

TAXATION, POLITICAL ACTION, AND SUPERFUND

Bruce Yandle

Introduction

There is little argument with the statement that people are purposeful economic agents. On the basis of our many observations and introspection, we know that regulatory institutions are designed by people inspired to accomplish specific implicit and explicit goals. Yet our personal experience in building incentive systems and regulations, whether for our children, students, or employees or in government and business, teaches us that the regulated often surprise us. Like all human beings, regulated people attempt to make the best of the situation in which they find themselves. They are also active participants in the design, implementation, and enforcement of rules.

Asserting that economists agree with these statements is another way of saying that they are social scientists who attempt to explain behavior of acting and reacting human beings as best as possible. However, past violations of this canon of the social sciences have produced faulty predictions for the outcomes of many policy prescriptions.

Recommendations for the design of economic incentives for the purpose of internalizing external effects, an approach that generally warms the cockles of economists' hearts, is a prime example of analytical failure. The general failure to anticipate outcomes when fees and charges are implemented may reflect the fact that we are blinded by their market-like qualities and therefore fail to consider two important analytical features of the devices. First off, we fail to account

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for the adjustments made by those who will pay the charges. This shortcoming leads to a second failure: We pay too little attention to the political economy—the public choice—dimensions of the regulatory institution.

This paper examines environmental taxes from a public choice perspective. It has three major sections. The first section reviews an old controversy inspired by A. C. Pigou's (1920) admonition regarding social cost and user charges, one that was joined by Turvey (1963), Buchanan and Stubblebine (1962), and Coase (1960). That controversy reveals early elements of a public choice analysis that causes most systems of user fees to be unstable. The second section examines more recent contributions by public choice economists that help to explain why user fees are often politically unattractive.

The third major section considers the U.S. Environmental Protection Agency's (EPA's) Superfund program for clearing away hazardous wastes, a program funded primarily by taxes indirectly linked to the production of hazardous wastes. The discussion in that section identifies institutional details that follow public choice predictions found in the first two sections.

Before Public Choice: Pigou and the Revisionists

The Pigouvian Prescription

A. C. Pigou (1920) is immortalized by a tax bearing his name, a tax designed to adjust the behavior of economic agents who impose more cost on society than they recognize in their decisionmaking. Pigou's argument goes like this: If the all-knowing economist finds a situation where private cost is not equal to social cost, a proper equilibrium can be attained by taxing the producer of the social cost at an amount equal to the previously unrecognized marginal cost imposed on society.

Like other efficiency-based arguments, Pigou's prescription sparkles with morgue-like logic. If politicians are all dead, and if rigormortis has set in and frozen the relevant supply and demand curves, the prescription will work. Efficiency will be attained just as surely as the solar system will move in predictable ways.

Pigou's argument from the 1920s about smoke control continues to be repeated to this day. For example, a recent item in *Regulation* magazine (1988, p. 5) put the argument this way:

If the EPA decides to limit lead in gasoline, or acid rain, or chlorofluorocarbons, then user fees are an efficient solution. They force firms to pay for the damage done to the environment or for the scarcity value of the resources they consume.

The Revisionists

But reactions to the analytics of environmental user fees identified some fatal flaws. First off, Turvey (1963) described postequilibrium bargaining, the situation that occurs predictably after the appropriate Pigouvian tax is placed on the producer of specified emissions (smoke) that can be monitored. Allow me to couch Turvey's argument in the language of political economy.

At the outset, a tax on the specified smoke cannot develop until politically effective people demand action. Assume there is political pressure, lobbying, or some other costly political-influencing activity, which some term reactions to social cost. Said differently, there are private individuals who demand political action in the form of an environmental tax. The effects of the noxious smoke on these people and their economic fortunes are normally shown as a rising marginal cost that is not registered in the firms' decisionmaking. Given the identification of that cost function, the all-knowing Pigouvian-trained economist calculates the appropriate marginal tax and the politicians—seeking to serve the public interest—impose the tax on smoke-producing firms. The equilibrium is achieved where marginal social cost is equal to the firms' demand for getting rid of smoke. The firms' demand for alternative smoke removal services becomes meaningful when it is likely that an environmental user fee will be charged.

But Turvey tells us this equilibrium will not hold. To demonstrate the point, he subtracts the marginal tax from the firms' demand for smoke emissions, giving a net marginal benefit curve. Just as Pigou and the recent writer in *Regulation* indicate, the polluting firms produce to the point where the net marginal benefit is zero. Returning to the demanders for political action, Turvey reminds us that individuals will seek reductions in pollution until the net marginal benefit to them from doing so is also zero. While lobbying activity is no doubt costly, those demanding political action do not face a marginal tax for each unit of emission reduced. But suppliers of smoke must pay an incremental fee.

In the small numbers setting contemplated by Turvey, the demanders of environmental purity want even more smoke reductions, once the Pigouvian tax is put in place. When lobbying costs are introduced to Turvey's analysis, it is possible that the demanders of purity will be satisfied with a smokey world. They will undertake lobbying actions so long as there are gains from doing so.

Without addressing institutional arrangements and the necessary political intermediaries, Turvey couches his behavioral analysis in terms of postequilibrium bargaining, where the polluter is bribed to

reduce pollution beyond the amount that coincides with the Pigouvian tax. He indicates that a suboptimal amount of smoke will be produced. In this setting, environmentalists demand more purity than Pigouvian politicians provide. Introducing a costly political mechanism where purity lovers must compete in a political economy with industrialists and an unorganized but nonetheless important group of consumers and taxpayers obviously brings discipline to the analysis.

James M. Buchanan and William Craig Stubblebine (1962) also participated in the pre-public choice fray and carefully defined and analyzed externalities for us. Dressed in efficiency-enhancing clothing, they went on to describe an appropriate equilibrium in a world where smoke producers valued the opportunity to discharge and receivers of smoke suffered economically from its production. Their prescription implied that a Pigouvian tax should be imposed on both sides of the transaction, a point enlarged upon by Hugh H. Macaulay (1972). If the receivers of smoke, just as producers, have to pay for marginal benefits they obtain—an improvement in their environment and the rents that accompany it, their demand will be satisfied by the appropriate user fee. There will be smoke in the final equilibrium, but there will be no postequilibrium bargaining.

Theoretically, at least, Congress can impose the appropriate tax on all parties and, having performed that miracle, go on to do greater things. Following the final resolution of the problem, the environmental lobbyists will retire. Of course, we have yet to hear of a bilateral user fee. We are more disposed to think in terms of right and wrong, somehow knowing that smoke producers are wrong and must be punished. Oddly enough, it seems, we do not usually react that way when multiple parties desire competing uses of food, land, automobiles, and a host of other scarce and life-sustaining resources. People who purchase those goods for consumption purposes pay the posted price. Those who purchase the goods to reserve them for the future or forever must also pay.

Finally, Ronald Coase (1960) became as famous as Pigou, if not more so, for his contribution to the debate. Under theoretical circumstances less severe than those specified by Pigou, Coase argued that social cost just does not exist in a world where contracts can be written and property rights defined and enforced at negligible costs. All problems of social cost are really private problems. If there is a problem labeled social cost, such as an abundance of smoke, it implies either that property rights will soon emerge and opportunity costs along with them or that the cost of internalizing the external effect is just too high.

One interpretation of Coase's theoretical point implies that it is better to bear the cost of living with or avoiding the smoke than to incur the resource cost of controlling it. Another interpretation asks that the cost of exercising government's police powers be compared with the private transaction costs for dealing with the problem. If the cost of government regulation is less than private party bargaining costs, a case is made for environmental regulation, where government becomes the implicit owner of certain rights to the use of a resource. In effect, a new landlord enters the picture.

The Diagrammatic Treatment

The analysis contained in this review is illustrated in Figure 1, which contains the familiar marginal benefit, MB, from discharge by the polluter, and the marginal cost, MC, imposed on smoke receivers. Pigou calls for a marginal tax, T, to be imposed on the polluter, anticipating an equilibrium quantity of smoke, OE.

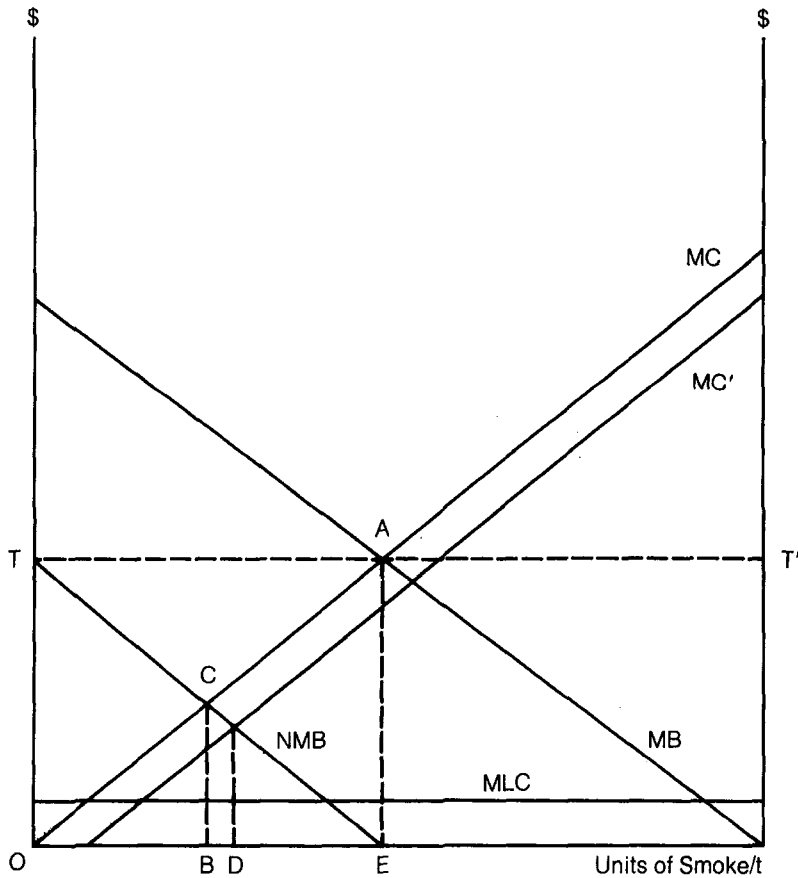
Turvey's net marginal benefit, NMB, function is also shown in the figure, along with the implied final equilibrium quantity, OB. Following Turvey, the polluter pays OTAE in taxes and receives up to BCAE in bribes for postequilibrium adjustments. However, political economy suggests that payment would go to politicians or at least be shared with them.

The diagram also shows a bilateral tax, with T imposed on polluters and T' charged the demanders of smoke reduction. The equilibrium OE holds in this case. There is no economic force calling for further adjustment.

With some imagination, we can explore what happens when the purity demanders face explicit lobbying costs. Introduction of a constant marginal lobbying cost, MLC, function and subtracting it from MC, which is the inverse of the smoke receivers' marginal benefit curve, yields MC', a net marginal cost function. The intersection of MC' and NMB yields another equilibrium solution, with OD amount of smoke being emitted. Unless misguided, the demanders of purity would not engage in costly lobbying if that activity brought less smoke reduction than was attained with the tax and no lobbying activity. We also can picture what might happen if government subsidizes the purity lovers while taxing the polluter. The adjusted net MC curve would shift to the left, calling for more reductions.

But why might the government choose to use some of the user tax revenues, or other revenues, to subsidize the purity lovers? The purity lovers can identify new pollutants or new dimensions of the old pollutant and thereby strengthen the regulatory hand of government. If government announces that additional features of smoke

FIGURE 1
ANALYSIS OF USER FEES



discharge are to become subject to taxation, that brings an addition to the polluters' marginal benefit function. (The polluter must either change its production technique, for example, or discharge and pay the tax.) An increase in the marginal benefit function can allow for increases in the Pigouvian tax, or at least generate more revenues from the current tax. An interesting interaction between user charges and regulation results from all this, with revenues becoming an important feature of the analysis. However, the active participation and resistance of the regulated, a point to be introduced later, further complicates the analysis.

The Revenues

It is interesting that what becomes the more salient part of the user fee question from a public choice perspective—the revenues and what might be done with them—is generally dismissed in the debates about the fees. Efficiency analysts see revenues as a totally different question, even unrelated to the central point about the merits of the fees themselves. But public choice economists expect politicians to assign a positive value to alternative tax revenues, especially in an age of government deficits and public opposition to direct taxation. Given constraints on the normal means of taxation, the mistaken efficiency trait of user fees can be put forward in efforts simply to find more money to fund special interest programs. Once the fees are in place, the politicians will predictably seek ways to increase demand for the fee-generating activity.

Of course, neither Pigou, Buchanan-Stubblebine, Turvey, nor Coase were reflecting on the literature of public choice when they prepared their analyses of user fees. They could not, since the literature did not exist. As it turns out, Pigou's prescription suffers under public choice scrutiny. Buchanan-Stubblebine's point continues to hold water, as do the insights of Coase and particularly Turvey, since his analysis predicted human behavior in the political setting. At best, however, the valuable public choice insights registered in those earlier years were important scratches on the surface of the problem.

New Public Choice Perspectives

Deeper analytical cuts were made when public choice economists began to investigate why user fees are seldom used. Widely advocated by economists, efforts to impose a tax on the sulfur content of coal, so as to reduce sulfur dioxide emissions, by the Nixon administration were frustrated by congressional committees (Downing 1984, pp. 211–12; Irwin and Liroff 1974, pp. 126–34). Environmental issues were handled by the Public Works Committee while the Ways and Means Committee dealt with taxes, and both committees had bigger fish to fry.

Buchanan and Tullock (1975) pointed out why none of the demanders for control, the ones who might have lobbied the Public Works Committee, wanted taxes. Spokesmen for industrial firms knew they were against taxes on pollution. Already being required to install pollution control devices, they wanted subsidies. As they saw things, placing a tax on postcontrol pollution added insult to injury. The Ways and Means Committee sympathized. Its members did not want to see a more valuable tax initiative become bogged down in debates

about pollution taxes. The politicians could arguably earn more rent dealing with income tax reform than from a small-fry sulfur tax on the burning of coal.

But what about the technology-based regulation that ultimately became the flagship of American environmental regulation? Why did the environmental lobbyists not go for Pigouvian taxes? Heavily funded by EPA, the environmentalists worked for rules that promoted the agency.¹ Taxes collected by the IRS do not. Popular rhetoric at the time added a nice veneer to their arguments. User fees were described as giving a license to pollute. Since zero pollution was the official goal, why fool around with taxes, unless the taxes were high enough to reduce pollution to zero (U.S. Congress 1971).

But there is more to the story. As Buchanan and Tullock tell us and later empiricists reveal (Maloney and McCormick 1982), industrialists can gain from command and control regulation. This regulation turns existing firms into cartels by limiting entry and coordinating output across firms in the same industry. Sadly for special interest groups, user fees tend to maintain competition and generate no rents for industrialists. If there is to be environmental control, the industrialists predictably side with the environmentalists and call for command and control. Like bootleggers and Baptists, the two groups argue separately for rules that restrict output.

The case for revenue-generating user fees is weakened significantly by three distinctly different forces. First, environmentalists view the sale of the right to pollute as being immoral. Second, as cost minimizers, industrialists have nothing to gain by paying more taxes, but can gain from technology-based standards that restrict entry and raise competitors' costs. Finally, political agents can gain by providing regulatory outcomes that are valuable to environmentalists and industrialists.

There are two additional public choice explanations of why command and control regulation is preferred to economic incentives, such as user fees. Viewing Congress as a rent-maximizing organization, Fred McChesney (1987) has shown how political bodies will logically propose regulations that inspire affected groups to organize and lobby against the rules, thereby increasing their support of the relevant politicians. Once the rules are in place, McChesney argues, Congress can play the same game in reverse, in effect auctioning off regulatory reform to members of the same group. His analysis suggests Congress would entertain the use of environmental user fees

¹For pertinent details on this, see Downing (1984, pp. 263–68) and Bennett and Dilonzo (1985, pp. 137–72).

and in doing so extract payments for moving away from that mechanism. Once command and control regulation is in place, Congress can gain political contributions by tinkering with the rules.

Yandle and Young's (1986) analysis of environmental regulation supports the McChesney argument. They argue that the current practice of command and control regulation is highly discriminatory across firms, industries, and regions. The actual rules are designed for industry subcategories, have different levels of stringency, and have varying levels of enforcement. Congress can price-discriminate across firms as though the rules were being auctioned to political agents.² Pigouvian taxes, on the other hand, tend to be uniform, and the IRS is generally interested in collecting taxes, not campaign contributions.

The political bargaining discussed here does not take place in a fiscal vacuum. The general populace may suffer from fiscal illusion, but at some margin we would expect all interest groups to become aware of the deadweight loss, and loss of revenues, associated with the regulatory institutions that emerge. Given competing and growing demands for government services and the relative burden of existing taxes, Congress would find occasions where command and control regulation would be modified and augmented by user fees. However, public choice predicts that the tax revenues will then be used in strategic ways to reward special interest groups and the political brokers who serve those interests.

In summary, several propositions unfold from a public choice analysis of environmental taxes:

- Unilateral taxes for controlling external effects will not generate a stable equilibrium in a political economy.
- Command and control regulation will generally be preferred to taxes and other economic incentives.
- When used, taxes on environmental use will be applied in ways that inspire the organization of interest groups who then support the expansion of bureaucracies.
- Revenues from environmental taxes can be important enough to overcome their otherwise unattractive features, especially when the fees are included in a regulatory package.

Superfund and User Fees

Congress does occasionally apply taxes to environmental control problems. Such a scheme is found in the Superfund program. Super-

²A related argument is made by Pashigian (1982) regarding the political use of environmental regulation to affect regional development and the protection of industry in one location from competitive entry and exit.

fund was established when the Comprehensive Environmental Reclamation and Cleanup Act was passed on December 11, 1980 (*Environmental Law Handbook* 1985). It is important to recognize that the legislation established a regulatory scheme that included a \$1.6 billion cleanup fund that was to receive 87.5 percent of its revenue from taxes on petroleum stocks and 42 specified chemical feedstocks. The balance was to come from general revenues.

The Pigouvian Logic

The logic of the feedstock tax was partly Pigouvian, at least in its origins. In March 1979, before debating the control of hazardous wastes and passing the Superfund legislation, Congress had been considering a proposal from the U.S. Coast Guard to place a tax on imported oil that would account for the external costs imposed when oil spills occurred into coastal and inland waters.³ Going beyond the Pigouvian prescription, the proceeds from the fee were to go into a fund that would then be used to repair damages and compensate damaged parties, so as to eliminate litigation. At about the same time, Love Canal entered the picture and EPA joined the Coast Guard and the U.S. Justice Department in recommending a larger fund.

In a purely theoretical way, the underlying notion for producers of chemical wastes was straightforward: The early hazardous waste products found in unmanaged, mismanaged, and neglected dumps are the result of chemical production. The producer unwittingly imposes costs on society that are not included in the prices paid for inputs. Taxes based on production will fund necessary future cleanup actions that restore the affected sites. In this somewhat tortured sense, the taxes indirectly cause firms to recognize external costs imposed on innocent third parties.

Missing the Pigouvian Mark with Political Economy

While the Superfund tax concept appears to follow Pigouvian logic, its design misses the mark. The tax is not a user fee set equal to marginal social cost generated by any particular producer. In fact, all producers using the same feedstocks pay the same marginal tax rate without regard to their present and past behavior. The cleanest and most careful chemical firm pays the same unit tax as the most delinquent and vicious polluter. Nonetheless, the tax comes as close to the Pigouvian prescription as anything we might expect to find north of the Potomac. As Turvey suggested, passage of the initial legislation

³On this and additional discussion of White House strategizing, see White (1981, pp. 145-59).

did not end the struggle by environmentalists and others who worked the halls of Congress.

Close examination of the Superfund tax reveals other public choice predictions. Disregarding risk assessment and marginal social cost, the 1980 law required that EPA specify at least 400 cleanup sites (about one for each congressional district) and that each state would have its worst site—no matter how risky in a relative sense—included in the 400. Put differently, the law had the immediate and politically valuable effect of generating excess demand for congressional services. This inspired new local interest groups to organize lobbying efforts. McChesney's point comes through.

Going on, the law specified that all firms presumed to have contributed to a Superfund site will bear joint and several liability for the cost of cleanup. Theoretically, the firm with the deepest pockets and largest amount of brand name capital at risk may bear all the cost, even though its waste contribution is slight. Visions of efficiency are quickly replaced by political rent seeking.

There is a saving grace in all this, for some firms. The joint and several liability feature has led to the sudden demise of privately provided environmental liability insurance (Katzman 1985). Private insurers cannot estimate the risk faced by a particular firm, since the firm may be found liable for another firm's actions. Chemical firms have little choice but to self-insure, which provides a large-firm advantage (U.S. General Accounting Office 1987). Superfund has the effect of restricting output and limiting entry. Buchanan and Tullock ride again.

Like most large environmental endeavors of the past, the Superfund program became ensnared in bureaucratic red tape and management problems. The culmination of that was seen when Rita Lavell, the EPA director of Superfund programs, was convicted of perjury before Congress after being charged with allocating Superfund dollars in ways that promoted the political fortunes of Republican candidates for Congress (Florio 1986). Pigou would turn over in his grave.

Empirical Evidence on the Fund Operation

The allocation of Superfund resources through EPA's designation of sites has been studied by Harold C. Barnett (1985) and McNeil, Froshee, and Burbee (1988). Barnett built a statistical model for predicting the level of Superfund expenditures across the 50 states in which he used elements of EPA's criteria for ranking the riskiness of sites with respect to surface water, air pollution, and ground water and where he included other variables having to do with state support

of remedial action as well as regional variables. Barnett reports one puzzle. Where the risk of ground-water contamination is high, EPA has allocated a smaller amount of its budget. Ground-water contamination was one of the chief reasons for establishing Superfund.

McNiel, Foshee, and Burbee examine the relationship of contributions to Superfund from in-state industries and the redistribution of those funds through Superfund. If contributions are risk-based, one would expect that to be reflected by use of Superfund dollars for the repair of sites in states where large amounts of fees are collected. The pollution in question does not migrate great distances. The research finds nothing of the sort. For the most part, Superfund payments are highest in the Southwestern U.S., where the petrochemical industry is concentrated. Superfund expenses are highest in the Northeast. It turns out that payments to the fund are not related to state personal income, to past problems with hazardous waste sites, or to funds obligated to the state through the program. The research suggests Superfund is a complex system for redistributing funds in a hazardous waste framework.

Revisions and Adjustment

The tensions between bureaucrats who allegedly allocated funds on a political basis and elected politicians who see redistribution as their domain as well as other Superfund problems led to the Superfund Amendments and Reauthorization Act of 1986. SARA tightened the leash on EPA, increased appropriations and the taxes to fund the program, expanded the coverage of sites and the list of harmful pollutants, and required that chemical producers provide detailed information to local communities on the chemicals used and produced in each and every plant.

As if recalling Turvey's point and going one better, SARA authorizes private parties to petition EPA to perform risk assessments on any site, whether or not the site has earned a priority standing. SARA also provides funds to private parties to sue EPA when the agency fails to classify a site as being hazardous. There's a post-equilibrium subsidy in place, one that ensures an increase in demand for Superfund action.

In March 1988, the average cost of cleaning Superfund sites was approximately \$25 million ("Current Developments" 1988). At that rate, some \$20 billion will be needed to handle the 951 sites now listed for cleanup. There is \$8.5 billion in the fund, and 27,000 additional candidate sites are waiting to be included in the program. When we recall that demanders of the program pay no fees, indeed are subsidized, it is little wonder that the quantity of services they

demand would increase, along with the tax on feedstocks. To cap it all, EPA has expressed concern about the logic of the program on risk reduction grounds (U.S. EPA 1987). It seems that other, far more crucial and less costly problems have been pushed to one side by congressional interest in the politically more appealing Superfund program.

The Superfund story is just one episode involving environmental user taxes, hardly enough to serve as convincing evidence that fees will always be perverted in the political process. However, it is a major episode, one involving billions of dollars and the entire U.S. economy. Yet while we might be cautious in drawing general conclusions from this one episode, Congressman James J. Florio, a major supporter of the program, is not so bashful. After writing extensively about the experience with Superfund, Mr. Florio (1986, p. 379) stated: "When issues are brought before Congress, disagreements quickly become political and sensible environmental policy may be lost in the process." He could just as well have said that efficiency arguments always tend to give way to special interest demands for redistribution.

References

- Barnett, Harold C. "The Allocation of Superfund, 1981-1983." *Land Economics* 61 (August 1985): 255-62.
- Bennett, James T., and Dilorenzo, Thomas J. *Destroying Democracy: How Government Funds Partisan Politics*. Washington, D.C.: Cato Institute, 1985.
- Buchanan, James M., and Stubblebine, William Craig. "Externality," *Economica* 29 (November 1962): 371-84.
- Buchanan, James M., and Tullock, Gordon. "'Polluters' Profit' and Political Response: Direct Controls versus Taxes." *American Economic Review* 65 (March 1975): 139-47.
- Coase, Ronald H. "The Problem of Social Cost." *Journal of Law and Economics* 3 (October 1960): 1-44.
- "Current Developments." *Environmental Reporter*, 25 March 1988, p. 25.
- Downing, Paul B. *Environmental Economics and Policy*. Boston: Little, Brown and Co., 1984.
- Environmental Law Handbook*. 8th ed. Rockville, Md.: Government Institute, 1985.
- Florio, James J. "Congress as Reluctant Regulators: Hazardous Waste Policy in the 1980s." *Yale Journal on Regulation* 3 (Spring 1986): 351-82.
- Irwin, William A., and Liroff, Richard A. *Economic Disincentives for Pollution Control: Legal, Political, and Administrative Dimensions*. EPA-600/5-74-026. Washington, D.C.: Environmental Protection Agency, 1974.
- Katzman, Martin T. *Chemical Catastrophes: Regulating Environmental Risk through Pollution Insurance*. Homewood, Ill.: Richard D. Irwin, 1985.

- Macaulay, Hugh H. "Environmental Quality, the Market, and Public Finance." In *Modern Fiscal Issues*, pp. 187–224. Edited by R. M. Bird and J. G. Head. Toronto: University of Toronto Press, 1972.
- Maloney, M. T., and McCormick, Robert E. "A Positive Theory of Environmental Quality Regulation." *Journal of Law and Economics* 25 (April 1982): 99–123.
- McChesney, Fred S. "Rent Extraction and Rent Creation in the Economic Theory of Regulation." *Journal of Legal Studies* 16 (1987): 101–17.
- McNeil, Douglas W.; Foshee, Andrew W.; and Burbee, Clark R. "Superfund Taxes and Expenditures: Regional Redistribution." *Review of Regional Studies* 18 (Winter 1988): 4–9.
- Pashigan, B. Peter. "Environmental Regulation: Whose Self-Interests Are Being Served?" Center for the Study of Economy and the State, University of Chicago, 1982.
- Pigou, A. C. *The Economics of Welfare*. London: Macmillan, 1920.
- Turvey, Ralph. "On Divergencies between Social Cost and Private Cost." *Economica* 30 (August 1963): 309–13.
- U.S. EPA. "Unfinished Business: A Comparative Assessment of Environmental Problems: Overview Report." Washington, D.C.: Environmental Protection Agency, February 1987.
- U.S. Congress. *Hearings on Economic Analysis and the Efficiency of Government*. Joint Economic Committee. Washington, D.C.: Government Printing Office, 1971.
- U.S. General Accounting Office. "Hazardous Waste: Issues Surrounding Insurance Availability." GAP/RCED-88-2. Washington, D.C.; General Accounting Office, October 1987.
- White, Lawrence J. *Reforming Regulation: Processes and Problems*. Englewood Cliffs, N.J.: Prentice-Hall, 1981.
- Yandle, Bruce, and Young, Elizabeth. "Regulating the Function, Not the Industry." *Public Choice* 51 (1986): 59–69.