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# Readings

## of particular interest

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### The Clean Air Act: Two Views

● "Beyond the New Deal: Coal and the Clean Air Act" by Bruce A. Ackerman and William T. Hassler, in *Yale Law Journal*, vol. 89 (July 1980), pp. 1466-1571.

The Environmental Protection Agency's standards for coal-burning power plants, according to Bruce Ackerman and William Hassler of Yale Law School, are a particularly egregious case of regulation gone wrong. Not only will the standards cost U.S. consumers tens of billions of dollars in unneeded expense, but air pollution in many populous areas will actually be worse than under alternative standards.

The paradox arises because EPA in effect requires utilities to use expensive "scrubbing" methods to lower the sulfur content of the coal they burn, regardless of whether they begin with high-sulfur ("dirty") coal or low-sulfur ("clean") coal. This leaves intact a financial incentive for midwestern utilities to burn relatively cheap high-sulfur eastern coal. If they were allowed to follow less stringent scrubbing requirements when burning low-sulfur western coal, they could reduce both costs and emission levels substantially.

In this legislative and administrative history of the coal scrubbing controversy, Ackerman and Hassler describe the victory of what they call a "clean air/dirty coal coalition," first in Congress and then at the agency level. The coalition united environmentalists, to whom full scrubbing was symbolically important, with eastern coal interests, who wanted to curb competition from low-sulfur western coal.

The 1970 Clean Air Act required EPA to set emission performance standards for new or expanding power plants, based on the "best system of emission reduction which (taking into account the cost of achieving such reduction) the Administrator determines has been adequately demonstrated." Unlike the typical

New Deal approach of setting general goals and then relying heavily on agency expertise, the Clean Air Act typified what the authors call the "agency-forcing statute." EPA was to base its standard on a single high-technology process instead of experimenting with a variety of processes. And although the statute directed EPA to consider the costs of control, it said nothing about comparing the benefits provided by alternative control technologies.

It did not take EPA long to decide that scrubbing—though in a rather primitive state of development and subject to frequent breakdowns—was the "best" system. But EPA's interpretation of the statute, the authors argue, "made it conceptually impossible to move from its engineering judgment about the scrubber's availability to a definition of the quantity of sulfur oxides that new power plants would be allowed to discharge." Since "a power plant's emissions are a function of not one, but two variables . . . it was not enough to determine that scrubbers could eliminate seventy percent of the sulfur in the coal. It was also necessary to determine the amount of sulfur in the coal that the plant burned."

The problem was that the sulfur content of U.S. coal can vary by a factor of ten. Assuming scrubbing at 70 percent efficiency, plants could emit sulfur dioxide at levels ranging from 3 pounds for each million BTU (MBTU) of energy, down to 0.3 pounds per MBTU—while using the "best system of emission reduction."

EPA had paid little attention in its deliberations to the sulfur content of coal. It set the standard for coal-burners at 1.2 pounds per MBTU, a figure that was designed to allow the use of typical eastern coal with scrubbing, but that was equally compatible with the use of unscrubbed or partially scrubbed western coal.

Meanwhile, a controversy was developing over what standards should be applied to pre-existing coal-burners. Environmentalists rejected many of the methods by which utilities

sought to bring these plants into compliance with air quality standards. "Intermittent" controls applied during peak pollution periods, for example, were thought to be difficult to monitor and verify. As litigation dragged on, environmentalists increasingly fixed on the scrubber as a known, easily understood technology that could be applied across the board.

Moreover, environmentalists saw universal scrubbing as an especially potent way to keep air quality from deteriorating in relatively unpolluted areas of the West. Low-sulfur coal was already much cheaper than high-sulfur coal for western utilities because of its close availability. Thus, the sulfur emissions from these utilities would, under full scrubbing, fall far below the permitted level. But though this may have been a logical strategy for environmentalists in the West, the authors say, it backfired badly when applied to the Midwest, where dirty coal had the price advantage.

When Congress took up amendments to the Clean Air Act in 1976 and 1977, it had to resolve two questions: whether to require full scrubbing, and whether to lower the 1.2 pound emission standard set by EPA, thus encouraging the shift to low-sulfur coal. The low ceiling/full scrubbing combination, which was the most expensive option and the one most favored by environmentalists, was doomed from the outset by the united opposition of utilities and eastern coal interests. The high ceiling/optional scrubbing combination was opposed not only by environmentalists, as one might expect, but also by the eastern coal lobby, since it preserved an incentive for utilities to switch to clean coal (much of which could be used without any scrubbing if the ceiling were high enough). The real choice, argue the authors, was between high ceiling/full scrubbing and low ceiling/optional scrubbing.

The clean air/dirty coal coalition doomed the latter choice. Eastern coal had a great deal of clout in Congress and was determined to arrest the growing tendency of utilities from Illinois to Louisiana to import clean western coal to comply with the ceiling. What is surprising, say the authors, is that leading environmentalists embraced the dirty coal cause, often employing the language of regional protectionism. A Sierra Club spokesman bemoaned the fact that "eastern high sulfur coal, which is now available, is having a hard time getting a mar-

ket because of the comparative cheapness of bringing in western low sulfur coal." The Natural Resources Defense Council's representative inventively observed that the trains hauling coal east use a lot of oil: Ackerman and Hassler point out that the coal hauled east may itself be replacing oil as utility fuel.

With the United Mine Workers lobbying arm-in-arm with the National Clean Air Coalition, the chances of lowering the emissions ceiling and permitting optional scrubbing soon disappeared. Congress, in fact, was prevailed on to insert specific protectionist language favoring "locally available coal" in the bill. The coalition, however, did not try to induce Congress to adopt an amendment explicitly requiring all new coal-burners to install scrubbers. Instead it settled for more equivocal language, while filling the committee report—in particular those sections written by House staffers—with calls for the protection of eastern coal. The authors warn that in such situations conference reports may help to legitimate, as legislative history, positions and interpretations that would fail in a straight up-or-down vote.

Ackerman and Hassler conclude that environmentalists should logically welcome the



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chance to lower pollution by replacing dirty with clean coal. "Rather than condemning the advantage gained by clean coal as artificial," they say, environmentalists should be pleased "that the 'true' costs of dirty coal have finally been revealed." It would also be useful, they add, to move away from the assumption that all pollution is equally damaging, and—for instance—give due weight to the population density of the Midwest in assessing the damage done by sulfur emissions there. Finally, they argue, Congress needs to rethink the idea of the "agency-forcing" statute, distinguishing between prescribing the agency's ends and prescribing the means it must use to pursue those ends. The former is a legitimate way to overcome administrative inaction; the latter is likely to cause more problems than it solves.

- "Direct Federal Regulation of Stationary Sources under the Clean Air Act" by David P. Currie, in *University of Pennsylvania Law Review*, vol. 128 (June 1980), pp. 1389-1470.

In the Clean Air Amendments of 1970, Congress ordered the Environmental Protection Agency to set national emissions standards for new "stationary sources" of air pollution. EPA was also to identify and set air quality standards for major pollutants. States with dirty ("non-attainment") air regions were required to submit plans to bring their air up to the EPA standards. The 1977 amendments to the act required clean air states to submit individual plans for industrial development to prevent significant deterioration of their air quality.

David Currie, professor of law at the University of Chicago, here outlines and interprets the Clean Air Act provisions governing stationary sources. While essentially endorsing the act's regulatory approach, Currie draws attention to provisions that are in his view unnecessarily inflexible or complicated or fail to take significant account of cost. He calls for Congress to require EPA to compare costs and benefits, to allow EPA to make exceptions in cases of abnormally high costs, and to embody the "bubble concept" in the statute.

Under the Clean Air Act, a new stationary source is a plant or piece of equipment built (or modified so as to emit more pollutants) after EPA has published or proposed emission standards applicable to it. If the final regula-

tions differ substantially from the proposed ones, Currie points out, those who began construction in the interim may be forced to incorporate the changes through "retrofitting." But he weighs this against the possibility of a rush to construct polluting plants as soon as regulations are proposed.

One of the reasons for applying the standards only to new plants was to avoid imposing costly retrofitting on older plants. But this is to some extent undercut, Currie says, by treating old sources as new sources if they are modified so that emissions increase. The problem is exacerbated by the statutory definition of "modifications" to include not only physical changes but also changes in the method of operation.

EPA attempted to deal with the quandary in two ways. It simply excluded increases in the rate of production or in hours of operation from its definition of changes in the method of operation, and it attempted to use a bubble concept to exempt certain modified plants from compliance with the new stationary source standards.

Without the bubble concept, any new equipment installed in a plant or any old equipment modified so as to emit more pollutants would itself be a new stationary source and would have to comply with the standards. EPA attempted instead to define a "source" as an entire plant. So long as a plant offset the pollution generated by the new or modified equipment with reductions in pollution elsewhere, it would not come under the standards, since it would not emit more pollution.

But EPA chose a clumsy drafting route, Currie says, provoking the D.C. circuit court to declare the "bubble" regulations in conflict with the statutory language. As a result, the bubble probably cannot be implemented, and Currie recommends that Congress consider it explicitly when it next amends the statute.

The Clean Air Act stipulates that EPA's standards must lead to the degree of emission limitation achievable, taking into account the cost of achieving the reduction as determined by testing. In Currie's view, it is important that the tests be run under actual operating conditions, that the same tests be used for setting standards and for determining compliance, and that the standard reflect what the technology can achieve in continuous practice.

Under the law, the costs to be taken into account include not only monetary costs but environmental side effects and energy requirements. Currie argues that this enumeration was intended only to ensure that these categories are considered, not to exclude other side effects generally considered in previous judicial decisions, such as loss of jobs or tax revenues.

Industry argued that the requirement about cost meant that EPA had to carry out a quantified cost-benefit analysis before promulgating its regulations. The courts disagreed. Currie believes they were right on the quantification issue, given the state of the art of quantifying benefits. But the courts also seemed to suggest that emissions standards could not be invalid by reason of excessive cost so long as they did not substantially impair the affected industry's ability to do a profitable business. Currie, disagreeing, maintains that the statute requires costs and benefits to be compared—and even when they cannot be quantified. He endorses the approach taken in a water pollution case where a court decided that an additional expenditure of \$3 billion to reduce thermal pollution by 90 percent instead of 80 percent might be considered unjustified if no tangible benefits would result. Currie thinks this the more reasonable approach. But he concedes that the obligation to compare costs and benefits does not say how the balance is to be struck, and that therefore EPA has wide discretion.

Any effort to make costs a significant constraint, Currie points out, would run up against the statute's insistence that the standards reflect the best control technology available. This means, for example, that a plant which burns low-sulfur fuel must still install sulfur scrubbers. Currie contends that Congress should not generally mandate technologically oriented standards. Where it does so, moreover, it should allow exceptions in cases of unusually high costs or low benefits. While one might want the greatest achievable reduction in very polluted areas, even at high cost, requiring this everywhere and in all circumstances is likely to be unreasonable.

The author then discusses EPA's authority to set emissions standards for hazardous sources and for sources likely to pollute the stratosphere. With respect to the former, he criticizes the statute's time limit and waiver

provision as Procrustean, and its language as inflexible with respect to cost.

Currie concludes that the three-layered system of regulation for stationary sources (new sources, hazardous pollutants, stratospheric contaminants) is excessively complex. This complexity is aggravated by the Clean Air Act's other provisions on air quality, which in fact probably exceed in rigor the stationary source regulations for major polluting plants. The best solution, he concludes, would be a single test which, without dogmatically requiring uniform national standards or prescribing a particular means of achieving compliance, would allow EPA to set standards for all sources after a required comparison of costs and benefits.

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## Putting the Chill on Corporate Takeovers

"The Economic Effects of Federal and State Regulations of Cash Tender Offers" by Gregg A. Jarrell and Michael Bradley, in *Journal of Law and Economics*, vol. 23 (October 1980), pp. 371-407.

The corporate tender offer, by which one firm seeks to gain control of another by offering to buy its stock at a stated price from any and all shareholders, has come under increased regulation on both the federal and state levels. Critics of such regulation argue that it harms the general economic welfare by entrenching inefficient management. Economists Gregg Jarrell and Michael Bradley of the University of Rochester here offer evidence that this regulation has had significant overall social costs, while redistributing wealth from some groups of stockholders to others.

The Williams Act of 1968 empowers the Securities and Exchange Commission to establish disclosure regulations and minimum tender periods for cash tender offers. In brief, the act (1) stipulates that the bidding party disclose its business plans and sources of financing, (2) delays consummation of cash takeovers by requiring all offers to remain open at least ten days, and (3) establishes a broad prescription of fraud that has facilitated defensive lawsuits by targets and countersuits by bidders.

Passage of the Williams Act was followed by a wave of anti-takeover legislation at the state level. By 1978, there were thirty-eight state takeover statutes, most of them far tougher on would-be acquirers than the Williams Act. Unlike the latter act, the majority of state statutes exempt "friendly" tender offers (those that have the approval of the board of directors of the target firm) but require more extensive disclosure well in advance of the public offer for "unfriendly" offers. The state laws typically also specify longer minimum periods during which the offer must remain open. Most important, almost all state laws provide for administrative procedures involving hearings before the state's securities commissioner. These procedures sometimes lead to substantial delay and costly litigation, the authors say.

The stated intent of the Williams Act was to protect target shareholders by providing them with more information about the prospective acquirer and its plans and by giving them more time to deliberate over their tender decision. Proponents of the act argued that the added disclosures and delay would result in better decisions by target shareholders and a more efficient allocation of corporate control. The costs of the regulations, usually considered to be mainly the administrative costs of preparing the required disclosure documents, were thought to be minuscule compared with the value to target shareholders of an orderly, well-informed market for corporate control.

Jarrell and Bradley examine the effects of the federal and state anti-takeover laws on the average tender premium and on the frequency of cash takeovers. (The tender premium is the difference between the tender price and the pre-offer price of the target, expressed as a percentage of the pre-offer price.) They used a statistical sample of 161 target firms that were the object of successful cash takeover attempts between 1962 and 1977. The mean tender premium for unregulated takeovers consummated before 1968 was 32.4 percent. For post-Williams Act targets that were *not* protected by any state law, the premium was 52.8 percent. For targets protected by state laws, the premium was 73.1 percent. Jarrell and Bradley conclude that the federal law increased tender premiums by about twenty percentage points and that the state laws increased them by another twenty percentage points.

The authors say their evidence also suggests that both the federal and the state laws have reduced cash takeover activity. This deterrent effect is especially evident in data for successive years, as more and more states were covered by anti-takeover statutes. The statistics also indicate that both the federal and the state laws have reduced the return to acquiring firms.

Jarrell and Bradley conclude that those laws, by forcing disclosure of information and delaying the execution of takeovers, diluted the value of the acquiring firms' knowledge concerning the potential value of corporate combinations. This dilution—essentially the forced dissemination of valuable information—is reflected in higher tender premiums and lower returns to acquirers, as the regulations provide competing bidders with the time and information to offer alternative bids. These regulations, in essence, tax the producers of knowledge—the original bidder—and redistribute the proceeds largely to target shareholders in the form of higher tender premiums. Because potential acquirers receive a smaller share of the gains from valuable corporate combinations, they now produce less knowledge about how to accomplish such combinations. Thus some profitable takeovers are deterred, and all takeovers occurring under regulation produce relatively smaller social gains. While both the federal and state takeover regulations have increased sell-out profits for the shareholders of firms that have been acquired, their overall deterrent effect on takeovers means that they have deprived other shareholders of profitable opportunities to sell out. Shareholders of potential and actual acquirers have also lost.

Jarrell and Bradley's evidence also offers a challenge to the view, often expressed by advocates of takeover regulation, that an acquirer's purchase of a majority stake in a firm is unfair to remaining minority shareholders. They found that for the typical target firm, the value of the outstanding shares increased significantly upon takeover. It is not the case, in other words, that acquirers finance the premiums paid for control of the target by expropriating the wealth of the remaining minority shareholders.

The authors' evidence supports other studies which have found substantial economic gains from corporate combinations. By pre-

cluding some takeovers and by reducing the productivity of others, Jarrell and Bradley conclude, the cash takeover regulations have imposed large social costs.

## Bankruptcy Law and Investment Incentives

“Public Policy toward Bankruptcy: Me-First and Other Priority Rules” by Michelle J. White, in *Bell Journal of Economics*, vol. 11 (Autumn 1980), pp. 550-564.

The rules of bankruptcy are important determinants of the rate of new capital formation in the economy and of individual firms' investment incentives. Bankruptcy practices affect both the likelihood that investment projects may default and the amount paid to investors if default occurs. Michelle White, professor of economics at the New York University Graduate School of Business Administration, analyzes in this study the economic effects of bankruptcy law. She concludes that neither the current nor the most frequently proposed bankruptcy rules are economically efficient.

The subject of bankruptcy is of particular current interest because bankruptcy rates for U.S. firms are on the upswing. The rate of default on corporate bonds, for example, was several times higher in the 1970s than in the 1950s and 1960s. Clearly, the more likely the possibility of default, the more important it is to have bankruptcy rules that provide incentives for efficient investment decisions. In addition, in 1978, for the first time since 1938, Congress passed major new legislation reforming the bankruptcy process—with little input from economists, who have long neglected this important subject.

White's study poses two questions: First, under what circumstances will failing firms make economically efficient decisions to continue operating or to liquidate in bankruptcy? And, second, how do bankruptcy law provisions affect the efficiency of new investment incentives by both healthy and failing firms?

The legal procedure in a liquidation (or straight bankruptcy) is fairly straightforward. A court-appointed trustee sells the firm's assets, paying creditors' claims in the following

order: the administrative and legal expenses of bankruptcy incurred after the start of the proceedings, taxes, wages and rents due, unsecured creditors, and last, equity holders. Secured creditors having a lien on particular assets can of course reclaim those assets or their value. (Bondholders, bank lenders, and trade creditors may be secured, unsecured, or partially secured creditors.) If available funds will not permit full payment of all claims, then each class of creditor is fully paid in the order above described; and when the level is reached at which that cannot be done, all members of that class are paid an equal fraction of the face value of their claims.

White refers to the general ordering of claims as the absolute priority rule (APR) and the division within the creditor classes having the same priority as the proportionate priority rule (PPR). A third possible bankruptcy rule, on which most academic analysis of bankruptcy has focused, is called the “me-first rule”; it gives bondholders priority over all other creditors for the full amount of their claims.

The author examines these three priority rules, employing a model of the behavior of failing firms. In White's model there are three groups of creditors with claims on a failing firm: large bank lenders, bondholders, and equity holders, the last represented by management. A coalition of creditors, usually the major banks and equity holders, decides periodically whether the firm will continue operating or file for bankruptcy and liquidate. The option of reorganizing in bankruptcy is not incorporated in the model. For the failing firm to continue operating, the banks must lend it enough to meet its current obligations in full.

The coalition of creditors also chooses whether or not the firm undertakes new investment projects. The return to investors from such projects depends in part on whether or not the firm goes bankrupt in the future. The criterion for whether it is more economically efficient for the firm to liquidate or remain in operation is whether the sale value of its assets is greater than or less than the discounted value of its future earnings if it continues operating. The criterion for whether new investments are efficient is one of cost-benefit analysis.

White concludes that none of the three bankruptcy priority rules she analyzes provides incentives for the creditor coalition to make

economically efficient choices between continuation and liquidation. Depending on circumstances, it may find it profitable to liquidate when they should continue or to continue when they should liquidate. Except in very unrealistic situations, White adds, this result applies both to current bankruptcy provisions, which are based on the APR and PPR, and to the alternative rule of bondholder priority she considers. Thus not only do the current legal rules of bankruptcy lead to inefficient incentives, White maintains, but there are no obvious alternative rules that seem better.

The same negative results emerge from White's analysis of investments made by failing firms: all of the legal rules considered distort private investment incentives. Suppose, for example, a coalition of banks and equity holders is running a firm under a rule of bondholder priority, and the firm's resources currently suffice to pay only part of the bondholders' claims (and thus none of the equity holders'). Then the coalition will overinvest in risky projects, even ones with a negative average return, since the equity holders have something to gain and nothing to lose by so doing.

Under current bankruptcy priority rules, moreover, a particular investment project may be more or less attractive to different firms depending on the proportion of debt to equity used in financing it and on the risk characteristics of the firms' existing investments. But these factors do not affect the desirability of the project from an economic efficiency standpoint. In this case, too, none of the alternative bankruptcy rules she analyzes brings about economically efficient incentives for private investment.

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## Law Schools: Accreditation vs. Competition

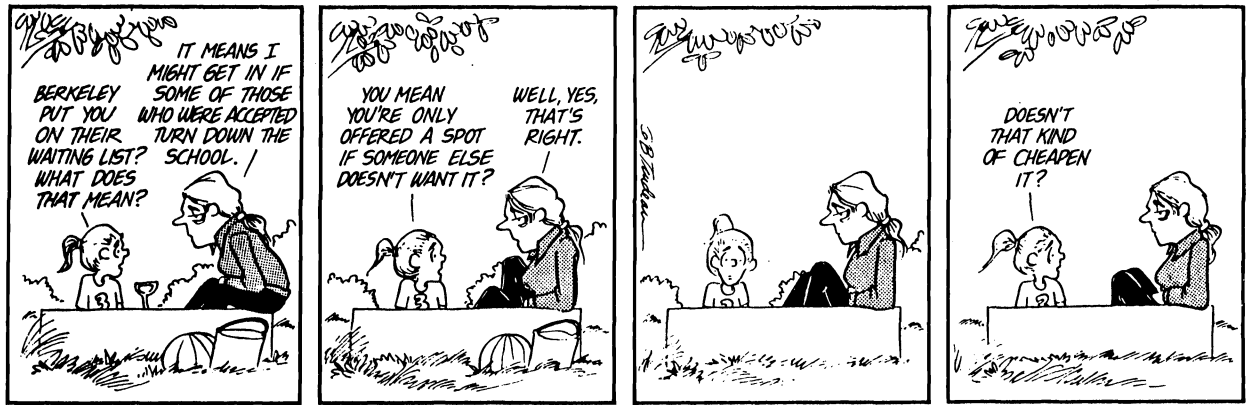
"Competition in the Legal Education Industry" by Harry First, *New York University Law Review*, vol. 53 (May-June 1978), pp. 311-401, and vol. 54 (December 1979), pp. 1049-1130.

While it is common to find fault with American legal education, it is rare to attribute that fault to a lack of marketplace competition. In these articles, however, Harry First, a professor of

law at New York University, argues for just such a conclusion. Starting from the premise that legal education is a business, First applies economic theory to describe and explain how legal education has developed. Discovering a long history of anticompetitive industry regulation by a private cartel of producers, he prescribes "deregulation" through the application of the antitrust laws.

The article begins by advancing an economic model of legal education in which the law school represents the firm, and law schools collectively form the industry. Law schools must decide how much legal education to produce, how best to combine inputs to produce that output, and how to distribute this education to those who want it. Viewing these decisions as the familiar economic problems of allocation, production, and distribution, the author draws on economists' models to explain how law schools make these decisions. Recognizing that most law schools do not appear to conform to the classical profit-maximizing model of the firm, First hypothesizes that the law school firm maximizes "elitist preferences," subject to a revenue constraint. Elitist preferences include a full-time law faculty, an enrollment limited to the "best" students, a noncommercial atmosphere, affiliation with a university, a preadmission college education requirement, and daytime-only instruction.

To seek empirical verification for his economic model, First conducted a detailed study of the industry, based primarily on the activities and records of the Association of American Law Schools from its inception in 1900 through 1976. He concluded that the AALS has performed the role of a trade association, increasingly standardizing legal education in accord with the elite model and attempting to exclude from the market rivals who refused to conform. The process has taken a long time. The AALS first forged a link with the American Bar Association, which agreed in 1922 to adopt most of the AALS's standards and to urge the states to restrict bar admission to graduates of approved schools. Forty-one states had some restrictions by 1939. After the Depression and World War II, the AALS was able to embark on a gradual effort to raise its standards while bringing more schools into its ranks. By the 1960s the non-elite law school had virtually disappeared, and the AALS turned its efforts to



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meeting the tremendous demand for legal education without allowing too many new firms to enter.

The author evaluates the effects of AALS control in four areas: output (including entry into the industry), innovation, challenges to industry self-regulation, and trade association activity. He concludes that in each area regulation has had an anticompetitive effect. Output has been restrained, an explicit goal of the elite-model law school, with a resulting underproduction of lawyers. An increasingly lengthy approval process, jointly administered with the ABA, has kept down the number of new entrants. Concerted opposition by elite law schools to a two-year curriculum, the author says, is one example of how the industry has blocked attempted innovation. First also notes that the AALS and ABA have stood together in defense of the industry's regulatory apparatus, the most recent assault on which has been launched by a successful California proprietary law school. Finally, he suggests that the AALS has done poorly at one vital role of trade associations—advancing the industry's financial health in ways other than restraining competition. This inattention is now critical, with legal education today facing severe financial problems.

The author then proceeds to an antitrust analysis focusing on the legality of the "accreditation" process, the primary method for enforcing industry norms. He begins by arguing that the Sherman Act is broad enough to apply to legal education. The educational objectives and not-for-profit status of law schools should not obscure the fact that they use resources (inefficiently, First believes) and behave like

traditional business firms by seeking market power and the exclusion of rivals. He then argues that decisions by the ABA to withhold approval and by the AALS to withhold membership are sanctions designed to control competition and fall within the Supreme Court's definition of a boycott. Past decisions on boycott cases, he says, suggest four factors to consider in assessing the legality of this restraint: market impact, impact on "trader liberty," the scope of the private regulation supported by the boycott, and the extent to which use of the "boycott" exceeds the bounds of fair rules of behavior. The author concludes that the boycott can be condemned under each heading and thus clearly violates the Sherman Act.

First's major aim, however, is "to demonstrate the propriety of viewing legal education in a somewhat novel light—as a business enterprise, using resources and producing a product." The stimulus of competition, he suggests, could help force the legal education industry to improve its performance.

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## The High Cost of Enforcement

"Enforcement Costs in Environmental and Safety Regulation" by Roland N. McKean, *Policy Analysis*, vol. 6 (Summer 1980). pp. 269-289.

Enforcement difficulties reduce the benefits and increase the costs of government regulation, and therefore should affect choices about whether and how to regulate, according to Roland N. McKean, economist at the University of Virginia. McKean describes some of the



methodological problems in gauging the effectiveness of enforcement efforts and offers some rules of thumb to guide policy makers.

McKean divides the social costs of enforcing regulations into three categories. The first consists of the avoidance costs incurred by the regulated parties: litigation against the standard and other legal expenses, the costs of lobbying against it, concealment costs, and so forth. The second are the enforcement or counter-avoidance costs incurred or imposed by the regulatory agency: inspections, recordkeeping, prosecuting and punishing violators. In this category McKean includes the costs of litigation arising when outside groups sue the agency to require a stronger standard. The third consists of the set-offs to benefits that occur when enforcement efforts are imperfect.

Avoidance costs are by no means trivial. In its first five years the National Environmental Policy Act of 1969 generated 654 cases of litigation, 322 of which were pending at the end of the period. The enormous sums at stake in compliance, over \$200 billion for pollution control alone from 1975 to 1984, create a powerful incentive for avoidance, McKean says. As for enforcement costs, "federal outlays in fiscal 1977 amounted to \$400 million directly aimed at standard setting and enforcement—again for pollution abatement alone." State and local enforcement efforts must also be costly, he says.

But the main cost associated with enforcement efforts, McKean believes, lies in the reduction in benefits when regulations cannot be fully enforced. Regulators may be able to enforce the purchase of expensive equipment, for example, but not its proper operation and maintenance.

The agency that monitors its enforcement costs most thoroughly is the Internal Revenue Service, which goes so far as to estimate compliance levels and the marginal product of an additional dollar spent on enforcement. In IRS's case, its "product" is an easily understood one—dollars of revenue. But for health and safety regulators, the product may not be so easily identified. The number of violators apprehended may not be an accurate measure, since a low number might reflect either a law-abiding population or one that is successful at avoidance. Defining the product as health or safety itself would be theoretically best, Mc-

Kean says, but the difficulty of translating the observable statistics of enforcement into such terms may make it futile to try to draw a benefit curve illustrating the marginal returns to enforcement.

Efforts to measure the product of enforcement outlays are also complicated by the lag that can occur between stepped-up enforcement and resulting changes in the behavior of those who are regulated. The IRS also claims to observe a "ripple effect" by which increased enforcement of one rule increases the propensity of taxpayers to obey others as well.

The author cites the Consumer Product Safety Commission as an example of how enforcement difficulties can affect regulatory decision making. In deciding what products to regulate, CPSC seems in many cases to ignore its own cost-benefit rankings of hazardous products (which do not include most enforcement costs). One common reason, McKean surmises, is that many products with high cost-benefit ratios also would have high enforcement costs. The products might already be under jealously guarded state and local jurisdiction, might be too easy for consumers to modify, or might require the monitoring of a great many producers.

McKean lists a number of other characteristics that may make a regulation difficult or expensive to enforce. It may be difficult to identify and measure the regulated behavior; tailgating and recklessly turning into traffic from driveways are rarely ticketed because of their subjective definitions. It may be impossible to sort out the regulated behavior by source; thus noise regulators are unable to regulate situations where many noisy products are gathered together at one site, and instead resort to regulating each product individually. Enforcement can also be hampered by the ambiguity of regulations, an inelastic demand for banned products and services, a lack of social consensus about the goals of regulation, the involvement of more than one agency or level of government, or a lack of competence or technical ability on the part of the regulated parties and their employees. Such complexities may be impossible to introduce into regulatory deliberation in more than general terms, McKean concludes, but some simple clues to enforceability may pay their way.