

THE LIMITS OF ECONOMISM IN CONTROLLING HARMFUL CORPORATE CONDUCT

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Economism is seen as having a number of disadvantages compared with legalism as the preferred model for regulating hazardous industrial practices such as pollution. Economism forces public policy to react retrospectively to hazards when efforts could be made to prevent the hazard before it occurs. Economism engenders a moral relativism which weakens the moral force of law; it makes detection and deterrence more difficult than under legalism. The regulatory approaches of economism may involve reduced cost burdens on business but lesser predictability of those costs. Economism does not relieve business of the burdens of government inspections; it simply replaces technical inspectors with tax investigators because taxes on hazards can easily be evaded. Legalism, unlike economism, is not wedded to the assumption that business enterprises always behave rationally. In practical terms it is impossible to calculate economically optimal levels of taxes on social harm. Even if it were possible, the costs of making such calculations would be prohibitive. It is concluded that economic strategies have quite limited, though important, roles in business regulation.

I. INTRODUCTION

Corporations in unprincipled pursuit of profits can do great social harm. Countless workers die each year because their employers reduce costs by cutting corners on safety (Reiman, 1979: 65-71; Swartz, 1975; Scott, 1974; Geis, 1973). The environment suffers at the hands of companies which put production ahead of environmental protection (Gunningham, 1976; Green and Massie, 1980: 167-208). Criminalizing irresponsible acts of pollution and other unsafe practices has been the most favored solution to this social problem. This is reinforced by the fact that the doctrines of deterrence, rehabilitation, and incapacitation—largely discredited for controlling common crime—can be shown to have considerable force with corporate crime (Braithwaite and Geis, 1982).

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On the other hand, the law has limited control over the complex affairs of powerful corporations (Stone, 1975; Sutton and Wild, 1978; 1980; Braithwaite, 1980). Typically, neither the political will nor the prosecutorial resources exist to prove beyond a reasonable doubt that the complex activities of a large company constituted a crime. Powerful actors consistently exploit the complexities of the law, the books, and decision making in large organizations to evade the spirit of the law.

These limits of legalism are one reason for a shift to economism as the favored model for controlling harmful corporate conduct. Instead of punishing wrongdoers, responsible conduct is to be encouraged with economic incentives and disincentives. Punishing illegal pollution, for example, is replaced by taxes based on the quantity and quality of effluent released. The underlying idea is that the state should intervene to create a contrived approximation of the "invisible hand of the market," which will guarantee responsible corporate conduct without costly judicial processes.

This article will argue that the regulatory limits of economism are more profound than the limits of legalism. Before embarking on this critique, however, we must first more carefully define the model and then outline its strengths.

Distinguishing Economism from Legalism

Legalism and economism are set up here as ideal types. Most existing regulatory systems will be seen to have elements of both economism and legalism, to fall somewhere along a continuum between the two polar extremes. The most important defining element of the legalism pole is the emphasis on punishing specific wrongful deeds.¹ Economism, in contrast, is concerned only with ultimate results. Hence, in an economic approach, companies which used a pollution control technology less effective than those normally used in industry would not be punished as long as their final output of pollution was within publicly acceptable limits. What mix of good and evil deeds had combined to produce that bottom line would be of no consequence.

¹ Legalism, defined here as a punitive command and control model, does not incorporate recoveries in tort. Many of the deficiencies of economism discussed here are equally deficiencies of attempting to base control of harmful corporate conduct on civil recovery of damages. However, that critique of the limits of nonpunitive compensatory law would have to be the topic for another paper.

Legalism thus turns on the condemnation both of illegal means and ends, while economism is morally neutral about means. Even the moral definition of ends is more qualified under economism; while legalism delineates certain categories of conduct as wrong, economism defines a continuum of harm. Legalism condemns and punishes wrongs; economism imposes disincentives for harm and incentives for good which must be weighed among other incentives and disincentives which exist in the society. In a legalistic system, the severity of punishments is determined by a society's imprecise and confused concept of what constitutes justice. The magnitude of disincentives in an economic system is decided mathematically by inserting the output of social harm into an equation to calculate tax liability. Economic sanctions against individual firms therefore tend to be imposed by clerks with calculators, while legalistic sanctions are imposed by courts with a paraphernalia of due process protections.

There is no need to labor the fact that real-world enforcement fails to conform precisely to either ideal type, that taxation decisions will often be litigated in courts of law, and so on. Indeed, this analysis begins with an explicit recognition that economism-legalism is a continuum. We will now move from the legalism to the economism end of the spectrum by considering in turn specification standards, performance standards, marketable rights, and taxes on social harm.

II. THE NEW REGULATION

Industry does not like the red tape of having its deeds continually scrutinized by government inspectors; industries resent being made to conform with government conceptions of right and wrong. This is why they are attracted to being evaluated in terms of ends rather than means. The first victories for the new regulation have been in the replacement of many government specification standards by performance standards. Instead of requiring that certain exhaust systems and filters be installed in all plants where workers are exposed to asbestos dust, plants are simply required to keep the time-averaged exposure to asbestos below a certain number of fibers per cubic centimeter of air. Rather than specify that ladders have rungs at least one inch in diameter, the performance standard states that the rungs must be capable of withstanding 400 pounds. The latter example illustrates how specification standards stultify innovation more than performance standards. A new type of ladder made out of lighter but

stronger material might be impermissible under the specification standard but acceptable under the performance criterion. Similarly, if the regulations mandate a specific technological fix to asbestos dust control, there is no incentive for companies to experiment with new control techniques which might prove superior.

Perhaps the most spectacular example of the disadvantages of the technological forcing which follows from specification standards is Ackerman and Hassler's (1980; 1981) accounts of how the Environmental Protection Agency's forcing of a scrubbing technology to reduce sulfur oxide emissions from power plants resulted in some companies switching to high sulfur coal (so that their aggregate output of pollution increased). The EPA has, nevertheless, perhaps because of such experiences, been a leader in shifting from specification to performance standards. It has developed the so-called "bubble" concept (Glass, 1980). Under the bubble concept, specific limits are not placed on each smokestack or furnace in a plant, but instead the entire industrial plant is treated as a single source for control purposes. Pollutors are allowed to offset excessive (formerly illegal) emissions from one outlet by reducing emissions elsewhere in the plant. Since the costs of control vary from source to source, such a policy allows the company to contain aggregate environmental harm within publicly acceptable limits at minimum cost.

We have seen that performance standards can serve to foster flexibility and innovation, cut down red tape, and thereby reduce costs. These advantages for efficiency and growth are taken one step further by the notion of "marketable rights" in social harms like pollution. Each plant can be given a "right" to emit a certain amount of pollution (e.g., so much sulfur oxide) per unit of production. Alternatively, the state can issue a finite number of rights to pollute a given basin, and let companies bid for the rights. The idea is that economic efficiency can be promoted by allowing companies to buy and sell these governmentally conferred rights to pollute. Firms with antiquated plants occasionally find that they would be better off shutting the plant down than retooling to meet new environmental standards. However, if they could buy some of another plant's pollution rights, they might survive in economically viable form. In contrast, a company building a new plant from scratch might find it economically sound to incorporate a design which will put its emissions well below the quota; it can profit from selling the excess pollution rights

to another old plant which it owns, or even to a competitor. Again, the total output of pollution is kept below the aggregate level which the government deems unacceptable by introducing abatement programs at the points where these will be cheapest and threaten the fewest jobs.

In a fairly unsystematic way, the EPA has dabbled in this notion through its "offsets" policy, whereby it lets a company build a new plant by paying existing plants to clean up their facilities. When the number of rights to pollute is finite, the proposal could have dangerous antitrust implications. Dominant firms might purchase and hoard rights to impede the entry of new competitors into an industry (Mitnick, 1980: 393).

The high-water mark of economism is the tax on social harm. Rather than punish companies for culpable acts which cause social harm, they pay a tax in proportion to their output of the harm. Sanctioning of occupational safety and health violations is replaced with "injury taxes" whereby the company pays the government so much for each work-related injury of a given severity which occurs in the course of the financial year. Culpability is not an issue. The tax is paid in proportion to the number and severity of injuries, irrespective of corporate fault. Similarly, prosecution of pollution offenses can be replaced by an effluent tax (Baumol and Oates, 1971; Kneese and Schultze, 1975; Anderson *et al.*, 1977). Instead of punishing pharmaceutical companies for using unsafe manufacturing practices, they could be taxed according to the number of consumers hospitalized by impure drugs.

Ironically, the leading innovators in using taxes to turn market forces to pollution control have been the socialist countries. Hungary levies charges on organizations which discharge water pollutants in excess of effluent standards (Anderson *et al.*, 1977: 40). The charges are paid out of funds which would otherwise be used for bonuses for employees and other fringe benefits for workers (e.g., child care) (Johnson and Brown, 1976: 151). East Germany established charges on emissions of 113 different air pollutants in 1973 (Sand, 1973). Under provisions which would be more difficult to enforce in capitalist countries, corporations are forbidden to pass charge costs along to consumers through increased prices. Czechoslovakia has also been imposing effluent taxes to maintain water quality for over a decade (Irwin and Liroff, 1974: 113). Criminal penalties are provided for false reporting of effluent levels discovered in random inspections by the Czech government. Among the capitalist countries, the Japanese have

been the leaders with the institution in 1973 of taxes on water and air pollution which vary in proportion to quite sophisticated epidemiological estimates of the health damage caused by different types of pollution sources (Gresser, 1975). Revenue raised by the taxes is distributed to human victims who have suffered disease as a result of pollution. European countries as diverse as France, West Germany, and the Netherlands are increasingly relying on effluent charges for environmental control (Johnson and Brown, 1976). All these countries, however, have retained legal pollution standards to complement their effluent taxes. Most existing effluent tax systems around the world do not directly measure the outflow of pollution from specific sources. Instead, they estimate pollution on the basis of the type and amount of production, the sophistication of pollution abatement technology in the plant, the ambient pollution levels prevailing in the air or river basin into which the effluent flows, or some combination of the three. Such schemes can provide incentives to install improved abatement technology which is known to be effective by the tax authority. However, it provides no incentive to ensure that the equipment is working at maximum efficiency or to innovate with untried technologies. Taxes tied to direct performance measures would be required to foster these latter ends.

Consider the injury tax idea in the realm of occupational safety. There are reasons why the traditional enforcement of legalism is inferior, at least in principle, to an injury tax. There is considerable evidence that the majority of industrial injuries are not attributable to violations of the Occupational Safety and Health Act and other enforcement standards (see the review of Mendeloff, 1979: 86-165). Strains and overexertion, for instance, account for over a quarter of lost-time injuries (Mendeloff, 1979: 26). These are rarely the result of practices punishable by law. To say that the majority of industrial injuries are not caused by illegal acts is not to say that they are accidents. Many of the injuries which are not susceptible to control by legalism are nevertheless preventable. Strains are eminently preventable through proper education of employees as to the risks and how to minimize exposure to them. The great advantage of the injury tax is that it gives an incentive for prevention programs which would reduce injuries of all types, regardless of whether they involve violations of law. Moreover, the incentives for improvement continue when sanctionable dangers have been brought well below the levels specified by laws. In contrast, a legalistic approach gives manufacturers an

incentive to reduce noise, carcinogens, or pollutants to the level required by law, but no lower. They may introduce a waste treatment technology required by law, but then fail to maintain it properly and utilize it fully because there is no incentive to do so.

Under the injury tax proposal, finite resources for the reduction of industrial injuries would be deployed in ways which would minimize taxable injury rates. A less than optimal deployment of injury abatement resources results under the traditional enforcement of legal standards, because resources are concentrated on ensuring compliance with regulations, to the neglect of alternative means which would have greater impact on injury rates. Companies which exhibit perfect compliance with occupational safety and health laws can have injury rates very much higher than would be possible given sensible investment in prevention (for example, by improved training methods, or paying bonuses to foremen whose departments have few injuries). The fundamental advantage of economism is that it encourages the minimizing of social harm, whereas legalism encourages the minimizing of culpability. Management strategies to minimize social harm will save more lives and limbs than strategies to stop law violations. Moreover, economism permits the company to find the cheapest way of minimizing harm; legalism may force more expensive means to the same end. For instance, it may be that the cheapest way to ensure that workers do not lose fingers in a machine is to put them through an extra training course rather than to enforce a rule or a technology which inhibits productivity.

The greatest hope for taxes on harm is that they would cause fundamental shifts in investment so that goods would be produced in radically different ways which would entail lower social costs. For example, a heavy tax on injuries and fatalities to coal miners might entice new investment away from underground mining and into strip mining (injury and fatality rates with the former are three times as high (President's Commission on Coal, 1980: 34). However, this argument forgets that a tax system to discourage one form of harm may be blind to other harms which follow from the realignments it causes (when those harms are not taxed equally severely). Strip mining causes more environmental damage than underground mining, and it is a form of damage not readily indexed for taxation purposes.

Some advocates of taxes on social harm (e.g., Anderson *et al.*, 1977) point out that using market forces to control corporate conduct avoids some dangers of the “capture” of regulatory agencies by the industries they are supposed to regulate. There is no reason to suspect that industry would be any less effective at co-opting the bureaucrats and politicians who set injury tax schedules than they are with those who write regulations. However, a number of scholars (Bernstein, 1955; Cary, 1967; Downs, 1967) have suggested that regulatory initiatives go through a life cycle of initial enthusiasm and toughness which ultimately decays into cooptation. An attractive feature of taxes on harm is that once the rates have been set in the midst of that initial fervor for reform, continuing control does not depend on the continuing enthusiasm of the enforcers. Fixed market forces cannot be bent to the will of industry in the way that fickle bureaucrats can. Regulatory decay and capture may therefore be less of a problem under economism. In principle, larger fines for violations of pollution standards should be as effective in making the “user pay” as effluent taxes; but in practice the automatic quality of taxes might be expected to generate more revenue than fines which require the political will to challenge a corporate giant.

Having now considered the ways in which economism can substitute for legalism as a means of controlling harmful corporate conduct, and the advantages of this alternative, we must now consider the limits of economism. We will do this by considering first the limits of performance standards and then the drawbacks of taxing harm.

III. THE LIMITS OF PERFORMANCE STANDARDS

The rigidity of specification standards is needed in many areas critical to human and environmental health. It would be intolerable to regulate a nuclear power plant according to the performance standard of how much, if any, radiation escapes the plant. The risks of nuclear accidents are so profound that after-the-event monitoring of radiation output is simply not good enough. Governments justifiably specify that nuclear plants incorporate the most modern and effective technologies, standard operating procedures, in-process controls, and checks and balances to avert malfunctions. Similarly, uniform rigid standards are justified in many areas of the regulation of the pharmaceutical industry to ensure that patients do not die from hazardous drugs. Regulating pharmaceutical production by

performance standards would be unconscionable. Do we wait until another thalidomide disaster occurs and then tax the responsible company so many dollars for every limbless child born?

The long gestation period between the dangerous corporate conduct and the appearance of the harm with cases like thalidomide also points up a major practical difficulty with the taxing of harm. Taxes on occupational *injury* are paid in the year they occur, but occupational *diseases* such as cancer may take 20 years to develop. Unscrupulous managers can defer tax liability to be paid by the new generation of managers who take over after they retire. In the course of that 20 years, the company could be bankrupted or swallowed up in a takeover.

A profound advantage of direct regulation is that it can change corporate conduct within a short time frame. A new regulation can be enacted overnight to stop manufacturers from spilling into waterways a product which new research has shown to be carcinogenic. A redesigned tax schedule, in contrast, would take months or years to bring about the adjustment of industry behavior in realignment with the new incentives. This is especially true if trial and error has to be used until a tax rate is found which actually begins to cause changes to filter through to industry behavior.

The restrospectivity of performance standards is their great defect. It makes them inappropriate in areas where society is prepared to tolerate even very high levels of economic inefficiency to build in guarantees that disasters are prevented *before* they occur. More specifically, in areas involving great hazards, it is important to punish risky behavior which fortuitously does not result in any harm. Just as we wish to punish attempted murders in which no one is hurt, it is important to punish drug company scientists who cover up the fact that rats die from exposure to a drug when it luckily turns out that humans do not react to the product in the same adverse fashion as rats. In domains where the interests threatened are great, we must seize every opportunity to foster deterrence by punishing evil deeds, even when such deeds do not produce harmful consequences.

Most of us obey the law not because we are afraid of punishment but simply because it seems the right thing to do. Society gets more protection from the habit-forming value of law than from its deterrent value (Andenaes, 1974: 110-128; Packer, 1968: 149). A critical deficiency of economism is that it fosters a moral relativism which undermines the moral

authority of law. Under existing legalism, pouring untreated chemicals into a river seems morally outrageous to most of us. Economism compromises this indignation, and the informal social control it produces, through a relativism which has us saying: "Well, it's okay to pour untreated chemicals into a river so long as the plant concerned is under its pollution quota for the month." Because the law of economism is stripped of much of its moral force, people would become less likely to obey the law because doing so seemed like obviously "the right thing to do." This is especially so when economism has us buying and selling "rights" to pollute. To the extent that law is perceived as enshrining standards of right and wrong that are unwavering and eternal, the moral bind of law is stronger. Economism pushes law in exactly the opposite direction.

Furthermore, Stone (1980: 42-43) points out that specification standards transmit clearer signals about matters which are more directly under management's control ("install device D") than do performance standards ("don't be a cause of blood poisoning"). Companies which fail to abide by a clear standard are rightly regarded as having committed a more deliberate and blameworthy act than companies whose activities simply result in harm. Again specification standards inject habit-forming moral elements into the evaluation of corporate conduct which performance standards do not.

Another advantage of specification standards is that government monitoring and enforcement is easier than under performance standards. While it is easy to enforce a design standard—one need only look at the equipment—it is often hard to monitor performance. A regulatory agency which observes the level of pollution rise in a river can confront great difficulties in ascertaining which of the many factories located on the river is exceeding its effluent quota, especially given the tendency for offenders to open their locks in the dead of night. Similarly, if we regulate drug safety by waiting for birth defects to appear, there will be considerable difficulty in proving that the correlation between drug use and the defect is not explained by a disproportionate tendency for drug-taking mothers to smoke, to be older, or some other extraneous factor. Specification standards therefore have lower costs of detection than performance standards.

With specification standards, penalties can be imposed which are sufficient to achieve deterrence, while this is frequently not possible with performance standards. Consider what penalty would be appropriate to punish the companies

which manufactured and distributed thalidomide for violating the performance standard: "do not sell drugs which kill and deform infants." Any fine of a magnitude sufficient to reflect the enormity of the harm would be such as to bankrupt even the largest of companies. Indeed, Richardson-Merrell has admitted that if the U.S. Food and Drug Administration had allowed it to market thalidomide (the FDA refused permission to sell the product in the U.S.) the company would have been bankrupted by the resulting suits (Dowie and Marshall, 1980: 45). This is the problem that Coffee (1981) has called the "deterrence trap" with corporate crime. It is difficult to set a sanction high enough to be both collectable and sufficient for deterrence. Say a company engages in a crime which gains it \$1 million where the probability of apprehension for that crime is one in 20. Any sanction of less than \$20 million ($20 \times \1 million) would make it rational for the company to run the risk of committing the crime. Under a fine less than \$20 million the expected punishment cost is less than the expected gain. Now if the company has only \$18 million in assets, it simply cannot pay the fine required for effective deterrence. Even if its assets are very much higher, the \$20 million fine can still cause massive retrenchment of innocent employees. Hence, because of the combination of the great harm and gains from corporate crimes with the low probability of conviction, fines sufficient for deterrence are frequently not collectable in practical terms. The deterrence trap can be avoided with individuals because they, unlike corporations, can be imprisoned when the size of the fine required exceeds the sum of their assets.

The deterrence trap is not nearly the obstacle to the enforcement of specification standards that it is to policing performance standards. If instead of punishing a corporation for killing people with an unsafe drug, we punish it for violating a rule that adverse findings on a drug must be reported to the government, the penalty required is much lower. Many violations of specification standards, of course, would not lead to violations of performance standards. Safety cover-ups on drug tests do not normally lead to thalidomide disasters. Deterrence of violations of specification standards can be more meaningful, because control is achieved by a multitude of smaller penalties for many little crimes instead of through a few big sanctions for a few big crimes. By breaking a complex organizational crime down into the irresponsible components that contribute to the risk of a major disaster, specification standards are a way out of the deterrence trap.

Having considered the major advantages of specification over performance standards, let us now consider a few more minor ones. Within any large organization there are constituencies which are concerned to promote the public interest in reducing pollution, preventing injuries to employees, or manufacturing safe products. Such constituencies might be, respectively, the environmental compliance group, the safety department, or the quality control department. Specification standards can give these pro-public-interest constituencies increased bargaining power within the organization. If a specification is required by law, then the general manager will find it more difficult to tell the safety director that abiding by it is not justified. Mendeloff (1979: 91) has pointed out that safety directors typically are required by their employers to explicitly demonstrate that a new safety specification will produce benefits which will exceed its costs. However, as one safety director pointed out, "if the expenditure is necessary to comply with OSHA, I don't need to show what the benefits will be." External regulation of safety by specification therefore strengthens internal regulation. While the private sector touts self-regulation as an alternative to government regulation, the reality is that self-regulation is often prodded into effectiveness by the existence of government regulations.

It may be, as pointed out earlier, that the costs of compliance with performance standards are lower than the costs of adhering to detailed specifications. Nevertheless, Stone (1980: 43) has pointed out that it is the costs of specification standards which are the more predictable and therefore more amenable to the rational cost-benefit calculations which industry favors for new regulations. If the number of micrograms of particulates per cubic meter allowed under an air pollution standard is reduced by 20 percent, the increased costs of compliance are invariably in the realm of guesswork. On the other hand, a regulation requiring a new pollution-control device to be installed in all smokestacks has a readily calculable cost.

IV. THE LIMITS OF TAXING HARM

All of the foregoing deficiencies of performance standards as an alternative to specification standards are also applicable to proposals to control corporate conduct by taxing harm. But because taxes on harm take economism a step further, there are some additional deficiencies to be considered.

Before weighing the problems of such taxes in effectively controlling corporate harm, it must be pointed out that they would have adverse effects in other areas. Taxes on social harm would further complicate tax codes which are already so hopelessly complex as to constitute one of the major problems confronting western societies (Tax Law Review, 1978). With increasing complexity the difficulties and costs of tax collection increase. Moreover, because wealthy and powerful actors are better able to exploit complexity than are the powerless, measures which increase complexity tend to widen inequities. Later it will be shown that taxes on social harm would be easily evaded. Because such taxes are designed with social control rather than social equity in mind, they could well damage the integrity of the tax system (Mitnick, 1980: 373, 394).

The whole idea of taxes on harm presupposes that companies are always rational economic actors: all we need do is set an effluent tax at a high enough level, and the invisible hand of the market will force firms to reduce environmental damage. But companies are not always economically rational. How does economism deal with the crusty general-manager who believes that the old ways of disposing of toxic wastes are the best and that no new-fangled effluent tax is going to change his tried and true practices? Legalism does have a way of dealing with this not-so-uncommon menace to the public health; it takes him to court and threatens to shut his plant down. Stone has been particularly persuasive in pointing out that strategies for controlling irresponsible conduct will fail unless they are capable of accommodating both irrational and rational actors:

Yet it is important to bear in mind that our own heuristic interests—the design of legal strategies—are narrower than those of the macroeconomists, and we cannot pass over so lightly the potential for nonrational firm activity. For the macroeconomists' task of describing the whole economy, it is more reasonable to disregard deviations among particular firms on the assumption that firms that are deviant will fall by the wayside. From that perspective, variations from the classical assumptions, particularly short-term variations, are as likely as not to cancel out in portraying the long-run activity of the total economy. But because our concern is with establishing liabilities to restrain incidents of misconduct by individual firms, it is best to presume both that there exists a certain amount of "irrationality," and that it tends to desensitize firms to the law's profit threats. To do so is prudent even if these presumptions characterize only the atypical firm, or the typical firm only in its moments of temporary or small-scale internal deviance from "ordinary" firm behavior. Just as the laws that constrain natural persons have to be written not only with the average but also with the atypical person in mind—not the ordinary reasonable man, but the killer, the robber—so the corporate penalties must account for the one highly irrational metal smelter, insensitive to profit, that can produce toxic emissions causing enormous amounts of uncompensated and perhaps noncompensable losses (1980: 23).

Normally rational firms face extraordinary circumstances from time to time which give them little choice but to deviate from expected patterns of economic behavior. Imagine the firm which has just been threatened with cancellation of future orders by its major customer unless the current order is delivered on time. During the production run the treatment plant breaks down. Management must choose between:

- (a) *Continuing production.* This will cause massive pollution and an effluent tax payment which will be so huge as to cause considerable losses on this production run. However, the company's biggest customer will be retained.
- (b) *Stopping production.* No surplus effluent tax. No losses sustained. But the customer is lost for future business.

An effluent tax system runs counter to the public interest when the best choice for the firm is (a)—to “irrationally” run at a loss. In contrast, legalism forces the firm to stop production when massive pollution will occur, irrespective of what the company would like to do.

In addition to being wedded to a simplistically rational conception of firm behavior, the injury tax depends for effectiveness on markets being relatively competitive. Monopolists and oligopolists might choose to avoid the managerial annoyance of reducing pollution and simply pass on the costs of the tax on harm in higher prices to consumers. Theoretically, legalism allows us to throw monopolists who refuse to desist from unsafe practices into prison, or at least to shut down their plants.

All taxes are, of course, susceptible to evasion, and it is the corporate sector which has historically demonstrated the greatest ingenuity in the art of evasion. When effluent taxes can be evaded by the simple expedient of turning on the tap in the dead of night or paying toxic waste disposal companies controlled by organized crime to illegally dump pollutants (Bequai, 1979: 191-192; Raab, 1980), we could spawn an evasion industry of unimagined proportions. Injury taxes could almost as easily be evaded. Given that many companies are already known to massively undercount industrial injuries for the expedient of keeping accident rates low for public relations purposes (Kriegler, 1980: 35-120; Page and O'Brien, 1973: 162-163; Scott, 1974: 115; Ashford, 1976: 92), one can only assume that such deception would multiply under an injury tax. It is a simple matter for a foreman to call in an injured employee and say: “Look Fred, I don't want to see you lose all your entitlement to sick leave as a result of this unfortunate accident. The company realizes it wasn't your fault. We'll keep you on full pay and meet all your doctor's bills. Take a couple

of weeks holiday, and we'll punch your time card each day as being at work."

One of the attractions of taxes on harm to its advocates is that it is supposed to avoid the need for government inspectors to swarm over factories checking every little thing. But the rub is that the inevitability of widespread evasion would mean that government environmental and safety inspectors would be replaced by tax investigators checking that effluents and injuries were being accurately reported. One form of detailed policing of corporate conduct would be substituted for another. In some cases, the irony would be compounded by the replacement of *civil* charges (e.g., for pollution) with more traumatic and costly *criminal* proceedings for tax evasion.

Indeed, the problem is worse than a simple substitutive regress back to the old inspectorial mode: the new evasion inspectors would be less constructive servants of the public interest than old-style inspectors who directly monitor environmental and safety performance. The latter play an important educative role. They diffuse environmental and safety innovations by drawing management's attention to new technologies, policies, and standard operating procedures which the inspector has seen other companies successfully apply. Investigators who are trained only to sniff out tax evasion would not fulfill this function. They would not deal directly with the problem itself, but with artifices one step removed from the problem. Many senior business executives have said to me that government safety inspectors frequently assist management in designing new safety systems which simultaneously improve both efficiency and safety. The educative and consultative role of inspectors is every bit as important as their enforcement role. Economism therefore does not eliminate the need for government inspectors; it merely replaces inspections by technical experts with inspections by experts in financial deception.

A tax on social harm can never totally substitute for the enforcement of standards, because the concept is fundamentally unworkable with small firms. A motor workshop with six mechanics might go for years without a single injury and then suddenly have an accident which causes a death on the job. Any viable tax rate would have to impose a massive tax on a firm which had one sixth of its workforce die from industrial accidents in one year. Thus, our little motor workshop might be pushed to the wall by a system which allows it to survive year after year paying no injury tax, and

then confronts it with a massive tax bill in the year it loses one of its best mechanics. In addition to the wild variations in taxes payable which small firms would have to contend with, there would be a paperwork burden in filling out an annual injury return, an annual effluent return, etc., which would be as onerous for small businesses as for large firms. Under traditional government enforcement of standards, there need be no paperwork burden on small companies unless they are actually cited for an offense.

The other side of the coin of the supposed freedom from government control under taxes on harm is that centralized coordination and comprehensive planning collapses. There are problems in strategies which depend on market forces molding the free choices of dispersed individuals. Individually optimal choices could lead to a number of large plants polluting heavily into a major recreation area while unattractive and ecologically noncritical areas were untouched by pollution. Coordination can be better under the direct regulation alternative to the free market. In practice, existing environmental regulators *are* more inclined to “get tough” on plants which locate at environmentally sensitive sites, and this is an incentive to go elsewhere. Taxes on harm sacrifice control assurance profoundly, because there is great uncertainty about the level of performance that a given tax rate will elicit:

Under a fee system, control is a function of individual firm responses to a fee schedule based on their individual control costs; these reactions cannot be predicted in advance by the fee-setting authority without gathering extensive information on firms' abatement costs. Where a given level of control is necessary to prevent serious threshold effects from occurring, regulatory controls are preferable because they offer more certainty. The problem of uncertain performance in a fee system is particularly significant in the pollution control context when it is important to prevent localized excursions above ambient standards—“hot spots”—from occurring anywhere in a large region. A fee system is ill equipped to prevent local “bunching” of pollution sources without introducing cumbersome constraints. These shortcomings in a fee system are not, however, particularly significant in many pollution control contexts that lack sharp thresholds and involve area-wide rather than localized effects. Photochemical oxidants, sulphates, and other fine particulates, and, at lower concentrations, toxic water pollutants, fall within this category (Stewart, 1981: 1328).

There are critical thresholds for many pollutants: thresholds beyond which fish species do not have enough dissolved oxygen to survive, thresholds at which treatment of just a little extra biological waste would eliminate a terrible stench. In theory, it should be possible to adjust tax rates when they fail to keep pollution below the threshold. But since pollution control so often involves massive capital investment, changes

will not be rapid in response to tax adjustments. Moreover, frequently fluctuating effluent tax rates may cause polluters to adopt a wait-and-see attitude before embarking on pollution control investment. Because business likes certainty, it will lobby against a trial-and-error approach to tax rates, certainly when the need is to move the rates upward.

The effluent tax concept has also been subjected to a rather devastating technical critique by Rose-Ackerman (1973). Without retracing the mathematics which led to her conclusions, let me state baldly what Rose-Ackerman was able to show. Even when charges are set at an economically "optimal" level to trade off the benefits of pollution control against the costs of pollution abatement, some firms would be shut down by the expense of pollution taxes when, in fact, the damage they caused would not warrant this action. In other words, because effluent taxes are set at levels that are optimal in aggregate, but not necessarily so in the individual case, firms may be forced to close "even when they could have remained in business if they were required to pay only the social cost imposed by the untreated portion of their waste" (Rose-Ackerman, 1973: 527).

Factories can often achieve economies of scale in water pollution control by piping their wastes into a joint treatment facility. Rose-Ackerman shows that effluent charges may discourage firms from deriving maximum benefits from joint treatment facilities. She also points out that the practical difficulties of accurately assessing the marginal costs and benefits of different levels of pollution abatement, and the fact that firms would collude to alter the cost estimates presented to governments, make the economists' hope that effluent taxes could be used to generate an optimal trade-off between the costs and benefits of pollution control thoroughly unrealistic.

Rose-Ackerman further concludes that unless effluent charges were relatively sophisticated they would produce less optimal trade-offs than are available under more primitive modes for determining how much pollution is acceptable. For example, an effluent tax which is not graduated according to how far upstream an outlet is (so that higher taxes are paid on pollutants which traverse more river) may be less efficient than a simplistic system of enforcing standards or permits, especially where the enforcement agency is tougher on upstream plants. A dilemma here is that the more sophisticated and complex tax systems become, the more will

courts be burdened with litigation over the validity of the measurements made by effluent tax assessors.

Quite apart from Rose-Ackerman's technical doubts about the possibility of ever approaching an economically optimal balancing of costs and benefits of control, there are political doubts. In the real world of politics charge levels would not follow from rational calculations of benefits and costs. They would arise from compromises forged out of conflicts between pro-business low-tax advocates on one side and "make business pay" high-tax advocates (or revenue-hungry treasuries) on the other. Even if economically optimal tax rates did fortuitously result from this political process, there would be pressures to grant exemptions which would undermine economic rationality. If the burden of taxes on social harm threatened to bankrupt a company, politicians could be expected to come to the rescue with tax relief to save constituents' jobs. Yet a major economic rationale of the tax on harm proposal is that firms *should* go out of business when they cannot pay for the social harm they cause. The idea is to let market forces weed out firms which do not generate productive benefits which exceed their economic *and social* costs.

Even if it were possible for taxes on social harm to strike more economically optimal trade-offs between the costs and benefits of control, one wonders whether the expense of collecting the data to permit such calculations would be so great as to make the whole exercise unrealistic. Consider, for example, the costs of sorting out just one of the critical complications discussed by Rose-Ackerman:

The essential complication introduced here is that different polluters affect different parts of the river in different ways. Using contemporary engineering models to chart the differential impact of polluters in different locations on water quality, it is possible to assess the degree of complexity required of a charge system under our modified assumptions. The sophisticated engineering model, devised by Robert Thomann, divides an estuary's length into a large number of sections, and reports the extent to which a discharge in any particular river section affects water quality (measured in dissolved oxygen units) in any other. The Thomann model develops a matrix of coefficients, a_{ij} , that sets forth the impact of a pound of pollution dumped into section i upon the dissolved oxygen level of section j . Therefore, because of the different conditions in the different sections of the river, different effluent charges, x_j , must be set for each section. The actual fee per pound paid by a polluter in section i is not the fee in that section but instead is a weighted average of the fees in all the sections where the weights are the a_{ij} s, i.e., $\sum_j a_{ij}x_j$. This proliferation of data is likely to make the process of finding the equilibrium point very time consuming (1973: 515).

Cost-benefit studies illustrate the magnitude of the difficulties confronting economists who wish to qualify the

trade-offs involved in policy questions concerning industrial hazards. Russell Settle has conducted the most sophisticated cost-benefit study of an OSHA standard to date in his University of Wisconsin Ph.D. dissertation of the 1972 asbestos standard (Settle, 1974). His study shows that benefit-cost ratios are extremely sensitive to choices on the myriad assumptions necessary to complete the analysis. Under different assumptions, he presents 72 different estimates of the benefits of the new two-fiber asbestos standard. Estimates of benefit-cost ratios range from 0.07 to 27.70. The benefit-cost ratio under one set of assumptions can therefore be 400 times as high as under another. Of course, if one were to hazard a dollar value for other costs which were not considered, like the mental anguish of the families of sick workers, one would have even wilder benefit-cost variations. In praising Settle's description of this enormous range as "truth in benefit-cost calculations," Mendeloff (1979: 63) nevertheless despairs at the bewildering array of estimates which the policy maker must confront. The lesson of moment to the present analysis is that to narrow the range of benefit-cost ratios would require many more theses to be addressed to each of the assumptions which plague Settle's calculations, all just to establish one standard in one industry for one regulatory agency. Yet economists beseech us to trust them with the much more complex calculations needed to locate optimal rates for taxes on harm.

Consider the cost of collecting the data necessary to tax pharmaceutical companies according to the number of consumers hospitalized by adverse reactions from their drugs. Extraordinarily complex epidemiological questions are involved here, and the testing and record keeping requirements which would have to be imposed on hospitals to sort them out hardly needs to be elaborated. It is these costs which so often render the proposals of economism not only unfeasible, but farcical. The irony is that economists, who are so obsessed with the costs of alternative public policies, pay so little attention to the costs of estimating the figures to insert in their arcane equations (or indeed, to the salaries of the economists who develop the equations).

V. TOWARDS A LIMITED ROLE FOR ECONOMISM

A bland summary of the foregoing would be to say that while the weaknesses of economism outweigh its strengths, the opposite is true of the direct enforcement of rules regulating hazardous corporate practices. For most areas of regulation,

full-fledged economic solutions such as effluent taxes cannot replace law enforcement because of insurmountable transaction costs. Less extreme forms of economism could in many areas be useful so long as legalism is available as a backstop to catch the many abuses which will slip through the coarse mesh of economism's net. The replacement of many specification standards with shorter and simpler performance standards by agencies such as OSHA has undoubtedly in many cases made for more cost-effective regulation.

Indeed, perhaps there is room to take EPA's flexible approach to issuing permits to pollute just a little further down the road towards marketable rights to pollute. Having rejected effluent taxes, Rose-Ackerman (1977) has become an advocate of pollution rights, albeit backed up by traditional command and control regulation. Pollution rights, she points out, avoid the uncertainty over the final level of pollution which will result from a given effluent tax rate. The output of pollution, if compliance with the rights is enforced, is predetermined by the number of rights issued. The market works by adjusting prices of rights rather than by adjustment to quantities of pollution. Rose-Ackerman (1977: 391-392) even argues that a rights approach can be adapted to cope with pollution emergencies. Following Tietenberg (1974: 289) she suggests two types of rights—"normal" rights, and rights to discharge during emergencies. But surely such a refinement begins to turn the proposal into a paperwork jungle. A reversion to command and control during emergencies is surely simpler.

Even though trading in rights can give us much more predictability of environmental impact than taxes can, the proposal is still susceptible to other problems of economism which have been outlined in this article. Moreover, the rights approach has little generalizability beyond pollution. If rights to pollute are morally troubling, rights to maim workers in industrial accidents are unthinkable. What is needed is a limited proposal to expand EPA use of the bubble and offset policies without going all the way with the market solution. Instead of formalizing a market in rights to pollute, perhaps firms simply should be encouraged to come forward with creative proposals to offset excessive pollution at one source by paying for control or cleanup elsewhere.

Further scholarship will probably turn up a small number of areas of regulation where the deficiencies of economism outlined above have little force, where the strengths of economism outweigh its weaknesses. In the search for these

pockets of regulation where economism could be the solution, attention might be directed to domains where traditional enforcement of rules has been found unworkable. It may be that the very features of the problem which make legalism inappropriate will be reasons for the applicability of economism. One example is the regulation of noise from aircraft in the vicinity of airports. Obviously, a nation acting unilaterally cannot set a decibel limit for airports which is below the level achievable by the types of aircraft which currently fly international routes. However, it can introduce a noise charge which gives airlines an incentive to buy quieter aircraft in the future and to install noise abatement technology in existing aircraft. The OECD has produced a scheme for airport noise charges which has been suggested for adoption by member countries:

A noise standard, in decibels, is set for each type of jet aircraft. The standard is at a level lower than could be attained by adding the best available noise control equipment to the jet engines of that type of plane in order to create a continuing incentive to improve aircraft noise control technology.

Each type of jet plane is also rated as to its noise level with lesser or no controls. Every time a jet aircraft lands, its owners must pay a charge. The charge is equal to a per decibel rate, multiplied by the number of decibels by which the noise rating of that type of plane (with whatever noise controls have been installed) exceeds the standard. Since all planes' noise ratings exceed the appropriate standards, some charge will have to be paid on every landing. This charge creates the incentive for noise control innovation.

The per decibel charge rate is set high enough to induce the use of the best "retrofit" noise control on all aircraft for which it is available. It is based on the total costs of such control (including capital, installation, maintenance, reduced payloads, and so on) for the type of aircraft for which those costs are highest. All types of planes are charged at the same rate so it should always be cheaper to install noise controls than to pay the charge (Anderson *et al.*, 1977: 84).

Because residents who live near airports currently get no protection from noise control laws (except for curfews), the fact that some airlines might be economically irrational, and ignore the incentives, will hardly leave the residents worse off. Indeed, if some of the charges collected (\$42 million a year for London's Heathrow under the OECD scheme) were distributed to the affected residents to spend on noise insulation in their homes, they would be decidedly better off. The important attraction of the charge system here is that it is equitable, because it places the cost of control on those who cause the harm. The objective that taxes on harm undermine the integrity and equity of the tax system here has no force. All airlines would be subject to the same rules (unlike with pollution charges where plants upstream must pay much higher taxes than those downstream). Evasion would not be a

problem, since jets cannot land at major airports without this fact being recorded. Collection and information costs would be minimal, since noise charges would simply be added to landing fees already collected by airport authorities. Retrospectivity problems are absent because there is no delay between the doing of the harm and being charged for it. Economism in this case does not erode the moral bind of law because there is none to erode. Here then is an area of regulation where my major objections to economism are demolished.

There may be a few other areas where economism deserves unqualified support as the appropriate mechanism for controlling corporate harm such as “nonthreshold pollutants not now subject to regulation” (e.g. sulfates, fine particulates) (Stewart, 1981: 1374). In many other domains, economic solutions may usefully complement law enforcement and foster innovation. There will be very few areas, however, where legal command and punitive control will not remain the fundamental bulwark against corporate depredations against our persons and property.

This command and control can take many forms. It can be quite informal where the regulatory agency uses arm-twisting tactics such as threatening daily inspections until the offender comes into compliance. Or it can consist of formal punishments, civil or criminal, imposed by courts for violations of regulatory statutes. Or it can use the ultimate weapon of indicting corporations and their officers for traditional criminal offenses like homicide as in the Ford Pinto case (Swigert and Farrell, 1980). An optimal enforcement policy will rely on all these forms of command and control, because the capacity to escalate the quantum of punishment and the stigma associated with it lends credibility to the law and to those responsible for its enforcement. However, determining an optimal mix of informal and formal social control of illegal corporate conduct is difficult and beyond the scope of this paper. Without pronouncing on the relative merits of different species of legalism, all we have established here are some fundamental senses in which legalism as a genus is superior to economism.

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