Indiana Law Journal

Volume 52 | Issue 4 Article 2

Summer 1977

The Possibilities and Limits of Decision Theory in Antitrust: A Response to Professor Horowitz

Joseph F. Brodley
Indiana University School of Law

The Possibilities and Limits of Decision Theory in Antitrust: A Response to Professor Horowitz

JOSEPH F. BRODLEY*

In his stimulating and original paper Professor Horowitz proposes to introduce a scientific approach into the decisionmaking process of the Justice Department's Antitrust Division. The vehicle for change is rigorous application of decision theory analysis (DTA) to guide decisions in both individual cases and in the operation of the agency as a whole. The proposal is for a thoroughgoing quantification of the decisional process and would require exact specification of payoffs, decisional sequences and probabilities. Optimal use of relevant information would be insured by use of Bayesian techniques,[1] and the general result would be to elevate the role and status of economists. The proposal is urged as a rationalization of limited antitrust resources and as a means to a more effective realization of antitrust values.

It is hard to disagree with the general thrust and motivation of a proposal to introduce rationalization and longer range planning into a decisionmaking process which by most reports is not excessively burdened by those

---

*Professor of Law, Indiana University, Bloomington. I have profited from comments by Professors Bruce L. Jaffe, Alan Schwartz and Robert L. Winkler on a draft of this paper (remaining errors are mine), and from research assistance by Hugh Sanders. An earlier version was presented before the Society of Government Economists in Atlantic City, N.J., on September 16, 1976.

[1]Bayesian technique is a quantitative method of revising judgmental probabilities based on experience or observation. While we normally do this intuitively, experiment reveals bias and systematic underassessment of probabilities when non-quantitative methods are used. *See* Horowitz, *Decision Theory and Antitrust: Quantitative Evaluation for Efficient Enforcement*, 52 IND. L.J. 716, 726 n. 36 (1977) [hereinafter cited as *Decision Theory and Antitrust*]. The example suggested by Professor Horowitz concerns the negative inference antitrust policy draws from high concentration. An analyst using Bayesian method would begin by assuming an initial probability that high concentration leads to anticompetitive behavior; but this would be subject to systematic revision based on observations of actual market behavior in the particular case. The revised probability of anticompetitive behavior might vary drastically from the beginning probability depending on the character of the subsequent information. *See Decision Theory and Antitrust, supra,* at 713-14 n. 40. *See also* H. RAIFFA, DECISION ANALYSIS 17-19, 124-27 (1968). Bayesian techniques are an important tool in decision theory analysis.

Decision theory analysis is more than a method of assessing probabilities; it is a quantitative method for combining probabilities and payoffs or returns from policy alternatives to assure optimal policy choice based on the information available. The analytic notation used to work out this analysis, which can be complex, is known as a decision tree, in which the various forks indicate decisional alternatives or events, and probabilities and payoffs are affixed to the identified alternatives. Though developed originally to assist decisionmaking in business, decision theory has been applied to a wide variety of social choice problems. *See* C. KELLY & C. PETERSON, DECISION THEORY RESEARCH, TECHNICAL REPORT DT/TR 75-5 (Off. Naval Research 1975). For a general introduction to decision theory analysis and Bayesian methods see H. RAIFFA, DECISION ANALYSIS (1968). For an application to governmental economic regulation see R. Park, *A Bayesian Framework for Thinking about the Role of Analysis*, in THE ROLE OF ANALYSIS IN REGULATORY DECISION MAKING (R. Park ed. 1972).

characteristics.[2] In presenting his carefully developed proposal Professor Horowitz necessarily confronts us with some basic questions concerning the use of DTA in legal-economic policymaking. Is DTA an appropriate analytic tool for formulation of antitrust policy either in specific cases or for the enforcement agency as a whole? If it is, are there nevertheless limits as to how far or how rigorously it can be pursued?

Advantageously, and in contrast to other attempts, the Horowitz proposal is aimed at an opportune point for DTA entry into legal decisionmaking; it would impact at the highly discretionary level of enforcement decision, where there is the least barrier to the use of new decisional methods. As an enforcement agency, the Antitrust Division is traditionally accorded wide discretion in its judgments. Moreover, its decisional processes are for the most part confidential. By contrast, when judicial decisionmaking is involved, additional constraints operate. Courts must make their decisional methods explicit and public; for the judicial task is not only to make correct judgments but to ensure so far as possible that the public understands and supports its decisions. Thus, it would be far more difficult to introduce DTA into judicial decisionmaking than into the internal decisional system of the Antitrust Division.[3] Moreover, DTA methods may help to correct a serious planning bias that besets many on the legal staffs of government agencies: short term tenure. This causes an especially wide gap between personal incentives, which necessarily operate in the short run, and longer term agency goals. Under these conditions one would expect a tendency to underestimte future costs and benefits that would not be present in decisionmaking by officials who knew that they would have to see a decision through from start to finish.[4] To the extent DTA compels more careful consideration of distant costs and benefits, it reinforces considerations that might otherwise be seriously underassessed.

More generally, Professor Horowitz issues a healthy challenge to the legal profession to consider more carefully the place of quantitative methods in legal decisionmaking. Not only antitrust decisions but legal decisions generally can be described in Professor Horowitz's words as "a compound decision problem under uncertainty."[5] Moreover, quantitative methods compel

---

[2]*See* Posner, *A Program for the Antitrust Division,* 38 U. CHI. L. REV. 536 (1971). A recent review of scholarly efforts to discover the economic criteria for bringing cases could not be characterized in economic terms, Asch, *The Determinants and Effects of Antitrust Activity,* 18 J. L. & ECON. 575, 580-81 (1975). *See also* JOINT ECON. COMM., ANTITRUST LAW AND ADMINISTRATION: A SURVEY OF CURRENT ISSUES, 94th Cong. 2d Sess, 18-19 (1976).

[3]The objection to the use of quantitative methods in judicial decisionmaking, especially by juries, is articulated in Tribe, *Trial by Mathematics: Precision and Ritual in the Legal Process,* 84 HARV. L. REV. 1329 (1971). By contrast there is ample precedent for use of DTA in executive agency policymaking. *See* C. KELLY & C. PETERSON, DECISION THEORY RESEARCH, TECHNICAL REPORT DT/TR 75-5 (Off. Naval Research. 1975).

[4]Long term officials may have other kinds of biases, *e.g.,* excessive concern to avoid controversy.

[5]*Decision Theory and Antitrust, supra* note 1, at 722 . *See* Nagel & Neff, *Plea Bargaining, Decision Theory, and Equilibrium Models: Part II,* 52 IND. L.J. 1 (1976).

disciplined articulation and evaluation of policy goals and alternatives, providing a powerful antidote to decision by default. Yet despite the growing use of DTA and other quantitative methods in government, there has been, at best, sluggish response by the legal profession. Lawyers should reflect more on the potential of such methods.

CRITIQUE OF THE PROPOSAL

The little progress that legal analysis has made in adapting quantitative methods is due only in part to its own resistance. It is also caused by the inherent difficulty of bridging disparate modes of thought. That the bridge put down by Professor Horowitz is subject to criticisms and suggestions for modification in no way detracts from the originality and value of his overall thrust. Therefore, it is in a constructive sense that I take exception to certain features of the Horowitz proposal, particularly its treatment of antitrust values and its view of legal rules and process.

Transformation of Antitrust Values

The purpose of introducing DTA into antitrust decisionmaking is to maximize achievement of antitrust values. Specification of values is crucial where precise quantitative expression replaces more intuitive approaches since values unspecified can be assigned no weight. One may acknowledge the point and still question why it is necessary to focus on any particular system of values since DTA appears to be value neutral, posing no barrier in theory to the substitution of an entirely different set of values. The reason is that an analytic method can shape as well as reflect values.[6] Thus, as proponents of DTA have themselves cautioned, the technique lends itself better to the representation of some types of values than others.[7]

The antitrust values or goals identified by Professor Horowitz are in some respects narrower and in other respects broader than most prior formulations. They are narrower in their focus on economic performance as the single goal of antitrust policy. They are broader in defining economic performance to include much more than efficiency and maximization of output, but indeed to encompass such far ranging macroeconomic criteria as income inequity, unemployment, inflation, economic growth, working conditions and the balance of payments. This is an expression of antitrust values very far from existing judicial formulations, which not only have failed to mention most of the Horowitz performance variables, but have included other criteria which Horowitz omits. More specifically, the present values promoted by antitrust

[6]*See* Brodley, *Massive Industrial Size, Classical Economics and the Search for Humanistic Value*, 24 STAN. L. REV. 1155, 1170-71 (1972).

[7]Brown, *Do Managers Find Decision Theory Useful?* 44 HARV. BUS. REV. 78, 88 (May-June 1970).

are all micro-oriented. They include "hard" variables such as economic efficiency and maximization of output,[8] and also "softer" variables, *i.e.* promotion of private, decentralized decision, confinement of discretionary economic authority, equality of business opportunity and (less frequently) local control of industry.[9]

What Horowitz has done is to incorporate the "hard" micro-values and then to substitute for the softer micro-values a broad array of macro-values. It is striking that the common property of almost all the values Horowitz includes is that they are capable of expression in monetary terms. Yet at the same time there is no demonstration based on accepted economic theory or concrete illustration as to how the impact of antitrust policy on such macro-economic values is to be measured.

Critics of quantitative methods in legal analysis have charged that there is a tendency for such methods to drive out soft values in favor of hard,[10] and a leading DTA writer reminds us that difficulty in assessment of non-monetary criteria is one of the technique's weaknesses.[11] One can fairly ask whether the Horowitz development is an illustration of just such phenomenon, in which an analytic system induces those value formulations that it most readily measures.[12]

Neglect of Conditions for an Effective Legal Rule

Most essentially decision theory analysis is designed to lead to a more systematic expression of probabilities and payoffs (costs and benefits) and, by combining them into a single expected value, to permit a more rational choice to be made between alternative courses of action. When this method is applied to the legal process, there is an additional constraint not present in other uses that must be satisfied: the decisional method must be capable of incorporation into an effective legal rule. An effective legal rule, particularly in antitrust, means a rule that can be readily understood and complied with,

---

[8]*See* Connell Co. v. Plumbers & Steamfitters, 421 U.S. 616, 623 (1975).

[9]*See* United States v. Von's Grocery Co., 384 U.S. 270, 283 (1966) (Stewart, dissenting); United States v. Aluminum Co. of America, 148 F.2d 416, 428-29 (2d Cir. 1945); Continental T.V., Inc. v. GTE Sylvania, Inc. ____ U.S. ____ n. 21 (1977). *See generally* Hofstadter, *What Happened to the Antitrust Movement,* in THE BUSINESS ESTABLISHMENT 113-151 (E. Cheit ed. 1964).

[10]*See* Tribe, *Trial by Mathematics: Precision and Ritual in the Legal Process,* 84 HARV. L. REV. 1329, 1361-2 (1971). *Cf.* H. RAIFFA, DECISION ANALYSIS 272 (1968).

[11]*See* Brown, *Do Managers Find Decision Theory Useful?* 48 HARV. BUS. REV. 78, 88 (May - June 1970).

[12]It is by no means impossible to argue that the Horowitz substitution is justified as a more effective expression of the value objectives of antitrust. The fault in the Horowitz development, and the more general problem it illustrates, is that the substitution is made *sub silentio.* The lesson is that in any actual application of DTA to legal decisionmaking we should be highly sensitive to whether in the specification of values to be included in the system a transformation rather than a mere translation has occurred.

or, put another way, in which the judicial result is reasonably predictable.[13]

To ascertain whether the Horowitz system meets this constraint it is necessary to determine the extent of the change he is proposing—apart from the change resulting from quantification of the expected value function inherent in any DTA system. Alternatives in decision theory are assessed in terms of "expected value." This is a function of probability and "bottom line" payoff. Determination of each may pose difficulties in a legal setting.

The payoff from a particular enforcement decision is simply the sum of the costs and benefits. As previously indicated, Horowitz proposes a striking departure by including an array of macroeconomic performance criteria in addition to more conventional antitrust micro-criteria. Even if one accepts these as appropriate indicators, it is clear that they are quite unsuitable for either courtroom or enforcement agency use. As previously stated, there is little if any economic theory or empirical evidence as to how antitrust policy relates in any measurable way to criteria such as income inequality or the balance of payments. This is scarcely surprising when even determination of relatively limited micro-effects of antitrust policies, *e.g.* economic efficiency, is fraught with difficulty. Not that Professor Horowitz is unaware of this; he recognizes that adoption of his program would "greatly expand the informational demands that are made upon economic science."[14]

What he neglects, however, is the impossible task his system would place on legal compliance. Imagine a lawyer trying to advise a firm whether there is significant risk of prosecution as to a proposed business transaction based on the Horowitz criteria. Moreover, to the extent the criteria become decisional factors in the cases, the problem is compounded. Even simple issues become difficult in protracted antitrust litigation. Complex issues become impossible.[15] It is no accident that the history of enforcement success in antitrust is largely the history of its presumptive and *per se* rules.[16]

The problem is reduced but by no means eliminated if the criteria are used only in making enforcement decisions. Much, perhaps most, legal advice

---

[13]Given limited enforcement resources, huge financial stakes and skilled and tenacious litigants, legal rules that are not clear and apparent in meaning will receive little enforcement. *See* Brodley, *The Legal Status of Joint Ventures Under the Antitrust Laws: A Summary Assessment*, 21 ANTITRUST BULL. 453, 464 (1976) (courts found joint ventures unlawful only where *per se* violation). It is sometimes forgotten that most enforcement takes place not in the courtroom but in lawyers' offices when clients are advised. If the lawyer cannot give a clear and decisive prediction of legality or prosecution risk, highly profitable transactions will be little deterred. Thus, simple rules are the key to enforcement success. This is the essential justification of legal rules which seem to violate the DTA canon of taking into account all relevant facts, *e.g.* the *per se* rules against price fixing and other practices.

[14]*Decision Theory and Antitrust, supra* note 1, at 731.

[15]*See* ANTITRUST IN ACTION, TEMPORARY NATIONAL ECONOMIC COMMITTEE, MONOGRAPH No 16, at 60 (1941). *See also* Brodley, *Industrial Concentration and Legal Feasibility: The Efficiencies Defense*, 9 J. ECON. ISSUES 365-67 (1975).

[16]*Cf.* G. STIGLER, THE ORGANIZATION OF INDUSTRY 270-71 (1968). *See* JOINT ECON. COMM., ANTITRUST LAW AND ADMINISTRATION: A SURVEY OF CURRENT ISSUES, 94th Cong., 2d Sess., 17-18 (1976).

to business is with a view to avoiding prosecution or civil action altogether. Even if the outcome of litigation is favorable, it will exact large costs, particularly in terms of that scarce and extremely valuable resource—time and attention of executive personnel. If the enforcement agency in fact uses the Horowitz criteria in its enforcement decisions, sophisticated counsel (and the incentive for sophistication in antitrust is very high) will necessarily have to make similar assessments. But since the criteria are elusive in application predictability will again be low. However, to the extent that enforcement officials are presently using these criteria informally, as Horowitz suggests, quantitative expression would be an improvement.[17]

More closely approximating the present practice is Horowitz's procedure for determining the probability of antitrust violation.[18] In agreement with existing law Horowitz would find highly concentrated markets to be most susceptible to anticompetitive conduct, *e.g.* collusion. But for Horowitz this is only an opening assumption (a "prior probability" in Bayesian terms) subject to revision based on evidence of actual market conduct and performance. The latter evidence, or more exactly the probability that anticompetitive or deficient conduct and performance has or will occur (the "posterior probability" in Bayesian terms) modifies the opening assumption (or probability). This leads to a revised probability of antitrust violation, which, as Horowitz demonstrates, can be strikingly different than the opening probability.[19]

In fact this is a fairly good model of the present rule for corporate mergers. In both *Marine Bancorporation*[20] and *General Dynamics*[21] the Supreme Court used concentration data only as an opening assumption of antitrust violation.[22] This was subject to revision based on actual evidence of conduct, and by implication, economic performance as well.[23] Thus, the probability assessment part of the Horowitz proposal, as distinct from its payoff values, can be defended as a Bayesian formalization of present practice, utilizing no new substantive factors.

While in my opinion the judicial process cannot effectively handle complex rules which rest on difficult issues of economic conduct and perfor-

---

[17]Objection might be raised as to the legitimacy of a practice of making enforcement decisions on the basis of policy values unrecognized in either legislative or judicial expressions, and the decibel level of the critics' voices would no doubt rise as the assessment became more explicit. Perhaps for this reason the enforcement policy would not in fact diverge over any extended period from judicial policy. *See* notes 29-32 *infra* & text accompanying.

[18]*See Decision Theory and Antitrust, supra* note 1, at 722-29, 731-32.

[19]*Decision Theory and Antitrust, supra* note 1, at 728-29.

[20]United States v. Marine Bancorporation, 418 U.S. 602 (1974).

[21]United States v. General Dynamics Corp., 415 U.S. 486 (1974).

[22]Horowitz would use certain factors additional to market concentration in defining suspect market structure, *e.g.* number of firms, extent of vertical integration. *See Decision Theory and Antitrust, supra* note 1, at 730-31.

[23]United States v. Marine Bancorporation, 418 U.S. 602, 630 (1974) ("parallelism" of behavior); United States v. General Dynamics Corp., 415 U.S. 486, 492-94 (1974) (market conditions). *See* United States v. Citizens & S. Nat'l Bank, 422 U.S. 86 (1975).

mance,[24] one cannot fault their inclusion so long as present Supreme Court doctrine stands. In point of fact, however, the Horowitz policy toward mergers and other market concentration problems turns out to be closer to Warren Court than to Burger Court views. That this is so is both interesting and revealing of DTA methodology.

As indicated above, DTA decisions are made in terms of expected values. Expected value is simply the result of multiplying anticipated payoff by probability of occurrence. While the Horowitz methodology would reduce the probability magnitude drawn from concentration standing alone, it would also increase the payoffs assigned to antitrust actions against "the major firms in major [concentrated] industries",[25] since, as Horowitz notes, this is clearly where the large macroeconomic effects will occur. One may fairly question whether the diminished probability multiplied by the enhanced payoffs, given the inherent inexactitude of these factors, will lead to any very different result than the older Warren Court assumption based on market structure alone. If not, we will have added fearsome complexity for little purpose.

A better strategy for developing effective legal doctrine in antitrust is to formulate simple rules that give adequate expression to the multi-value system of the law.[26] The question for the legal strategist seeking to implement the Horowitz goals would be how closely it might be possible to effectuate them by legal rules which meet the simplicity criterion.

This raises the question whether existing policies rigorously pursued, including the use of DTA analysis where helpful, would not approach essentially the same goals. This is to suggest that a focusing of enforcement effort on the reduction and limitation of economic concentration and the deterrence of anticompetitive practices in concentrated markets might bring us very close to where Professor Horowitz wishes to take us. His response might be that this would condemn to the antitrust fires some efficiency-creating, and otherwise economically desirable, transactions. But such an objection can be met by imposing an efficiency constraint on enforcement policy so that a showing of really significant efficiency loss would be a reason to exercise discretion not to prosecute.[27] Better yet, legal rules against concentration and anticompetitive practices could so far as possible be drawn with sufficient narrowness to avoid undue risk of efficiency loss.[28] That might not lead all the way to Horowitz's

---

[24]*See* Brodley, *Potential Competition Merger: A Structural Synthesis*, 87 YALE L.J. (forthcoming) [hereinafter cited as *Structural Synthesis*].

[25]*Decision Theory and Antitrust, supra* note 1, at 731.

[26]*See Structural Theory, supra* note 24.

[27]Admittedly this is not free of complexity, but it seems of lower magnitude. *See* Brodley, *Industrial Concentration and Legal Feasibility: The Efficiencies Defense*, 9 J. ECON. ISSUES 365 (1975). *See generally* Williamson, *Economies as an Antitrust Defense Revisited*, 125 U. PA. L. REV. 699 (1977). Such a constraint would also not bar private actions, but they would be adversely affected since they would not be able to proceed on the strength of prior government prosecution.

[28]*See Structural Synthesis, supra* note 24.

production possibility frontier for antitrust, but it would seem to move in the right direction.

Diminished Role of Lawyers

Professor Horowitz is not easy on lawyers and they probably richly merit his criticism. Nevertheless, the particular indictment he brings seems more an objection to the nature of the legal process than to lawyers. Horowitz would rigorously separate the conduct of trials from the selection of antitrust goals, a matter "too important to be turned over to lawyers."[29] The trouble with lawyers seems to be tunnel vision. They make policy decisions purely on the basis of whether they can develop a good case and get a conviction. In so doing they neglect the more rational and considered pursuit of antitrust goals which Horowitz advocates. Moreover, their condition is beyond repair; for this reason Horowitz does not urge that they be reeducated in DTA technology so that they too might learn to consider decisional sequences, payoffs and probabilities. He knows, after eighteen months of experience at the Antitrust Division, that lawyers are incurable addicts of judicial doctrine. While he perceives their habit, he misunderstands the inducement.

The tenacity with which lawyers urge vigorous pursuit of legal doctrines to which economists sometimes object, and which in any event often appear vague to the naked eye, is not based on sheer perversity. Rather, it reflects an allegiance to the rule of law, and an assertion of the special role of the lawyer. What after all is the measure of excellence in a government lawyer or judge? Most fundamentally, it is a sensitive appreciation of the underlying values that the people, through their legislatures and courts, have sought to incorporate into rules of law, accompanied by an analytic rigor and devotion in interpreting and applying the rules in specific situations. Thus, the government lawyer urges prosecution of serious law violation not because it offends his own scheme of values, but because it offends society's values expressed in its laws. Of these laws the lawyer is guardian. If he is tenacious, it is because he realizes that society has placed on him the highest obligation to defend the rule of law. The process is sometimes misunderstood because a full consistency and symmetry of values is never possible; the resolution of great issues such as the direction of antitrust policy has inevitably been the result of compromise between competing interests. The tasks of the lawyers and judge then becomes acutely difficult, but it remains one of endeavoring to give faithful expression to the general will. This explains, for example, a decision such as *United States v. Aluminum Co. of America,*[30] which articulated multiple and not entirely symmetrical values.[31] Judge Learned Hand, who wrote the opi-

[29]*Decision Theory and Antitrust, supra* note 1, at 730.

[30]148 F.2d 416, 428-29 (2d Cir. 1945).

[31]The opinion asserts the value of economic performance, industrial decentralization and small business opportunity.

nion, was not economically naive; it was rather that he was faithfully attempting to give expression to the compromise of values in the Sherman Antitrust Act.[32]

One can object to those values, and such objections can be pursued in the Congress or by the Antitrust Division through occasional litigation initiatives to obtain new judicial interpretations. But most of the work of the Division should clearly be to give faithful expression to the existing legal doctrine, apart from which there is no legitimate system of antitrust values.

This does not by any means preclude the use of decision theory in antitrust enforcement. Choices must still be made; some cases and programs must be given priority over others. In making such choices, decision theory can be helpful, but clearly adherence to and conscientious enforcement of existing legal doctrine cannot be excluded as a prime decisional value.

Subordination of Legal to Economic Values

The Horowitz proposal is ingeniously constructed to subordinate legal or judicial values to economic goals in antitrust decisionmaking. This is done by placing an additional variable at the end of the decision tree, after the judicial finding of guilt or innocence, which Horowitz designates as "V" and describes as the actuality that an anticompetitive act did occur no matter what a court may have found. Similarly, "P(V)" is the probability that such an act occurred, which is to be distinguished from "P(G)", the probability of a judicial finding of violation. The inclusion of these variables, to which weights and probabilities would be assigned, may seem plausbile, since courts do sometimes make decisions injurious to competition. In fact, use of the "V" and "P(V)" variables in agency decisionmaking would significantly distort antitrust policy.

It is one thing to include economic effects in the estimate of costs and benefits of agency action. It is something else to construct an ultimate economic effects value function quite at variance with that contained in judicial decisions. What is afoot becomes clear as soon as one asks what is the criterion of an actual anticompetitive act (the "V" function) and who is to be the final arbiter. The standard is stated obscurely as that of an "omniscient jurist," but there is no doubt as to who is to render the ultimate judgment. It is to be the economist.[33] Thus, the "V" value function reduces to a systematic means of permitting purely economic values to dominate legal. To be sure, even Horowitz stops short of a full subordination of the judicial process to economic goals by conceding that in those cases where challenged conduct constitutes a *per se* violation the probability of an actual anticompetitive act

---

[32]Judge Hand was acknowledged to be a master at fathoming legislative and societal values. *See* H. SHANKS, THE ART AND CRAFT OF JUDGING THE DECISIONS OF JUDGE LEARNED HAND 157-59 (1968).

[33]*Decision Theory and Antitrust*, *supra* note 1, at 732.

is to be raised to unity, *i.e.* taken as certain.[34] But in other cases the system is constructed to permit the economist's definition of an anticompetitive act to dominate decisionmaking.

The trouble with this scheme is that it is in derogation of the judicial and legislative powers. Our system recognizes no ultimate legal standard beyond what a court of final authority resolves. The responsibility of economists or anyone else who disagrees with a rule of law is *not* to base enforcement decisions on their own preferred value system but to present their differing ideas to a court or legislature to induce a change in law. If existing lawyer-staffed courts are thought to be inadequate to the complex economic task of rulemaking in economic regulation, the appropriate response is to seek legislative amendment to add economists to courts, or even to constitute a court composed entirely of economists. If this has not been d ne, there may be a reason connected with the sentiments of the people.

A MORE LIMITED APPROACH

A recent review of the work of the Antitrust Division suggested significant change in priorities and resource allocations, but explicitly rejected a quantitative approach to decisionmaking as exceeding present knowledge;[35] but this may be unduly pessimistic. On the other hand Professor Horowitz, while greatly facilitating analysis by outlining a comprehensive DTA system, has probably moved too far in the quantitative direction. Moreover, by incorporating substantive changes in decisional standards in his proposed system, Horowitz has taken on unnecessary as well as highly controversial baggage. Introducing DTA methods into the decisionmaking apparatus of an organization is itself the result of a decision, and, quite logically, DTA analysts sometimes speak of assessing its costs and benefits.[36] Surely, for many, the costs of introducing decision theory into the processes of the Antitrust Division would be reduced if such efforts adhered as closely as possible to existing legal values, imperfect though they may be. Moreover, to anticipate sudden global change in decisionmaking process seems infeasible as well as excessively disruptive. There is need, therefore, to specify some limited first steps.

First, a small number of cases might be selected for DTA experimentation.[37] This should be done only with the consent of the lawyers involved, as their cooperation is obviously essential. Various degrees of decision theory

---

[34]*Id.* at 732.

[35]Posner, *A Program for the Antitrust Division*, 38 U. CHI. L. REV. 500 (1971). The thrust of his proposal is that the Division should concentrate on efficiency-maximizing goals, determining these by general microeconomic reasoning. This would result, he suggests, in concentration of enforcement resources on (1) cartel cases, (2) patent cases, and (3) promoting competition in the regulated industries.

[36]*See* R. BROWN & S. WATSON, ISSUES IN THE VALUE OF DECISION ANALYSIS, DDI TECHNICAL REPORT 75-79 (Off. Naval Research 1975) [on file at the INDIANA LAW JOURNAL].

[37]*See generally id.*

analysis might then be introduced, in some cases not going beyond a conceptual tree,[38] which in any event is as far as many business applications proceed. In a few cases attempts could be made to attach at least rudimentary probabilities and weights to the decision tree. The emphasis should be, however, on fully enumerating the likely actions and events and on establishing the correct decisional sequence. Only after that is done would estimates of time and resources be made.

A modest "first cut" of this type might attract the interest of experienced trial lawyers aware of the perennial optimism that often abounds at the early stages of a case and which can result in underestimation of duration and complexity of litigation. Moreover, even limited DTA analysis might help to correct the tendencies to take an overly short time perspective.

Further, following a general approach suggested by Brown,[39] it might be possible to run an experiment on one or more cases. Two separate legal teams would review the file and make independent recommendations, one using conventional methods and the other working with the assistance of a DTA analyst. Assuming the case is prosecuted, a later study could be made to see how reality compared with estimates and where, and if possible why, estimates tended to deviate.

Second, applications of Bayes' Theorem[40] to assess the impact of investigatory information on particular issues might be made in specific cases[41] with consent of the trial staff. If lawyers find the method useful one would expect increased utilization, just as has occurred in business.

Third, in the work of the Antitrust Division as a whole, budget preparation might utilize a conceptual DTA tree, but it may be more realistic to first test whether the method can be utilized successfully in smaller scale applications.

CONCLUSION

Following the marked success of one of his proteges, it has become increasingly fashionable to quote Admiral Rickover, and he is far from an admirer of decision theory methods. He warns that their use can freeze our resolution:

---

[38]A "conceptual tree" charts the decisional alternatives and paths without attempting to fix quantitative weights and probabilities at all points. *See* Brown, *Do Managers Find Decision Theory Useful?* 48 HARV. BUS. REV. 78, 82 (May - June 1970).

[39]*See* R. BROWN & S. WATSON, ISSUES IN THE VALUE OF DECISION ANALYSIS, DDI TECHNICAL REPORT 75-79 (Off. Naval Research 1975).

[40]Bayes' Theorem is simply the quantitative method or formula for revising probability estimates based on subsequent information. See note 1 *supra* for a general description of the method and citation to sources.

[41]For an interesting example of how this was attempted by one DTA analyst on a single issue before the FCC, see Park, *A Bayesian Framework for Thinking About the Role of Analysis* in THE ROLE OF ANALYSIS IN REGULATORY DECISIONMAKING 57-61 (1973).

> On a cost-effectiveness basis the colonists would not have revolted against King George III, nor would John Paul Jones have engaged the Serapis with the Bonhomme Richard, an inferior ship. The Greeks at Thermopylae and at Salamis would not have stood up to the Persians had they had cost-effectiveness to advise them . . . .[42]

But Professor Horowitz may be right after all. Lawyers *are* different. As incurable addicts of judicial opinions, they are apt to keep reading and applying decisions whatever the DTA analysts advise. The dangers of applying decision theory in the Antitrust Division seem minimal.

---

[42]Quoted in H. RAIFFA, DECISION ANALYSIS 270 (1968).