BUREAUCRATIC INCENTIVES, SOCIAL EFFICIENCY, AND THE CONFLICT IN FEDERAL LAND POLICY

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Introduction

Economic analyses of bureaucracy have charged that public production tends to be more costly than optimal;[1] the extra cost may be due to either technological or allocational inefficiency.[2] Conversely, the standard theory of regulation asserts that regulated industries produce too little and, behind barriers to entry, obtain monopoly rents on their suboptimal output levels;[3] Stigler and Posner have

[1] See Armen A. Alchian, "Private Property and the Relative Cost of Tenure," in *The Public Stake in Union Power*, ed. Philip D. Bradley (Charlottesville, Va.: The University Press of Virginia, 1958), reprinted in Armen A. Alchian, *Economic Forces at Work* (Indianapolis, Ind.: Liberty Press, 1977), pp. 177–202; Louis DeAllessi, "Implications of Property Rights for Government Employees," *American Economic Review*, March 1969, pp. 13–24; William A. Niskanen, *Bureaucracy and Representative Government* (New York): Aldine-Atherton, 1971); idem, "Bureaucrats and Politicians," *Journal of Law and Economics*, December 1975, pp. 617–43; Jean-Luc Migue and Gerard Belanger, "Toward a General Theory of Managerial Discretion," *Public Choice*, Spring 1974, pp. 27–43; and Mack Ott, "Bureaucracy, Monopoly, and the Demand for Municipal Services," *Journal of Urban Economics*, November 1980, pp. 362–82.

[2] *Technological* inefficiency is waste in the everyday sense; that is, the same output could be produced with fewer inputs. *Allocational* inefficiency occurs if the least desired units of output have a smaller value than some alternative uses of their inputs; the common expression "too much of a good thing" captures this idea.

[3] See George T. Stigler, "The Theory of Economic Regulation," *Bell Journal of Economics and Management Science*, Spring 1971, pp. 3–21; idem, "Free Riders and Collective Action: An Appendix to Theories of Economic Regulation," *Bell Journal of Economics and Management Science*, Autumn 1974, pp. 359–65; and Richard A. Posner, "Theories of Economic Regulation," *Bell Journal of Economics and Management Science*, Autumn 1974, pp. 335–58.

also argued that regulated industries tend to capture their regulatory agencies so that policies are made on behalf of the industries rather than to promote the commonweal.[4] Both of these hypotheses are based on the premise that decision makers, whether in private firms or in public agencies, are wealth maximizers and that non-optimal decisions made by the public officials are a result of inappropriate incentives. In particular, while private wealth maximization efficiently allocates resources in the private sector through profit seeking, in the public sector it leads to inefficient overproduction through budget seeking.[5] However, if these hypotheses are implied by a consistent theory of bureaucratic behavior, why is it that public production may be too large and yet publicly regulated private production too small?

In this paper we examine the incentives governing bureaucratic decision-making and the extent to which agency information advantages relative to their nominal superiors preclude cost-effective management. First, a model of bureaucratic behavior developed in my "Bureaucracy, Monopoly, and the Demand for Municipal Services" is extended to the case of regulation. Then the model is adapted to the case of public land use regulation and used to demonstrate the existence of incentives to stifle private commercial activities on public federal lands whether or not such production is

[4]Stigler, "Theory of Economic Regulation"; Posner, "Theories of Economic Regulation," pp. 340ff.
[5]This assumes a competitive market for both factors of production and outputs. If producers can gain wealth by allocating resources toward *obtaining* a monopoly, any resources so used would produce no social value and would constitute a social loss; this sort of wasteful competition has been dubbed "rent-seeking" by Gordon Tullock ("The Welfare Costs of Tariffs, Monopolies, and Theft," *Western Economic Journal,* June 1967, pp. 224–32). Following this line of reasoning, Posner ("The Social Costs of Monopoly and Regulation," *Journal of Political Economy,* August 1975, pp. 807–27) has reassessed the social costs of monopoly to include not only the higher prices and reduced output of the monopolist, but also any resources monopolists have allocated to obtain or to retain their positions. Jack Hirshleifer ("The Private and Social Value of Information and the Reward to Inventive Activity," *American Economic Review,* September 1971, pp. 561–74) has argued that some inventive activity may also be socially wasteful for the same reason – e.g., research done to obtain a patent on which monopoly rents will be received, when the research would not have been undertaken if there were no possibility of obtaining the patent. In this paper we shall not address the rent-seeking issue – that is, the public resources used in lobbying to *acquire* land; our focus will be on how land already in the public domain is allocated to commercial and multiple uses vs. exclusive wilderness use. However, that rent-seeking behavior is entailed in public land acquisition was the finding of the U.S. General Accounting Office in its recent study, *The Federal Drive to Acquire Private Lands Should Be Reassessed* [CED-80-14] (Washington, D.C.: Government Printing Office, December 14, 1979).

competitive with other land uses. To this extent the model generates a solution to Posner's puzzle concerning "public interest rhetoric" in public policy decisions:

> An important, but as yet unexplained, datum is the characteristic public interest rhetoric in which discussions of public policy are conducted and the policies themselves framed. The use of language that, if the economic theory of regulation is correct, is utterly uninformative and indeed misleading is not costless; presumably it is employed only because there are offsetting benefits. These benefits must have to do with increasing the costs to members of the public of obtaining accurate information about the effect of the actions of their legislative representatives on their welfare.[6]

As we shall see, regulatory capture need not be by a regulated industry, but, consistent with the Stigler-Posner theory, may be by a *sociopolitical interest group, in this case environmental activists.* Since such groups compete with the regulated industries for resources held in the public trust, the interest group should be seen as a regulatee along with the industries. The conclusion proposes a policy for diminishing the information advantage of the agency and the extent to which this advantage can inappropriately benefit the agency at the expense of the commonweal.

Bureaucratic Budget Maximization

Managers of public enterprises—e.g., municipal fire departments, public hospitals, the Department of the Interior — have incentive structures much different from their private counterparts. In a private firm the owners create incentives for managers to maximize the difference between revenues and private costs.[7] *Since the private manager has some contingent property rights in* the revenue-minus-cost residual, he makes choices that tend to maximize the firm's and its owners' net worth. While Baumol, Williamson, and others have argued that the separation of ownership and control in the modern corporation has diluted profit-

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[6]Posner, "Theories of Economic Regulation," p. 355.

[7]Note that both private and public enterprises have incentives to ignore public costs (externalities) to the extent either that such costs are not internalized, or, equivalently, that their avoidance is not specified in the enterprises' constraints. Examples in the private sector are industries that emit pollutants or dispose of hazardous wastes with little heed to their environmental consequences; in the public sector OSHA regulators may ignore the negative impacts of employment in setting safety standards, and the Army Corps of Engineers may propose and build flood control systems giving little attention to the alternatives or the displacement costs to individuals in the dam site.

seeking incentives,[8] empirical research has strongly refuted such characterizations.[9] Uniformly, investigations of the management compensation and firm performance relation in the private sector have found strong evidence of the effectiveness of management compensation schemes in inducing the maximization of the firm's net worth, which is presumably the owners' maximand.

Conversely, in the public sector there is no residual claimant: The public agency's budget must be exhausted by approved expenditures. If there is a surplus, it is remanded to the general fund and will usually result in a reduction of the agency's subsequent budgets. Since a surplus cannot benefit the agency, there can be no direct benefit to the agency of increasing a benefit-cost difference or of reducing the cost of achieving a given benefit level. Thus, broadly speaking, bureaucrats have strong incentives to increase costs, as these will, up to a point, increase the size of the bureau's budget. This budget augmentation can be accomplished in one or both of two ways: (1) by understating the marginal cost of the bureau's output; (2) by price discrimination.

If we assume that managers of public agencies are wealth maximizers to the same extent as managers of private firms, then their behavior—i.e., their budgeting decisions, their planning, and their production—can be understood in terms of the reward structure under which they function.[10] The pecuniary compensation of civil service managers is determined, somewhat rigidly and quite uniformly, by the number and grade of people whom they supervise; thus there is a strong incentive for bureaucrats at each level in an agency to increase the number of employees in their sections. By so doing, their operating budgets and salaries will be enlarged. Clearly, subordinates who point out the need for more personnel would

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[8]See William J. Baumol, *Business Behavior, Value and Growth,* rev. ed. (New York: Harcourt, Brace & World, 1967); and Oliver E. Williamson, *The Economics of Discretionary Behavior: Managerial Objectives in a Theory of the Firm* (Englewood Cliffs, N.J.: Prentice-Hall, 1964).

[9]E.g., Robert T. Masson, "Executive Motivations, Earnings and Consequent Equity Performance," *Journal of Political Economy,* November/December 1971, pp. 1278–92; Wilbur G. Lewellen, *The Ownership Income of Management* (New York: Columbia University Press, 1971); and David H. Ciesel and Thomas M. Carrol, "The Determinants of Executive Salaries: An Econometric Survey," *Review of Economics and Statistics,* February 1980, pp. 7-13.

[10]Note that public agency managers may have preferences for the particular characteristics of their professional activity (i.e., obtain psychic income) the same as some private firm managers *enjoy* being restaurant supervisors while others *enjoy* being accountants. All that is encompassed in our assumption is that, other things the same, public managers would prefer more pecuniary income to less.

FIGURE 1
BUREAUCRAT'S BUDGET IS LARGER IF *AVC* IS CONSTANT
(P_BQ_B) THAN IF *MC* IS RISING (P_EQ_E) IN REGION OF CHOICE
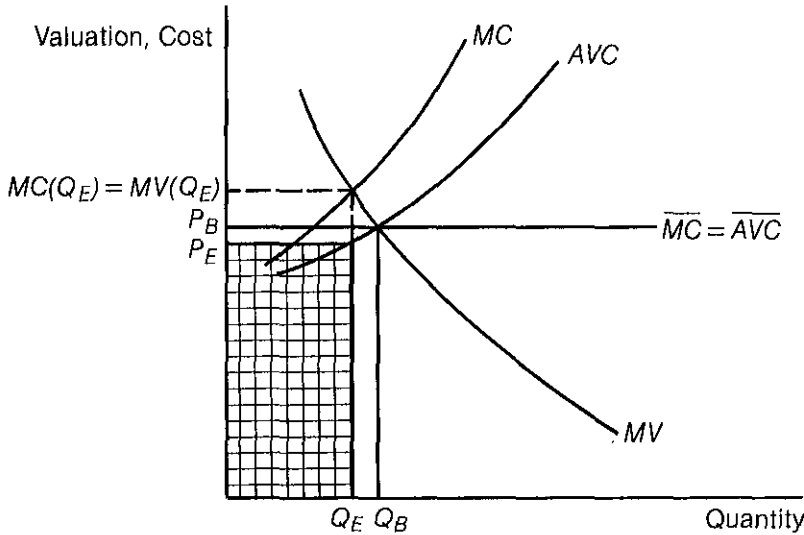
be acting in the interest of and would be supported by their superiors.

The bureaucrat's decision problem is, therefore, to present the largest budget that his political executive—the mayor, the governor, or the cabinet secretary—would approve. This entails knowing the executive's demand for the agency's output as well as knowing the agency's own cost function. Knowledge of the latter is a qualification for management and comes from the seniority characteristic of civil servants who head agencies. Knowledge of the former is obtained as a result of the political process. A political candidate reveals his preferences both explicitly in his campaign platform and implicitly by embodying the preferences of those voter and special-interest groups who support him. Since department heads and cabinet secretaries are appointees of the elected politician, these political executives may, in turn, be presumed to reflect the preferences of the politician.

The bureaucrat's problem is presented graphically in figure 1. The executive's demand is depicted by his marginal valuation curve *MV*, i.e., the value he puts on the last unit of output. The bureau's cost function is represented by its marginal cost curve *MC*, i.e., the cost of producing the last unit of output. Social efficiency implies the equating of *MV* and *MC* so that Q_E units should be produced. Since, in general, marginal cost is rising as in figure 1, average

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variable cost, AVC, will be less than marginal cost. That is, unit price (P_E) is less than marginal cost $MC(Q_E)$. Hence, to produce Q_E units would require a budget represented by the cross-hatched rectangle P_EQ_E.

Here is where the bureaucrat's incentives for his own, private wealth maximization operate at cross-purposes with social efficiency. Since the bureaucrat obtains benefit from enlarging his budget but obtains no benefit from the *difference between* unit cost, AVC, and marginal value, MV (in contrast to his counterpart managing a private firm), there is an incentive to try to expand production to Q_B where *AVC equals MV*. This can be accomplished, if the executive does not know the bureau's cost function, by claiming constant costs (i.e., $MC = AVC$) for all levels of output. For example, a department head would obtain a larger budget from the executive, his mayor, if the proposed output/unit-price pair were claimed to be in a region of constant average variable (and marginal) costs; see $\overline{MC} = \overline{AVC}$ in figure 1. That is, the quantity Q_B with a unit price (equal to its average cost) P_B yields a larger budget P_BQ_B than P_EQ_E.

Since the marginal cost of Q_B, MC_B, clearly exceeds its marginal value, no fully informed political executive would grant the budget P_BQ_B. Equivalently, but more provocatively, if the executive knew the bureau's cost function, he would make the efficient choice, Q_E. But, as Niskanen observed in his *Bureaucracy and Representative Government*:

> The bureau has no incentive to be efficient; on the contrary, it should be expected *to seek out expenditures beyond those minimally required* in order to exhaust the approved budget. A careful cost-effectiveness analysis would indicate that the same output could be achieved at a lower budget, but the analyst should expect no cooperation from the bureau, as it has no incentive *either to know or to reveal its minimum cost function.*[11]

The bureau will conceal its cost function in order to exploit the executive; however, contrary to Niskanen, it must know its cost function to do so. Furthermore, rather than overstating its costs, it will understate its marginal costs in order to obtain a larger budget, as shown in figure 1.[12]

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[11]Niskanen, *Bureaucracy and Representative Government,* p. 48. Italics added.

[12]Notice that both Niskanen and Posner have indicated that bureaucrats have an incentive and ability to withhold information in order to obtain larger budgets. Niskanen (*Bureaucracy and Representative Government,* p. 48) and Migue and Belanger ("Toward a General Theory of Managerial Discretion," p. 32) both assume a passive executive whose knowing the cost function does not suffice to avoid the exploitation; Posner ("Theories of Economic Regulation," pp. 355–56), in contrast, argues

FIGURE 2
BUREAUCRAT'S OPTIMAL CAPITAL STOCK, K^*, LOCATES
INTERSECTION OF AVC AND MV AT
UNITARY PRICE ELASTICITY
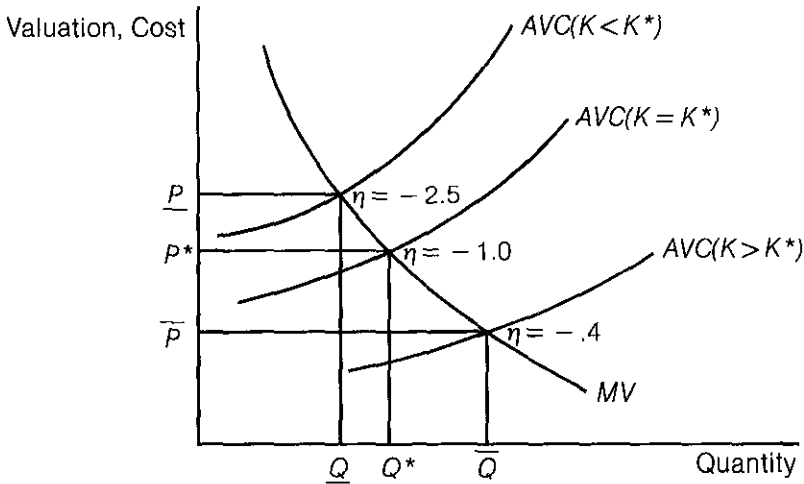
The bureaucrat's solution to the budget problem in figure 1 is only its short-run optimum. By changing its capital stock through budget requests, it can raise or lower its cost function. The long-run solution entails manipulating the bureau's capital stock until, by increasing (decreasing) its productivity with the larger (smaller) capital stock, the average variable cost curve, AVC, passes through the unit-elastic point of the executive's marginal valuation curve – see figure 2 – where the largest budget, the PQ rectangle, will be obtained. At the budget-maximizing capital stock, K^*, the maximal budget, P^*Q^*, is obtained. Once again, as in the short-run solution shown in figure 1, Q^* is inefficiently large since the rising $AVC(K^*)$ implies a marginal cost at Q^* that exceeds its marginal value, a fact concealed from the executive by the bureaucrat's claim of constant average costs at Q^*.[13]

that the time cost of information to the bureaucrats' superiors precludes adequate supervision given the bureau's natural information advantage. Earl Thompson ("Book Review – Niskanen's *Bureaucracy and Representative Government," Journal of Economic Literature*, September 1973, pp. 950–53) raises this as a criticism of Niskanen's book – i.e., the executive chooses the quantity of output and the bureau's budget – so that bureaucratic power inheres in its information advantage. Ott ("Bureaucracy, Monopoly," p. 367) assumes that it is the relative information advantage of the bureaucrat concerning his bureau's cost function that explains how the nominally subordinate bureaucrat can take advantage of his superior executive.

[13] The capital stock relevant to the bureau depends on its function – e.g., fire trucks and alarm systems for a fire department; acres of land to be managed for the forest

The particular form that the cost understatement takes varies depending on the budget augmentation accruing therefrom to the bureau. In some cases, as in municipal services, it would profit the bureau to understate its marginal costs. In other cases, as in the regulatory agencies, it would benefit the bureau to understate or to ignore the social costs of its actions and focus on an identifiable, but incomplete, cost of its regulatory restrictions. Since the agency is likely to be the primary repository of expertise on the regulated activity under the current government organization, it is likely to know its costs, both private and social, better than the executive branch.[14] In all cases, however, the budgeted output—demanded by the executive and promised by the bureau—must be neither overproduced nor, equivalently, produced with less than the budgeted expenditure.

The second method of budget augmentation is price discrimination. Price discrimination, selling the same product at different prices, is rife in any market economy; consider quantity discounts, age-dependent admission prices, paperback vs. hardcover book price differentials, credit cards,[15] tie-in sales, student athletic tickets, etc.[16] Some price discrimination may actually reflect econ-

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service plus the equipment to manage it; airplanes, ships, and geographical areas of responsibility for the navy. Note that the quantity of land managed by a particular agency of the Department of the Interior or Agriculture is an obvious capital input into its service output—any change in the agency's jurisdiction implying changes in the productivity of additional employees and, therefore, in the agency's operating budget.

[14] The restricted industry may be a source of opposition expertise on social costs, but its effectiveness can be diluted by characterizations of its motives as profit-seeking, selfish, and narrow; in contrast, as Posner observed (page 587, above), the bureau will present itself and its analysis as objective, disinterested, and thorough. While such a mask has been effective in the past, the General Accounting Office of the U.S. comptroller general has, in recent years, become a useful source of objective analysis. John Baden and Rodney D. Fort ("National Resources and Bureaucratic Predators," *Policy Review*, Winter 1980, pp. 169–81) have argued for a predatory auditing agency, i.e., one whose budget is essentially from bounties for ferreting out waste and bureaucratic mismanagement. In a sense, the GAO comes remarkably close to such an arrangement in that its budget depends somewhat upon congressional requests for research that, in turn, are induced by the GAO staff's success in uncovering waste and mismanagement.

[15] Michael M. Murphy and Mack Ott, "Retail Credit, Credit Cards, and Price Discrimination," *Southern Economic Journal*, January 1977, pp. 1303–12.

[16] Note that price discrimination may exist where products are different—e.g., paperback vs. hardback books—if the differences in their costs of production are less than the price differences; that price discrimination may exist where prices are apparently the same—e.g., credit vs. noncredit—if the costs of serving are different; and that some price differences reflecting different costs of serving—e.g., quantity discounts—may be efficient though discriminatory.

omies of scale or other production-cost reductions – e.g., long- vs. short-term parking rates or certain quantity discounts – but all result from the seller's knowledge of the buyer's demand curve. In order to maintain the multiple prices, the seller must somehow separate buyers with different demand elasticities or, in the case of sequential price discrimination, induce the purchase of the earlier units at a higher price than the later units.[17] One means of sequentially separating units to facilitate price discrimination is to claim uniqueness. If each unit *is* different, then although each is produced by the same process with the same inputs, the executive-client may not be able to administratively impose the appropriate, lower budget. A related tactic to avoid budget reductions is to arrange the sequence of activities so that the most desired ones are at the margin. A form of this tactic has been used by politicians and bureaucrats opposing state and local tax reduction propositions in recent years.

In summary, budget augmentation operates in the bureau through *either* cost understatement *or* price discrimination or both. Applying this model to federal land use regulation entails some apparent problems: Not only is the quantification of output troublesome, but the model of pure cost concealment will not suffice since both marginal cost understatement and price discrimination are at work. However, a straightforward generalization of the cost concealment model can be constructed to cover both.

Bureaucracy and the Restrictions on Federal Land Use

The Departments of the Interior and Agriculture are responsible for managing federally owned lands in a manner that accommodates both development and preservation.[18] Since these uses are often seen as incompatible, choices are necessitated that will inevitably displease some interest group. Furthermore, the allocation of land to a special use, say wilderness preservation or mineral exploration, increases the budget of the agency responsible for that

[17] A simple form of price discrimination is the all-or-nothing type, which is a special case of the more general tie-in-sale discrimination. (See Nisknanen, *Bureaucracy and Representative Government*, p. 48.) However, the difficulty in applying this to analysis of bureaucracy is that it requires that the bureau be able to impose its decision on the bureaucrat. This clearly will not work in the case of services, e.g., police or municipal parks; however, in the case of regulatory agencies, court orders may impose the quantity restriction on the executive, and the agency may have been involved in the arguments presented to the court – e.g., pollution abatement and land restrictions.

[18] U.S. General Accounting Office, *Land Use Issues* [CED-80-108] (Washington, D.C.: Government Printing Office, June 27, 1980), pp. 8-9.

activity. Hence bureaucratic assessments should not be expected to be strictly objective.

The management of federal lands is a responsibility of enormous magnitude and complexity. Of the 2.27 billion acres making up the U.S. land area, about 760 million are owned by the federal government and administered by thirteen agencies or departments. The major portions are under the Bureau of Land Management (BLM) of the Department of the Interior (470 million acres) and the U.S. Forest Service of the Department of Agriculture (187 million acres). While the Alaskan Lands Act has reduced the federal ownership and the jurisdiction of the BLM, it has increased the jurisdiction of other Department of the Interior agencies—the Fish and Wildlife Service and Park Service—and the Forest Service.[19]

Most of these lands have historically been available for multiple use: commercial activities such as logging, mining, and livestock grazing as well as recreation and aesthetic preservation. Yet in recent years, as almost any issue of the *Oil and Gas Journal* will attest, there has been a growing dissatisfaction on the part of commercial users with the restrictions on their access to these lands. This restrictiveness has been both outright and in the form of delaying tactics, e.g., burdensome permitting and reporting prerequisites for public land use. The Department of the Interior's own task force on the availability of federally owned mineral lands found cause for alarm: Noting that roughly two-thirds of federal lands had use restrictions on mineral development,[20] the task force found that on the whole "withdrawals [from mineral development] were made with inadequate, and, in some cases, without any, assessment of mineral values," and, perhaps more alarming, that there were "cases where mineral assessments were not considered when making land-use trade-off decisions."[21] Furthermore,

> The Task Force believes that proper implementation of the mineral report requirements in P.L. 94-579 will correct many of these problems for the formal withdrawal process.
>
> There appears to be *insufficient support being given to those agencies responsible for preparing mineral assessments* on existing and proposed wilderness areas and d-2 lands in Alaska. Considerable support for this program was presented at the Task Force's public hearings....

[19]U.S. Department of the Interior, *Final Report of the Task Force on the Availability of Federally Owned Mineral Lands, Vol. 1* (Washington, D.C.: Government Printing Office, 1977), p. 36.
[20]Ibid., p. 43.
[21]Ibid., p. 8.

> The most important aspect of the formal and informal with-
> drawal procedures is the analysis and use of the resource informa-
> tion during the decisionmaking process. The Task Force found
> that in some cases, although adequate mineral assessments were
> made, they were disregarded or inadequately considered during
> the decisionmaking process. Frequently mineral potential was dis-
> counted simply because no past or present mineral production
> existed. The Task Force found that, in many cases, the land-use
> decisionmaking process is not based on adequate mineral informa-
> tion and does not consider the relative costs and benefits of alter-
> native land uses.[22]

Supposing this characterization of bureaucratic obstructionism to
be correct, what explains it? Is it a special case of guerrilla warfare
by well-intentioned, idealistic environmental elitists? Or can it be
explained by the less lofty but more general self-interested behav-
ior of bureaucrats? While some of the behavior may reflect the ide-
ologue, and while there are clear differences in the desired degree
of land restrictions favored by the two major political parties, it is
nonetheless significant that leaders in both parties have expressed
general concern about obstructionism within the federal bureau-
cracy. For example, Caspar Weinberger, Secretary of Defense in
the Reagan administration, remarked that cabinet chiefs should be
"advocates of the administration's overall policies to their depart-
ments, rather than advocates from the departments of the policies
that the special interests wish."[23]

Arthur Schlesinger, historian and former White House aide to
President Kennedy, opined that

> by increasing the size of their staffs, Presidents insert a screen be-
> tween themselves and the Executive and Legislative branches and
> thereby reduce their own direct influence and weight of personal
> leadership. Large staffs, composed of ambitious and overprotec-
> tive people determined to justify their existence, make work and
> make trouble. They cut off the President from the government
> and the government from the people.[24]

Professor Schlesinger's remarks were directed at the White House
staff, but they apply with equal force to the cabinet departments.
Attesting to this are the observations of Hodding Carter III, former
assistant secretary of state under President Carter:

[22] Ibid., pp. 8–9. Italics added.
[23] Walter S. Mossberg, "Weinberger May Have Tough Time Satisfying Hawks,
Budget Cutters," *Wall Street Journal*, December 12, 1980, pp. 1, 26.
[24] Arthur Schlesinger, Jr., "Bureaucracy and the Republicans' Businessmen," *Wall
Street Journal*, January 7, 1981, p. 24.

> Some Foreign Service officers tend to view their jobs as represen-
> tatives of the foreign government to which they are accredited or
> on which they are expert, rather than as representatives of the
> United States. A smaller, but quite visible, minority at State is
> frankly contemptuous of the American political process and
> American politicians, viewing both as messy impediments to sane
> foreign policy.[25]

Clearly, whether the bureaucrat's goal in budget expansion is pri-
vate income or the power to "do good," the elected representatives
of the people are to some extent undercut and, to precisely that ex-
tent, so is the democratic process of governance.

Since the motivations for power or for private gain both require a
larger quantity of land restriction, these motivations are operation-
ally consistent with our model of budget maximization. In either
case, as is common to the observations of Weinberger, Schlesinger,
and Carter, the choices of the bureaucrat are substituted for that of
the executive and his appointed representative, the cabinet secre-
tary, subject only to staying on the executive's marginal valuation
curve. Thus the agency or service bureaucrats exploit the secretary
by means of their information advantage precisely as the model has
suggested. Hence we may proceed as if budget maximization were
the incentive.[26]

Since the federal agencies charged with the disposition and man-
agement of the U.S. public lands must allocate them between ap-
parently competing (i.e., nonsharing) claimants, they are faced
with a classic economic problem. In figure 3 this problem is
depicted as the proportional allocation of land between exclusive
restricted use (e.g., in designated wilderness areas) whose marginal
valuation is denoted mv_W and commercial use (e.g., petroleum ex-
ploration and development) whose marginal valuation is denoted
mv_C. The vertical axis measures in dollars the social marginal value
of additional percentage allocations to either use, and the horizon-

[25]Hodding Carter III, "The Unequal Bureaucratic Contest," *Wall Street Journal*,
January 8, 1981, p. 19.
[26]It is informative to note that the motivation for the Department of the Interior's
study into restrictions on public land use was an implicit belief that the executives
knew less than the agencies about the restrictions: "The Department has come to
realize that it does not know enough about the cumulative effect of actions restrict-
ing mineral development on Federal lands. The primary missions of the Task Force
on Mineral Lands Availability are to clarify the ways in which these restrictions oc-
cur and to recommend improvements in the relevant procedures and information
base so that an informed assessment of the extent and impacts of the restrictions can
be made by both government officials and the public" (Department of the Interior,
Final Report, p. 11). Compare this assessment with Posner's public-interest rhetoric
observation.

FIGURE 3
AGENCY-DETERMINED LAND USE RESTRICTION, q^*,
AT $mv_C = mv_W$

Percentage of Public Land Open for Mineral Development
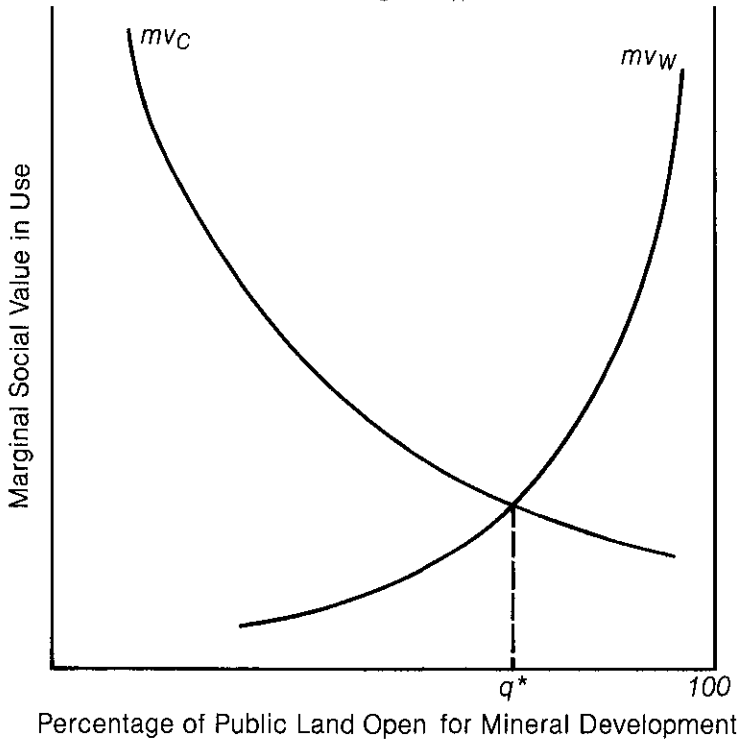
tal axis measures the percentage of public land in each use—from left to right in commercial uses, and from right to left in wilderness-restricted uses; the total of the two uses is 100 percent at the 100-ordinate, and at any point along the horizontal axis the two uses sum to 100 percent.

The solution for this allocation problem is apparently at q^* where the marginal valuation of exclusive wilderness uses, mv_W, is equal to the marginal valuation of commercial use, mv_C. Since commercial use is the alternative forgone when land is reserved for wilderness, this alternative use is the cost of wilderness restrictions.

This solution, q^*, is presented in a slightly different way in figure 4. In figure 4 the vertical axis is again in dollars, but the horizontal axis now measures the quantity of land with wilderness restrictions (rather than the percentage of total restricted land in figure 3). Figure 4 then presents the agency's total budget in relation to land restriction: The curve MV_W is the executive's demand for the

FIGURE 4
AGENCY BUDGET AND ITS RELATION TO
LAND USE RESTRICTION
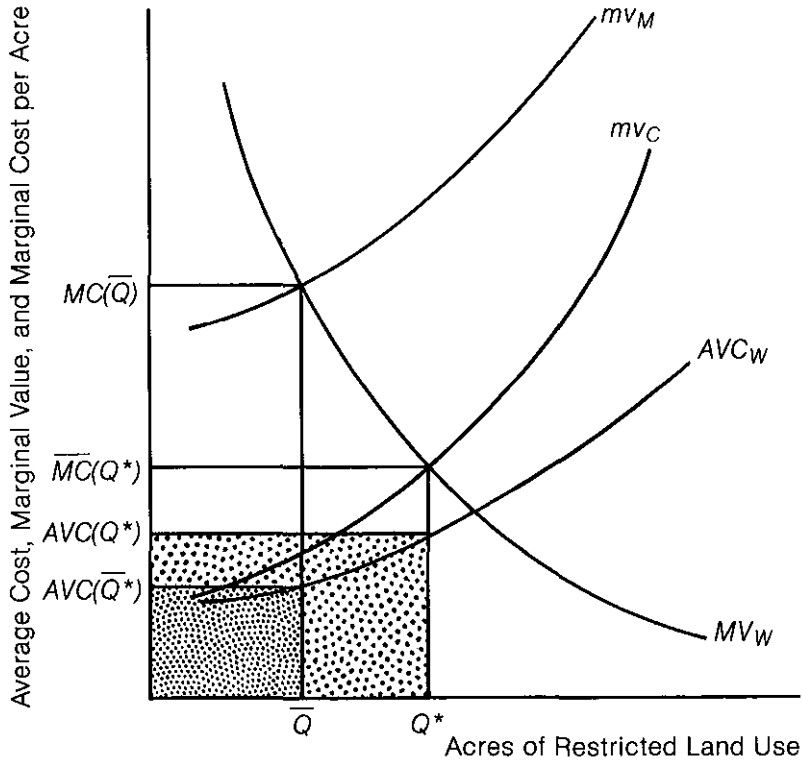
restrictive land management services, and MV_C is the cost of such restrictions. Thus the agency's budget would be the product of the average variable cost of managing Q^* acres, $AVC(Q^*)$, and Q^*; this budget is the dotted rectangle of figure 4.

The private commercial users excluded from the use of lands Q^* will contest these restrictions by lobbying in the Congress and by legal actions in the courts with an intensity measured by the marginal private production forgone, MV_C. Hence the agency may be able to justify a budget even larger than the dotted rectangle — perhaps as large as $MC(Q^*)$ times Q^* — containing not only the management resources for Q^* but also the legal and research resources necessary both to counter these challenges and to document the values in MV_W.

What is wrong with this solution? On the face of it nothing, since the alternative use values are balanced at Q^* in terms of acres or q^*

in terms of percentage allocations (figure 3). However, the premised alternatives are too circumscribed: MV_C *understates* the true opportunity cost, which is multiple use — recreation or scenic or scientific, *and* commercial — which has marginal value MV_M in figure 4. With this higher opportunity cost, we see that land restrictions should be reduced to $\overline{Q}$ acres consistent with equating MV_M and MV_W. As a direct consequence, the agency's budget would be reduced to the densely dotted rectangle $AVC(\overline{Q}) \times \overline{Q}$.[27]

[27] This tactic, presenting an inappropriately restrictive set of alternatives from which the executive or cabinet secretary must choose, is not only a ploy by agencies of the Department of the Interior (see Department of the Interior, *Final Report*, p. 87), but, according to Hodding Carter III, a practice at the State Department as well. Discussing clientitis, i.e., "a symbiotic relationship between government officials who administer programs, the private interests who must live with them and the members of Congress who oversee their effectiveness and fund their continuances," he observes that its impact is

> not always direct. It is often as not expressed in what can be usefully described as the Option B Syndrome, which surfaces when decision-making desired by the White House or required by presidential rhetoric can no longer be postponed or resisted. In the face of this pressure, what emerges from tortured intra- and inter-agency consultation is a document which contains *two phony choices and one carefully crafted waffle* which appears to offer movement but which in fact comes as close to standing still as possible. It becomes the favored option precisely because the other two are impossible.
>
> *There is no one answer to all of this*, nor should it be considered a short course in demonology. There is nothing sinister about the way the bureaucracy works and much which is quite understandable. The men and women who staff it are by and large competent, dedicated public employees. But *their basic objectives and each administration's are patently not the same. Their sense of time is not the same.* To the degree that the new president fails to recognize that and fails to use every available lever, starting with the appointment power, to that degree he guarantees that his brief honeymoon will be appreciably shortened and his program chances reduced ("Unequal Bureaucratic Contest," p. 19; italics added).

In order for the parallel to be most striking, note that the mineral and petroleum industries are not the likely client or special interest of the Fish and Wildlife Service, the National Park Service, the Forest Service, or the Bureau of Land Management.

Additional qualitative support comes from another *Wall Street Journal* article, by Arlen J. Large, provocatively titled "South Pole Scientists Hope to Freeze Out Commercial Prospects" (January 7, 1981, pp. 1, 19). Having described the possibility that the multinational treaty excluding commercial activity might be abrogated if commercially exploitable minerals were discovered, the article concludes:

> American scientists show an almost religious fervor about keeping out commercial exploiters. Gisela Dreschhoff of the University of Kansas has been flying with a colleague over the spectacular ice-free valleys east of the Ross Sea and using a gamma-ray detector to spot uranium deposits that would trace the continent's geologic history. They bristle at any suggestion that they are "prospectors" looking for commercially exploitable minerals. "Personally, I don't want to see it," Miss Dreschhoff says. "I want to see Antarctica as a laboratory and nothing else."

FIGURE 5
SOCIAL OPTIMUM LAND USE RESTRICTION, $\overline{q}$, AT
$mv_M = mv_W$

Percentage of Public Land Open for Mineral Development
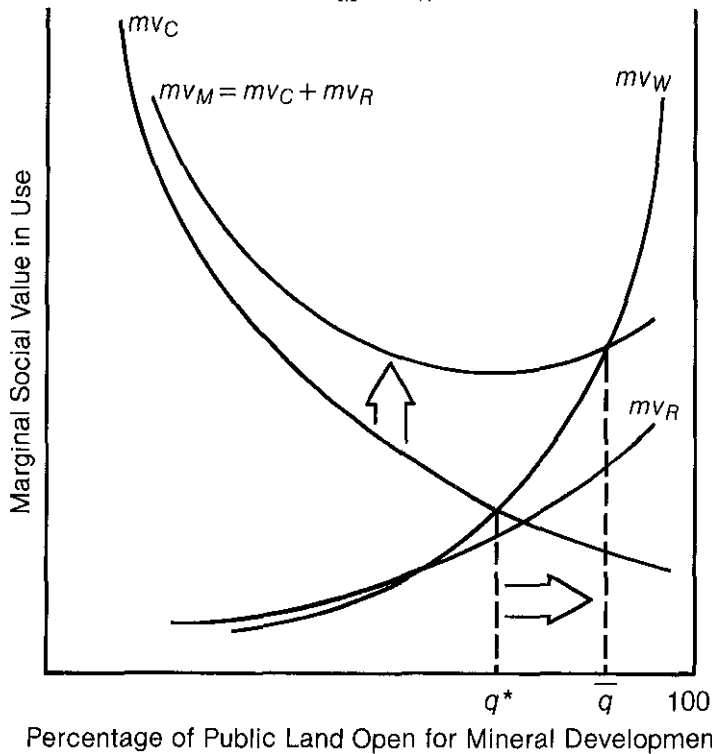
In figure 4 we see that the bureau has the same incentive to understate costs as was illustrated in figures 1 and 2, namely, a larger budget. Where the case for budget augmentation in figures 1 and 2 was primarily the difference between average and marginal costs – also available in this case – the primary cost understatement here is the forgone alternative use or social cost of excessive restriction. However, in either case the bureau's budget and the scale of its activities are too large, and the excess is made possible by the bureau's information advantage. See the Department of the Interior's explicit statement in note 26, page 596 above.

Figure 5 presents the case for the multiple-use alternative. It is essentially a corrected version of figure 3 in the addition of mv_R, the marginal value of recreation, as an example of public land activities that can be accommodated in multiple land use. Thus mv_W is initially higher than mv_R since recreation in the pristine wilderness may up to a point be somewhat more valued than recreation on

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multiple-use land; but eventually mv_R is higher than mv_W, since backpackers and canoeists may want access roads; however, the exact difference is not the issue here, only that hunting, hiking, canoeing, etc., are still enjoyable when some commercial activity is taking place. We now have the appropriate choice as between multiple use, $mv_M = mv_C + mv_R$, and exclusive wilderness use, mv_W. As is apparent in both figure 3 and figure 4, the result is a less restrictive land use policy, represented by $\bar{q}$.[28] Clearly, the lessened restrictions on land use would reallocate some management responsibilities implying smaller budgets for the managing agencies and larger budgets for agencies with increased responsibility, such as those responsible for mineral assessments.

How damaging to economic and other national policies the excessive restrictiveness of public land policy may be is a quantitative question requiring an empirical analysis that has not been undertaken here; however, that it *is* damaging is the conclusion of the Department of the Interior's own task force study.[29]

In this paper we have addressed the simpler question: Is there an analytic foundation for expecting federal land policy to be too restrictive? If so, what qualitative evidence can be brought to bear on the issue? There would seem to be three questions:

1. Are important petroleum and other resources being locked up by land use restrictions?

2. Is there any evidence of excessive federal land restrictions?

3. Is multiple use of such lands feasible?

The answer to all three of these questions seems to be yes.

First, restrictions on access to federal lands are of two types—explicit formal closing to commercial activity and informal or administrative closing by delaying tactics, legal challenges from nongovernment parties, and set-asides for further study preliminary to formal closing.[30]

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[28] Alternatively, we could subtract the multiple recreation marginal value from mv_W and equate the residual with mv_e; the resulting intersection would be at the $\bar{q}$.

[29] Department of the Interior, *Final Report*, pp. 8–9.

[30] Ibid., p. 6.

To assess the impediments of red tape, consider the following anecdote from the *Oil and Gas Journal* (John H. Jennrich, "Watching Washington," April 14, 1980, p. 69):

> Charles J. DiBona, president of the American Petroleum Institute, tells the story—he swears it's true—of an operator in the Rocky Mountains who fought the bureaucracy for 14 months to obtain a drilling permit.
>
> Once the papers were in order, says DiBona, the operator drilled the well in 38 hrs.

According to an American Petroleum Institute study,

> the federal government owns 775 million acres onshore, mostly in
> 11 western Lower 48 states and in Alaska. Off shore, the govern-
> ment controls 528 million acres on the OCS.
> API estimates that these lands hold:
>
> > 37% of U.S. undiscovered oil resources but provide only 16%
> > of U.S. production.
> > 43% of U.S. undiscovered natural gas but provide 30% of pro-
> > duction.
> > 40% of remaining coal but provide 8% of production.
> > 80% of recoverable reserves of shale oil and 95% of tar sands.
>
> API figures that about two-thirds of federal lands—about 500
> million acres—are either formally closed, highly restricted, or
> moderately restricted from oil, gas, and other mineral resource de-
> velopment.
> The association says the federal offshore leasing program has
> been a "stop-and-go affair" ever since drilling began in federal
> waters in the 1950s. It cites frequent postponements and cancella-
> tions of scheduled sales and lockup of many offshore areas of great
> potential. And, it adds, less than 4% of the OCS has been leased.[31]

With respect to the Overthrust Belt region of the states of Wyo-
ming, Utah, and Idaho, the Department of the Interior study was
very critical of federal land policies. It found that 47 percent of the
federal lands in the region were effectively closed, but that "more
importantly, however, many of the areas closed to oil and gas
leasing appear to the casual observer to be open for oil and gas leas-
ing, since no removal order has been published to remove them for-
mally from mineral development. In fact, it is likely that not even
the local land administrators know how much of the area is actually
available for oil and gas leasing. Without such information it is dif-
ficult to see how proper tradeoff decisions can be made."[32]

Both the General Accounting Office (GAO) and the Department
of the Interior have argued that the wilderness status of land should
not be decided until the potential value of the petroleum assets
thereby forgone has been estimated; the GAO observed that the
preliminary analysis by the United States Geological Survey "would
seem to support a decision for exploration to acquire more data

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But then he needed permission for a pipeline to move the oil. And, says
DiBona, he's been waiting 14 months and still doesn't have a pipeline con-
nection.

[31]"Outlook Cloudy for More Public Land Energy Work," *Oil and Gas Journal,*
November 10, 1980, p. 140.
[32]Department of the Interior, *Final Report,* p. 58.

before reaching any conclusions."[33] The premature foreclosure of public lands is precisely the vehicle for understanding the opportunity costs of exclusive use postulated in our model. This obscuring of alternative-use values can effectively be achieved not only by permanent closure, but also by delaying access. A recent federal court decision in Wyoming found that, in effect, "the Federal government has the responsibility to free government lands as quickly as possible for mineral development. The court said failure to do so amounts to land withdrawals not intended by Congress."[34]

These are clear instances of excessive land strictures, but evidence concerning an entirely different activity offers additional support. In another study, entitled *The Federal Drive to Acquire Private Lands Should Be Reassessed*, GAO summarized its findings as follows:

> This report focuses on the activities of three federal agencies with major land management and acquisition programs—the Forest Service, Department of Agriculture, and the Fish and Wildlife Service and the National Park Service, Department of the Interior.
>
> The three agencies generally followed the practice of acquiring as much land as possible without regard to need and alternatives to purchase unless specifically spelled out in legislation. Consequently, lands have been purchased not essential to achieving project objectives, and before planning how the land was to be used and managed. Because of this practice, Federal agencies overlooked viable easements, zoning, and other Federal regulatory controls including the dredge and fill permit program for protection wetlands administered by the Corps of Engineers, Department of the Army.[35]

In this GAO study, the exclusive land acquisition was primarily in cases where the intended use of the land was recreation and preservation of scenic characteristics and for which private and public

[33] General Accounting Office, *Oil and Gas Potential in the Arctic National Wildlife Range* [EMD-80-56] (Washington, D.C.: Government Printing Office, January 22, 1980).

[34] "Outlook Cloudy," p. 143.

Indeed, the variety of delaying tactics alternative to the legal establishing of wilderness restrictions are perhaps limited only by the creativity of the administrators in interpreting the laws. Early in the debate over the Alaskan Lands Act the secretary of the interior was reported to have threatened to accomplish the withdrawal administratively (if Congress did not) under the 1906 Antiquities Act. (See "Editorial: U.S. Can Have Both Mineral and Wilderness," *Oil and Gas Journal*, September 4, 1978.) This is not as farfetched as it might seem: An application to the federal government for enlargement of an open-pit copper mine was recently refused because it would endanger a historically significant site, the nineteenth-century buildings of the copper mining town, Butte, Montana.

[35] General Accounting Office, *Federal Drive*, p. i.

uses were in some agreement. Thus in the case of mineral development, where private use and the government agency use are in some conflict, we might expect these acquisitive and restrictive motivations to be, if anything, stronger.

Finally, consider the feasibility of multiple use of public lands. Commercial logging, livestock grazing, commercial trapping, and mineral development have historically been the more important uses of public lands. In recent years conflicts of commercial activity with the aesthetics of wilderness preservation and land use for recreation have led to restrictions on commercial activities. Yet the instances of successful joint use seem to far outweigh the exceptions. (To the areas of such use listed above, we could add fishing and petroleum production in the Gulf of Mexico.) Moreover, three further features of mineral development in general and petroleum exploration and development in particular seem to argue in favor of joint use:

1. Small proportions of land involved — usual estimates are much less than 1 percent in the case of petroleum

2. The nondisturbing nature of the exploration process itself — primarily measuring, mapping, and taking geological samples

3. The transient nature of the extraction process — 20 to 40 years, a short span in geological or even historic perspectives

In this connection, the Department of the Interior Task Force observed that:

> It frequently has been pointed out that mineral production requires a relatively small proportion of our land base. In fact, in the entire history of the United States the total land area disturbed by all mining including coal, stone, oil, gas, sand and gravel, and metal and nonmetallic ores, has been less than .3 percent of the total surface area of this country [N.B.: cumulative not simultaneous] . . . .
>
> But compared to other mineral resources, oil and gas deposits can often be developed without seriously impacting other resource values, assuming the proper environmental controls are adhered to. This suggests that ways could be found to allow for the controlled exploration of oil and gas on portions of these withdrawn areas.
>
> Some of the discoveries in the Overthrust Belt are rather large, e.g., fields with oil potential of at least 100 million barrels or a gas potential of 1 trillion cubic feet. Should a field of this size be known to exist under a picnic area, wildlife habitat area, or a proposed wilderness area, the significant economic values of the petroleum resource could easily absorb the costs of the special development procedures that could be used to develop the petroleum while maintaining the surface use. Allowing such temporal

land uses would produce greater net benefits from federally-owned lands.[36]

Even in the "worst" case, i.e., finding a supergiant field, the costs for the environment seem eminently reasonable given the social benefits of production:

> What if the range [William O. Douglas Wildlife Range] were opened to exploration and the "worst" happened—a discovery as large as Prudhoe? Facilities to develop the strike would occupy only 1½% of the 8.9 million acres now included in the range, according to James Hohler, senior exploration Vice-President of SOHIO.[37]

Conclusions and Implications

Bureaus have strong incentives to increase their budgets and can do this by understating their marginal costs. We have argued in this paper that federal agencies controlling public land use behave in a fashion consistent with this model by attempting to close out uses of land alternative to those of a particular clientele. While contemporary history has given us the instance of environmentalists in command at these bureaus with, consequently, too little commercial use of public lands, the model would apply equally well if representatives of industrial and commercial users were dominant; in this alternative case, recreational and scenic preservation use would be given short shrift, and, once more, multiple use would be a concealed possibility.

The common thread in bureaucratic budget augmentation is that the bureau—whether municipal, state, or federal, regulatory or producing a service—knows more of its costs than does its (nominally) executive superior. Consequently, the bureau cannot be reformed by management innovations composed of internal changes; rather, it must have its informational advantage nullified. In the case of private firms and, in particular, of financial firms, the owners' welfare is advanced by management not only because of the private incentives that drive the manager, but also because of the existence of financial records about the firm and, therefore, the possibility of objective outside auditing.

As we have seen in several instances, the General Accounting Office of the comptroller general has acted as a source of objective information—i.e., free of private lobbying influences, of the bureau's interests, and, most important, of any direct dependence for its

[36]Department of the Interior, *Final Report*, pp. 16–17; 58–59.

[37]"Editorial: Congress near Choice for Nature against Man," *Oil and Gas Journal*, August 4, 1980.

budget on the nature of its analytic findings. These services are generated in response to inquiries from committees or individual members of Congress and also by the independent research interests and hunches of its staff. The Office of Management and Budget within the executive branch offers a somewhat more limited source of analysis on the same grounds. The particular locus of the investigatory entity is not as important as is its independence of the bureau. All that need be made clear and evident is that bureau budgets and decisions would be subject to an independent audit; hence, cost functions and the complete analysis of bureau policies internally would be made more complete and inclusive given the likely prospect of external analytic review.

Earl Thompson, reviewing Niskanen's book on bureaucracy, made this point quite clearly in discussing the different contexts within which private and bureaucratic managers perform:

> These differences can be derived from the definition of governmental institutions. What makes an organization "governmental" rather than "private" is the fact that the organization is not economically responsible for some specified set of real losses it imposes on others or cannot sue to capture some specified set of gains it confers upon others.... Government institutions are more efficient than private institutions if and only if the economies of irresponsibility exceed the costs.

> The economies of irresponsibility are the savings in the costs of measuring and evaluating the effect one has on the benefits of others while the costs are the well-documented disincentive effects which occur when an individual does not receive his product. A corporation president has every aspect of his performance evaluated every day in the stock market by hundreds of profit calculators. A bureau chief has a small set of his socially relevant performance evaluated about once a year by a few busy individuals. So the typical bureau chief makes hundreds of decisions each year that significantly affect the aggregate benefits of others that will never be made the basis for payments or charges to him. Therein lie the benefits, costs, and peculiarities of bureaucracy and government activity. What an economist can profitably contribute to improving governmental efficiency are incentive systems which will induce more efficient behavior from our bureaucrats without requiring markets or elections. Pleas to convert bureaus to competitive suppliers, while possibly wise, seem to miss the whole point of governmental supply.[38]

What Thompson, Posner, Braden-Fort, and this paper have each argued is that to induce socially efficient bureau or agency decisions requires that their political executives have effective and ob-

[38]Thompson, "Book Review," p. 93.

jective information about the total costs of the agency's activities. Since the agency's budget and, therefore, the careers of many agency professionals may be adversely affected by objective cost information, the agency cannot be relied on as the sole source of such information. Only if cost analyses can be obtained from an independent agency whose budget and whose career bureaucrats are not benefited by cost underestimates can we overcome the innate bureaucratic incentives to understate costs.