# INTRODUCTION
## Improving Regulatory Research

*James W. Vaupel*

That the quality of regulation should be improved is agreed; what to do and how to do it remain in dispute. The disparate diagnoses and prescriptions stem, in part, from underlying value disagreements. More important, however, are confusion and ignorance from inadequate data, incomplete analytic structures, and lack of understanding of the regulatory process and its social and political context. The problems of regulation are extraordinarily complex, and relatively little is known about them. Whereas this is true of the regulation of prices and competition (as determined, for example, by the Civil Aeronautics Board, the Interstate Commerce Commission, the Federal Communications Commission), it is even more true of the regulation of health, safety, discrimination, and the environment (as determined, for example, by the Occupational Safety and Health Administration, the Consumer Product Safety Commission, the Nuclear Regulatory Commission, the National Highway Traffic Safety Administration, the Food and Drug Administration, and the Environmental Protection Agency.) Research should reduce the present confusion and ignorance and lay a foundation for useful regulatory reform.

Part of the reason that regulatory analysis falls short is that regulatory conditions today are radically different from what

they were a mere decade ago. The agencies that regulate prices and competition have seen their performance sharply attacked and their mandates severely questioned and often restricted: deregulation rather than regulation is now the popular watchword. On the other hand, the health, safety, and environmental agencies have largely sprung up over the last decade. These young agencies, Congress, and the public are all struggling to determine what they should be doing and how they should be doing it. Both kinds of regulation are likely to be thoroughly restructured and, perhaps, redirected over the next few years.

Is the political process likely to produce regulatory institutions that are much better than those it has already produced? It might, especially if the right kinds of research are performed. Adequate analysis, correctly targeted and appropriately tailored, can be of substantial practical help, not only because regulators generally do have some discretion, but also because sound research can raise the level of public discourse and direct it toward basic issues and because analysis can provide information to be used as a tool (or weapon) in the political process. As Eads explains in Chapter 1, "Research directed at understanding the behavior and performance of the traditionally regulated industries . . . undoubtedly has had some impact on the recent policy debate concerning the desirability of retaining regulation over these industries." But, as Eads notes, "This impact has been decidedly mixed," ranging from the influential body of research on airline deregulation to the largely ignored body of research on postal pricing. Eads draws the lesson that: "Good research is not necessarily useful research. Researchers seeking to make a genuine contribution in a policy-related area like regulation must take the questions as asked by the policymakers and provide answers. Or they must slowly educate policymakers to see the questions they are posing as the relevant ones."

As detailed, however, by Joskow and Noll (forthcoming), most research on regulation has been "purely scientific"; relatively little research has been designed to help the various actors in the regulatory arena to structure and deepen their thinking about the most important needs and deficiencies in regulatory policy and about the major directions for change. One reason that the research agenda laid out in this volume is so stimulating and important is that it is the kind of rare predictive and prescriptive research that is essential if we are to improve regulatory performance.



The nine chapters in this volume are too rich and varied, too bursting with ideas, to be neatly laid out along a single theme. There is little profit in presenting pale summaries of them; they should be read and contemplated in full. It may, however, be useful to review them as they touch on the theme outlined above: What kinds of research are needed to improve regulation? Thus, in what follows, the chapters are not treated in sequence, but rather as they touch on various aspects of that common thread of relevant analysis. In broad terms, they are considered as they relate to: (1) assessment, (2) information, and (3) institutions.

Eight of the nine chapters are largely or entirely substantive; only one, Plott's discussion of experimental methods, is methodological. And although some of the chapters discuss both economic and social regulation, most of them focus predominantly on the regulation of health, safety, and environmental problems. During the 1970s, the great body of research on the regulation of prices and competition accumulated at least since the early 1960s began to have some significant policy impact. Partially as a result, this kind of economic regulation is now waning, whereas social regulation has burgeoned over the last decade. Thus, although many interesting and important research topics remain to be investigated in the area of economic regulation, the most dynamic frontiers of research lie in the area of social regulation.

## ASSESSMENT

Consider the range of factors that are involved in evaluating regulatory decisions and policies. In evaluating a regulation that was intended to protect human health or safety, one might want to ponder various kinds of health effects: How many people would be affected, not only in the entire population, but also in sensitive groups; how much they would be affected (in terms of mortality, morbidity, pain, suffering, discomfort, and perhaps anxiety); who they are (by age, in-

come, occupation, geographic location); and when they would be affected. In addition, the evaluator might be concerned about the degree to which the risk was voluntary or involuntary and about whether the effects would be scattered across the country or concentrated, in a catastrophe, on some small group of people. But there is more to life than death—or even health in general. Thus, the evaluator should be interested in other effects such as those on nature, growth of the standard of living, productivity, innovation, business competition, the distribution of income, public satisfaction with government, the timing of impacts, and the quality of business and personal decisionmaking. Economic costs and who pays them certainly matter, as might enforcement costs and political costs. These, and such other considerations as esthetics, legitimacy, and international ramifications, may well be highly uncertain, subject to reassessment as new information is gathered, the subject of expert disagreement, and the evaluator might want information about all this. Furthermore, the evaluator might want to know how identifiable the victims are and how accountable the decisionmaker will be, as well as what the possibilities are for delay, obstruction, flexibility, and adaptability.

This partial checklist could be greatly expanded. A similar list, although perhaps a bit shorter, could be developed for the somewhat better understood problems of price and competition regulation. In any case, the list suggests how extraordinarily difficult it would be to do a truly comprehensive evaluation of regulatory policy or even of a single regulation.

Five chapters in this volume are devoted, in considerable part, to providing suggestions for research on the costs and benefits of regulation that are least well understood. Robert Dorfman's "Transition Costs of Changing Regulations" focuses on the costs that will be incurred as the result of changes in governmental regulations "that would not have been incurred if circumstances had not changed, and that will not recur once the transition is completed." These costs have largely been ignored by researchers, even though the political acceptability of political change often hinges on them. Dorfman discusses transition costs as they relate "to capital redundancy, to the displacement of skilled and unskilled workers, to the distribution of the transitional gains and losses, and to the effects of varying speeds of adjustment and other provisions intended to moderate the disturbances created by the changes" as well as to "the change in the nature of the uncertainties that participants in that sector have to confront."



It is this last impact, on uncertainty, that has been most neglected by researchers. As Dorfman writes:

> Increasing regulation may reduce some kinds of uncertainty—for example, price fluctuations—but it always increases another kind, namely, uncertainty about what the government will do next. Every regulatory change, except complete withdrawal from a sector, enhances this kind of uncertainty by reinforcing the recognition that regulations change and that the present regime cannot be expected to endure. This increased uncertainty is one of the costs of regulatory change, and one that is exceedingly difficult to measure. Can anything be done to moderate it? Can a government undertake a commitment to make no more changes of a certain type or to render them more predictable?

Even the most intensely studied of Dorfman's five transitional costs, the displacement of workers, is poorly understood. "Estimating the number and characteristics of workers whom a regulatory change is likely to displace" is, Dorfman explains, "by now a familiar task since it forms a significant part of the standard economic impact analysis." But "there is little or no literature on the theoretical underpinnings of economic impact analysis" and, for various reasons, "one is led to doubt the significance of any of these analyses that have been undertaken without the benefit of a well-established theory."

Chapter 9, "Regulation and Distribution", by David Harrison, Jr., examines two other impacts of regulation that have been neglected. As Harrison states, "Most evaluations of regulatory practice consider the impacts of regulation on aggregate economic welfare." He persuasively argues, however, that research is also needed on "the cumulative effect of a multitude of regulations on firms and industries" and on "the differential effects of regulations on various subgroups in society." Harrison provides a series of stimulating examples of why it is im-

portant to consider synergistic and distributional effects. To give just one:

> Since under some marketable rights proposals the rights are initially owned by the current polluters in proportion to their current pollution, the impacts on firms within an industry may be dramatically different than under either standards or emission charges. While economists may be attracted to marketable rights for their efficiency properties, the debate over their adoption may well be over their "fairness" to different participants.

George Eads emphasizes the importance of synergism in the concluding section of his chapter. He argues that social regulation has become so pervasive that it is crucial to improve our "primitive . . . understanding of how to measure the cumulative impact of a series of interrelated regulations." Regulation, in Eads's view, has so fundamentally altered the decisionmaking process of firms that

> The traditional subdisciplines [of economics] of regulation, industrial organization, public finance, and the theory of the firm will have to be dismantled, and a new subdiscipline encompassing the broader area called "microeconomics" will have to be created. Even more exciting from my point of view is the realization that explicit links between microeconomics and macroeconomics will have to be forged. Once government realizes that it is having as great an influence on the performance of the economy through its regulatory policies as it is through taxation, spending, and credit policies, the artificial division we now maintain between these two major subdisciplines of economics will end once and for all.

James W. Vaupel's "Priorities for Research on the Benefits of Health, Safety, and Environmental Regulation" proposes several other research topics in regulatory evaluation that deserve attention. The top priority, he argues, should be "more and better counting" of mortality and morbidity effects. Indeed, Vaupel suggests that:

> Difficult as estimation of health and safety benefits may be, even order-of-magnitude guesstimates can be informative: it is useful to know whether a standard may save around 1 life per year, 1,000 lives, or 100,000 lives. Research that only very roughly estimates the health and safety benefits of alternative regulatory standards and strategies will help regulatory agencies and the public sort out regulatory policies.



Another research area discussed in Vaupel's paper involves "studies of how best to evaluate the overall desirability of the basket of mortality, morbidity, and environmental benefits produced by some policy." Such studies would "weigh and make tradeoffs among various competing objectives." This is a very difficult line of research where some stimulating preliminary work has been done, most notably by Keeney and Raiffa (1976), and where much research, potentially of great practical value, remains to be done. This research, however, is likely to be of long-term significance rather than of immediate practical value to regulatory decisionmakers.

George Eads supports this line of reasoning and "strongly urges the profession to recognize the inherent limits of benefits valuation," (that is, "how much is a life, or clean air, worth in dollars?") and to "restrict the attention directed to this problem, intellectually interesting though it might be. Instead, we should concentrate our research on improving the means of measuring likely actual outcomes of specific regulations where these outcomes are to be expressed in measures other than dollars."

Anthony C. Fisher's "Setting Regulatory Priorities" also touches on a number of issues concerning estimation of the costs and benefits of regulation. Indeed, given the broad nature of his topic, Fisher's chapter cuts across and intersects all the other chapters. One line of research that Fisher highlights is research on compliance, including "research into techniques for eliciting reliable information on compliance cost" and "into ways of enforcing and monitoring compliance." Fisher argues that:

> If enforcement or, more generally, administrative resource costs can be reduced, more substantive regulatory issues can be considered per year for any given budget. The payoff could be substantial, for example, in an area like toxic substance control, where . . . a regulatory agency is confronted with a very large number of candidates for control and, perhaps, little to go on in deciding how to allocate its own resources among them.

## INFORMATION

There are several kinds of informational problems related to regulation. Four chapters examine different aspects of information as it affects the role of regulation, understanding regulation, and informational problems that regulators face.

Randall Bartlett's "Information, Uncertainty, and Regulation" addresses a central problem in regulation, insufficiency of and bias in data. One interesting set of questions is how to do analysis given this lack of adequate data: How should estimates be calculated, how should the degree of uncertainty be expressed, and how should decisions be reached? The young and rapidly growing field of study known as decision analysis is concerned with these questions. Bartlett focuses on a different and more fundamental set of issues involving the generation and communication of information: How can the system be structured to provide better information? As Bartlett puts it, "Research must identify specific policy options to improve the quality of regulation by improving the flows of relevant information between possessors and seekers." This research, Bartlett argues, should be supported by "more research into the incentives that various parties face to introduce informational bias into the regulatory process, and conversely into the way in which the content of regulations affects these incentives." Bartlett uses an interesting metaphor to clarify his recommendations:

> Much of the economic research on uncertainty has envisioned information as a large pile of sand, unowned, homogeneous, and equally available to all. Before making a decision it may pay a person to undertake a number of trips to the pile, each time, unimpeded by others, scooping up another bucketful of data with which to improve the information foundation on which the choice will rest. However, because these trips are themselves costly, there comes a time when the benefit of an additional bucketful no longer exceeds the cost of a trip. Rational search ceases at that point.
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> In contrast, the process of regulation is one where the pile of sand is often privately owned and controlled. When seeking a bucketful, a searcher is not given access to the entire pile but is given specific increments at the discretion of the owner. Nor is the sand homogeneous. The stock of information on which regulatory decisions are made reflects the intentional provision of pieces of heterogeneous information by the owners. It is in this area—relations between information owners and seekers—that research has the most to offer in the next decade.



A relatively new approach to gathering information for economic and policy research is to conduct an experiment, either in the laboratory or in the field. Charles R. Plott, in his chapter, "Experimental Methods in Political Economy," discusses the potential of experiments "as a source of shared experiences and data for researchers and decisionmakers." Regulatory research, as Plott points out, involves multidisciplinary considerations becoming "intermingled in complex ways to obscure the consequences of alternative policy options" as well as "situations, problems, and institutional arrangements for which there are no historical precedents." In such an area of "very little shared experience that can be used to resolve scientific disagreements," experiments can be invaluable in producing data for the policymaking process. Plott discusses, in turn, five different types of research objectives where experimental methods can be successfully applied: theory rejection, theory competition, measurement, simulation, and process design.

In each of their chapters, Fisher and Vaupel discuss another research issue concerning information: namely, "why and how public perceptions of and concerns about various health, safety, and environmental risks deviate from the levels actuarial calculations would suggest. The purpose of these studies would be to help policymakers: (1) better respond to public concerns and (2) better inform and educate the public." Such studies would also contribute to an understanding of the extent to which consumers' decisions would change if more reliable and objective information were available.

Both Fisher and Vaupel consider the implications of the fact that it costs time and money to gather information. A careful regulatory evaluation that attempted to consider all the factors of interest would be time-consuming and expensive—and, consequently, for many decisions, not worthwhile. Analysis designed to help a decisionmaker or critic grapple with a specific problem usually should be highly selective: the decisionmaker may find it easy to make most of the choices and

tradeoffs, so that there may be only a few dilemmas and only a few crucial pieces of information that need to be scrutinized. In this context, Fisher suggests "a study of 'quick and dirty' methods of risk analysis." This is similar in spirit to the emphasis in Vaupel's paper on "simple and direct calculations." Vaupel argues, "In coping with the buzzing confusion of risks we face, some straightforward counting of lives and limbs can go a long way in helping us to uncover problem areas, to set priorities, and to gain a sense of perspective." Thus, in addition to major applied social science research projects, the importance of which in the long term cannot be underestimated, it might also be worthwhile to think more systematically about and to do more of the kind of quick analysis designed to help a decisionmaker on the firing line.

## INSTITUTIONS

Regulatory priorities are determined and regulatory policies are designed, evaluated, and implemented by organizations. Unfortunately, it is difficult to design an organization to produce and incorporate into the decision process the kind of analysis needed for rational decisionmaking. First, the members of the organization may have their own goals, agendas, and biases. Second, the members of the organization may not possess the still recondite ability to produce even the inadequate kinds of analysis that current states of knowledge and theory permit. Third, an organization often appears to behave as if it had goals and capabilities that were different from the mere sum of the goals and capabilities of its members. For example, suborganizations try to expand and defend their domains in ways that may run counter to the interests of the organization as a whole and of the decisionmaker at the top. Furthermore, organizations develop routinized behavior patterns and standard operating procedures that are extraordinarily difficult to alter.

Related to these problems of organizational capability is another complication: no organization has a single decisionmaker. Although many of the regulatory agencies have a single administrator at the top, this administrator must make



so many complex decisions that substantial responsibilities must necessarily be delegated to subordinates. In most cases the specification of the problems to be addressed, the alternatives to be considered, the research to be done, the information to be gathered, and the contents of the reports to be prepared are all decided in the depths of the organization. Various people on different hierarchical levels make numerous choices in an intricate, interactive process that produces the limited information that the nominal decisionmaker will see and that severely constrains the effective range of choice.

Wesley A. Magat's "The Behavior of Regulatory Agencies" focuses on how agencies, as complex organizations, make decisions to set priorities, to promulgate rules and regulations, and to "implement, enforce, evaluate, and reform the regulations." As Magat notes, "Clearly for the research to have ultimate usefulness, it must serve as a guide to improve the behavior of regulatory agencies. . . . However, before the normative questions about how the regulatory process should be structured can be meaningfully answered, the positive questions about how the process currently works must be resolved." Magat's review of the literature leads to the conclusion that "it is fair to say that the research on the regulatory process is sparse and has produced little general understanding of agency behavior."

Magat eloquently stresses the importance of research on the regulatory process:

> Beyond a purely academic interest in understanding how regulatory agencies make decisions, this research provides the most likely approach to improving the performance of the agencies. Without a solid understanding of how agencies set priorities, promulgate rules, and enforce them, and without an understanding of the relationship between these three stages of the process and the goals of the agencies, reforming the process to improve performance is difficult at best. Since the political process creates the regulatory agencies and provides the environment in which they operate, if that process originally was unable to structure an agency that performs well, it is unlikely that the same political process will be able to reform the process to correct for regulatory failures. In addition, better understanding of the regulatory process should help Congress design new regulatory bodies and should aid the agencies to structure themselves for new regulatory tasks.

The nominal regulatory decisionmaker is not only constrained by the behavior of the organization, but also by other centers of power at the same or higher level. The administrator has to avoid antagonizing too many outside power holders. Congress determines budgets and can change statutes: Congress as a whole, the relevant oversight committees, and key members and staff of these committees represent various levels of congressional power. The White House, represented by the domestic policy staff of the president, the Office of Management and Budget, and the Council of Economic Advisors can wield great power when the president chooses to exercise it. Various business, labor, environmental, and consumer interest groups gain leverage on the regulatory agencies through their influence on Congress and the White House, exerted through the press, through lobbying, and through campaign support.

In addition, agencies can expect most important decisions to be challenged in court, often by business groups or by labor, consumer, or environmental groups. In general, the more complicated the procedure they use in reaching and justifying their decisions, and the more they deviate from established practice, the more fronts the agencies open to outside attack—and the more likely are their decisions to be overturned in court. The agencies need some convincing rationale for their actions, and in this regard some carefully tailored analysis may be useful. But too elaborate an analysis may only lead to lengthy adjudication delays and eventual reversal on some point that may be analytically defensible but violates some procedural requirement or is otherwise illegal.

Barry R. Weingast, in his chapter, "Congress, Regulation, and the Courts," discusses research that could usefully be done to understand some of these political and legal realities. Reinforcing Magat, Weingast argues:

> To design and implement effective reform of the regulatory process, we first need an explanation of why it originally failed. Too often, reforms are based on an "in principle" argument that ignores the source of the original problem. Without a greater understanding of the original failure, adding an additional tool or changing an irrelevant legal or institutional arrangement will probably not yield the desired result.



Weingast's research agenda is very much that of a political economist who is seeking "to wed the economic theory of market performance with a theory of political intervention in markets," that is, regulation. His challenging goal is "to model policy outcomes of the political choice institutions in precisely the same sense that economists model market outcomes." In this regard, Weingast raises three key questions:

1. "If intervention is not consistent with improving market performance, then what factors determine intervention?"
2. "Under what circumstances and to what ends will political actors within a specific institution choose to intervene in the market process?"
3. "What are the welfare effects of this political transformation?"

Weingast discusses, in turn, "political institutions, the nature of interest groups and constituency influence, agency decisionmaking in ongoing programs . . . and the influence of the court and legal systems." He concludes his agenda (and plea) for research on a note that might depress policymakers, but stimulate researchers: "Because we have no theory of agency behavior, we have little concrete theoretical knowledge on which to base changes, improvements, and reform of agency policymaking."

Weingast argues that "to change the nature of agency decisions . . . reforms must somehow alter the underlying political relationships." I largely agree with him about this, but I think he misses a modest opening for a positive contribution from analysis. Analysis cannot eliminate value disagreements or alter power relationships, and regulatory evaluation will always require substantial judgment. Why then analysis? The reason, as Samuel Johnson put it, is that when no "counting" is done, "everything . . . float[s] in the mind indefinitely." By structuring the facts and arguments, analysis can raise the level of discourse about some disagreement. Perhaps the debate is between policy A and policy B. Some analysis might show that policy C is better than A and that D is better than B, so a higher level debate can take place on C and D. In some cases,

analysis might even help design some policy E that both sides would agree is superior to C or D.

Eads also devotes substantial attention to institutional issues. As noted earlier, Eads believes that "all industries are now regulated . . . by multiple, issue-specific agencies." These agencies so "involve themselves in the minutae" of business decisionmaking that the cumulative impact is to change "the entire character of a firm's decisionmaking processes" such that "many of its big decisions are, in effect, politically determined rather than market determined." Eads concludes not only that "traditional models must be discarded" but also that new regulatory processes and institutions must be established.

Consequently, Eads argues "that the job of effectively managing our regulatory apparatus requires a level of coordination—'planning' far beyond that contained in the most expansive version of national economic planning ever envisioned by Senator Humphrey." Eads foresees a coordination—or "planning"—process being developed that will be based on "a hybrid organizational structure . . . that will be composed of both issue-specific and industry-specific elements." "Its job," Eads explains, "will be to see to it that the proposed regulation is judged in relation to what the government as a whole is doing that affects the target industry, and against the government's broader goals for that industry." Thus, rounding out the research proposed by Magat on the behavior of the regulatory agencies and by Weingast on the behavior of Congress and the courts, Eads calls for a "truly enormous" research effort to provide a base of knowledge to help design the complex coordination process he believes will be required.

Given the difficulties researchers face in tackling the much simpler tasks of assessment and in understanding the implications of information insufficiency, this is a heady and uncomfortable, if exciting and perhaps unavoidable, prospect. Eads makes clear that the problems of regulation are so important and immense that even the multifaceted and demanding agenda laid out in this volume only hints at the research tasks that usefully could be done. Not all research, however, will be usably relevant, and available talent and resources will permit only a relatively small amount of research to be done. Perhaps the greatest virtue of this book is that it lays out priorities for



the kinds of policy-directed research that would be most likely to help us as a society improve the quality of regulation.

## REFERENCES

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