efficient agricultural sector; benefited the established firm against the newcomer, the well connected and rich against the small firm; for both reasons they benefited West Pakistan as against East Pakistan. But controls had powerful support from their beneficiaries: those who administered them, those they protected from competition and those who received import licenses and assured windfall profits. In short, "economic controls by themselves cannot redress poverty because one can not be sure in whose interest (they) were being exercised" (p. 262). In Pakistan as Islam demonstrates, as in other countries, they were exercised on behalf of the rich and powerful.

(iii) But the free functioning of the market results in some of the same problems: "given unequal ownership of assets and hence . . . of economic and political power, the benefits of economic progress . . . are likely to accrue" to the rich (p. 262).

(iv) 'Liberalisation' in Pakistan meant both increased availability of imports and reduced controls over trade. The latter was easier because aid permitted the former. But liberalization did not last because policy makers did not use the brief period of more aid and growth to reform the economy.

What should have been done was to extend the momentum of agricultural growth to East Pakistan, to increase savings, and to step up the rate of growth in East Pakistan in general. But do these objectives require further government intervention with all the problems previously analyzed? To the extent that Nurul Islam prescribes at the end of his book, he either hopes for a group of "declassed" policy makers, without self interest—a hope expressed at least since Plato, but all too rarely fulfilled—or "democratic political institutions and eternal public vigilance." Yet democratically elected governments in the two successor states to united Pakistan were far from economic successes. So beyond a few tantalizing *obiter dicta* the book is not strong on solutions. That is a fit subject for another book by Nurul Islam, drawing on his experience in recommending policy in newly independent Bangladesh. One of the great assets of such a book, as of this one, is his recognition that it is difficult to make macroeconomic policies work in very poor countries, but that this by no means leads to the conclusion that detailed controls will always work better.

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600 Industrial Organization; Technological Change; Industry Studies

610 INDUSTRIAL ORGANIZATION AND PUBLIC POLICY

The strategy of social regulation: Decision frameworks for policy. By LESTER B. LAVE. Studies in the Regulation of Economic Activity series. Washington, D.C.: Brookings Institution, 1981. Pp. x, 166. $19.95, cloth; $7.95, paper. ISBN 0–8157–5162–1. *JEL 82–0193*

How should society regulate risks? For most economists the answer is straightforward. Risk regulation policies do not differ from other government programs. One should attempt to maximize the net difference between benefits and costs of these efforts.

Unfortunately, the design of social policies has been quite different. Typically, trade-offs of this type are not made explicitly. Instead, policymakers attempt to promote more shortsighted objectives in an effort to fulfill narrowly defined legislative mandates. The range of possible decision criteria that could be used is quite broad; indeed, Lester Lave distinguishes eight possible frameworks for regulation in Chapter 2 of his book.

The first of these frameworks is to let market decisions determine the risks individuals incur. There will, however, be inefficiencies if there are inadequacies in the way in which markets operate. Perhaps the most important of these shortcomings is the imperfect nature of the information individuals possess about the risks they face.

Even if there is some basis for government intervention, there still remains a wide degree of discretion as to the policy approach one can adopt. An agency can choose to set the risk at zero (e.g., the Delaney Clause). A more limited approach is to set the risk at the lowest technologically feasible level, as in the case of E.P.A. regulations. Alternatively, the agency

could recognize that many substances, such as food additives and saccharin, provide health benefits so that even if one wants to minimize the overall risk to society, different kinds of risk must be weighed against each other. Of these three risk-based frameworks, only the technologically based standards incorporate an element of cost considerations, and the manner in which cost concerns enter is ad hoc.

If one wished to recognize the trade-offs involved in designing risk regulation policies, one could do so in different degrees. Lave distinguishes four possible frameworks of this type: risk-benefit analysis, cost-effectiveness, a regulatory budget, and benefit-cost analysis. Lave views risk-benefit analysis as simply a somewhat more vague form of benefit-cost analysis in which one does not quantify the effects as precisely. This distinction may not reflect an underlying substantive difference in what risk-benefit analysis entails, but rather the fact that many non-economists use risk-benefit analysis as a synonym for benefit-cost analysis for such programs.

Lave's views on the remaining three decision criteria do not become completely clear until the latter part of the volume in which he discusses a number of case studies of risk regulation agencies. The framework Lave favors is the regulatory budget in which agencies are given an overall cost that their regulations can impose on the economy. The main reason why he prefers this approach to a benefit-cost framework is the difficulty in assessing the value of life. It is unlikely, however, that the value of life estimates that have been obtained in empirical work are any less precise than many of the cost estimates that would be the ingredients of Lave's analysis.[1]

Throughout his analysis, Lave maintains that policies are usually not sensitive to the particular value of life one chooses to employ. One reason for this insensitivity is that policymakers have rarely considered continuous alternatives, such as choosing where a particular risk exposure standard should be set. Instead, they consider only extreme discrete options, such as whether a particular substance should be banned, where the importance of the particular value one attaches to benefits is not as great.

The decision to set regulatory budgets in no way eliminates the need for ascertaining regulatory benefits as part of the policy process. One must have some sense of the overall net benefits of regulatory policies in order to set budgets at appropriate levels. Moreover, once an agency begins to design policies in the context of this budget, it must also analyze both the benefits and costs of regulatory alternatives in order to design policies in an optimal manner.

One advantage of the regulatory budget approach is that it forces agency administrators to undertake an annual analysis of their entire body of regulations to determine the cost of these regulations and whether or not the sum of these costs is below the allowable budget. Doing so is by no means a trivial task. What, for example, is the cost of the thousands of OSHA safety regulations that were issued before any regulatory analyses were performed? It is doubtful that one can make the case that it is simpler to assess the costs of all existing and proposed regulations than it is to analyze the costs and benefits of new regulations proposed this year. This problem does not arise with regard to budgets for spending programs since information on the actual costs of these programs is generated in the course of making these expenditures. Since no such provision of cost information is inherent in the nature of regulatory policies, the informational costs of regulatory budgets will dwarf those associated with current budgetary operations.

The principal substantive focus of this book is on regulations pertaining to food additives. Lave addresses these regulatory issues in Chapter 4 of this volume and uses illustrations from the food additive case throughout his book. Lave reviews a number of studies of food additive regulations, including: sodium nitrite, DES, aflatoxins, and saccharin. A major strength of his discussion of these regulations is a detailed analysis of the underlying medical basis for regulation. In particular, Lave delves into the uncertainties pertaining to our analysis of the dose-response relationship and how these uncertainties affect our policy choice. For each of these substances, Lave discusses how each of the eight possible decision frame-

[1] For a review of the value of life studies and advocacy of their use in policy analysis, see W. Kip Viscusi (forthcoming).

works could be applied in determining the optimal regulatory policy.

Although his discussion of the implications of these frameworks is largely qualitative, in the case of benefit-cost analysis Lave provides some cost estimates which he then compares with an assumed value of death of $300,000, which is well below most of the estimates (in 1982 dollars) of the value of life obtained using wage studies. A common shortcoming of agencies' analyses of risk regulations is that they often ignore the lags involved before one reaps the benefits of reducing illnesses with long gestation periods. Lave also does not consider these lags, inasmuch as he views the value of the case of cancer as equivalent to an immediate death. Since the prevention of these cancer cases is necessarily deferred, with a lag of at least a decade, the discounted value one should attach to these cancer benefits becomes reduced considerably.

In Chapter 5 and elsewhere in this volume, Lave draws on the risk regulation literature for several risk agencies. Much of this discussion deals with the underlying structure of the risk to be regulated. In particular, as Lave emphasizes, it is difficult to establish a dose-response relationship in situations in which individuals are exposed to different environments over time, have different susceptibilities to risk, and engage in different personal activities, such as cigarette smoking.

The primary contribution of this book is Lave's analysis of alternative frameworks for approaching regulation, his discussion of food safety issues, and his general observations regarding the scientific basis for risk regulation. Although my own views are more strongly oriented toward market forces and a belief in the importance of assessing both the benefits and costs of risk regulation policies, such a difference in perspective does not limit the usefulness of Lester Lave's book.

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REFERENCE

VISCUSI, W. KIP *Risk by choice: Regulating health and safety in the workplace.* Cambridge: Harvard University Press, forthcoming.

State-owned enterprise in the Western economies. Edited by RAYMOND VERNON AND YAIR AHARONI. New York: St. Martin's Press 1981. Pp. 203, $27.50. ISBN 0–312–75623–2. *JEL 81–0804*

This slim volume contains thirteen essays on the public enterprises of industrialized market economies, presented at a Harvard Business School Conference in 1979. Theoretical papers by John Lintner and Howard Raiffa are followed by Kenneth Arrow's critical commentary. Nine papers, written by scholars from nine nations, are heavily empirical. Quantitative evidence is absent, but there is a substantial amount of historical and institutional reporting. Raymond Vernon opens with an accurate, interpretive summary.

Lintner's paper packs into its twenty-five pages a review of many problems associated with optimal pricing theory and investment. His pessimistic conclusion is that correct behavior is dependent upon an unavailable knowledge of relevant cross-elasticities, and the use of prices which should be the parameters of a perfectly competitive economy but, instead, are generated by oligopolistic markets, x-inefficiencies, and so on. Lintner does not view his strictures on the likelihood of applying optimality rules as a conclusion of despair, but only of realism.

Raiffa focuses on organizational problems of a public enterprise. The ultimate authorities are coalitions of interests. He does not expect to see a well-articulated objective function—instead, decisions will be political. The operating organizations are hierarchical and therefore the chief executive officer must give instruction, but the chief executive officer cannot rely on an explicit statement of objectives. In this world, employees would allow their own values to play an excessively large role. If this description of a messy authority structure is reasonable, and I think it is, then the adoption of Lintner's rules becomes even less likely. Besides the informational shortcomings to which Lintner refers, there are no organizational incentives for the staff to adopt the optimality rules of welfare economics.

The empirical papers fall into three categories: country surveys, industry studies, and special problems. Italy, France, and the U.K. are

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