulatory Flexibility Actⁿ⁴²⁰ and E.O. 12,291,ⁿ⁴²¹ envision only a modest role for judicial review of regulatory analysis. The Act and the Executive Order both explicitly state that an agency's failure to prepare a regulatory analysis document is not subject to judicial review.ⁿ⁴²² Thus, the regulatory analysis requirement varies significantly from the Environmental Impact Statement requirement,ⁿ⁴²³ which spawned a decade's litigation over whether the EIS requirement applied at all to certain agency actions.ⁿ⁴²⁴ An agency's failure to comply with its regulatory analysis responsibilities may be the subject of debate within the executive branch, but private parties cannot raise that question in reviewing courts.ⁿ⁴²⁵

[*1318] Failure to comply with the criteria for regulatory analysis preparation specified in the statute and the Executive Order is likewise not subject to judicial review. Although the regulatory analysis requirement of E.O. 12,291 has not been tested in court,ⁿ⁴²⁶ Judge Wald's thoughtful opinion in *Small Refiners Lead Phase-Down Task Force v. EPA*ⁿ⁴²⁷ directly addresses this issue under the Regulatory Flexibility Act. In that case, petitioners contended that EPA's initial and final Regulatory Flexibility Analyses (RFAs) for proposed and final rules on the content of tetraethyl lead in leaded gasoline did not conform to the Act's RFA content requirements.ⁿ⁴²⁸ The court held that although it could properly review RFA contents under the "arbitrary and capricious" test applicable to informal rule making, it could not review whether an RFA met the Act's content requirements.ⁿ⁴²⁹ The court acknowledged that in an appropriate case a reviewing court could strike down an agency rule because of a defect in the RFA, but restricted such cases to those in which the defect was critical to the reviewing court's analysis of the underlying rule's reasonableness.ⁿ⁴³⁰

Assuming that the RIA or RFA can be helpful to a court engaged in substantive review of regulatory rules, this subpart of the Article will, in light of the previous discussion on the strengths and

weaknesses of regulatory analysis, n431 suggest how the courts can best use regulatory analysis documents.

A. Regulatory Analysis and Agency Power

E.O. 12,291 and the Regulatory Flexibility Act do not expand [*1319] agency power; the source of that power remains in agency statutes. An agency thus cannot rely upon the Executive Order or the Act to take unauthorized action or to refrain from taking required action. n432 Further, under the "arbitrary and capricious" test for judicial review of rule making, an agency action may be set aside if the agency has "relied on factors which Congress has not intended it to consider." n433 These restraints on agency power and discretion raise the issue of whether regulatory analysis documents may lawfully discuss considerations that the agency is statutorily prohibited from considering in promulgating its final rule.

Even if an agency's statute precludes its decision makers from relying on some considerations discussed in the regulatory analysis document, a regulatory analysis can still be useful both to the agency and those outside the agency. n434 First, preparation of a regulatory analysis document can be helpful to the agency in establishing long-range priorities and in evaluating long-standing rules. n435 Regulatory analyses also can be useful in designing alternative regulatory strategies and in educating agency employees about the costs of regulations and the existence of alternative decision-making criteria. n436

Second, if Congress and the public become aware of an analysis, they can use it to evaluate the statute that precludes the agency's use of the analysis. Regulatory analysis can "rub everyone's nose in the senselessness of the statute." n437 Congress can amend the statute if it determines the statute is senseless. n438 Finally, a regulatory analysis document that reveals that the benefits of the agency's action outweigh its costs can render the agency's decision more acceptable to reviewing courts and the public. n439

Although few agency statutes preclude the use of any particular [*1320] form of analysis in deciding regulatory problems, n440 some do, either directly or by clear implication. n441 For example, the Supreme Court has held that OSHA may not base its health standards on cost-benefit analysis, n442 and the D.C. Circuit has held that the Clean Air Act does not allow EPA to consider costs in promulgating National Ambient Air Quality Standards. n443 Obviously, such statutory constraints are significant impediments to the use of analysis by agency decision makers. n444 E.O. 12,291, however, explicitly commands these same agencies to use regulatory analysis in the decision-making process. n445

Both agencies have resolved the contradictory commands by calculating the costs and benefits of regulations in compliance with the Executive Order, but refusing to use the analysis in the decision-making process. In EPA, for example, regulatory analysts in the Office of Air and Radiation painstakingly calculate the costs and benefits of National Ambient Air Quality Standards, and the documents are made available to agency work groups and upper level steering committees. n446 But the analyses do not undergo scientific peer review, and the Administrator refuses to read them. n447

This arrangement is disingenuous at best. The evolving contents of the regulatory analysis document are available to the agency's work group as it drafts the rule-making documents, and are often summarized in the trade press. n448 The work group considers the contents of the document as it narrows options, commissions technical analyses, and reviews [*1321] public comments. n449 Work group members undoubtedly rely on the cost and benefit information available to them as they brief upper level steering committees. Because of the attention given the regulatory analysis document at the lower levels of the rule-making process, denying the ultimate decision maker access to the document at the moment of choosing among a few narrowly drafted options does not effectively purge the agency decision-making process of the document's analysis. The institution already has considered costs and benefits, and the advice that the Administrator receives orally from subordinates reflects those considerations.

The legality of including information on forbidden considerations in regulatory analysis documents should not depend on whether the agency head has been insulated from the document. If agency staff may lawfully see the documents, the agency head should be able to see them. If, however, the agency head may not lawfully view that information, then the information should not lawfully be a part of the agency's regulatory analysis document.

The mere preparation and institutional consideration of a regulatory analysis document containing information and analysis of a forbidden consideration should not render a rule invalid. If one of the affected parties submitted the same information and analysis in a comment to the agency, the agency would not be reversed for failing to avert its institutional eyes. The origin of the information and analysis should not affect judicial review of the agency's decision. The regulatory analysis document should not acquire a forbidden status merely because agency decision makers usually devote more attention to staff analyses than to party comments.

The Supreme Court in *American Textile Manufacturers Institute v. Donovan*⁴⁵⁰ did not mean that the agency could not consider precluded information. Instead, it held that the agency could not rely upon such considerations in reaching a decision.⁴⁵¹ Concededly, there is a fine line between considering an argument and relying upon it. When an agency reaches a result consistent with an argument, it is difficult to determine whether an agency relied upon or merely considered that argument in reaching its result.

The problem can be solved formally by recognizing that the best [*1322] evidence of the considerations relied upon by an agency is the agency's written statement of basis and purpose. Because a reviewing court normally may not probe the mind of the administrator once the agency has explained itself to the public in writing,⁴⁵² the agency's action must stand or fall on that written explanation. A reviewing court, therefore, can uphold an agency rule if the agency does not rely upon the forbidden consideration in its statement of basis and purpose, and if the facts, analysis, and reasons given in the statement of basis and purpose, considered with the entire record, demonstrate that the agency's rule is not arbitrary and capricious. Conversely, if the agency relies upon a forbidden consideration in its statement of basis and purpose, even by reference to the information and analysis in the regulatory analysis document, the rule may be set aside under this formal approach.

The formal approach is probably satisfactory in most cases, but there may be cases in which petitioners can demonstrate that the agency did rely upon forbidden considerations, even though it did not mention them explicitly in its statement of basis and purpose. For example, a party might uncover a memorandum through a Freedom of Information Act⁴⁵³ request or a leak from an agency employee indicating that the forbidden consideration played an important role in the agency's decision. When a party presents such evidence, the court should set aside the agency rule if it determines that agency decision makers relied upon statutorily forbidden factors.

Agency records are often filled with irrelevant information and arguments. If the agency for other reasons, such as satisfying OMB or informing Congress and the public, prepares an RIA containing irrelevant information, it should not be reversed for that reason alone. On the other hand, regulatory analysis documents for major rules are expensive, and agencies should realistically weigh the costs against what may be the marginal value of information upon which it does not rely.

B. Regulatory Analysis and Rationality Review

The Administrative Procedure Act n454 and many agency statutes give the courts a substantive review function. Depending upon the statute, the reviewing court must set aside agency rules that are "arbitrary and capricious" or lack "substantial evidence" on the record as a whole. n455 [*1323] Whatever the test, the primary function of substantive judicial review is to ensure that agency rule making meets minimum standards of rationality. n456

Under the arbitrary and capricious test the court must "consider whether the decision was based on a consideration of the relevant factors and whether there has been a clear error of judgment." n457 More particularly, a reviewing court must find an agency decision arbitrary and capricious if

the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise. n458

Because the primary purpose of regulatory analysis is to apply comprehensive analytical rationality to rule making, n459 regulatory analysis should enhance substantive judicial review. The comprehensive analytical rationality paradigm is relatively similar to the ideal paradigm of rational legal reasoning. Legal reasoning breaks problems down into their component parts; identifies options in alternate decision rules; measures those options against previously articulated policy goals such as fairness, justice, and efficiency; and chooses the rule that most effectively satisfies those goals. n460 Because substantive judicial review focuses upon whether the agency exercised reasoned decision making, given the evidence in the rule-making record, a well-crafted regulatory analysis in the rule-making record may persuade a reviewing court that the agency did reach its decision rationally. n461 Regulatory analysis can accomplish this by effectively stating the agency's regulatory goals, identifying alternatives, providing [*1324] information and analysis on the advantages and disadvantages of the alternatives, and measuring each alternative against the statutory goals.

An RIA helped a rule survive judicial review in *Center for Auto Safety v. Peck*, n462 in which the court upheld the National Highway Traffic Safety Administration's (NHTSA) standard for automobile bumper crashworthiness. n463 Although the regulation was an abrupt departure from settled agency policy, the court nevertheless found that the agency was not arbitrary and capricious in reducing the standard's stringency. n464 The court relied heavily upon the agency's 263-page RIA, which comprehensively examined the costs and benefits of nine alternative standards. n465 The RIA defined the

debate, which pitted the agency and automakers against the insurance companies and consumer safety groups, for most of the important issues in the case. The court closely examined the RIA's tables in rejecting petitioners' arguments that the agency had erroneously calculated the costs and benefits of the new standard and several prominent alternatives. n466 The court concluded that numerous uncertainties, imperfections, and even mistakes in the agency's analysis were not significant enough to render the decision arbitrary and capricious. n467

Conversely, a reviewing court can point to a poorly done regulatory analysis document as evidence of arbitrary and capricious decision making. In *Thompson v. Clark*, n468 the court asserted that "if a defective regulatory flexibility analysis caused an agency to underestimate the harm inflicted upon small business to such a degree that, when adjustment is made for the error, that harm clearly outweighs the claimed benefits of the rule, then the rule must be set aside." n469 The district court in *Texarkana Livestock Commission v. Department of Agriculture* n470 appeared to adopt this approach when it examined the agency's analysis supporting its conclusion that the agency's brucellosis regulations would significantly affect only a few small entities. Because the agency had no information [*1325] to support its position, the court concluded that the rule-making process was arbitrary and capricious. n471

Finally, a regulatory analysis document can undermine a rule that strays too far from the document's predictions and analysis. The agency should at least explain in its preamble any significant departure from the document.

Although regulatory analysis should enhance the quality of judicial review, n472 the mere presence of a regulatory analysis document in the rule-making record does not itself guarantee rationality. An extremely comprehensive RIA could not save the agency's decision in *Motor Vehicle Manufacturers Association v. State Farm Mutual Automobile Insurance Co.*, n473 in which the Court reviewed NHTSA's decision to withdraw its "passive restraint" regulations. After studying the matter for almost a decade, the Secretary of Transportation in 1977 issued a standard requiring automobile manufacturers to install passive restraints -- automatic seatbelts or airbags -- on a phased basis beginning with large automobiles in the 1982 model year and extending to intermediate and small automobiles in the 1983 and 1984 model years. n474 In February 1981, the new Secretary of Transportation reviewed the standard in light of economic difficulties in the domestic auto industry. n475 After taking public comments and further studying the matter, the agency found that the standard would not produce significant safety benefits.

The agency noted that manufacturers planned to install detachable automatic seatbelts rather than airbags in ninety-nine percent of all new automobiles, n476 thus facilitating the permanent detachment of the automatic seatbelts; a passenger would have to act affirmatively to make the seatbelts automatic once again. n477 The RIA thus predicted that significant numbers of passengers would permanently detach the automatic seatbelts, thereby rendering the standard ineffective. n478 Because the automatic seatbelts would not produce significant safety benefits under these conditions, the agency concluded that the passive restraint standard should be withdrawn. n479

[*1326] The Supreme Court found this reasoning process to be arbitrary and capricious. n480 First, the agency should have considered modifying the standard to require that manufacturers use airbag technologies. n481 The agency did not explain why the failure of automatic seatbelts dictated that the passive restraint standard should be rescinded completely. n482 The failure of automatic seatbelts at best justified amending the standard to eliminate the detachable automatic seatbelt option; it did not cast doubt on the need for a passive restraint standard or upon the efficacy of the airbag technology. The agency irrationally failed to consider the "airbags only" option. n483

Second, the Court found that the agency too quickly dismissed the safety benefits of automatic seatbelts. The Court agreed with the agency that substantial uncertainties about the efficacy of a regulation could justify its withdrawal, but only if they were supported by the record and reasonably explained. n484 The Court recognized that "[i]t is not infrequent that the available data does not settle a regulatory issue and the agency must then exercise its judgment in moving from the facts and probabilities on the record to a policy conclusion." n485 Nevertheless, an agency may not "merely recite the terms 'substantial uncertainty' as a justification for its actions." n486 In this case, the agency's explanation failed to persuade the Court that "the rescission was the product of reasoned decisionmaking." n487

The Court found no direct evidence in the record that an automatic seatbelt requirement would fail to increase seatbelt usage substantially; the evidence was equivocal at best. n488 The Court reasoned that the agency's conclusion that it could not predict even a five percent increase in seatbelt use failed to consider a critical difference between automatic seatbelts and manual seatbelts -- inertia. n489 The agency had earlier claimed that inertia operated against the use of manual seatbelts, because an affirmative act of buckling up was necessary to secure their safety benefits. n490 The Court reasoned that the same inertia would operate in favor of automatic seatbelts, because it would take an affirmative act

to [*1327] detach the seatbelt. n491 The agency, however, had failed to apply its expertise to this issue. n492

The agency also failed to explain adequately why it did not require nondetachable belts, such as "continuous spool" belts. The agency's primary rationale for not requiring such a safeguard was that the requirement might trigger adverse public reaction. n493 The Court also found this assertion to be unsupported by the record and unexplained. n494

NHTSA's experience with the passive restraint standard indicates that regulatory analysis does not necessarily enhance the quality of the agency's decisions. The RIA for this rule-making decision n495 was one of the most thorough and extensive ever produced by an agency. The information in the RIA, however, did not support the agency's decision, but instead undermined it. The Court used information in the RIA to reveal the inadequacy of the agency's reasoning process. n496 More importantly, the regulatory analysis process failed to raise and examine an obvious alternative regulatory approach. Someone in the agency must have identified the airbags only option. Many of the people who worked on the 1981 recision also had worked on the 1977 Modified Standard, n497 which considered and rejected that option in order to provide more flexibility for the automobile industry. But in the deregulatory fervor of 1981, apparently no one in either the regulatory analysis office or the program office was willing to press strongly for airbags only. Because everyone knew that the Administrator would be unreceptive to the airbags only option, n498 it was neither carefully examined in the RIA nor included in the agency's public rationale. Obviously, however, the option did not escape the attention of the reviewing courts. The passive restraint case may be an instance in which the Administrator reached a decision dominated by irrelevant political considerations instead of relying on either techno-bureaucratic or comprehensive analytical thinking.

A good regulatory analysis document will reveal both the strengths and the weaknesses of an agency's approach to a problem. It will also [*1328] inform Congress, the public, and the reviewing courts of the goals that the agency wishes to advance, the prominent alternatives for achieving those goals, the assumptions and inferences underlying the agency's reasoning process, and the data and information available on the relevant issues. Candor is absolutely critical to these functions.

Unfortunately, fear of reversal in reviewing courts can induce regulatory analysts and agency attorneys to gloss over uncertainties and represent the selected alternative as more attractive than the facts warrant. Agency analysts are intensely aware of the fact that intelligent lawyers disparage regulatory

analysis documents on judicial review by seizing upon any absence of critical data and any apparent gap in the agency's reasoning process.ⁿ⁴⁹⁹ Agency analysts feel pressure to state conclusions with more confidence than is warranted, to base predictions on single models that lead to predetermined results, and to stress agency expertise at all critical junctures. In short, judicial review itself pressures agency analysts to turn regulatory analysis documents into advocacy documents.

This development is unfortunate for several reasons. First, agency analysts and other technical staff are forced to abandon their roles as professional assessors and analyzers of information and become advocates of positions. Enough internal pressures already exist that encourage analysts and program office staff to take adversarial stances. The quality of agency decision making will suffer if agency personnel are encouraged early in the rule-making process to adopt a partisan approach to public concerns.

Second, if agency analysts adopt an adversarial approach in regulatory analysis documents, the public will be less informed about the true basis for agency decisions. When analysts diminish uncertainties, hide assumptions, and purport to find facts that cannot be found, the reviewing public never sees the policy considerations that motivate the analysts in performing these functions. Policy laden prescriptions appear to be supported by facts accessible only to the experts, and the experts remain unaccountable for the policies that they adopt *sub silentio*. Democratic oversight of important social decisions thereby suffers.

Finally, for much the same reasons, the quality of judicial review also will suffer. Reviewing judges cannot hope to match wits with agency experts on technical issues of enormous complexity, even when [*1329] aided by two or more groups of lawyers. An agency probably will succeed in hiding policy judgments behind the veneer of technical expertise if it so desires, especially if assumptions can be concealed in a complex mathematical model. When agencies adopt such a disingenuous approach the courts are less able to perform their most important substantive review function -- determining whether the policy considerations underlying the assumptions and inferences that support agency predictions are consistent with the agency's statute.

Courts can encourage agency candor by resisting attempts by litigants to derogate regulatory analysis documents. Because they address questions plagued by multiple uncertainties and a scarcity of information, regulatory analysis documents are especially vulnerable to criticism. A bright lawyer and two or three technical aides can make almost any regulatory analysis document appear to be

irrational. Reviewing courts must recognize that agency analytical efforts are imperfect, but that imperfections usually do not render the agency's final determinations irrational. n500

For example, in *Center for Auto Safety*, n501 the agency virtually ignored the option that was based upon the higher estimate of benefits and lower estimate of costs for the more stringent standard. n502 The petitioners complained that this was irrational, because that was the option most favorable to them and least favorable to the agency's final position. n503 The agency, however, persuaded the court that the agency's cost and benefit estimates for that option were based upon an extremely unlikely set of clearly articulated assumptions that would probably never occur. n504 The court approved the agency's rejection of that option despite the obvious irrationality of a second reason for the option's rejection included in the RIA. The court noted that the irrational portion of the RIA bore "every evidence of having been inserted as a make-weight by someone who had not the slightest idea what he was talking about." n505 Because the rejection of the option was supported, however, on the alternative ground of improbability in the RIA, n506 the court did not seize [*1330] upon the irrational consideration to set aside the rule.

If regulatory analysis is to achieve its potential, the courts must follow the deferential approach of reviewing regulatory analysis documents outlined in *Center for Auto Safety*. Decisions can be evaluated only if their assumptions and policies underlying those assumptions are stated explicitly. Stringent judicial review of regulatory analysis will only encourage agencies to hide behind a cloak of expertise, and thereby stifle policy debate.

VII. Conclusion and Recommendations

Regulatory analysis is currently in a state of awkward adolescence. n507 It has emerged from its infancy, but not yet matured. Often noisy and clumsy, it generally commands little respect. But despite its considerable shortcomings, regulatory analysis has important virtues. It can help decision makers and the public examine the advantages and disadvantages of regulatory options. It also can help decision makers make rational and informed decisions, although it cannot fully inform or precisely point to rational conclusions. Perhaps more importantly, it can encourage the decision maker to articulate policy preferences and demonstrate to the public how those policy preferences were applied in important rule-making initiatives. If the public and the regulatory beneficiaries are convinced that regulatory analysis is not being used cynically to reach particular substantive results, it can become an effective mechanism for enhancing public accountability.

The regulatory analysis process can be improved. Many of the limitations of comprehensive analytical thinking can be avoided. For example, because of the substantial limitations of quantitative techniques in the area of social regulation, n508 quantitative models should not be allowed to oversimplify complex decision-making considerations. To avoid this, regulatory analysis documents should state clearly the major nonobvious assumptions that undergird the models used. The documents should discuss in qualitative terms important decision-making variables that are not subject to quantitative analysis. When regulatory analysis documents do make quantitative predictions, they should characterize the uncertainties included in the predictions by using confidence [*1331] intervals, multiple assessment models, sensitivity analysis, and worst case analysis. Finally, the documents should not focus attention on quantitative variables to the exclusion of unquantified "softer" considerations.

The considerable limitations of cost-benefit analysis n509 can be avoided by recognizing that cost-benefit analysis alone cannot dictate regulatory results in most regulatory contexts. It should be used instead to achieve more modest ends, such as setting agency priorities and structuring agency options. The less ambitious cost-effectiveness analyses n510 may be more appropriate for rule-making initiatives that affect health, environmental, historical, artistic, and aesthetic considerations for which markets do not exist. In addition, because cost-benefit analysis does not address distributional impacts of regulations, agencies should use other tools to display such impacts for decision makers. Finally, when agencies use cost-benefit analysis in regulatory analysis documents, they should explicitly state the discount rates they use. Agencies also should use more than one discount rate to clarify the projections' sensitivity to the different discount rates and to make explicit the value the agency assigns to future benefits.

Beyond recognizing and avoiding the limitations on the analytical enterprise, agencies can improve regulatory analysis by reducing or eliminating barriers to its effective preparation, communication, and use. One virtue of regulatory analysis is its ability to identify innovative regulatory options, n511 which can be accomplished only if regulatory analysis becomes an integral part of the internal agency decision-making process. Agencies should not begin intensive information-gathering and other analytical efforts on rules until agency technical staff and agency regulatory analysts have identified a broad range of regulatory options. Agency regulatory analysts should become involved in the decision-making process early in the evolution of a rule, before innovative alternatives have been eliminated. Finally, agencies should experiment with a phased system of reducing options. Under a phased system, the agency should identify a large number of options initially for brief study. As options

are rejected, the remaining options should be analyzed with increasing thoroughness. When resource constraints preclude an agency from considering an option in greater detail, the regulatory analysis document should list the option and explain why the option did not warrant further study.

Accurate information about the costs and economic impacts of proposed rules is essential to the regulatory analysis process, and the almost [*1332] exclusive source of this information is the regulated industry. Agencies should have the statutory power to obtain this information from the regulated parties. Congress should give agencies that must prepare regulatory analysis documents authority to obtain cost and economic impact information from parties subject to adequate protections against the disclosure of trade secrets and other commercial and financial information. OMB should coordinate its regulatory analysis review function with its paperwork reduction function so that it approves information gathering activities designed to yield information that it is likely to require later in the review process. Agencies should coordinate their sponsored research activities with their regulatory analysis initiatives by structuring the decision-making process to allow regulatory analysts to participate in setting long-term research priorities. In particular, agencies should allow a representative from the office responsible for agency-sponsored research to participate at the very early stages when informational needs are defined.

One of the gravest threats to regulatory analysis is the perception that it is biased against regulation. Agencies should reduce the impact of bias in the information sources they use in preparing regulatory analysis documents, although agencies should not ignore or discount the value of information simply because it comes from a source with an interest in the rule-making outcome. Agencies can reduce bias by: (1) consulting, whenever possible, multiple sources of information in preparing regulatory analysis documents; (2) carefully citing all information upon which the analysis is based in regulatory analysis documents, and making the information available for public scrutiny at convenient times and places; and (3) subjecting important studies relied on by the agencies in regulatory analysis documents to review by experts in the fields that the documents address. Finally, agencies can reduce the perception of bias by attempting cooperative regulatory impact assessment, which would involve gathering representatives from all affected parties to assess the validity of particular studies prior to relying upon them.

Retrospective analyses of the predictions made in previous regulatory analysis documents can reveal the accuracy of agency predictions and enable agencies to enhance the accuracy of future

predictions. Retrospective analyses also can be useful in assessing the value of regulatory analysis to an agency's regulatory effort.

Agencies and reviewing courts can facilitate the effective use of regulatory analysis in the decision-making process. Regulatory analysis documents that detail, to the extent possible, the costs and benefits of regulations should be made available to Congress and the public, even if they include information or considerations that the agency decision [*1333] maker may not rely upon in promulgating a rule. Regulatory analysis documents also should consider reasonably available options, even if the agency is not empowered to implement some of those options. Regulatory analysis documents that consider options outside the agency's authority should be given to agencies or other institutions empowered to pursue them.

Courts should not overturn a rule-making effort solely because a regulatory analysis document addresses factors that the agency is statutorily forbidden to consider. Instead, they should examine carefully the agency's statement of basis and purpose and any additional evidence that the agency relied on improper considerations. Courts also should avoid forcing agencies to use regulatory analysis disingenuously by discouraging litigants from disparaging regulatory analysis documents and by recognizing the limitations of and impediments to analysis.

Finally, regulatory analysis should not be used to achieve particular substantive ends. To avoid the suspicion that analysis is being used for political purposes, agencies should reduce to writing OMB communications to the agencies addressing regulatory analysis documents and place them in the rule-making record. Agencies should not request nor should OMB grant exemptions from the regulatory analysis requirements for deregulatory rules.

Implementing these recommendations may help agencies effectively integrate regulatory analysis into the decision-making process. Whether the virtues of regulatory analysis, discounted by its limitations, justify the considerable monetary cost of preparing the documents after the recommendations are implemented is a question about which reasonable minds can differ. Whether regulatory analysis matures into a successful tool for achieving sensible regulation or withers away in acrimonious debate is largely within the hands of its proponents.

FOOTNOTES:

n1 For example, the Federal Reserve System, the National Credit Union Administration, the Consumer & Marketing Service of the Department of Agriculture, the Social Security Administration of the Department of Health, Education & Welfare, and the Federal Maritime Commission. See 36 Fed. Reg. 19706 (1971); 35 Fed. Reg. 18533 (1970); 34 Fed. Reg. 207 (1969); 32 Fed. Reg. 8916 (1967); 31 Fed. Reg. 5575 (1966).

n2 See, e.g., Hamilton, *Procedures for the Adoption of Rules of General Applicability: The Need for Procedural Innovation in Administrative Rulemaking*, 60 CALIF. L. REV. 1276, 1283-1313 (1972) (arguing that the procedures developed for formal rule making are time-consuming, costly, and burdensome on the agencies).

n3 5 U.S.C. § § 551-559, 701-706 (1982).

n4 5 U.S.C. § 553 (1982).

n5 See, e.g., Occupational Safety and Health Act of 1970, 29 U.S.C. § 651(b) (1982) (declaring that Congress' intent is "to assure as far as possible every working man and woman in the Nation safe and healthful working conditions and to preserve our human resources"); Federal Water Pollution Control Act, 33 U.S.C. § 1251(a) (1982) (stating that the Act's objective is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters"); Clean Air Act, 42 U.S.C. § 7401(b) (1982) (stating that the Act's purpose is "to protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population").

n6 See, e.g., Occupational Safety and Health Act of 1970, 29 U.S.C. § 655(b) (1982); Federal Water Pollution Control Act, 33 U.S.C. § 1251(e) (1982); Clean Air Act, 42 U.S.C. § 7409 (1982).

n7 See generally McGarity, *Regulatory Reform and the Positive State: An Historical Overview*, 38 ADMIN. L. REV. 399, 407-09 (1986) (discussing the shift by agencies from adjudication to informal rule making and providing the example of the Federal Trade Commission's proposed rules regulating cigarette warnings and gasoline octane rating labels).

n8 See *The Regulatory Reform Act of 1983: Hearing on S. 1080 Before the Subcomm. on Administrative Practice and Procedure of the Senate Comm. on the Judiciary*, 98th Cong., 1st Sess. 150 (1983) (statement of Christopher DeMuth, Administrator for Information and Regulatory Affairs, Office of Management and Budget of the Executive Office of the President (OMB)); Darman & Lynn, *The Business-Government Problem: Inherent Difficulties and Emerging Solutions*, in BUSINESS AND PUBLIC POLICY 39, 48-52 (J. Dunlop ed. 1980); Jones, *Natural Resources and the Environment*, in AGENDA FOR PROGRESS: EXAMINING FEDERAL SPENDING 105, 111-26 (E. McAllister ed. 1981) [hereinafter AGENDA FOR PROGRESS]; Moore, *Transportation*, in AGENDA FOR PROGRESS, *supra*, at 159, 162-74.

n9 See generally McGarity, *Regulatory Reform in the Reagan Era*, 45 MD. L. REV. 253, 254 (1986) (categorizing the regulatory reform efforts of the last decade).

n10 See, e.g., Tucker, *Environmentalism: Does It Require Regulation?*, in REGULATORY REFORM: NEW VISION OR OLD CURE? 177, 181 (1985) (arguing that, rather than solving environmental problems, "government intervention in the marketplace has caused most of the environmental problems we have today" (emphasis in original)); President's Message to Congress on Regulatory Program of the United States Government, 21 WEEKLY COMP. PRES. DOC. 969 (Aug. 12, 1985) (stating that "regulatory expenditures had grown out of control" by 1980).

n11 G. EADS & M. FIX, RELIEF OR REFORM? REAGAN'S REGULATORY DILEMMA 88 (1984).

n12 See *id.* at 95-99. See generally *id.* at 20-33 (discussing the costs of social regulation and the different methods that attempt to measure these costs).

n13 See DeMuth, *A Strong Beginning on Reform*, REG., Jan.-Feb. 1982, at 15-17.

n14 The Reagan administration's unsuccessful efforts to provide regulatory relief through legislation included a proposed rewriting of the Clean Air Act and an attempted dismantling of the Consumer Product Safety Commission. McGarity, *supra* note 9, at 268-69.

n15 See generally Breyer, *Analyzing Regulatory Failure: Mismatches, Less Restrictive Alternatives, and Reform*, 92 HARV. L. REV. 549, 553-609 (1979) (presenting justifications for and alternatives to regulation).

n16 G. EADS & M. FIX, *supra* note 11, at 99.

n17 See Silberman, *Extending Government Accountability to the Independent Agencies*, in REFORMING REGULATION 38, 39 (1980).

n18 See DeMuth, *The Regulatory Budget*, REG., Mar.-Apr. 1980, at 29; Neustadt, *The Administration's Regulatory Review Program: An Overview*, 32 ADMIN. L. REV. 129, 152-53 (1980).

n19 G. EADS & M. FIX, *supra* note 11, at 99-101.

n20 See Neustadt, *supra* note 18, at 143.

n21 See *Regulatory Reform, 1979: Hearings Before the Subcomm. on Labor of the Senate Comm. on the Judiciary*, 96th Cong., 1st Sess. 75, 76 (1979) (statement of Richard B. Stewart, Professor, Harvard Law School); Zeckhauser & Shepard, *Principles for Saving and Valuing Lives*, in THE BENEFITS OF HEALTH AND SAFETY REGULATION 91, 92 (1981); *Discussion of Part II*, in THE BENEFITS OF HEALTH AND SAFETY REGULATION, *supra*, at 131, 134 (statement of William Nordhaus, Council of Economic Advisors).

n22 See Schuck, *A Tool for Assessing Social Legislation*, in REFORMING REGULATION, *supra* note 17, at 117, 119-20.

n23 See E. MISHAN, *ECONOMICS FOR SOCIAL DECISIONS: ELEMENTS OF COST-BENEFIT ANALYSIS* 11-13 (1973).

n24 See Sheils, *What Price Regulation?*, NEWSWEEK, Mar. 19, 1979, at 79, 79; Palmer, *The Rising Risks of Regulation*, TIME, Nov. 27, 1978, at 85, 85.

n25 Exec. Order No. 12291, 3 C.F.R. 127 (1982), *reprinted in* 5 U.S.C. § 601 app. at 431-34 (1982) [hereinafter E.O. 12291].

n26 See *infra* subpart II(A). Some states also have attempted to implement rational decision making through regulatory analysis. Illinois, for example, has instituted a cost-benefit program aimed at rule-making agencies. See Croke & Herlevsen, *Environmental Cost-Benefit Analysis: The Illinois Experience*, in COST-BENEFIT ANALYSIS AND ENVIRONMENTAL REGULATIONS: POLITICS, ETHICS, AND METHODS 15 (1982) [hereinafter COST-BENEFIT ANALYSIS AND ENVIRONMENTAL REGULATIONS].

n27 Courts have required agencies to provide a "reasoned explanation" for their decisions as part of the "statement of basis and purpose" requirement of the Administrative Procedure Act, 5 U.S.C. § 553 (1982). See, e.g., *Automotive Parts & Accessories Ass'n v. Boyd*, 407 F.2d 330, 338 (D.C. Cir. 1968) (requiring that the general statement of basis and purpose discuss the major policy issues involved and "why the agency reacted to them as it did"); see also *Portland Cement Ass'n v. Ruckelshaus*, 486 F.2d 375, 384-85 (D.C. Cir. 1973) (interpreting the statement of reasons required by § 111 of the Clean Air Act as the "functional equivalent" of Environmental Impact Statements). See generally 1 K. DAVIS, *ADMINISTRATIVE LAW TREATISE* § 6:12 (1978) (discussing judicial interpretation of § 553 of the Administrative Procedure Act with respect to the findings and reasons requirement). Except when an agency's statute made economic impact absolutely irrelevant, this requirement alone meant that an agency was ill-advised to ignore the economic and other impacts of their rule on regulatees and the general public. *Id.* § 6:12, at 501-05.

n28 42 U.S.C. §§ 4321-4370a (1982).

n29 *Id.* § 4332(c). See generally F. ANDERSON, *NEPA IN THE COURTS* 56-106 (1973) (discussing what constitutes major federal action); McGarity, *The Courts, the Agencies, and NEPA Threshold Issues*, 55 TEXAS L. REV. 801, 837-63 (1977) (discussing the types of federal actions requiring impact statements as interpreted by the courts and intended by Congress).

n30 See generally G. EADS & M. FIX, *supra* note 11, at 46-50 (discussing the Nixon administration's Quality of Life Review process).

n31 Exec. Order No. 11821, 3 C.F.R. 926 (1971-1975).

n32 Exec. Order No. 12044, 3 C.F.R. 152 (1979).

n33 *Id.* § 3.

n34 *Id.* § 5.

n35 E.O. 12291, *supra* note 25. Four years after promulgating E.O. 12,291, President Reagan signed E.O. 12,498, which established an executive review process that consolidated the OMB's power to guide the rule-making process in executive agencies from the inception of a rule to the publication of the final product in the Federal Register. Exec. Order No. 12498, 3 C.F.R. 323 (1986), *reprinted in* 5 U.S.C. § 601 app. at 40-41 (Supp. II 1984). This later executive order, however, has little

impact on the process of drafting and reviewing regulatory impact analyses, and thus arises only tangentially in the discussion that follows.

n36 E.O. 12291, *supra* note 25, § 2.

n37 *Id.* § 3.

n38 *Id.* § 6.

n39 See McGarity, *supra* note 9, at 268-69. Congress considered but failed to pass the Clean Air Act Amendments of 1981, H.R. 5252, 97th Cong., 1st Sess. § 102 (1981), reprinted in *Clean Air Act (Part 3): Hearings on H.R. 5252 Before the Subcomm. on Health and the Environment of the House Comm. on Energy and Commerce*, 97th Cong., 2d Sess. 6-10 (1982); the Omnibus Regulatory Reform Act of 1981, S. 1080, 97th Cong., 1st Sess. § § 2-3, 127 CONG. REC. 7938-39 (1981); administration-proposed reforms of the Clean Water Act, S. 2652, 97th Cong., 2d Sess. § 7 (1982), reprinted in *Clean Water Act Amendments of 1982: Hearings on S. 777 and S. 2652 Before the Subcomm. on Environmental Pollution of the Senate Comm. on Environment and Public Works*, 97th Cong., 2d Sess. 302-10 (1982); and industry-proposed reforms of the Federal Insecticide, Fungicide and Rodenticide Act, H.R. 5203, 97th Cong., 2d Sess. § § 3-4, 128 CONG. REC. 20488-92 (1982).

n40 5 U.S.C. § § 601-612 (1982).

n41 *Id.* § 603.

n42 E.O. 12291, *supra* note 25. See generally G. EADS & M. FIX, *supra* note 11, at 102-33 (examining President Reagan's oversight program in light of the recognized goals and constraints of prior administrations); Raven-Hansen, *Making Agencies Follow Orders: Judicial Review of Agency Violations of Executive Order 12,291*, 1983 DUKE L.J. 285, 329-51 (arguing for judicial review of agency violations of E.O. 12,291, and proposing a general framework for determining when judicial review of managerial executive orders is appropriate).

n43 The comprehensive "command" section of the Executive Order requires that "to the extent permitted by law," regulations are to "be based on adequate information concerning the need for and consequences of proposed government action." E.O. 12291, *supra* note 25, § 2(a).

n44 To the extent permitted by law, agencies were not to undertake regulatory action "unless the potential benefits to society for the regulation outweigh the potential costs." *Id.* § 2(b). In choosing among regulatory objectives and alternatives, agencies were to choose the one that maximized net benefits and minimized net costs. *Id.* § 2(c)-(d). Finally, agencies were required to "set regulatory priorities with the aim of maximizing the aggregate net benefits to society, taking into account the conditions of the particular industries affected by regulations, the condition of the national economy, and other regulatory actions contemplated for the future." *Id.* § 2(c).

n45 *Id.* § 3(c)(2). A "major rule" is any regulation that is likely to result in:

(1) An annual effect on the economy of \$ 100 million or more;

(2) A major increase in costs or prices for consumers, individual industries, Federal, State, or local government agencies, or geographic regions; or

(3) Significant adverse effects on competition, employment, investment, productivity, innovation, or on the ability of United States-based enterprises to compete with foreign-based enterprises in domestic or export markets.

Id. § 1(b). The agency must also prepare in the preamble to any proposed rule a "brief statement" setting forth its reasons for determining that the rule is or is not "major." *Id.* § 3(g)(1). OMB, however, has the power to designate any rule as "major." *Id.* § 3(b).

n46 *Id.* § 3(d).

n47 *Id.* § 6(a)(4).

n48 *Id.* § § 3(b), 6(a)(2).

n49 *Id.* § 3(e).

n50 *Id.* § 3(f). The Executive Order provides exemptions for formal rule making, *id.* § 1(a)(1); military and foreign affairs functions, *id.* § 1(a)(2); rules related to personnel and management, *id.* § 1(a)(3); emergency rules, *id.* § 8(a)(1); and cases in which compliance with the RIA would conflict with statutory or court-ordered deadlines, *id.* § 8(a)(2). OMB can exempt any class or category of regulations from the provisions of the Executive Order, *id.* § 8(b), and independent agencies are specifically

exempted, *id.* § 1(d). However, Vice President Bush requested that the independent agencies cooperate with the spirit of the Executive Order. U.S. REGULATORY COUNCIL, A SURVEY OF TEN AGENCIES' EXPERIENCE WITH REGULATORY ANALYSIS 7 n.* (1981).

n51 E.O. 12291, *supra* note 25, § 9. For a discussion of judicial review of regulatory analysis, see *infra* part VI.

n52 Office of Management & Budget, Executive Office of the President, Interim Regulatory Impact Analysis Guidance (June 13, 1981), *reprinted in* [Current Developments] 12 Env't Rep. (BNA) 258-59 (June 19, 1981) [hereinafter Interim RIA Guidance]. Final guidelines have not been issued.

n53 Several agencies have also promulgated guidelines for RIA preparation. See, e.g., OFFICE OF INDUS. POLICY, U.S. DEPT OF TRANSP., GUIDANCE FOR REGULATORY EVALUATIONS: A HANDBOOK FOR DOT BENEFIT-COST ANALYSIS (1982); OFFICE OF POLICY ANALYSIS, ENVIRONMENTAL PROTECTION AGENCY (EPA), GUIDELINES FOR PERFORMING REGULATORY IMPACT ANALYSIS (1983).

n54 See Interim RIA Guidance, *supra* note 52, at 258-59.

n55 *Id.* at 259.

n56 *Id.*

n57 *Id.*

n58 5 U.S.C. §§ 601-612 (1982). The Act applies to independent agencies as well as other executive agencies. See *id.* § 601; see also S. REP. NO. 1322, 95th Cong., 2d Sess. 1 (1978) (stating that the bill extends "to the independent regulatory commissions as well as to the executive branch agencies").

n59 For purposes of the Regulatory Flexibility Act, "small business" has the same meaning as "small-business concern" under the Small Business Act, 15 U.S.C. §§ 631-650 (1982), unless, after public comment, the agency publishes a different definition. 5 U.S.C. § 601(3). The Small Business Act defines a "small-business concern" as "one which is independently owned and operated and which is not dominant in its field of operation: *Provided*, . . . an agricultural enterprise shall be deemed to be a small business concern if it (including its affiliates) has annual receipts not in excess of \$ 500,000." 15 U.S.C.A. § 632(a) (West Supp. 1987).

n60 The term "small organization" is defined as "any not-for-profit enterprise which is independently owned and operated and is not dominant in its field." 5 U.S.C. § 601(4).

n61 "Small governmental jurisdiction" is defined as "governments of cities, counties, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand." *Id.* § 601(5).

n62 *Id.* § 601(6).

n63 Verkuil, *A Critical Guide to the Regulatory Flexibility Act*, 1982 DUKE L.J. 213, 215-16.

n64 5 U.S.C. § 601.

n65 *Id.* § 602(a)(1). The Act does not define the terms "significant economic impact" or "substantial number."

n66 *Id.* § 603.

n67 *Id.* § 604.

n68 *Id.* § 608(a).

n69 *Id.* § 608(b).

n70 *Id.* § 603(b)-(c). Examples of significant alternatives include establishing different compliance or reporting requirements or timetables for small entities; clarifying, consolidating, or simplifying compliance and reporting requirements; using performance rather than design standards; and entirely or partially exempting small entities from the rule. *Id.* § 603(c).

n71 *Id.* The Act is quite clear that its regulatory analysis requirements "do not alter in any manner standards otherwise applicable by law to agency action." *Id.* § 606. However, unless otherwise applicable standards preclude the agency from analyzing alternatives that it could not choose, the regulatory analysis requirements of § 603 and § 604 of the Regulatory Flexibility Act seem to require that these alternatives nevertheless be analyzed. *Id.* § 603-604. This analysis would not necessarily be a futile exercise. Although of little practical use to the agency decision maker, the analysis could be valuable to Congress and the public in deciding whether to empower the agency to adopt the alternatives in the future. See *infra* subpart V(C)(3).

n72 5 U.S.C. § 604(a)(1)-(3).

n73 *Id.* § 607.

n74 *Id.* § 611.

n75 *Id.* §§ 602(b), 603(a), 605(b), 612(a)-(c).

n76 *See id.* § 612. The Chief Counsel for Advocacy of the Small Business Administration testified, "Our powers are mostly ones of admonishment. . . . The most we can do really is finger point and create a ruckus and come up and complain to [Congress] and do a lot of things that will put the heat on the agencies." *Oversight of Regulatory Flexibility Act (Part 1): Hearings Before the Subcomm. on Export Opportunities and Special Small Business Problems of the House Comm. on Small Business, 97th Cong., 1st Sess. 94 (1981)* (statement of Frank S. Swain, Chief Counsel for Advocacy, Small Business Administration) [hereinafter *Regulatory Flexibility Act Oversight Hearings*].

n77 E.O. 12291, *supra* note 25, § 6(b).

n78 Office of Management & Budget, *Incorporating Regulatory Flexibility into the Regulatory Process: Interim Guidance* (Dec. 1980) (unpublished document) (copy on file with author).

n79 *See supra* text accompanying notes 21-23.

n80 *See* G. EDWARDS & I. SHARKANSKY, *THE POLICY PREDICAMENT: MAKING AND IMPLEMENTING PUBLIC POLICY* 6-10 (1978); C. LINDBLOM, *THE POLICY-MAKING PROCESS* 5-6 (1968); Diver, *Policymaking Paradigms in Administrative Law*, 95 HARV. L. REV. 393, 396 (1981); Rodgers, *Judicial Review of Risk Assessments: The Role of Decision Theory in Unscrambling the Benzene Decision*, 11 ENVTL. L. 301, 310-11 (1981).

n81 *See* Gore & Dyson, *Introduction*, in *THE MAKING OF DECISIONS: A READER IN ADMINISTRATIVE BEHAVIOR* 4 (1964) [hereinafter *THE MAKING OF DECISIONS*]; Silberman, *Policy Analysis: Boon or Curse for Politicians?*, in *BUREAUCRATS, POLICY ANALYSTS, STATESMEN: WHO LEADS?* 37, 39 (R. Goldwin ed. 1980) [hereinafter *BUREAUCRATS, POLICY ANALYSTS*].

n82 *See* Lindblom, *The Science of "Muddling Through,"* 19 PUB. ADMIN. REV. 79, 81-88 (1959).

n83 The essential elements of a rational policy analysis have been repeated many times in policy analysis texts. Edwards and Sharkansky list the following elements of a rational policy analysis:

- (1) Identify a problem and its cause(s).
- (2) Clarify and rank goals with respect to the problem.
- (3) Collect all relevant options for meeting each goal and all available information on the options.
- (4) Predict the consequences of each alternative and assess them according to standards such as efficiency and equity.
- (5) Select the alternative that comes closest to achieving the goal and is most consistent with the standard of evaluation.

G. EDWARDS & I. SHARKANSKY, *supra* note 80, at 7; *see also* C. LINDBLOM, *supra* note 80, at 13 (presenting a "classical" formulation of rational policy analysis); A. MELTSNER, *POLICY ANALYSTS AND THE BUREAUCRACY* 115-16 (1976) (discussing the "scientific method" of policy analysis). E.O. 12291, *supra* note 25, to a large extent requires just this sort of analysis. *See supra* subpart II(A).

n84 *See* authorities cited *supra* note 81.

n85 *See* G. BENVENISTE, *THE POLITICS OF EXPERTISE* 8 (2d ed. 1977); G. EDWARDS & I. SHARKANSKY, *supra* note 80, at 85; C. LINDBLOM, *supra* note 80, at 8-11; Shubert, *Policy Analysis and Public Choice*, in *BUREAUCRATS, POLICY ANALYSTS*, *supra* note 81, at 44, 45.

n86 COMPTROLLER GENERAL, U.S. GENERAL ACCOUNTING OFFICE, *IMPROVED QUALITY, ADEQUATE RESOURCES, AND CONSISTENT OVERSIGHT NEEDED IF REGULATORY ANALYSIS IS TO HELP CONTROL COSTS OF REGULATIONS* 8 (1982) [hereinafter *GAO IMPROVED QUALITY REPORT*].

n87 *See* Lundberg, *Administrative Decisions: A Scheme for Analysis*, in *THE MAKING OF DECISIONS*, *supra* note 81, at 17, 20.

n88 *See* DeLong, *Informal Rulemaking and the Integration of Law and Policy*, 65 VA. L. REV. 257, 329-38 (1979); Diver, *supra* note 80, at 396-99.

n89 *See* Administrative Procedure Act, 5 U.S.C. § 553 (1982).

n90 See *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983); *Citizens to Preserve Overton Park, Inc. v. Volpe*, 401 U.S. 402, 416 (1971).

n91 See Schoettle, *The State of the Art in Policy Studies*, in *THE STUDY OF POLICY FORMATION* 149, 150 (1968); see also S. REP. NO. 284, 97th Cong., 1st Sess. 74 (1981) ("[T]he regulatory analysis required by S. 1080 established an explicit process to rationally structure . . . regulatory decision making.").

n92 See *supra* subpart II(B).

n93 See *supra* subpart II(A).

n94 The State of Illinois in 1975 amended its Environmental Protection Act to require that the Illinois Institute for Environmental Quality complete an economic impact study on every regulatory proposal presented to the Illinois Pollution Control Board. Act approved Sept. 5, 1975, No. 79-790, 1975 Ill. Laws 2455. Except upon a finding of a severe public health emergency, the Pollution Control Board could not implement a rule until it had held a public hearing on the economic impact statement. *Id.* at 2460. For a brief outline of the Illinois program, see Croke & Herlevsen, *supra* note 26, at 17-25.

n95 See S. REP. NO. 305, 97th Cong., 1st Sess. 43 (1981); S. REP. NO. 284, *supra* note 91, at 74; see also *Regulatory Procedures Act of 1981: Hearings on H.R. 746 Before the Subcomm. on Administrative Law and Governmental Relations of the House Comm. on the Judiciary*, 97th Cong., 1st Sess. 103 (1981) [hereinafter *Hearings on H.R. 746*] (testimony of Richard Berg, Executive Secretary, Office of the Chairman of the Administrative Conference) ("I think the idea of [the proposal] is, essentially, almost to shake the agencies by their shoulders and say, look, before you do some of these things, think about it.").

n96 See E.O. 12291, *supra* note 25, § 2; Regulatory Flexibility Act, 5 U.S.C. § 603(c) (1982); S. 1080, 97th Cong., 1st Sess. § 3, 127 CONG. REC. 7938 (1981); H.R. 5203, 97th Cong., 2d Sess. § 4, 128 CONG. REC. 20492 (1982); National Environmental Policy Act of 1969, 42 U.S.C. § 4332 (1982).

n97 See Telephone interview with Robert Hibbert, Director of the Standard and Labeling Division, Meat and Poultry Inspection Technical Services, Food Safety and Inspection Service, United States Department of Agriculture (USDA) (Apr. 5, 1984) [hereinafter Hibbert Interview] (transcript on file with author); Interview with A1 Jennings, Office of Standards and Regulations, Office of Policy, Planning and Evaluation, EPA (May 18, 1983) [hereinafter Jennings Interview] (transcript on file with author).

n98 See A. MELTSNER, *supra* note 83, at 132-33; see also Eads, *The Benefits of Better Benefits Estimation*, in *THE BENEFITS OF HEALTH AND SAFETY REGULATION*, *supra* note 21, at 45, 49-50 (demonstrating that benefits analysis for fluorocarbon-containing products yielded unexpected options).

n99 See U.S. REGULATORY COUNCIL, *supra* note 50, at 15-18.

n100 See *id.* at 18.

n101 See *Regulatory Reform Act -- S. 1080: Hearing Before the Subcomm. on Regulatory Reform of the Senate Comm. on the Judiciary*, 97th Cong., 1st Sess. 166-67 (1981) [hereinafter *Hearing on S. 1080*] (statement of James C. Miller, Administrator for Information and Regulatory Affairs, OMB, and Executive Director, Presidential Task Force on Regulatory Relief); *Regulatory Reform Legislation of 1981: Hearings Before the Senate Comm. on Governmental Affairs*, 97th Cong., 1st Sess. 83 (1981) [hereinafter *Regulatory Reform Hearings of 1981*] (memorandum from David Stockman, Director, Office of Management & Budget, to Heads of Executive Departments and Agencies, dated June 11, 1981); *Hearings on H.R. 746*, *supra* note 95, at 302 (statement of John Post, Executive Director, The Business Roundtable); *id.* at 112 (statement of Leonard S. Janofsky, President, American Bar Association); S. REP. NO. 305, *supra* note 95, at 45; S. REP. NO. 284, *supra* note 91, at 75; COUNCIL ON WAGE AND PRICE STABILITY & OFFICE OF MANAGEMENT & BUDGET, EXECUTIVE OFFICE OF THE PRESIDENT, AN EVALUATION OF THE INFLATION IMPACT STATEMENT PROGRAM PREPARED FOR THE ECONOMIC POLICY BOARD 3-6 (Dec. 7, 1976) [hereinafter IIS REPORT]; R. Luken & F. Johnson, *The Emerging Role of Benefit-Cost Analysis in the Regulatory Process at EPA 3* (July 1984) (unpublished manuscript on file with the author). Providing information on the impact of regulations was the most frequently cited rationale for regulatory analysis in the interviews of agency regulatory analysts conducted in connection with this Article. Telephone interview with Larry Blincoe, Office of Program and Rulemaking Analysis, Office of Plans and Programs, National Highway Traffic Safety Administration (NHTSA), Department of Transportation (DOT) (Apr. 10, 1984) [hereinafter Blincoe Interview] (transcript on file with author); Interview with Barry Felrice, Assistant Administrator for Plans and Programs (now Associate Administrator for Rulemaking), NHTSA, DOT (May 18, 1983) [hereinafter Felrice

Interview I] (transcript on file with author); Telephone interview with John Peak, Legislative and Regulatory Coordination Staff Chief, Office of Industrial Policy, Office of the Assistant Secretary for Policy and International Affairs, DOT (June 5, 1984) [hereinafter Peak Interview] (transcript on file with author); Telephone interview with Judith Segal, Director, Policy and Program Planning Staff, Food Safety and Inspection Service, USDA (Mar. 15, 1984) [hereinafter Segal Interview] (transcript on file with author).

n102 See Lave, *Introduction*, in *QUANTITATIVE RISK ASSESSMENT IN REGULATION* 1, 9 (L. Lave ed. 1982); A. MELTSNER, *supra* note 83, at 154; *cf.* SENATE COMM. ON GOVERNMENTAL AFFAIRS, *STUDY ON FEDERAL REGULATION*, S. DOC. No. 13, 96th Cong., 1st Sess. 77 (1978) [hereinafter SENATE STUDY ON FEDERAL REGULATION] ("Impact evaluation consists of definition and, to the extent feasible, quantification of effects.").

n103 See *Regulatory Reform Act: Hearings Before the Subcomm. on Administrative Law and Governmental Relations of the House Comm. on the Judiciary*, 98th Cong., 1st Sess. 247 (1983) [hereinafter *House Regulatory Reform Act Hearings*] (statement of Frank Berndt, Chief Counsel, NHTSA, DOT); Luken, *Benefit-Cost Analysis at EPA*, *THE ENVIRONMENTAL FORUM*, Oct. 1985, at 42, 43-44.

n104 See SENATE STUDY ON FEDERAL REGULATION, *supra* note 102, at 78; Telephone interview with Ellen Kranidas, Acting Associate Administrator for Plans and Programs, NHTSA, DOT (June 13, 1984) [hereinafter Kranidas Interview] (transcript on file with author).

n105 See *Hearing on S. 1080*, *supra* note 101, at 56 (statement of Murray L. Weidenbaum, Chairman, President's Council of Economic Advisors); IIS REPORT, *supra* note 101, at 33.

n106 See Kranidas Interview, *supra* note 104, at 1 (stating that the purpose of regulatory analysis is to "provide a bird's-eye view of all the issues and regulatory options").

n107 See Peak Interview, *supra* note 101.

n108 See OFFICE OF CHIEF COUNSEL FOR ADVOCACY, U.S. SMALL BUSINESS ADMIN., *THE REGULATORY FLEXIBILITY ACT* 5 (1982); Croke & Herlevsen, *supra* note 26, at 31; Verkuil, *supra* note 63, at 250; Comment, *The Inflation Impact Statement Program: An Assessment of the First Two Years*, 26 AM. U.L. REV. 1138, 1145 (1977).

n109 Interview with Donald Houston, Administrator, Food Safety and Inspection Service, USDA (Apr. 23, 1984) [hereinafter Houston Interview] (transcript on file with author).

n110 See COMPTROLLER GENERAL, UNITED STATES GENERAL ACCOUNTING OFFICE, *COSTBENEFIT ANALYSIS CAN BE USEFUL IN ASSESSING ENVIRONMENTAL REGULATIONS, DESPITE LIMITATIONS* 1 (1984) [hereinafter GAO COST-BENEFIT REPORT]. A primary purpose of the Regulatory Flexibility Act, for example, is to require agencies to examine the disproportionate impact of regulations on small businesses. Office of Chief Counsel for Advocacy, SBA, *Annual Report of the Chief Counsel for Advocacy on Implementation of the Regulatory Flexibility Act 1-4* (1985); Office of Chief Counsel for Advocacy, SBA, *Annual Report of the Chief Counsel for Advocacy on Implementation of the Regulatory Flexibility Act 1-7* (1983).

n111 Telephone interview with Loren Lange, Deputy Director, Policy and Program Planning Staff, Food Safety and Inspection Service, USDA (Mar. 13, 1984) [hereinafter Lange Interview] (transcript on file with author). Two regulatory agency heads have testified to the value of regulatory analysis in enabling upper level decision makers to make informed decisions:

Generally good information yields good decisions. Sometimes we have made poor decisions because we did not know there was information out there or because we relied on poor information. While the process today is more expensive, the public is getting better work from the government.

Houston Interview, *supra* note 109.

OSHA has found that the Regulatory Impact Analyses . . . and the Regulatory Flexibility Analyses . . . reveal important information about the capital and operating costs of compliance with various regulatory approaches as well as estimates of reduction in risk to workers. Lacking regulatory analyses, OSHA would not have adequate information on the costs its regulations impose on society or the amount of protection received by workers.

House Regulatory Reform Act Hearings, *supra* note 103, at 455 (statement of Thorne Auchter, Assistant Secretary for Occupational Safety & Health Administration (OSHA), Department of Labor (DOL)).

n112 Mr. Loren Lange, a policy analyst in the Food Safety and Inspection Service of USDA referred to an example in which a regulatory analysis document drafted by the program office stated that "it has always been agency policy that" In fact, the agency had never really articulated that policy in a public fashion. The regulatory analysis document was the first time that the agency explicitly articulated the policy. Lange Interview, *supra* note 111; *see also* F. ROURKE, BUREAUCRACY, POLITICS, AND PUBLIC POLICY 34-35 (3d ed. 1984) (discussing the problem of "bureaucratic momentum").

n113 *See* S. REP. NO. 284, *supra* note 91, at 73-74; Lange Interview, *supra* note 111; Segal Interview, *supra* note 101.

n114 *See* S. REP. NO. 284, *supra* note 91, at 73-74; Verkuil, *supra* note 63, at 246; Telephone interview with Patrick H. Cody, Acting Director, Regulatory Impact and Executive Correspondence Staff, Program Planning and Development, Agricultural Stabilization and Conservation Service, USDA (Apr. 4, 1983) (transcript on file with author); Segal Interview, *supra* note 101.

n115 *See* Swartzman, *Cost-Benefit Analysis in Environmental Regulation: Sources of the Controversy*, in COST-BENEFIT ANALYSIS AND ENVIRONMENTAL REGULATIONS, *supra* note 26, at 53, 60.

n116 *See House Regulatory Reform Act Hearings*, *supra* note 103, at 247 (statement of Frank Berndt, Chief Counsel, NHTSA, DOT); S. REP. NO. 305, *supra* note 95, at 45; S. REP. NO. 284, *supra* note 91, at 73-74.

n117 *See* McGarity, *Substantive and Procedural Discretion in Administrative Resolution of Science Policy Questions: Regulating Carcinogens in EPA and OSHA*, 67 GEO. L.J. 729, 735 (1979).

n118 *See* A. MELTSNER, *supra* note 83, at 124-25.

n119 *See* Luken, *supra* note 103, at 44-55.

n120 For example, more research on agency cost estimates, perhaps by monitoring the costs of implementing past rules, could enhance greatly the accuracy of agency cost projections.

n121 *See* Behn, *Policy Analysis and Policy Politics*, 7 POL'Y ANALYSIS 199, 201-02 (1981); Horowitz, *Social Science Mandarins: Policymaking as a Political Formula*, 1 POL'Y SCI. 339, 340-41 (1970).

n122 *See* Behn, *supra* note 121, at 200-01; Leoni, *The Meaning of "Political" in Political Decisions*, in THE MAKING OF DECISIONS, *supra* note 81, at 93, 94.

n123 A good statement of this position is expressed in an old Bureau of the Budget report:

The cynical view of the matter is that rational calculation in government programming is a harmless but ineffectual pursuit, since all important questions are ultimately decided on "political" grounds. . . . The thesis is wrong if it is taken to mean the findings of skilled and objective analysis of public programs are not influential in decisionmaking at the highest level. In fact, such findings are usually influential and, not infrequently, decisive.

BUREAU OF THE BUDGET, THE USE OF SOCIAL RESEARCH IN FEDERAL DOMESTIC PROGRAMS pt. I, at 2, *quoted in* C. LINDBLOM, *supra* note 80, at 11; *see also* SENATE STUDY ON FEDERAL REGULATION, *supra* note 102, at 77 (arguing that the need for careful analysis increases as the problem's complexity increases in order to avoid special interest and convenience motivated outcomes); F. ROURKE, *supra* note 112, at 152 (claiming that "many policy judgments hinge on technical advice that only professional personnel can supply").

n124 *See* W. VISCUSI, RISK BY CHOICE 115-16 (1983); Vaupel, *On the Benefits of Health and Safety Regulation*, in THE BENEFITS OF HEALTH AND SAFETY REGULATION, *supra* note 21, at 1, 9.

n125 This appears to be one of the underlying philosophies of E.O. 12,291, which requires agencies to analyze several options and select the one whose benefits most outweighs its costs. E.O. 12291, *supra* note 25, § 2(b).

n126 *See* L. LAVE, THE STRATEGY OF SOCIAL REGULATION: DECISION FRAMEWORKS FOR POLICY 23-25 (1981); E. MISHAN, *supra* note 23, at 11-13; Behn, *supra* note 121, at 202; Croke & Herlevsen, *supra* note 26, at 26; R. Luken & F. Johnson, *supra* note 101, at 3. This notion of the public good is an extraordinarily narrow one, as Professor Sagoff has demonstrated in another context. *See* Sagoff, *The Principles of Federal Pollution Control Law*, 71 MINN. L. REV. 19, 55-68 (1986) (arguing that efficient allocation of resources has no normative basis and thus no inherent worth).

n127 *See Hearings on H.R. 746*, *supra* note 95, at 419 (statement of Nancy Drabble and Carolyn Brickey, Public Citizen's Congress Watch); Segal Interview, *supra* note 101.

n128 *See* L. LAVE, *supra* note 126, at 14-15.

n129 *See* A. KNEESE & C. SCHULTZE, POLLUTION, PRICES, AND PUBLIC POLICY 91-93 (1975).

n130 See A. MELTSNER, *supra* note 83, at 252.

n131 For example, the Department of Agriculture has established a category called "reserved nonmajor" for rules that do not meet the "majorness" threshold under E.O. 12,291 but for which the Department requires its own analysis. This hybrid category includes rules that would establish new policies or substantially alter new ones; substantially affect budget outlays; affect more than one agency; or are likely to be controversial. See Office of Budget & Program Analysis, United States Dep't of Agriculture, USDA Regulatory Decisionmaking Requirements, Departmental Regulation No. 1512-1, at 2 (Dec. 15, 1983) (interval rules, available upon request, Office of Budget & Program Analysis).

n132 See *Hearings on H.R. 746*, *supra* note 95, at 112 (statement of Leonard S. Janofsky, President, American Bar Association). See generally Olsen, *The Quiet Shift of Power*, 4 VA. J. NAT. RES. L. 1, 12-17 (1984) (reviewing arguments for and against presidential review of agency decision making); Strauss, *The Place of Agencies in Government: Separation of Powers and the Fourth Branch*, 84 COLUM. L. REV. 573, 662-66 (1984) (advocating the use of presidential power to balance and coordinate the competing goals of governmental agencies).

n133 See S. REP. NO. 284, *supra* note 91, at 53, 78-79; SENATE STUDY ON FEDERAL REGULATION, *supra* note 102, at 78, 83.

n134 See S. REP. NO. 284, *supra* note 91, at 78-79; SENATE STUDY ON FEDERAL REGULATION, *supra* note 102, at 78, 83; A. MELTSNER, *supra* note 83, at 243; Felrice Interview I, *supra* note 101; Houston Interview, *supra* note 109.

n135 See *Hearings on S. 1080 Before the Subcomm. on Agency Administration of the Senate Comm. on the Judiciary*, 97th Cong., 1st Sess. 2 (1981) [hereinafter *Agency Subcomm. Hearings on S. 1080*] (statement of William F. Kennedy, General Counsel, General Electric Company); *Cost-Benefit Analysis: The Potential for Conflict of Interest: Hearings Before the Subcomm. on Oversight and Investigations of the House Comm. on Interstate and Foreign Commerce*, 96th Cong., 2d Sess. 763 (1980) [hereinafter *Conflict of Interest Hearings*] (testimony of Joan Claybrook, former Administrator, NHTSA, DOT); Houston Interview, *supra* note 109.

n136 *Agency Subcomm. Hearings on S. 1080*, *supra* note 135, at 2 (statement of William F. Kennedy, General Counsel, General Electric Company).

n137 See S. REP. NO. 878, 96th Cong., 2d Sess. 1 (1980); OFFICE OF MANAGEMENT & BUDGET, EXECUTIVE OFFICE OF THE PRESIDENT, EXECUTIVE ORDER 12291 ON FEDERAL REGULATION: PROGRESS DURING 1982, at 4 (Apr. 1983) [hereinafter OMB REPORT OF 1983]; Andrews, *Cost-Benefit Analysis as Regulatory Reform*, in COST-BENEFIT ANALYSIS AND ENVIRONMENTAL REGULATIONS, *supra* note 26, at 107, 120-21.

n138 See *Regulatory Reform Hearings of 1981*, *supra* note 101, at 10 (testimony of James Miller, Administrator for Information and Regulatory Affairs, OMB); *id.* at 56 (statement of Murray Weidenbaum, Chairman, Council of Economic Advisers); Viscusi, *Presidential Oversight: Controlling the Regulators*, 2 J. POL'Y ANALYSIS & MGMT. 157, 160 (1983).

n139 See Olsen, *supra* note 132, at 49-50; Raven-Hansen, *supra* note 42, at 295.

n140 See *Regulatory Reform Hearings of 1981*, *supra* note 101, at 255 (statement of Lester Lave, economist, Brookings Institute).

n141 See, e.g., DEPARTMENT OF TRANSP., SEMINAR ON EXECUTIVE ORDER 12,291 AND OMB REGULATORY IMPACT ANALYSIS GUIDANCE 1 (1982) [hereinafter DOT SEMINAR] (statement of Thomas Hopkins, Deputy Administrator for Regulatory and Statistical Analysis, Office of Information & Regulatory Affairs, OMB); Grubb, Whittington & Humphries, *The Ambiguities of Benefit-Cost Analysis: An Evaluation of Regulatory Impact Analyses Under Executive Order 12291*, in ENVIRONMENTAL POLICY UNDER REAGAN'S EXECUTIVE ORDER: THE ROLE OF BENEFIT-COST ANALYSIS 121 (V. Smith ed. 1984) [hereinafter ENVIRONMENTAL POLICY UNDER REAGAN'S EXECUTIVE ORDER]; see also Comment, *supra* note 108, at 1139 (addressing the purpose of the Inflation Impact Statement).

n142 See *House Regulatory Reform Act Hearings*, *supra* note 103, at 455 (statement of Thorne Auchter, Assistant Secretary for OSHA, DOL).

n143 See *supra* notes 98-126 and accompanying text.

n144 See *supra* note 131 and accompanying text.

n145 See C. LINDBLUM, *supra* note 80, at 12-20; Lundberg, *supra* note 87, at 21. Observers of the environmental impact assessment process have reached similar conclusions. Miller, Anderson & Liroff, *The National Environmental Policy Act: Neither Paper Tiger Nor Straightjacket*, in STAFF OF HOUSE COMM. ON MERCHANT MARINE AND FISHERIES, 94TH CONG., 2D SESS., WORKSHOP ON THE NATIONAL ENVIRONMENTAL POLICY ACT 35, 39 (Comm. Print 1976).

n146 See G. EDWARDS & I. SHARKANSKY, *supra* note 80, at 170; Banfield, *Policy Science as Metaphysical Madness*, in BUREAUCRATS, POLICY ANALYSTS, *supra* note 81, at 1, 13; Cramton & Berg, *On Leading a Horse to Water: NEPA and the Federal Bureaucracy*, 71 MICH. L. REV. 511, 528 (1973).

n147 See H. SIMON, ADMINISTRATIVE BEHAVIOR 79 (1945).

n148 See Bauer, *The Study of Policy Formation: An Introduction*, in THE STUDY OF POLICY FORMATION 1, 3-4 (1968); Diver, *supra* note 80, at 434; Lindblom, *supra* note 82, at 80-81; Rodgers, *supra* note 80, at 312.

n149 See S. KELMAN, WHAT ABOUT PRICE INCENTIVES? 41 (1981); A. MELTSNER, *supra* note 83, at 270; Banfield, *supra* note 146, at 18; Sagoff, *Economic Theory and Environmental Law*, 79 MICH. L. REV. 1393, 1414 (1981); Tribe, *Ways Not To Think About Plastic Trees: New Foundations for Environmental Law*, 83 YALE L.J. 1315, 1329 (1974).

n150 See Diver, *supra* note 80, at 408-09.

n151 An excellent example of incorporating comprehensive analytical rationality into the environmental decision-making context is EPA's "lead phasedown" regulations, which were promulgated in October 1982. See 40 C.F.R. § 80 (1986). In this case, the representative from EPA's policy office participated heavily in the agency decision-making process, and the documents that he drafted on the basis of contractors' reports were critical in determining the cost-effectiveness of several options for the standard. Another standard in which regulatory analysis seems to be playing a prominent role is EPA's revision of the National Ambient Air Quality Standard for particulates. See Anderson & Ostro, *Benefits Analysis and Air Quality Standards*, 23 NAT. RESOURCES J. 565, 567-574 (1983).

n152 See *supra* Part IV.

n153 See C. LINDBLUM, *supra* note 80, at 12.

n154 See G. BENVENISTE, *supra* note 85, at 85, 87; Banfield, *supra* note 146, at 12; Bauer, *supra* note 148, at 12; Cramton & Berg, *supra* note 146, at 529.

n155 See G. BENVENISTE, *supra* note 85, at 17; G. EDWARDS & I. SHARKANSKY, *supra* note 80, at 113; Silberman, *supra* note 81, at 37.

n156 See Storing, *American Statesmanship: Old and New*, in BUREAUCRATS, POLICY ANALYSTS, *supra* note 81, at 88, 112; see also K. ARROW, THE LIMITS OF ORGANIZATION 17-18 (1974) (discussing economists' method of ranking goals and accompanying problems of public policy analysis).

n157 See G. BENVENISTE, *supra* note 85, at 85.

n158 Cramton & Berg, *supra* note 146, at 531; see also G. BENVENISTE, *supra* note 85, at 177 (finding that decision groups reduce options to avoid conflicts).

n159 A. MELTSNER, *supra* note 83, at 134.

n160 For example, one option that OSHA might have for reducing the risks of workers exposed to asbestos would be to require workers to quit smoking. Yet, OSHA may not have the clear authority to issue such a requirement. Another example would be for EPA to consider the option of allowing certain cities in the United States to be designated "polluted" and others to be designated "pollution-free." EPA does not have the authority under the Clean Air Act to implement this option. Although these two options are extreme, many options that lie within the realm of possibility can pose problems of statutory authority for the agency.

n161 Telephone interview with Gail Updegraff, former Deputy Director, Policy and Program Planning Staff, Food Safety and Inspection Service, USDA (Mar. 13, 1984) [hereinafter Updegraff Interview] (transcript on file with author).

n162 See Grubb, Whittington & Humphries, *supra* note 141, at 134.

n163 See U.S. REGULATORY COUNCIL, *supra* note 50, at 17.

n164 See G. EDWARDS & I. SHARKANSKY, *supra* note 80, at 10; Cramton & Berg, *supra* note 146, at 528; Interview with Ralph Hitchcock, Director, Office of Vehicle Safety Standards, Office of Rulemaking, NHTSA, DOT (May 19, 1983) [hereinafter Hitchcock Interview] (transcript on file with author).

n165 See *supra* subpart IV(B).

n166 The Council on Environmental Quality, in its regulations for preparing Environmental Impact Statements, addresses the question of options identification in the required documents. The regulations require the agency to "rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly [to] discuss the reasons for their having been eliminated." 40 C.F.R. § 1502.14 (1986). This prescription provides a useful example for regulatory analysis documents. Cf. U.S. REGULATORY COUNCIL, *supra* note 50, at 17 (suggesting a "phased" approach to identifying and eliminating options).

n167 See *supra* text accompanying note 46.

n168 See *House Regulatory Reform Act Hearings*, *supra* note 103, at 616-17 (statement of Frances Dubrowski, Senior Attorney, Natural Resources Defense Council); *Hearings on H.R. 746*, *supra* note 95, at 261 (statement of Ralph Ferrara, General Counsel, Securities & Exchange Commission (SEC)); C. LINDBLOM, *supra* note 80, at 12-20; A. MELTSNER, *supra* note 83, at 270; Interview with John M. Campbell, Deputy Assistant Administrator for Policy, Planning and Evaluation, EPA (June 29, 1984) [hereinafter Campbell Interview] (transcript on file with author); Telephone interview with Ralph Luken, Benefits Grants Chief, Economic Analysis Division, Office of Policy Analysis, Office of Policy and Program Evaluation, EPA (May 25, 1984) [hereinafter Luken Interview] (transcript on file with author); Telephone interview with Albert Nichols, Acting Director, Economic Analysis Division, Office of Policy Analysis, Office of Policy, Planning and Evaluation, EPA (May 22, 1984) [hereinafter Nichols Interview] (transcript on file with author); Peak Interview, *supra* note 101; Telephone interview with Dale Ruhter, Chief, Economic Analysis Branch, Waste Management and Economics Division, Office of Solid Waste, Office of Solid Waste and Emergency Response, EPA (July 10, 1984) [hereinafter Ruhter Interview] (transcript on file with author); Telephone interview with Michael Shapiro, Acting Director, Economics and Technology Division, Office of Toxic Substances, Office of Pesticides and Toxic Substances, EPA (May 23 & 24, 1984) [hereinafter Shapiro Interview] (transcript on file with author); Telephone interview with Jennifer Silk, Director of Health Standards Programs, Health Standards Division, OSHA, DOL (Apr. 30, 1984) [hereinafter Silk Interview] (transcript on file with author); Telephone interview with Henry Thomas, Ambient Standards Branch, Strategies and Air Standards Division, Office of Air Quality Planning and Standards, Office of Air and Radiation, EPA (May 25, 1984) [hereinafter Thomas Interview] (transcript on file with author); Telephone interview with Craig Vogt, Deputy Director, Criteria and Standards Division, Office of Drinking Water, Office of Water, EPA (June 26, 1984) [hereinafter Vogt Interview] (transcript on file with author).

n169 See Telephone interview with Arthur Gass, Office of Risk Reduction Technology, Directorate of Health Standards Programs, OSHA, DOL (July 23, 1984) [hereinafter Gass Interview] (transcript on file with the author) (revealing that an RIA drafting team had relied partially on anecdotal evidence); Peak Interview, *supra* note 101 (discussing lack of resources as an impediment to analysis); Thomas Interview, *supra* note 168 ("You can get enough money to do the analysis, but you are confined to the data bases that are out there already.").

n170 See Nichols Interview, *supra* note 168.

n171 See GAO COST-BENEFIT REPORT, *supra* note 110, at 7-9, 13.

n172 See, e.g., STRATEGIES AND AIR STANDARDS DIVISION, ECONOMIC ANALYSIS BRANCH, EPA, ANALYTICAL METHODS MANUAL 1.1-2 to -3 (1985) [hereinafter STRATEGIES AND AIR STANDARDS DIVISION]. Cost considerations, however, preclude estimating compliance costs with great accuracy. For example, EPA's *Analytical Methods Manual*, which provides guidance for cost assessments under the Clean Air Act, suggests that cost assessments be conducted with a precision of approximately 30%, on the ground that more precise methodologies are "generally not cost-effective for the purposes of economic impact analysis of proposed regulations." *Id.* at 2.2-3.

n173 See U.S. REGULATORY COUNCIL, *supra* note 50, at 19-20.

n174 See generally Dewees, *The Cost and Technology of Pollution Abatement*, in APPROACHES TO CONTROLLING AIR POLLUTION 291, 292 (A. Friedlaender ed. 1978) (stating that the cost information needed depends upon the objectives of the

decision-making process); Hurter, Tolley & Fabian, *Benefit-Cost Analysis and the Common Sense of Environmental Policy*, in COST-BENEFIT ANALYSIS AND ENVIRONMENTAL REGULATIONS, *supra* note 26, at 87, 94-98 (describing the survey method, engineering approach, and statistical approach as three methods for cost estimation).

n175 See U.S. REGULATORY COUNCIL, *supra* note 50, at 21-22.

n176 See *House Regulatory Reform Act Hearings*, *supra* note 103, at 121 (statement of Joan Claybrook, former Administrator, NHTSA, DOT); U.S. REGULATORY COUNCIL, *supra* note 50, at 23.

n177 See R. LITAN & W. NORDHAUS, REFORMING FEDERAL REGULATION 14 (1983).

n178 See U.S. REGULATORY COUNCIL, *supra* note 50, at 22. One example of this problem is the automobile industry's compliance with fuel efficiency standards at the same time it was changing production processes to meet market demands for smaller cars. An analyst would have to separate the costs of complying with the fuel standards from the costs of changing production to meet market demand. *Id.* Another example is the textile industry's reaction to OSHA's cotton dust standard. Although the OSHA standard required some production process redesign, several textile mills had already retooled by the time that OSHA promulgated the standard, partly as a result of labor costs and other production inefficiencies. See *Cotton-Dust Ruling Is Expected to Spur Industry Trend Toward Modernization*, Wall St. J., June 18, 1981, at 21, col. 1.

n179 U.S. REGULATORY COUNCIL, *supra* note 50, at 22; see also Merrill, *Federal Regulation of Cancer-Causing Chemicals*, in 2 ADMINISTRATIVE CONFERENCE OF THE U.S., RECOMMENDATIONS AND REPORTS 21, 92-93 (1982) (discussing the product innovations that result from regulation).

n180 See generally McGarity, *Media-Quality, Technology, and Cost-Benefit Balancing Strategies for Health and Environmental Regulation*, LAW & CONTEMP. PROBS., Summer 1983, at 159, 181-84 (discussing the practical problems in quantifying the costs of regulatory control).

n181 See Shapiro Interview, *supra* note 168.

n182 See U.S. REGULATORY COUNCIL, *supra* note 50, at 21. Those agencies that do have statutory authority to gather data must do so in industry surveys which, under the Paperwork Reduction Act, must be approved by the Director of the OMB. 44 U.S.C. § 3507 (1982). In the recent past, OMB has been reluctant to approve such surveys.

n183 H.R. REP. NO. 435, 97th Cong., 2d Sess. 42-43 (1982); see G. EDWARDS & I. SHARKANSKY, *supra* note 80, at 190-95 (discussing the spillover and opportunity costs of implementing governmental policy); U.S. REGULATORY COUNCIL, *supra* note 50, at 20 (discussing the social costs to be considered in cost analysis); Leone & Jackson, *The Political Economy of Federal Regulatory Activity: The Case of Water Pollution Controls*, in STUDIES IN PUBLIC REGULATION 232 (G. Fromm ed. 1981) (discussing the "distributional effects" of governmental policies).

n184 See GAO COST-BENEFIT REPORT, *supra* note 110, at 11; U.S. REGULATORY COUNCIL, *supra* note 50, at 20.

n185 See U.S. REGULATORY COUNCIL, *supra* note 50, at 20.

n186 See H.R. REP. NO. 435, *supra* note 183, at 42-43.

n187 2 P. AREEDA & D. TURNER, ANTITRUST LAW: AN ANALYSIS OF ANTITRUST PRINCIPLES AND THEIR APPLICATION PP403-404 (1978).

n188 See, e.g., A. FRIEDLAENDER & R. SPADY, FREIGHT TRANSPORTATION REGULATION: EQUITY, EFFICIENCY, AND COMPETITION IN THE RAIL AND TRUCKING INDUSTRIES 122-25 (1981) (using a detailed model to quantify the impact of policies on rail costs and profitability); Braeutigam, *The Deregulation of Natural Gas*, in CASE STUDIES IN REGULATION: REVOLUTION AND REFORM 142, 158-64 (L. Weiss & M. Klass eds. 1981) (discussing the effect of natural gas regulation on income redistribution and economic efficiency).

n189 See, e.g., G. BENVENISTE, *supra* note 85, at 213; Braeutigam, *supra* note 188, at 162.

n190 Cf. *Hearings on H.R. 746*, *supra* note 95, at 259 (statement of Ralph Ferrara, General Counsel, SEC) (discussing the difficulties in quantifying the positive effects of SEC rules).

n191 *Id.* at 878 (letter from Jane Stuckey, Secretary to the Commission, Commodity Futures Trading Commission).

n192 See *id.* at 280 (statement of Robert Lee, Acting Chairman, Federal Communications Commission).

n193 See *id.*

n194 See Rabkin, *Office for Civil Rights*, in THE POLITICS OF REGULATION 304, 347-48 (J. Wilson ed. 1980).

n195 See, e.g., Arrow, *The Theory of Discrimination*, in DISCRIMINATION IN LABOR MARKETS 3, 9-10 (1973).

n196 Indeed, the suggestion has been made that if there is actually a "preference for discrimination" among some employees, then rules prohibiting racial, sex, national origin, and religious discrimination in the workplace and other arenas may reduce allocative efficiency. See *id.* at 10-20.

n197 See Sunstein, *Cost-Benefit Analysis and the Separation of Powers*, 23 ARIZ. L. REV. 1267, 1275 (1981).

n198 See, e.g., Leape, *Quantitative Risk Assessment in Regulation of Environmental Carcinogens*, 4 HARV. ENVTL. L. REV. 86, 103-07 (1980) (discussing the use of quantitative risk assessment in regulating carcinogens); McGarity, *supra* note 180, at 183-87 (discussing the use of quantification of risks associated with environment pollutants). But see L. LAVE, *supra* note 126, at 130-33 (discussing the strengths of quantitative analysis); Lave, *supra* note 102, at 1-13 (arguing that there is no logical alternative to quantitative risk assessment).

n199 See generally OFFICE OF TECHNOLOGY ASSESSMENT, ASSESSMENT OF TECHNOLOGIES FOR DETERMINING CANCER RISKS FROM THE ENVIRONMENT 86 (1981) [hereinafter OTA CANCER REPORT] (describing the difficulty of discovering the relationship between cancer and occupational exposure to carcinogens); Lovins, *Cost-Risk Benefit Assessments in Energy Policy*, 45 GEO. WASH. L. REV. 911, 925 (1977) (stating that the "data needed for reliable . . . analyses are not just unknown but unknowable"); McGarity, *supra* note 180, at 185 ("The science of assessing the risks that pollutants pose to nonhuman species and materials is . . . imprecise and fraught with uncertainty."); Swartzman, *Cost-Benefit Analysis in Environmental Regulation: Sources of the Controversy*, in COST-BENEFIT ANALYSIS AND ENVIRONMENTAL REGULATIONS, *supra* note 26, at 53, 61-62 (discussing the Illinois Pollution Control Board's inability to estimate the health benefits of environmental regulation).

n200 See *Conflict of Interest Hearings*, *supra* note 135, at 764-65 (statement of Joan Claybrook, former Administrator, NHTSA, DOT).

n201 See generally 45 C.F.R. § 46.101 (1986) (discussing the application of the Department of Health and Human Services' regulations to all research using human subjects).

n202 See Alexander, *Ecological Consequences: Reducing the Uncertainties*, ISSUES IN SCIENCE AND TECHNOLOGY, Spring 1985, at 57, 61; Gelpe & Tarlock, *The Uses of Scientific Information in Environmental Decisionmaking*, 48 S. CAL. L. REV. 371, 396-404 (1974).

n203 See Latin, *The "Significance" of Toxic Health Risks: An Essay on Legal Decisionmaking Under Uncertainty*, 10 ECOLOGY L.Q. 339, 361-64 (1982); McGarity, *supra* note 117, at 740-41; Merrill, *supra* note 179, at 50-59.

n204 See *House Regulatory Reform Act Hearings*, *supra* note 103, at 121 (statement of Joan Claybrook, former Administrator, NHTSA, DOT); Hitchcock Interview, *supra* note 164.

n205 See Baram, *Cost-Benefit Analysis: An Inadequate Basis for Health, Safety, and Environmental Regulatory Decisionmaking*, 8 ECOLOGY L.Q. 473, 483 (1980).

n206 See COUNCIL ON WAGE AND PRICE STABILITY, EXECUTIVE OFFICE OF THE PRESIDENT, A REVIEW OF THE REGULATORY INTERVENTIONS OF THE COUNCIL ON WAGE AND PRICE STABILITY 1974-1980, at 26 (Jan. 1981) [hereinafter 1981 CWPS REPORT]; L. LAVE, *supra* note 126, at 33-34; Telephone interview with Arnold Kuzmak, Director, Office of Program Development and Evaluation, Office of Drinking Water, Office of Water, EPA (May 22, 1984) [hereinafter Kuzmak Interview] (transcript on file with author).

n207 Although tests on animals and other surrogate systems cannot precisely predict the response of human beings or other environmental entities to particular environmental disruptions, they are sometimes the best available evidence.

n208 See McGarity & Shapiro, *The Trade Secret Status of Health and Safety Testing Data: Reforming Agency Disclosure Politics*, 93 HARV. L. REV. 837, 849 (1980) (estimating the costs of conducting pesticide tests to obtain FDA approval at five to seven million dollars); Merrill, *supra* note 179, at 60 (evaluating the costs of demonstrating the carcinogenic results of a chemical in a single rodent species as being substantially more than \$ 500,000).

n209 See generally McGarity, *supra* note 117, at 732-47 (discussing the scientific issues that arise in regulating carcinogens); Merrill, *supra* note 179, at 59-67 (discussing the use of animal experiments in assessing risks).

n210 See McGarity, *supra* note 180, at 185; Merrill, *supra* note 179, at 69-74. EPA, for example, has devised elaborate dispersion models to predict the concentrations of air and water pollutants that result from various regulatory requirements, but these models are plagued with significant uncertainties. See Silver, *Problems in Attempting to Translate Statutory Standards into Emission Limitations Under Air and Water Pollution Control Legislation*, 22 VILL. L. REV. 1122, 1132-37, 1152-53 (1977); *infra* subpart V(A)(7).

n211 See Baram, *supra* note 205, at 482; Costle, *Environmental Regulation and Regulatory Reform*, 57 WASH. L. REV. 409, 417 & n.29, 420 (1982).

n212 See NATIONAL ACADEMY OF SCIENCES, INSTITUTE OF MEDICINE, COSTS OF ENVIRONMENT-RELATED HEALTH EFFECTS: A PLAN FOR CONTINUING STUDY 17-18 (1981); Costle, *supra* note 211, at 416-17, 420.

n213 See *generally* Interim RIA Guidance, *supra* note 52, at 259 (requiring that RIAs contain a benefits analysis to better demonstrate that the RIA satisfies the requirements of § 2 of E.O. 12,291).

n214 5 U.S.C. § 552(b)(4) (1982).

n215 After a series of hearings on cost-benefit analysis, Representative Eckhardt concluded sadly that in many cases "the most important fact to know about any cost-benefit analysis was who paid for it." *Conflict of Interest Hearings*, *supra* note 135, at 683.

n216 See *generally* Swartzman, *supra* note 199, at 61-63 (discussing limitations of analysts' reliance on data presented by the regulated private concern).

n217 See U.S. REGULATORY COUNCIL, *supra* note 50, at 23-26; Merrill, *supra* note 179, at 95; see also *House Regulatory Reform Act Hearings*, *supra* note 103, at 600 (testimony of Joseph Cannon, Associate Administrator for Policy and Resource Management, EPA) (stating that some critics suggest that industry exaggerates the costs of proposed regulations in order to prevent the issuance of regulations).

n218 See *Hearings on H.R. 746*, *supra* note 95, at 224-25 (statement of Milton Socolar, Acting Comptroller General, General Accounting Office); SENATE STUDY ON FEDERAL REGULATION, *supra* note 102, at 85; G. BENVENISTE, *supra* note 85, at 21; Breyer, *supra* note 15, at 572.

n219 See *House Regulatory Reform Act Hearings*, *supra* note 103, at 136 (statement of Joan Claybrook, former Administrator, NHTSA, DOT); *id.* at 224 (statement of Clarence Ditlow, Director, Center for Auto Safety); Nager, *Bureaucrats and the Cost-Benefit Chameleon*, REG., Sept.-Oct. 1982, at 37, 39-40.

n220 See Hammond & Adelman, *Science, Values and Human Judgment*, in JUDGMENT AND DECISION IN PUBLIC POLICY FORMATION 119, 119-38 (K. Hammond ed. 1978); Merrill, *supra* note 179, at 92.

n221 See *House Regulatory Reform Act Hearings*, *supra* note 103, at 224 (statement of Clarence Ditlow, Director, Center for Auto Safety); *id.* at 189 (statement of Joan Claybrook, former Administrator, NHTSA, DOT); *id.* at 369 (statement of James English, Associate General Counsel, United Steelworkers); M. GREEN & N. WAITZMAN, BUSINESS WAR ON THE LAW: AN ANALYSIS OF THE BENEFITS OF FEDERAL HEALTH/SAFETY ENFORCEMENT 24-26 (1979).

n222 See, e.g., *House Regulatory Reform Act Hearings*, *supra* note 103, at 369-70 (statement of James English, Associate General Counsel, United Steelworkers) (criticizing OSHA's practice of double-counting the costs of regulations); U.S. REGULATORY COUNCIL, *supra* note 50, at 23 (discussing how retooling and development of new technology can decrease compliance costs and criticizing agency overestimation of costs). For an explanation and analysis of double-counting, see E. MISHAN, *supra* note 23, at 64-66.

n223 See, e.g., M. GREEN & N. WAITZMAN, *supra* note 221, at 25 (citing an example in which the American Petroleum Institute provided figures to the EPA that were "patently untrue").

n224 See *House Regulatory Reform Act Hearings*, *supra* note 103, at 600 (testimony of Joseph Cannon, Associate Administrator for Planning and Resource Management, EPA); U.S. REGULATORY COUNCIL, *supra* note 50, at 21; Costle, *supra* note 211, at 415; Gass Interview, *supra* note 169.

n225 See Ruhter Interview, *supra* note 168.

n226 *Hearings on H.R. 746*, *supra* note 95, at 224-25 (statement of Milton Socolar, Acting Comptroller General, General Accounting Office) (relating statements of OMB officials); see Ruhter Interview, *supra* note 168.

n227 See U.S. REGULATORY COUNCIL, *supra* note 50, at 21 (observing that much of the data needed by USDA is available only if volunteered by industry during rule-making proceedings, and that OSHA often has difficulty obtaining information without a grant of confidentiality).

n228 See *Hearings on H.R. 746*, *supra* note 95, at 241 (statement of Milton Socolar, Acting Comptroller General, General Accounting Office).

n229 See GAO COST-BENEFIT REPORT, *supra* note 110, at 27.

n230 See J. RAVETZ, SCIENTIFIC KNOWLEDGE AND ITS SOCIAL PROBLEMS 273-388 (1971).

n231 See Clean Air Act § 109(d), 42 U.S.C. § 7409(d) (1982); Federal Insecticide, Fungicide, and Rodenticide Act § 25(d), 7 U.S.C. § 136w(d) (1982).

n232 See 1 C.F.R. § 305.82-5 (1987) (Administrative Conference Recommendation No. 82-5) (recommending peer review of experimental findings and scientific judgments involving carcinogens through expert advisory panels); Merrill, *supra* note 179, at 128 (suggesting that "consultation with outside experts can dilute the effect of policy biases that . . . it is believed often influence agency risk assessments").

n233 The Administrative Conference has recommended that federal agencies consider using regulatory negotiation as a means of drafting the text of a proposed regulation for agency consideration. It has also recommended procedures for regulatory negotiation. 1 C.F.R. § 305.82-4 (1987) (Administrative Conference Recommendation No. 82-4). The recommendations here apply to the more limited process of drafting regulatory analysis documents.

n234 The Administrative Conference summed up the problem in this way:

The participants [in the rule-making process], including the agency, tend to develop adversarial relationships with each other causing them to take extreme positions, to withhold information from one another, and to attack the legitimacy of opposing positions. . . . Moreover, many participants perceive their roles in the rulemaking proceeding more as positioning themselves for the subsequent judicial review than as contributing to a solution on the merits at the administrative level.

1 C.F.R. § 305.82-4 (1987) (Administrative Conference Recommendation No. 82-4).

n235 See *generally EPA Rule Negotiation Project Seems to Meet Expectations of Participants, Ruckelshaus Says* [Current Developments] 15 Env't Rep. (BNA) 889, 889 (Oct. 5, 1984) (recognizing that rule-making success hinges on parties "credit[ing] E.P.A.'s objectivity" and "respect[ing] E.P.A.'s authority to mediate . . . disputes"); *Mediation Group Reaches No Consensus on Benzene Standard, Carter Tells OSHA*, 14 O.S.H. Rep. (BNA) 347 (Sept. 27, 1984) ("Unfortunately, one or another of the interests found it impossible to endorse a few critical issues, either in terms of the benzene standard itself or in the broader regulatory context."); *Schatzow Fades after Tough Opener in Section 18 Committee Meeting*, Pesticide & Toxic Chemical News, Oct. 3, 1984, at 7 (unreasonable to expect committee members to agree to agree on all issues in advance).

n236 See *generally* Leape, *supra* note 198, at 103-13 (discussing the use of quantitative risk assessment in the regulations of environmental carcinogens); McGarity, *supra* note 117, at 736-40 (discussing the risks of waiting for development of additional data against the consequences of proceeding without that data); Merrill, *supra* note 179, at 74-85 (discussing the use of risk analysis in estimating cancer risks).

n237 See Banfield, *supra* note 146, at 9; Moore, *Statesmanship in a World of Particular Substantive Choices*, in BUREAUCRATS, POLICY ANALYSTS *supra* note 81, at 21, 25; *Large Discrepancy in Cancer Risk Estimates Said a Result of Mathematical Model Choice*, [Current Developments] 15 Env't Rep. (BNA) 769 (Sept. 14, 1984); *Risk Assessment Should Not Be Used for Cost-Benefit Decisions, Panel Told*, [Current Developments] 12 Env't Rep. (BNA) 820, 820 (Oct. 31, 1981).

n238 See STRATEGIES AND AIR STANDARDS DIVISION, *supra* note 172, at 1.3-1 to -34, 6.4-1 to -49 (discussing complicated econometric models for estimating financial impact of environmental regulations).

n239 See STRATEGIES AND AIR STANDARDS DIVISION, *supra* note 172, at 2.2-3 to -4; Merrill, *supra* note 179, at 77-80; McGarity, *supra* note 117, at 736-38.

n240 See *Hearings on H.R. 746*, *supra* note 95, at 253 (statement of Lester Lave, Brookings Institute); STRATEGIES AND AIR STANDARDS DIVISION, *supra* note 172, at 2.2-4; Nager, *supra* note 219, at 41.

n241 For example, the predictions of cancer risk assessment models can vary over ten orders of magnitude. See, e.g., Comment, *The Significant Risk Requirement in OSHA Regulation of Carcinogens*, 33 STAN. L. REV. 551, 557-60 (1981); see

also OTA CANCER REPORT, *supra* note 199, at 560-63 (arguing that risk determination is hindered by the difficulty of accurately establishing dosage and exposure); Latin, *supra* note 203, at 370 ("Differing assumptions about threshold levels and extrapolative theories may produce great disparity among carcinogenic risk assessments."); Merrill, *supra* note 179, at 79, 81 (stating that the choice of an extrapolation model can significantly affect risk assessments).

n242 See G. EDWARDS & I. SHARKANSKY, *supra* note 80, at 170, 186; Banfield, *supra* note 146, at 26; Jenkins-Smith, *Professional Roles for Policy Analysts: A Critical Assessment*, 2 J. POL'Y ANALYSIS & MGMT. 88, 90 (1982-1983); Telephone interview with Robert P. Beliles, Office of Risk Assessment, Directorate of Health Standards Programs, OSHA, DOL (July 23, 1984) [hereinafter Beliles Interview] (transcript on file with author); Kranidas Interview, *supra* note 104; Lange Interview, *supra* note 111.

n243 See Jennings Interview, *supra* note 97 ("[P]eople start believing in risk assessment numbers. They hang dollar values on it. They try to force-fit into a single number. This makes decision-making easier.").

n244 The Administrative Conference has recommended that agencies, as a general policy, should attempt to identify in public regulatory analyses "[a]ny factual assumptions or preliminary findings of the agency to be utilized in the analyses." 1 C.F.R. § 305.79-4 (1987) (Administrative Conference Recommendation No. 79-4). As to the use of carcinogenesis models, the Administrative Conference has recommended that agencies should "explicitly identify . . . [t]he assumptions underlying any extrapolations from animals to man or from high to low exposure levels" and "[o]ther assumptions about the behavior of the substance or about the characteristics of human exposure to it" 1 C.F.R. § 305.82-5 (1987) (Administrative Conference Recommendation No. 82-5).

n245 See H.R. REP. NO. 435, *supra* note 183, at 43; SENATE STUDY ON FEDERAL REGULATION, *supra* note 102, at 77; G. BENVENISTE, *supra* note 85, at 6-7; Lave, *supra* note 102, at 1.

n246 See SENATE STUDY ON FEDERAL REGULATION, *supra* note 102, at 9; Lave, *supra* note 102, at 77; Merrill, *supra* note 179, at 87-89.

n247 See SENATE STUDY ON FEDERAL REGULATION, *supra* note 102, at 83; Silk Interview, *supra* note 168; Telephone interview with Margaret Stasikowski, Acting Director, Chemical Control Division, Office of Toxic Substances, Office of Pesticides and Toxic Substances, EPA (July 11, 1984) [hereinafter Stasikowski Interview] (transcript on file with author).

n248 See E. MISHAN, *supra* note 23, at 109; Costle, *supra* note 211, at 419; McGarity, *supra* note 180, at 188-89; Tribe, *supra* note 149, at 1318-19; Tribe, *Technology Assessment and the Fourth Discontinuity: The Limits of Instrumental Rationality*, 46 S. CAL. L. REV. 617, 630, 632-33 (1973).

n249 See G. BENVENISTE, *supra* note 85, at 17; U.S. REGULATORY COUNCIL, *supra* note 50, at 47-48; Storing, *supra* note 156, at 111; Verkuil, *supra* note 63, at 252.

n250 E.O. 12,291 recognizes this by requiring an RIA to include in its description of costs and benefits a discussion of any "effects that cannot be quantified in monetary terms." E.O. 12291, *supra* note 25, § 3(d)(2)-(3). Many agency guidelines make similar provisions for the discussion of non-quantifiable variables. *E.g.*, DEPARTMENT OF TRANSP., GUIDANCE FOR REGULATORY EVALUATIONS: A HANDBOOK FOR DOT BENEFIT-COST ANALYSIS 23-24 (1982) [hereinafter DOT HANDBOOK]; DEPARTMENT OF TRANSP., ECONOMIC VALUES FOR EVALUATION OF FEDERAL AVIATION ADMINISTRATION INVESTMENT AND REGULATORY PROGRAMS 27 (1981); ENVIRONMENTAL PROTECTION AGENCY, GUIDELINES FOR PERFORMING REGULATORY IMPACT ANALYSIS 9-10 (1983) [hereinafter EPA RIA GUIDELINES]. Other agencies do not have particularized guidelines, but do to varying degrees attempt to include descriptions of relevant nonquantifiable effects in their analyses. See *House Regulatory Reform Act Hearings*, *supra* note 103, at 1658 (FDA); *id.* at 1900 (Department of Health & Human Services); *id.* at 2015 (OSHA).

n251 The Administrative Conference has recommended that regulatory analysis documents address "[t]he agency's methods for evaluating intangible costs and benefits" 1 C.F.R. § 305.79-4 (1987) (Administrative Conference Recommendation No. 79-4).

n252 See NATIONAL ACADEMY OF SCIENCES, NAT'L RESEARCH COUNCIL, DECISION MAKING FOR REGULATING CHEMICALS IN THE ENVIRONMENT 43-44 (1975) [hereinafter DECISION MAKING]; Hurter, Tolley & Fabian, *supra* note 174, at 92-99.

n253 See Blincoe Interview, *supra* note 101; Felrice Interview I, *supra* note 101; Telephone interview with Anthony Goldin, Director, Directorate of Policy and Larry Braslow, Chief of Economics, Office of Regulatory Analysis, Directorate of Policy, OSHA, DOL (July 26, 1984) [hereinafter Goldin & Braslow Interview] (transcript on file with author); Nichols Interview, *supra* note 168.

n254 See Telephone interview with Allen Basala, Chief, Regulatory Impact Section, Economic Analysis Branch, Strategies and Air Standards Division, Office of Air Quality Planning and Standards, Office of Air and Radiation, EPA (May 29, 1984) [hereinafter Basala Interview] (transcript on file with author).

n255 See S. REP. NO. 305, *supra* note 95, at 57; SENATE STUDY ON FEDERAL REGULATION, *supra* note 102, at 78; GAO COST-BENEFIT REPORT, *supra* note 110, at 12.

n256 See GAO COST-BENEFIT REPORT, *supra* note 110, at 1; see also *House Regulatory Reform Act Hearings*, *supra* note 103, at 572 (testimony of William S. Jordan, General Counsel, Union of Concerned Scientists) (explaining the inadequacies of cost-benefit analysis for regulation of the nuclear power industry).

n257 The Administrative Conference has recommended that public regulatory analysis documents address "[t]he agency's techniques for assessing and revealing uncertainties in its quantitative estimates," and make explicit "the range of error associated with particular quantitative estimates." 1 C.F.R. § 305.79-4 (1987) (Administrative Conference Recommendation No. 79-4). In particular, the Administrative Conference has recommended that agencies "explicitly identify . . . [t]he range of uncertainty associated with the [carcinogenesis risk] estimates." 1 C.F.R. § 305.82-5(VI) (1987) (Administrative Conference Recommendation No. 82-5).

n258 See GAO COST-BENEFIT REPORT, *supra* note 110, at 11-14; GAO IMPROVED QUALITY REPORT, *supra* note 86, at 12; E. MISHAN, *supra* note 23, at 142; Hurter, Tolley & Fabian, *supra* note 174, at 102-04; Lave, *supra* note 102, at 30-31, 35-36; Interview with Arthur Fraas, Office of Information and Regulatory Affairs, OMB (May 19, 1983) [hereinafter Fraas Interview] (transcript on file with author). One prominent regulatory reform bill of the early 1980s required quantification of benefits, costs, and effects of regulation. The numerical estimates, however, were required to "include an explanation of the margins of error involved in the quantification methods and in the estimates used." *Hearing on S. 1080*, *supra* note 101, at 12.

n259 A very good example of the use of ranges to characterize uncertainties is a table that the NHTSA prepared in its RIA for its automobile bumper standard. The table compared high and low ranges of both costs and benefits to give the decision makers an idea of the uncertainties surrounding any conclusion that benefits outweigh costs. See *Center for Auto Safety v. Peck*, 751 F.2d 1336, 1357 (D.C. Cir. 1985).

n260 For example, in one instance in the author's experience, an analyst in EPA's Office of Pesticide Programs predicted that granting a pesticide registration to a pesticide that had been shown to cause cancer in laboratory animals would cause 27 cancers over a 70 year period. When pressed for a 95% confidence interval the prediction was expressed as follows: "0 < 27 < 660,000." In other words, although 27 was the analyst's best estimate, he was only 95% confident that between zero and 660,000 cancers would occur. The confidence interval thus said a great deal about the confidence with which the analyst made his prediction of 27 cancers.

n261 GAO COST-BENEFIT REPORT, *supra* note 110, at 2, 11.

n262 See generally Hurter, Tolley & Fabian, *supra* note 174, at 103 (explaining the use of sensitivity analysis).

n263 See U.S. REGULATORY COUNCIL, *supra* note 50, at 22-23; Merrill, *supra* note 179, at 80.

n264 EPA requires an agency to identify uncertainty in relevant information in its Environmental Impact Statement. If the agency decides to proceed in the face of uncertainty, it must include a worst case analysis and indicate the probability or improbability of its occurrence. 40 C.F.R. § 1502.22(b) (1986); see also *Save Our EcoSystems v. Clark*, 747 F.2d 1240, 1244 (9th Cir. 1984) (discussing the requirement of worst case analysis for testing herbicides). See generally Comment, *Update: The NEPA Worst Case Analysis Regulation*, 14 *Envtl. L. Rep. (Envtl. L. Inst.)* 10267, 10267 (1984) (examining the developing law on NEPA's worst case analysis regulation); Comment, *CEQ's "Worst Case Analysis" Rule for EISs: "Reasonable" Speculation or Crystal Ball Inquiry?*, 13 *Envtl. L. Rep. (Envtl. L. Inst.)* 10069 (1983) (analyzing the first judicial interpretation of the worst case analysis regulation in *Sierra Club v. Sigler*, 695 F.2d 957 (5th Cir. 1983)).

n265 Council on Environmental Quality, Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations, 46 Fed. Reg. 18026, 18032 (1981) [hereinafter Forty Questions]. See generally Fisher, *An Overview and Evaluation of EPA's Guidelines for Conducting Regulatory Impact Analyses*, in ENVIRONMENTAL POLICY UNDER REAGAN'S EXECUTIVE ORDER: THE ROLE OF BENEFIT-COST ANALYSIS 99, 99-115 (V. Smith ed. 1984) (discussing EPA's adoption of cost-benefit analysis for proposed regulations).

n266 See Lave, *supra* note 102, at 53-54; Zackhauser & Shepard, *Principles for Saving and Valuing Lives*, in THE BENEFITS OF HEALTH AND SAFETY REGULATION 91, 119-20 (1981).

n267 See L. LAVE, *supra* note 126, at 3; Luken, *supra* note 103, at 44.

n268 See generally Diver, *supra* note 80, at 416-17 (discussing the increased use of cost-benefit analysis by government agencies); Merrill, *supra* note 179, at 87-88 (discussing the limitations and advantages of using cost-benefit analysis in regulatory decisions); Neely, *Statutory Inhibitions to the Application of Principles of Cost/Benefit Analysis in Administrative Decision Making*, 23 DUQ. L. REV. 489, 502-09 (1985) (examining statutory barriers, such as mandatory allocations in the dispensation of governmental benefits, to cost-benefit analysis).

n269 E.O. 12291, *supra* note 25, § 2. The Regulatory Flexibility Act does not explicitly require cost-benefit analysis. See Verkuil, *supra* note 63, at 251 (expressing the view that the Regulatory Flexibility Act does not require a thorough cost-benefit analysis). Two recent regulatory reform bills, however, did require agencies to prepare cost-benefit analyses for regulatory alternatives. See S. 1080, 97th Cong., 1st Sess. § 3(c)(2) (1981); H.R. 2327, 98th Cong., 1st Sess. § 101(c) (1983).

n270 For comprehensive critiques of cost-benefit analysis as applied to health and environmental decision making, see M. GREEN & N. WAITZMAN, *supra* note 221, at 21-48; P. SELF, *ECONOCRATS AND THE POLICY PROCESS: THE POLITICS AND PHILOSOPHY OF COST-BENEFIT ANALYSIS* (1975).

n271 See L. LAVE, *supra* note 126, at 24-25.

n272 See GAO COST-BENEFIT REPORT, *supra* note 110, at 2; L. LAVE, *supra* note 126, at 39; Rodgers, *Benefits, Costs, and Risks: Oversight of Health and Environmental Decision Making*, 4 HARV. ENVTL. L. REV. 191, 198 (1980).

n273 See DECISION MAKING, *supra* note 252, at 39-42; see also R. LITAN & W. NORDHAUS, *supra* note 177, at 10-11 (discussing various methods for determining the value of human lives); Merrill, *supra* note 179, at 96 (stating that most regulators spurn the notion of assigning dollar values to human lives because of ethical concerns and practical difficulties in valuing life).

n274 See SENATE STUDY ON FEDERAL REGULATION, *supra* note 102, at 83; L. LAVE, *supra* note 126, at 40.

n275 See M. BAILEY, *REDUCING RISKS TO LIFE: MEASUREMENT OF THE BENEFITS* 1-10 (1980) (offering as examples an individual's decision to smoke, to drive, or to fly, and to choose a particular job); R. SMITH, *THE OCCUPATIONAL SAFETY AND HEALTH ACT: ITS GOALS AND ITS ACHIEVEMENTS* 34-36 (1976) (citing as examples decisions to smoke, to wear a seat belt, to overeat, and to see a doctor).

n276 See M. BAILEY, *supra* note 275, at 15-16; R. SMITH, *supra* note 275, at 34-36.

n277 See *Regulatory Reform Hearings of 1981*, *supra* note 101, at 234 (presenting the results of a survey of several agencies as to the value that they placed, either explicitly or implicitly, on human life).

n278 See, e.g., S. TOLCHIN & M. TOLCHIN, *DISMANTLING AMERICA: THE RUSH TO DEREGULATE* 129-33 (1983) (arguing that attempting to place a value on human life actually involves an attempt to choose between competing human values). One interesting example of a cost-benefit analysis that probably would raise moral objections is a study undertaken by researchers from Brown University and a Rhode Island hospital on the costs and benefits of treating handicapped infants. The study concluded that for birth weights of less than 900 grams, the costs per survivor exceeded the child's potential average lifetime earnings. Doan, *What a Life is Worth: U.S. Seeks a Price*, U.S. NEWS & WORLD REP., Sept. 19, 1985, at 58. Attempting to place a monetary value on other items, such as clean air and water and scenic vistas, may also belittle their intrinsic values. See Kelman, *Cost-Benefit Analysis and Environmental, Safety, and Health Regulations: Ethical and Philosophical Considerations*, in COST-BENEFIT ANALYSIS AND ENVIRONMENTAL REGULATIONS, *supra* note 26, at 137, 143-46.

n279 See *CMA Regulatory Impact Policy Seeks Good Science, Omission of Life Value Costs*, 6 Chem. Reg. Rep. (BNA) 737 (Sept. 17, 1982).

n280 See *Use of Cost-Benefit Analysis by Regulatory Agencies: Joint Hearings Before the Subcomm. on Oversight and Investigations and the Subcomm. on Consumer Protection and Finance of the House Comm. on Interstate and Foreign Commerce*, 96th Cong., 1st Sess. 187 (1979).

n281 See GAO COST-BENEFIT REPORT, *supra* note 110, at 1 (stating that the "problem is further complicated since precise dollar values for these costs and benefits are not readily available"); Baram, *supra* note 205, at 483 (arguing that quantifying the value of human life defies "traditional economic valuation"); Rodgers, *supra* note 272, at 197-98 (arguing that valuations of human life will reflect the preconceptions of the evaluator); see also G. EDWARDS & I. SHARKANSKY, *supra* note 80, at 197 (discussing noneconomic factors affecting policy decisions).

n282 Kennedy, *Cost-Benefit Analysis of Entitlement Problems: A Critique*, 33 STAN. L. REV. 387, 388 (1981); see also *Hearings on H.R. 746*, *supra* note 95, at 690 (statement of Ellen Josephson, Director, Access to Justice Project, National Legal Aid and Defender Association) (arguing that health and safety benefits are "nearly impossible to quantify").

n283 McGarity, *supra* note 180, at 172.

n284 Benefits analysis is incoherent or schizophrenic, insofar as it applies to significant mortality risks and valuable environmental entities, because the value of a thing can be measured either by the willingness of the purchaser to pay for it or the willingness of the seller to sell it. *Id.* at 170-71. In the typical market, these two measures yield the same dollar amount -- the price at which the parties are willing to exchange the item. *Id.* at 168. For objects for which markets do not exist, such as lives, the two measures need not yield the same result. For example, the price at which a person might sell his heart, under the willingness to sell measure, probably exceeds the price at which he is prepared to pay for it, under the willingness to buy criterion. Which test one adopts depends very much upon how one views the allocation of rights in society.

Even if one adopts a willingness to buy measure for health and environmental values, the test will still be difficult to apply. Preferences for one benefit or another do not remain stable, and the value placed on a benefit varies according to the policy served. In addition, consumers might select a benefit on the basis of ignorance or incomplete information. See G. EDWARDS & I. SHARKANSKY, *supra* note 80, at 188; see also Kelman, *Choice and Utility*, 1979 WIS. L. REV. 769, 771 (discussing factors affecting consumer choices); Sunstein, *supra* note 197, at 1276 (arguing that cost-benefit analysis is indeterminate in the absence of "some comparatively specific guidelines").

n285 See Tribe, *Policy Science: Analysis or Ideology?*, 2 PHIL. & PUB. AFF. 66, 84-90 (1972).

n286 "Future costs" are expenses that will be incurred at a later time in order to comply with a proposed regulation.

n287 See A. MELTSNER, *supra* note 83, at 147.

n288 See generally Baram, *supra* note 205, at 486 (noting the difficulty of deciding on the proper rate of return for valuing "intertemporal preferences of society as a whole"); Grubb, Whittington & Humphries, *supra* note 141, at 35-36 (discussing past RIAs that have used discount rates to value future benefits); McGarity, *supra* note 180, at 188 ("While a present dollar is clearly worth more than a future dollar, it is not clear that present pain is worth more or less than the promise of future pain."); Merrill, *supra* note 179, at 96 (noting that there is disagreement over whether future health benefits should be discounted in the same fashion as future control expenditures); Rodgers, *supra* note 272, at 196 ("[R]eliance on the present market to measure the values of future goals to future generations is a dubious endeavor.").

n289 See, e.g., National Environmental Policy Act of 1969, § 101, 42 U.S.C. § 4331(a) (1982); Solid Waste Disposal Act § 1003(b), 42 U.S.C. § 6902(b) (1982).

n290 See Fisher, *supra* note 265, at 108-09. Meltsner quotes the following poem, attributed to Kenneth Boulding:

[T]he long term interest rate Determines any project's fate. At two percent the case is clear; At three, some sneaking doubts appear; At four, it draws its final breath; While five percent is certain death.

A. MELTSNER, *supra* note 83, at 147; see also Rodgers, *supra* note 272, at 198 (noting that small adjustments in the discount rate can cause the majority of approved projects to fall below the standard requirements for approval).

n291 See McGarity, *supra* note 180, at 188; Mishan, *Distributive Implications of Economic Controls*, in THE BENEFITS OF HEALTH AND SAFETY REGULATION, *supra* note 21, at 155, 170 (stating that there is no overlap between the generation that adopts a policy and one that has to live with it).

n292 OMB's insistence upon a 10% discount rate has been controversial. One regulatory official referred to the practice of discounting the value of human life as "unethical," and a Congressman called it "ghoulish." *Budget Office Disputed on Cost Bases for Asbestos*, N.Y. Times, Apr. 17, 1985, at B28, col. 1; see *EPA's Barnes Takes the Heat for Questions Aimed at OMB*, Pesticide & Toxic Chemical News, Apr. 17, 1985, at 30.

n293 At a discount rate of 10%, a dollar's worth of benefits 50 years from now is worth slightly less than a penny today.

n294 See Baram, *supra* note 205, at 486 n.47 (stating that analysts in the past have chosen discount rates that tend to confirm the outcomes they desire). The Administrative Conference has recommended that regulatory analysis documents address "[t]he agency's methods . . . for discounting future costs and benefits" 1 C.F.R. § 305.79-4(b)(1)(e) (1987) (Administrative Conference Recommendation No. 79-4).

n295 See E. MISHAN, *supra* note 23, at 13; Mazur, *Bias in Risk-Benefit Analysis*, 7 TECH. SOC. 25, 28 (1985); Sagoff, *We Have Met the Enemy and He is Us or Conflict and Contradiction in Environmental Law*, 12 ENVTL. L. 283, 290 (1982); Tribe, *supra* note 285, at 70-72.

n296 See A. FREEMAN, R. HAVEMAN & A. KNEESE, *THE ECONOMICS OF ENVIRONMENTAL POLICY* 80-81 (1973); A. KNEESE & C. SCHULTZE, *supra* note 129, at 27-28; L. LAVE, *supra* note 126, at 24; Rodgers, *supra* note 272, at 194.

n297 Distributional considerations, to a large extent, motivate the enactment of price controls, transportation regulation, and commodity price support programs. See Mansfield, *Federal Maritime Commission*, in *THE POLITICS OF REGULATION*, *supra* note 194, 42, 67 (1980); Friedlaender, *Equity, Efficiency, and Regulation in the Rail and Trucking Industries*, in *CASE STUDIES IN REGULATION*, *supra* note 188, at 102, 123.

n298 See, e.g., *Lead Indus. Ass'n v. EPA*, 647 F.2d 1130, 1141 (D.C. Cir.) (stating that protection of the most sensitive groups within the population is a major factor in determining the level at which air quality standards are set), *cert. denied*, 449 U.S. 1042 (1980); Vaupel, *supra* note 124, at 2-3 (arguing for the use of health and safety regulations to reduce mortality and morbidity rates, especially among the nonwhite, poor, and poorly educated population).

n299 E.O. 12291, *supra* note 25, § 3(d).

n300 See Grubb, Whittington & Humphries, *supra* note 141, at 140-41.

n301 See *id.* at 124-25 (stating that E.O. 12,291 "explicitly states that the sole criterion for regulation is to be maximizing net benefits to society, unmodified by distributive, environmental or other noneconomic objectives"); cf. Sunstein, *supra* note 197, at 1272-73 (stating that "regulatory action is not allowed unless it is shown that the benefits outweigh its costs, despite any other consequences the action may have, and despite the fact that those consequences may have been desired by Congress").

n302 To do this, the analyst will have to expand her cost and benefits analysis to include a discussion of who pays the costs and who receives the benefits. See Harrison, *Distributional Objectives in Health and Safety Regulation*, in *THE BENEFITS OF HEALTH AND SAFETY REGULATION*, *supra* note 21, at 177, 178-79. One prominent regulatory reform bill, S. 1080, would have required agency regulatory analysts to identify the distributive aspects of a regulation in the regulatory analysis document. See S. REP. NO. 284, *supra* note 91, at 92. The Administrative Conference has recommended that regulatory analysis documents should address "[t]he agency's methods . . . for taking account of distributional effects arising under [its] selected methodology." 1 C.F.R. § 305.79-4(1)(e) (1987) (Administrative Conference Recommendation No. 79-4).

n303 See, e.g., Costle, *supra* note 211, at 421; Leman, *Some Benefits and Costs of the Proliferation of Analysis in Natural Resources Budgeting* 40 (prepared for the 4th Annual Research Conference of the Association for Public Policy Analysis and Management (Oct. 23-30, 1982)) (copy available from author); Mazur, *supra* note 295, at 25; Sagoff, *supra* note 126, at 73; Sagoff, *supra* note 149, at 1410.

n304 Both the EPA and the DOT have cost-benefit analysis guidelines. See DOT HANDBOOK, *supra* note 250, at 13-20; EPA RIA GUIDELINES, *supra* note 250, at 6-20. The Department of Agriculture, the Food and Drug Administration, the Mine Safety and Health Administration, and the Occupational Safety and Health Administration are among those agencies that do not. See G. EDWARDS & I. SHARKANSKY, *supra* note 80, at 198; GAO COST-BENEFIT REPORT, *supra* note 110, at 7; L. LAVE, *supra* note 126, at 25; Croke & Herlevsen, *supra* note 26, at 26.

n305 See Schuck, *supra* note 22, at 120.

n306 Kasper, *Cost-Benefit Analysis in Environmental Decisionmaking*, 45 GEO. WASH. L. REV. 1013, 1014 (1977). Even the strongest proponents of cost-benefit analysis recognize that its limitations are so severe that it should not be the exclusive decision making tool. See *Hearings on H.R. 746*, *supra* note 95, at 560 (statement of Robert A. Ragland, Director, Regulatory Reform and Government Organization, National Association of Manufacturers); *Regulatory Reform Hearings of 1981*, *supra* note 101, at 37 (statement of Murray Weidenbaum, Chairman, Council of Economic Advisors); *id.* at 188-89 (statement of John R. Opel, President, International Business Machines Corp., on behalf of the Business Roundtable); *id.* at 22 (testimony of James C. Miller, Administrator, Information and Regulatory Affairs, OMB).

n307 See GAO COST-BENEFIT REPORT, *supra* note 110, at 1-2; Nichols Interview, *supra* note 168.

n308 See SENATE STUDY ON FEDERAL REGULATION, *supra* note 102, at 84; GAO COST-BENEFIT REPORT, *supra* note 110, at 21; L. LAVE, *supra* note 126, at 19-21; Neely, *supra* note 268, at 497-98; R. Luken & F. Johnson, *supra* note 101, at 3.

n309 Cost-effectiveness analysis avoids these difficulties because it does not require that benefits be quantified in dollar terms. In a cost effectiveness analysis, the costs of various alternative approaches to attaining a given environmental or other goal are calculated and compared. The value of the goal is not required for purposes of the analysis.

n310 The impediments that remain are all of the problems of quantifying, but not monetizing, benefits and all the problems of monetizing costs.

n311 See *supra* subpart V(A)(1).

n312 See *Regulatory Reform Hearings of 1981*, *supra* note 101, at 552 (agency comments of the DOT).

n313 See *Hearings on H.R. 746*, *supra* note 95, at 419 (statement of Nancy Drabble, acting director, and Carolyn Brickney, staff attorney, Public Citizen's Congress Watch).

n314 See *supra* notes 154-56 and accompanying text.

n315 See Mishan, *supra* note 291, at 159.

n316 See G. EDWARDS & I. SHARKANSKY, *supra* note 80, at 9; A. MELTSNER, *supra* note 83, at 253-54; Andrews, *supra* note 137, at 123; Jenkins-Smith, *supra* note 242, at 90; Nager, *supra* note 219, at 40-41.

n317 Regulatory analysts in the agencies are well aware that policy considerations can dominate the output of the analytical exercise. See Felrice Interview I, *supra* note 101; Jennings Interview, *supra* note 97; Lange Interview, *supra* note 111.

n318 An excellent example is the well-publicized dispute between OMB and EPA over whether the Reagan Administration should propose acid rain legislation. In a meeting with the President, the Director of OMB suggested that EPA's proposed legislation would carry a price tag of \$ 6,000-10,000 per pound of fish saved. See *Stockman Tells Cabinet Group EPA Acid Rain Option Costly with Slim Benefits*, INSIDE E.P.A., Sept. 30, 1983, at 1. In the minds of EPA analysts this was an absurdly high number that could have been derived only by erring on the high side of virtually every possible assumption. See *Squelched EPA Study Says Benefit of 3.4-Million Ton Acid Rain Plan Equals Cost*, INSIDE E.P.A., Mar. 23, 1984, at 1. Moreover, the Director apparently did not attempt to characterize the uncertainties surrounding that number, and EPA had not prepared a "counter-prediction" for the meeting. Although the President's own policy preferences may well have led him to kill the legislative initiative in any event, OMB's extremely slanted cost assessment, which reflected that agency's policy preferences, made the legislation seem very unattractive and thus the choice not to pursue the legislation very easy.

n319 See generally A. MELTSNER, *supra* note 83, at 282-85 (discussing the interaction of analysts with upper level policy makers).

n320 Telephone interview with Barry Felrice, Assistant Administrator for Plans and Programs (now Associate Administrator for Rulemaking) NHTSA, DOT (Aug. 2, 1983) [hereinafter Felrice Interview II] (transcript on file with author); Hitchcock Interview, *supra* note 164.

n321 For example, in the pesticide example given previously, see *supra* note 260, the analyst's "best estimate" was at the extreme low end of the 95% confidence interval clearly revealed the analyst's policy preferences.

n322 For example, from among the models currently used in carcinogen risk assessment, an analyst can choose a model that consistently yields a greater number of cancers per level of exposure to a chemical, thereby expressing a conservative preference for protecting the public over the benefits of the chemical. Use of a model that yields fewer cancers per level of exposure will express a policy preference in favor of the benefits of the chemical over society.

n323 See Nager, *supra* note 219, at 41.

n324 See G. EDWARDS & I. SHARKANSKY, *supra* note 80, at 197; see also A. MELTSNER, *supra* note 83, at 262 (noting that an upper level policy maker can often persuade an analyst to rewrite his analysis to conform more with the policy maker's preconceived notions of what the result should be).

n325 See S. REP. NO. 305, *supra* note 95, at 45; Grubb, Whittington & Humphries, *supra* note 141, at 42.

n326 See generally A. MELTSNER, *supra* note 83, at 75-76, 282 (giving examples of suggestive analysis and arguing that those who provide such analysis should be dismissed).

n327 See *id.* at 269; Majone, *The Uses of Policy Analysis*, in *THE FUTURE AND THE PAST: ESSAYS ON PROGRAMS AND THE ANNUAL REPORT 1976-1977*, at 207 (1978).

n328 A. MELTSNER, *supra* note 83, at 70-71, 273; DECISION MAKING, *supra* note 252, at 36-37.

n329 E.O. 12291, *supra* note 25, § 3(i).

n330 See A. MELTSNER, *supra* note 83, at 273; Vaupel, *supra* note 124, at 5.

n331 Telephone interview with Alexander Cristofaro, Air Branch Chief, Regulatory Policy Division, Office of Policy Analysis, Office of Policy, Planning and Evaluation, EPA (May 24 and 25, 1984) [hereinafter Cristofaro Interview] (transcript on file with author); see also G. EDWARDS & I. SHARKANSKY, *supra* note 80, at 132 (noting that organizations attempt to avoid reporting efforts that have failed to protect their reputation).

n332 See Cristofaro Interview, *supra* note 331; Luken Interview, *supra* note 168; Ruhter Interview, *supra* note 168; Segal Interview, *supra* note 101; Telephone interview with Nancy Wentsler, Office of Information and Regulatory Affairs, OMB (Apr. 18, 1984) [hereinafter Wentsler Interview] (transcript on file with author).

n333 See, e.g., SENATE STUDY ON FEDERAL REGULATION, *supra* note 102, at 84 (discussing a follow-up study on OSHA's standard for occupational exposure to vinyl chloride that found actual costs, and effects on prices and production, to be below DOL estimates and significantly below industry estimate). Retrospective economic impact studies indicate a general trend toward overestimating compliance costs, sometimes to a fairly large degree. See generally *House Regulatory Reform Act Hearings*, *supra* note 103, at 121 (statement of Joan Claybrook, former Administrator, NHTSA, DOT) (noting that recent history has proven that even honestly projected costs will often be undercut by industry when faced with actual compliance).

n334 Telephone interview with Stuart Sessions, Acting Director, Regulatory Policy Division, Office of Policy Analysis, Office of Policy, Planning and Evaluation, EPA (May 29, 1984) [hereinafter Sessions Interview] (transcript on file with author); see also Merrill, *supra* note 179, at 94 (noting that real-world time constraints often do not permit the kind of careful investigation and quantification of effects that the cost-benefit model dictates).

n335 See *House Regulatory Reform Act Hearings*, *supra* note 103, at 533 (statement of Jerry Hill, former Deputy Assistant Secretary of Agriculture for Marketing and Transportation, USDA); Telephone interview with Robert Ajax, Standards Development Branch Chief, Emissions Standards and Engineering Division, Office of Air Quality Planning and Standards, Office of Air and Radiation, EPA (July 13, 1984) [hereinafter Ajax Interview] (transcript on file with author); Beliles Interview, *supra* note 242; Felrice Interview I, *supra* note 101; Telephone interview with Daniel Fiorino, Acting Director, Regulation and Enforcement Management Division, Office of Standards and Regulations, Office of Policy, Planning and Evaluation, EPA (May, 23, 1984) [hereinafter Fiorino Interview] (transcript on file with author); Interview with Rob Wolcott, Special Assistant to the Deputy Administrator, EPA (June 27, 1984) [hereinafter Wolcott Interview] (transcript on file with author).

n336 See C. LINDBLOM, *supra* note 80, at 108-09; A. MELTSNER, *supra* note 83, at 293.

n337 See Ajax Interview, *supra* note 335.

n338 See Wolcott Interview, *supra* note 335.

n339 See G. EDWARDS & I. SHARKANSKY, *supra* note 80, at 185.

n340 See Fiorino Interview, *supra* note 335; Kranidas Interview, *supra* note 104; Peak Interview, *supra* note 101; Shapiro Interview, *supra* note 168.

n341 See U.S. REGULATORY COUNCIL, *supra* note 50, at 51; IIS REPORT, *supra* note 101, at 8, 77.

n342 See C. LINDBLOM, *supra* note 80, at 14 ("A policymaker, whether an individual or an organization, will become exhausted long before the analysis is exhausted."); see also A. MELTSNER, *supra* note 83, at 154 (explaining that if the analyst devotes too

much time to "polishing his numbers," the political process will solve the problem before he does); U.S. REGULATORY COUNCIL, *supra* note 50, at 18 (noting the frequent trade-off between consideration of many alternatives and reliable analysis of each).

n343 See *House Regulatory Reform Act Hearings*, *supra* note 103, at 50-51 (statement of Joan Bernstein, former General Counsel, EPA) (reporting that the Congressional Budget Office "estimated that implementation of E.O. 12291 [cost] 21 to 36 million dollars a year (at 1982 prices).").

n344 *Id.* at 1178-79.

n345 *Id.* at 1178.

n346 S. REP. NO. 284, *supra* note 91, at 90.

n347 For a short discussion of E.O. 12,044, see *supra* text accompanying notes 32-34.

n348 GAO IMPROVED QUALITY REPORT, *supra* note 86, at 19.

n349 *Id.*

n350 E.O. 12291, *supra* note 25, § 3(d).

n351 See Portney, *The Benefits and Costs of Regulatory Analysis*, in ENVIRONMENTAL POLICY UNDER REAGAN'S EXECUTIVE ORDER, *supra* note 141, at 226, 236; see also Miller, *Lessons of the Economic Impact Statement Program*, REG., July-Aug. 1977, at 14, 18 (stating that the benefits of regulatory impact analysis in general outweigh the costs); Portney, *supra*, at 238 (arguing that "the entire annual cost of Regulatory Impact Analysis could be recouped on a single major rulemaking").

n352 See *House Regulatory Reform Act Hearings*, *supra* note 103, at 51-52 (statement of Joan Bernstein, former General Counsel, EPA); *id.* at 109 (statement of Joan Claybrook, former Administrator, NHTSA, DOT).

n353 See Grubb, Whittington & Humphries, *supra* note 141, at 149; see also *id.* at 153 ("The inability [of RIAs] to analyze . . . long-term health effects [of environmental regulations] . . . is . . . especially serious because ignoring the health effects of environmental regulations amounts to giving up the major purpose of such regulations.").

n354 See *Hearings on H.R. 746*, *supra* note 95, at 105 (statement of Richard Smith, Chairman, Coordinating Group on Regulatory Reform, American Bar Association) (stating that "[regulatory analysis] does not come cheaply, and we are not entirely sanguine about the extent . . . of [its] usefulness . . . in all cases, especially viewed against its cost"); *Regulatory Flexibility Act Oversight Hearings*, *supra* note 76, at 98 (testimony of Bevis Longstreth, Commissioner, SEC) (arguing that "the RFA itself has not been cost effective").

n355 See *Role of OMB in Regulation: Hearings Before the Subcomm. on Oversight and Investigations of the House Comm. on Energy and Commerce*, 97th Cong., 1st Sess. 5 (1981) [hereinafter *Role of OMB in Regulation Hearings*] (statement of Representative Albert Gore); GAO COST-BENEFIT REPORT, *supra* note 110, at 29-30; Luken, *supra* note 103, at 45-46.

n356 See *House Regulatory Reform Act Hearings*, *supra* note 103, at 52 (statement of Joan Bernstein, former General Counsel, EPA) ("[I]t looks as if OMB used the [regulatory impact] process to slow down regulations it basically dislikes but gets out of the way where actions relaxing requirements were being taken."); *Role of OMB in Regulation Hearings*, *supra* note 355, at 5 (statement of Representative Albert Gore) (stating that "increasing rigid demands for analysis and decreased analytical resources cannot help but lead to the conclusion that this administration's real goal is to simply stop regulation").

n357 See Scanlon & Rogowsky, *Back-Door Rulemaking: A View from the CPSC*, REG., July-Aug. 1984, at 27, 27.

n358 For example, under the Clean Air Act, EPA must promulgate national ambient air quality standards. 42 U.S.C. § 7409(a) (1982). It does not have the option to set such standards by adjudication. Likewise, OSHA must promulgate occupational health standards by rule, and not by adjudication. 29 U.S.C. § 655 (1982).

n359 See *supra* notes 130-32 and accompanying text.

n360 See REPORT FROM THE OFFICE OF THE CHAIRMAN, ADMINISTRATIVE CONFERENCE OF THE UNITED STATES TO THE ASSISTANT SECRETARY FOR OCCUPATIONAL SAFETY AND HEALTH, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION ON OSHA RULEMAKING PROCEDURES 191-98 (1987).

n361 E.O. 12291, *supra* note 25, § 3(e)-(f).

n362 See, e.g., Cannon, *Key Official at EPA, Says OMB Does Not Have Final Word on Agency Rules*, [Current Developments] 13 Env't. Rep. (BNA) 882, 882 (Oct. 29, 1982) (quoting an EPA official as saying that OMB "does not and will not have the final word on our regulations"); Houck, *President X and the New (Approved) Decisionmaking*, 36 AM. U.L. REV. 535, 542-44 (1987) (arguing that OMB review has allowed some agencies opposing regulations to exercise an "extra-statutory veto" over those proposed regulations); McGarity, *Presidential Control of Regulatory Agency Decisionmaking*, 36 AM. U.L. REV. 443, 457-60 (1987) (pointing out that "it is possible for affected parties to channel vital information and arguments to the agency through the . . . OMB and for the agency to rely upon that information without first exposing it to the light of critical comment"); Morrison, *OMB Interference with Agency Rulemaking: The Wrong Way to Write a Regulation*, 99 HARV. L. REV. 1059, 1065 (1986) ("Because of their fear of negative OMB reaction, agencies have become increasingly defensive about their rules."); Olson, *The Quiet Shift of Power: Office of Management & Budget Supervision of Environmental Protection Agency Rulemaking Under Executive Order 12,291*, 4 VA. J. NAT. RES. L. 1, 42-50 (analysis of direct and indirect OMB influence on EPA policy making, describing the resulting "struggle between EPA and OMB" as "embittered").

n363 See, e.g., *House Regulatory Reform Act Hearings*, *supra* note 103, at 1563 (EPA response to subcommittee questions) (explaining that OMB communications to EPA are made part of the public record); Interview with Joseph Cannon, formerly Associate Administrator, Policy and Resource Management, Radiation, EPA (May 18, 1984) [hereinafter Cannon Interview] (transcript on file with author) (same); see also *Regulatory Reform Hearings of 1981*, *supra* note 101, at 142 (written response submitted by Richard Smith, Chairman, Coordinating Group on Regulatory Reform, American Bar Association) (arguing that written, but not oral, communication should be placed in the rule-making record); Morrison, *supra* note 363, at 1072 (suggesting that all OMB communications to agencies should be reduced to memoranda and placed in the public record to clarify publicly the bases of decisions and to assure meaningful judicial review). But see 1 C.F.R. § 305.80-6 (1987) (Administrative Conference Recommendation No. 80-6) (arguing that oral communications between OMB and agencies not be placed in the record in order not to inhibit internal debate about policy implications); Verkuil, *Jawboning Administrative Agencies: Ex Parte Contacts by the White House*, 80 COLUM. L. REV. 943, 987-88 (1980) (arguing that the occurrence of *ex parte* contacts between agency staff and the President or his staff should be recorded but that the substance of the contacts should remain private in order to encourage a full and frank exchange of ideas and advice).

n364 See Houck, *supra* note 362, at 546-47; McGarity, *supra* note 362, at 486; Olson, *supra* note 362, at 77.

n365 See H.R. REP. NO. 435, *supra* note 183, at 54; GAO IMPROVED QUALITY REPORT, *supra* note 86, at 4, 53; McGarity, *supra* note 362, at 488.

n366 See *Role of OMB in Regulation Hearings*, *supra* note 355, at 11 (testimony of George Eads, Senior Economist, Rand Corp.).

n367 See McGarity, *supra* note 362, at 487-88; Morrison, *supra* note 362, at 1072.

n368 See *House Regulatory Reform Act Hearings*, *supra* note 103, at 119-20 (testimony of Arthur Corazzini, Deputy Director, Program Analysis Division, GAO).

n369 See *supra* notes 168-69 and accompanying text.

n370 See *supra* text accompanying notes 229-33.

n371 See *infra* subpart V(C)(1).

n372 See *infra* subpart V(C)(2).

n373 See *infra* text accompanying notes 384-91.

n374 See *infra* subpart V(C)(3).

n375 See *infra* subpart V(C)(4).

n376 See Basala Interview, *supra* note 254; Telephone interview with Miriam Bender, Assistant Professor, St. Louis University Law School, formerly Attorney, Office of the General Counsel, USDA (Mar. 19, 1984) [hereinafter Bender Interview] (transcript on file with author); Campbell Interview, *supra* note 168; Luken Interview, *supra* note 168.

n377 See, e.g., Cramton & Berg, *supra* note 146, at 516 (warning that "agencies must guard against a natural but unfortunate tendency to permit the writing of impact statements to become a form of bureaucratic gamesmanship"); Sax, *The (Unhappy) Truth About NEPA*, 26 OKLA. L. REV. 239, 248 (1973) (arguing that EIS data gatherers are tied to particular clients).

n378 Compare L. CALDWELL, SCIENCE AND THE NATIONAL ENVIRONMENTAL POLICY ACT 126 (1982) (describing how the procedural reform required by the EIS caused a redirection of federal environmental policy) with Fairfax, *A Disaster in the Environmental Movement*, 199 SCI. 743, 747 (1978) ("The tragedy of NEPA is that it turned energy, attention, and effort away from a redefinition of agency authorities and spent it proliferating paper.") and Sax, *supra* note 377, at 245 (arguing that those in a position to effectuate changes will opt for conventional, tangible approaches to problems while ignoring the findings of EISs).

n379 See L. CALDWELL, *supra* note 378, at 2-3. This is true even though the Supreme Court has held that the courts may not substantively review agency actions for failure to comply with NEPA's procedural standards. See *Strycker's Bay Neighborhood Council v. Karlen*, 444 U.S. 223, 227-28 (1980).

n380 See, e.g., Cristofaro Interview, *supra* note 331 (speaking of EPA during the Gorsuch years).

n381 See *supra* subpart III(A).

n382 For example, Lee Thomas, the current Administrator of EPA, was formerly the head of the Hazardous Waste Program Office.

n383 See C. LINDBLOM, *supra* note 80, at 5.

n384 See Beliles Interview, *supra* note 242; Cristofaro Interview, *supra* note 331; Vogt Interview, *supra* note 168.

n385 See G. EDWARDS & I. SHARKANSKY, *supra* note 80, at 213.

n386 See *id.* at 10-11; C. LINDBLOM, *supra* note 80, at 4; A. MELTSNER, *supra* note 83, at 276; Banfield, *supra* note 146, at 3; Silberman, *supra* note 81, at 40.

n387 See *Hearings on H.R. 746*, *supra* note 95, at 840 (statement of Howard Marlowe, Associate Director, Dep't of Legislation, AFL-CIO); Banfield, *supra* note 146, at 3.

n388 See *supra* subpart V(A)(9).

n389 See *supra* Part III.

n390 See C. LINDBLOM, *supra* note 80, at 6.

n391 See Cramton & Berg, *supra* note 146, at 533 (suggesting that "[i]t would be a mistake . . . for the courts to regard [NEPA] as a mandate to the agencies to act in each case in strict accord with the scientific method and the dictates of pure reason").

n392 See Verkuil, *supra* note 63, at 247-48; Telephone interview with Neil Eisner, Assistant General Counsel for Regulation and Enforcement, DOT (May 6, 1983) [hereinafter Eisner Interview] (transcript on file with author); Fiorino Interview, *supra* note 335; Peak Interview, *supra* note 101; Telephone interview with Gene Rosera, Commodity Analysis Division, Agricultural Stabilization and Conservation Service, USDA (May 1, 1984) [hereinafter Rosera Interview] (transcript on file with author).

n393 See *Hearings on H.R. 746*, *supra* note 95, at 891 (letter submitted by David Clanton, Acting Chairman, Federal Trade Commission).

n394 One could argue, however, that Congress has already weighed the costs and benefits of alternative approaches by limiting the agency's discretion in its statute. See *Regulatory Reform Hearings of 1981*, *supra* note 101, at 668-69 (letter submitted by Reese Taylor, Chairman, Interstate Commerce Commission). This argument, however, misses the point that regulatory analysis is intended to inform decision makers. With the new information in a regulatory analysis document, Congress might view the costs and benefits differently.

n395 See S. REP. NO. 305, *supra* note 95, at 49-50.

n396 See Interim RIA Guidance, *supra* note 52, § 2(b), (d). Agencies already must consider unauthorized alternatives to comply with the EIS requirement of the NEPA. See 40 C.F.R. § 1502.14 (1986); see also *Natural Resources Defense Council, Inc. v. Morton*, 458 F.2d 827, 835 (D.C. Cir. 1972) (stating that although the Department of Interior did not have the statutory authority to eliminate or reduce oil import quotas, it should have considered the possibility in an EIS pursuant to NEPA mandates).

n397 See *Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council, Inc.*, 435 U.S. 519, 551 (1978); *Carolina Envtl. Study Group v. United States*, 510 F.2d 796, 800 (D.C. Cir. 1975); *Natural Resources Defense Council, Inc. v. Morton*, 458 F.2d 827, 834 (D.C. Cir. 1972).

n398 *Morton*, 458 F.2d at 837-38.

n399 See *supra* notes 8-23 and accompanying text.

n400 See Eads, *Harnessing Regulation: The Evolving Role of White House Oversight*, REG., May-June 1981, at 19, 19; Sunstein, *supra* note 197, at 1280.

n401 See J. CLAYBROOK, *RETREAT FROM SAFETY: REAGAN'S ATTACK ON AMERICA'S HEALTH* at xii-xix (1984); J. LASH, *A SEASON OF SPOILS* 25-26 (1984).

n402 See *Hearings on H.R. 746*, *supra* note 95, at 8 (testimony of Senator Thomas Eagleton); *id.* at 276 (testimony of Marjorie Reed, Acting General Counsel, Federal Communications Commission); GAO *IMPROVED QUALITY REPORT*, *supra* note 86, at 8.

n403 See *House Regulatory Reform Act Hearings*, *supra* note 103, at 430 (statement of Edward Durkin, Legislative Representative, Food and Beverage Trades Dep't, AFL-CIO) ("The regulatory analysis requirements to which OSHA rulemakings are subject under E.O. 12291 serve only to frustrate the efficient and effective operation of the standard promulgation process."); Costle, *supra* note 211, at 418 (claiming that mandatory OMB review of proposed rules "inevitably allows those who wish to fight regulation . . . an opportunity to kill or weaken a rule"); Swartzman, *supra* note 199, at 68-69 (noting that economic impact analyses have been blamed for delaying decisions of the Illinois Pollution Control Board).

n404 See, e.g., *House Regulatory Reform Act Hearings*, *supra* note 103, at 616 (testimony of Fran Dubrowski, Senior Attorney, Natural Resources Defense Council) (stating that OMB oversight of EPA rule making has delayed important rules "sometimes for a year or more"); *id.* at 1183 (USDA questionnaire responses) (indicating that the average time for regulatory analysis of major rules in 1981-1982 was 89 days); *id.* at 1615-18 (EPA questionnaire responses) (indicating that preparation of RIAs of major programs, required by E.O. 12,291, consumed one to two years).

n405 OMB has been successful in securing the withdrawal or substantial modification of many major rules. See *id.* at 1462-68 (USDA questionnaire responses) (listing rules modified in response to OMB comments); GAO *IMPROVED QUALITY REPORT*, *supra* note 86, at 4 ("For those few Rules in which OMB takes a more active interest . . . it appears to affect the substance and timing of the Rule significantly."); OFFICE OF MANAGEMENT & BUDGET, EXECUTIVE OFFICE OF THE PRESIDENT, EXECUTIVE ORDER 12291 ON FEDERAL REGULATIONS: PROGRESS DURING 1981, at 4-5 (1982); Interview with Thomas Leonard, Office of Information and Regulatory Affairs, OMB (May 19, 1982) (transcript on file with author); see also *House Regulatory Reform Act Hearing*, *supra* note 103, at 1562 (EPA questionnaire responses) (noting that 17 final rules have been returned by OMB as being inconsistent with E.O. 12,291, but that OMB has never rejected a final rule).

n406 See, e.g., *House Regulatory Reform Act Hearings*, *supra* note 103, at 533 (statement of Jerry Hill, former Deputy Assistant Secretary of Agriculture) (explaining how delays in OMB review of cherry marketing orders effectively prevented the promulgation of the rule); *id.* at 52 (statement of Joan Bernstein, former General Counsel, EPA) (claiming that OMB has used regulatory analysis to delay rules with which it disagrees); *Regulatory Reform Hearings of 1981*, *supra* note 101, at 263 (statement of Douglas Parker, Institute for Public Interest Representation) (stating that E.O. 12,291 makes the regulatory process more secret rather than more fair).

n407 E.O. 12291, *supra* note 25, § 8(b).

n408 The Regulatory Flexibility Act apparently does not exempt deregulatory rules. See Verkuil, *supra* note 63, at 243 (relying on legislative history).

n409 See *Hearings on H.R. 746*, *supra* note 95, at 177 (statement of American Bar Association); *Regulatory Reform Hearings of 1981*, *supra* note 101, at 16-17 (testimony of Boyden Gray, Counselor to the Vice President); *id.* at 630 (letter submitted by Richard Pratt, Chairman, Federal Home Loan Bank Board).

n410 See H.R. REP. NO. 435, *supra* note 183, at 37.

n411 See, e.g., *Hearings on H.R. 746*, *supra* note 95, at 667 (statement of James Miller, Administrator for Information and Regulatory Affairs, OMB) (claiming that regulatory analysis would impede deregulatory actions designed to lower prices).

n412 See, e.g., *Regulatory Reform Hearings of 1981*, *supra* note 101, at 592 (additional material submitted for the record by Stephen Sharp, General Counsel, Federal Communications Commission) (suggesting that there are substantial "hidden benefits to deregulation" such as "increased incentives for innovation and the elimination of regulatory delay costs").

n413 See, e.g., *Hearings on H.R. 746*, *supra* note 95, at 690 (statement of Ellen Josephson, Director, Access to Justice Project, National Legal Aid and Defenders Association) (characterizing the proposal of more relaxed standards for deregulation as based on the notion that all regulation is bad.).

n414 See *supra* subpart V(A)(8).

n415 See *Regulatory Reform Hearings of 1981*, *supra* note 101, at 206-07 (statement of Milton Socolar, Acting Comptroller General, GAO); *id.* at 254 (statement of Lester Lave, economist, Brookings Institute); H.R. REP. NO. 435, *supra* note 183, at 37.

n416 See S. REP. NO. 305, *supra* note 95, at 44.

n417 See *House Regulatory Reform Act Hearings*, *supra* note 103, at 351 (statement of Eula Bingham, former Assistant Secretary for OSHA, DOL); *id.* at 476 (testimony of Congressman Richard Ottinger).

n418 See, e.g., *House Regulatory Reform Act Hearings*, *supra* note 103, at 220 (statement of Clarence Dittlow, Director, Center for Auto Safety) (claiming that NHTSA has used regulatory analysis to attack "vital vehicle safety standards"); *id.* at 558-59 (testimony of William S. Jordon III, Union for Concerned Scientists) (suggesting that the Nuclear Regulatory Commission has used regulatory analysis to weaken or delay safety regulations for nuclear power plants); *id.* at 429 (statement of Edward Durkin, Food and Beverage Trades Dep't, AFL-CIO) (stating that OMB has used its regulatory analysis powers "to defer, revise or rescind" OSHA health and safety standards).

n419 See *Regulatory Reform Hearings of 1981*, *supra* note 101, at 254 (statement of Lester Lave, economist, Brookings Institute).

n420 5 U.S.C. § § 601-612 (1982).

n421 E.O. 12291, *supra* note 25.

n422 The Regulatory Flexibility Act provides that "any determination by an agency concerning the applicability of this [Act] to any action of the agency shall not be subject to judicial review." 5 U.S.C. § 611(a). The D.C. Circuit has held that this provision means what it clearly says. See *Thompson v. Clark*, 741 F.2d 401, 405 (D.C. Cir. 1984) (stating that the express language of § 611(a) "leaves little to the imagination"). E.O. 12,291 provides that it is "not intended to create any right or benefit, substantive or procedural, enforceable at law by a party against the United States, its agencies, its officers, or any person." E.O. 12,291, *supra* note 25, § 9. See also *Raven-Hansen*, *supra* note 42, at 289-90 (stating that E.O. 12,291 is "intended only to improve the internal management of the federal government, and is not intended to create any right" of judicial review).

n423 See *supra* text accompanying notes 28-29.

n424 An agency's action is not subject to NEPA's EIS requirement if it is not a major action that significantly affects the quality of the human environment. See generally *F. ANDERSON*, *supra* note 29, at 3 (discussing when an EIS is required); *McGarity*, *supra* note 29, at 804-05 (same).

n425 The courts also have held that the necessity of preparing a RIA pursuant to E.O. 12,291 does not constitute "good cause" for avoiding the notice and comment procedures of § 553 of the Administrative Procedure Act, 5 U.S.C. § 553 (1982). See *Environmental Defense Fund, Inc. v. Gorsuch*, 713 F.2d 802, 816-17 (D.C. Cir. 1983); *Natural Resources Defense Council, Inc. v. EPA*, 683 F.2d 752, 766-67 (3d Cir. 1982).

n426 Virtually all of the many reports and scholarly studies of the regulatory analysis programs that have been undertaken under Executive Orders 11,291, 12,044, and 12,291 have recommended against judicial review of the adequacy of the regulatory analysis documents. See *Hearings on H.R. 746*, *supra* note 95, at 106 (testimony of Richard Smith, Chairman, ABA Coordinating Group on Regulatory Reform); *Regulatory Reform Hearings of 1981*, *supra* note 101, at 655 (letter from Carol Thomas, Secretary, Federal Trade Commission); SENATE STUDY ON FEDERAL REGULATION, *supra* note 102, at 86; IIS REPORT, *supra* note 101, at 79; Comment, *supra* note 108, at 1166 n.173. But see *Miller*, *supra* note 351, at 21 ("Congress might grant interested parties the right not only to appeal in the federal courts but to have the regulatory decision determined in the courts . . . if there were clear and convincing evidence that the agency had failed to consider the benefits and costs of the proposal.").

n427 705 F.2d 506 (D.C. Cir. 1983).

n428 *Id.* at 539.

n429 *Id.* at 537-38.

n430 *Id.* at 538-39; *see also* Thompson v. Clark, 741 F.2d 401, 405 (D.C. Cir. 1984) (stating that "if data in the regulatory flexibility analysis -- or data anywhere else in the rulemaking record -- demonstrates that the rule constitutes such an unreasonable assessment of social costs and benefits as to be arbitrary and capricious . . . the rule cannot stand").

n431 *See supra* Parts IV and V.

n432 *See* Environmental Defense Fund, Inc., v. Gorsuch, 713 F.2d 802, 814-18 (D.C. Cir. 1983); National Resources Defense Council, Inc. v. EPA, 683 F.2d 752, 761 (3d Cir. 1982); Silverglade, *Judicial Control of Regulatory Action Based on Cost-Benefit Analysis*, 36 ADMIN. L. REV. 387, 390 (1985); *see also* Center for Science in the Pub. Interest v. Department of the Treasury, 573 F. Supp. 1168, 1175 (D.D.C. 1983) (concluding that "the broad thrust of Executive Order 12291 provides an insufficient basis for [Treasury Department officials] to disregard their statutory duties" to disclose the ingredients of certain alcoholic beverages), *appeal dismissed*, 727 F.2d 1161 (D.C. Cir. 1984).

n433 Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co., 463 U.S. 29, 43 (1983).

n434 *See* H.R. REP. NO. 435, *supra* note 183, at 45; GAO COST-BENEFIT REPORT, *supra* note 110, at v-vi.

n435 *See* U.S. REGULATORY COUNCIL, *supra* note 50, at 21.

n436 *See supra* subparts IV(A)(1)-(3).

n437 Campbell Interview, *supra* note 168.

n438 In addition, states and other regulatory decision makers can use the regulatory analysis in framing their own regulatory requirements. GAO COST-BENEFIT REPORT, *supra* note 110, at 18.

n439 *See Conflict of Interest Hearings*, *supra* note 135, at 688-89 (testimony of Barbara Blum, former Deputy Administrator, EPA); GAO COST-BENEFIT REPORT, *supra* note 110, at 18.

n440 *See generally* Neely, *supra* note 268, at 502 (stating that "numerous titles of the United States Code revealed no such barriers" to the use of cost-benefit analysis).

n441 *See generally id.* at 502-09 (listing extensive examples of when Congress has made precise judgments concerning regulatory controls, and thereby limited the discretion of federal agencies to relax or alter them as cost-benefit analysis might require).

n442 *See* American Textile Mfrs. Inst. v. Donovan, 452 U.S. 490, 509 (1981) ("Congress itself defined the basic relationship between costs and benefits by placing the 'benefit' of worker health above all other considerations save those making attainment of the 'benefit' unattainable."). *See generally* GAO COST-BENEFIT REPORT, *supra* note 110, at 16 (identifying and discussing OSHA as one of several major environmental statutes limiting or prohibiting use of cost-benefit analysis).

n443 *See* Lead Indus. Ass'n v. EPA, 647 F.2d 1130, 1148-51 (D.C. Cir. 1980).

n444 *See* Basala Interview, *supra* note 254; Luken Interview, *supra* note 168; Nichols Interview, *supra* note 168; *see also* House Regulatory Reform Act Hearings, *supra* note 103, at 597 (prepared statement of Joseph Cannon, former Associate Administrator for Policy and Resource Management, EPA) ("When the agency is legally precluded from basing a particular regulatory action or decision on the type of analysis required by Executive Order 12291, the accompanying RIAs explicitly state that they cannot be used in reaching a regulatory decision.").

n445 E.O. 12291, *supra* note 25, § 4(b).

n446 *See* Telephone Interview with Henry Thomas, Ambient Standards Branch, Strategies and Air Standards Division, Office of Air Quality Planning and Standards, Office of Air and Radiation, EPA (Nov. 7, 1986) (transcript on file with author).

n447 *See id.*

n448 *See id.*

n449 *See id.*

n450 452 U.S. 490 (1981).

n451 *See American Textile Mfrs.*, 452 U.S. at 509. *But see* Lead Indus. Ass'n v. E.P.A., 647 F.2d 1130, 1148-50, & n.37 (D.C. Cir. 1980) (stating that neither the language nor the legislative history of the Clean Air Act permit consideration of economic and technological feasibility).

n452 See *Camp v. Pitts*, 411 U.S. 138, 142 (1973). See generally 3 K. DAVIS, ADMINISTRATIVE LAW TREATISE § 17:4, at 289 (2d ed. 1980) (stating that "such inquiry into the mental processes of administrative decisionmakers is usually to be avoided.")

n453 5 U.S.C. § 552 (1982).

n454 5 U.S.C. §§ 551-559, 701-706 (1982).

n455 See, e.g., *id.* § 706 (instructing courts to set aside agency actions that are arbitrary and capricious or unsupported by substantial evidence); Clean Air Act, § 307(d)(9), 42 U.S.C. § 7607(d)(9)(A) (1982) (same). See generally 5 K. DAVIS, *supra* note 452, at § 29:1-:27 (discussing these two different forms of review under the APA).

n456 See *Garland, Deregulation and Judicial Review*, 98 HARV. L. REV. 505, 532 (1985); Verkuil, *Judicial Review of Informal Rulemaking: Waiting for Vermont Yankee II*, 55 TUL. L. REV. 418, 420-21 (1981).

n457 *Bowman Transp., Inc. v. Arkansas-Best Freight Sys., Inc.*, 419 U.S. 281, 285 (1974) (quoting *Citizens to Preserve Overton Park v. Volpe*, 401 U.S. 402, 416 (1971), *reh'g denied*, 420 U.S. 951 (1975)).

n458 *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983).

n459 See *supra* notes 79-80 and accompanying text.

n460 One primary difference between legal reasoning and policy analysis is the heavy focus of legal reasoning upon precedent and reasoning by analogy. Policy analysis does not place nearly so much emphasis upon drawing governing principles from previous decisions. A second major difference is the failure of legal reasoning, despite the heroic efforts of some scholars, to rely as extensively on economic analysis as policy analysis.

n461 See *Regulatory Reform Hearings of 1981, supra* note 101, at 255 (testimony of Lester Lave, economist, Brookings Institute).

n462 751 F.2d 1336 (D.C. Cir. 1985).

n463 *Id.* at 1350.

n464 *Id.* at 1345-48.

n465 *Id.* at 1342 & n.3.

n466 *Id.* at 1346-48.

n467 *Id.* at 1370; see also *South Carolina ex rel. Tindal v. Block*, 717 F.2d 874, 879-84 (4th Cir. 1983) (relying heavily upon Preliminary Regulatory Impact Analysis and Regulatory Flexibility Impact Analysis in concluding that the rule requiring 50-cent deduction from the proceeds of all commercially sold milk was not arbitrary and capricious), *cert. denied*, 465 U.S. 1080 (1984).

n468 741 F.2d 401 (D.C. Cir. 1984).

n469 *Id.* at 405. The court did not specify how "adjustment" could be made for the error. Perhaps a comment from an interested party would reveal the correct estimate of the harm attributable to the rule. Still, it normally would be difficult for a reviewing court to decide which estimate was correct.

n470 613 F. Supp. 271 (E.D. Tex. 1985).

n471 *Id.* at 277.

n472 See, e.g., *Reynolds Metals Co. v. EPA*, 760 F.2d 549 (4th Cir. 1985) (finding that well-performed economic impact and cost-effectiveness analyses contribute to the impression that the agency made a reasonable effort to evaluate action within notice and comment period and help regulation survive judicial review under arbitrary and capricious test).

n473 463 U.S. 29 (1983).

n474 *Id.* at 37.

n475 *Id.* at 38.

n476 *Id.*

n477 *Id.* at 39.

n478 *Id.*

n479 *Id.*

n480 *Id.* at 47.

n481 *Id.* at 46-48.

n482 *Id.* at 47.

n483 *Id.* at 50.

n484 *Id.* at 51-52.

n485 *Id.* at 52.

n486 *Id.*

n487 *Id.*

n488 *Id.* at 52-53.

n489 *Id.* at 54.

n490 *Id.*

n491 *Id.*

n492 *Id.*

n493 *Id.* at 55-56.

n494 *Id.* at 56.

n495 OFFICE OF PROGRAM AND RULEMAKING ANALYSIS, OFFICE OF PLANS AND PROGRAMS, NAT'L HIGHWAY TRAFFIC SAFETY ADMIN., DEPT OF TRANSP., FINAL REGULATORY IMPACT ANALYSIS: AMENDMENT TO FEDERAL MOTOR VEHICLE STANDARD NO. 208 OCCUPANT CRASH PROTECTION (1981).

n496 463 U.S. at 53 n.16, 54 nn.18-19, 56 n.20.

n497 49 C.F.R. § 571.208 (1978).

n498 *C.f. State Farm Mut. Auto. Ins. Co. v. Dept. of Transp.*, 680 F.2d 206, 238 (D.C. Cir. 1982), *vacated*, 463 U.S. 29 (1983) ("The only reason that can even be *inferred* for NHTSA's silence . . . is that such a standard risks congressional disfavor under the legislative veto" (emphasis in original)).

n499 *See* 1981 CWPS Report, *supra* note 206, at 26 (suggesting that one of the reasons that many agencies refuse to attempt to quantify the benefits of their regulations is the possibility that the benefits analysis may have to be defended in court); *cf. Hearings on H.R. 746, supra* note 95, at 891 (testimony of David Clanton, Acting Chairman, Federal Trade Commission) (arguing that "analysis would be considerably less candid and, consequently, less useful for their intended purposes, if they were subject to adversarial attack in litigation").

n500 *See American Textile Mfrs. Inst. v. Donovan*, 452 U.S. 490, 528 n.52 (1981) (cautioning the reviewing courts not to let an agency's candor about the uncertainties that it faces enhance the stringency of judicial review); Latin, *supra* note 203, at 381-86 (arguing that OSHA health standards should be upheld on review if they are based on the best available information, even if the information is imperfect).

n501 *Center for Auto Safety v. Peck*, 751 F.2d 1336 (D.C. Cir. 1985); *see supra* text accompanying notes 462-67.

n502 751 F.2d at 1365.

n503 *Id.* at 1365-66.

n504 *Id.*

n505 *Id.* at 1366.

n506 *Id.*

n507 In this sense, the current state of regulatory analysis is not unlike that of environmental analysis in the mid-1970s before the Council on Environmental Quality promulgated comprehensive regulations that helped resolve many unanswered questions about the validity and proper content of the enterprise and helped give environmental analysis a permanent institutional place in the federal bureaucracy. *See McGarity, supra* note 29, at 803-04.

n508 *See supra* subpart V(A)(3)(b)(ii).

n509 *See supra* subpart V(A)(8).

n510 *See supra* notes 308-13 and accompanying text.

n511 *See supra* notes 98-100 and accompanying text.