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Endogeneity of Institutional Design”**

Donald Wittman

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**Why Government Bureaucracies are Efficient and Not Too Large:
The Endogeneity of Institutional Design**

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ABSTRACT

By applying the standard tools of microeconomic analysis, I argue that bureaucratic markets work as well as economic markets and, in particular, that outcomes are likely to be wealth maximizing and government budgets are not too large. I show that previous work has greatly exaggerated the existence of principal-agent and related problems in bureaucratic markets, has drawn incorrect conclusions, and has used inappropriate methodology in testing for the existence of these principal-agent problems.

ii. BUREAUCRATIC MARKETS

Since Weber (1947), nobody has had a kind word to say about government bureaucracies. [1] A legion of commentators has found that the bureaucracy serves the public very poorly. This literature provides two contradictory explanations for this view: 1) Government bureaucracies are lacking in direction, ineffectual, and characterized by inertia (see Lindblom (1959), Downs (1967) and Wildavsky (1979) for examples); versus 2) bureaucracies are extremely sophisticated at promoting the self-interest of their members (see Niskanen (1971), for an example).

In this article, I argue to the contrary. Government bureaucracies engage in economically efficient behavior, they are not too large, and their principal-agent problems have been greatly exaggerated.[2] Furthermore, I argue that much of the evidence marshalled against government bureaucracies is methodologically flawed and that the prevailing theories are empty of empirical content.

The efficiency argument is interwoven with the question of institutional design. I show how various institutional arrangements (e.g., oversight committees, civil service, and competitive supply systems) are devised in order to reduce opportunism by either the bureaucracy or its principals (Congress and the President).

The paper is organized along the following lines. I first argue against the incrementalist and rule-of-thumb approaches. Next the budget-maximizing and bureaucratic-power models come under scrutiny. I then concentrate on research that is derivative of the principal-agent approach. In section D, I present some propositions regarding the choice of institutional design. Section E briefly discusses the problem that government bureaucracies have two superiors -- the President and Congress. Section F is the conclusion.

A. Incrementalist and Behavioralist Approaches

The first order of business is to argue that the optimization approach is superior to other models of bureaucratic behavior. I demonstrate this by showing that: (1) much of the evidence and theorizing in

favor of the behavioralist approach is consistent with the economic approach; (2) when the approaches differ, the behavioralist approach tends to be ad hoc with limited generality, and (3) the incrementalist view is a very low level theory.

A number of people have argued for bounded rationality as an alternative to optimization (see Cyert, 1988, for a recent example). But these two concepts need not be in opposition. Firms and people can optimize in the presence of bounded rationality. For example, contracts between firms are not infinitely long (that is, they do not account for all contingencies) and rules of thumb may be chosen. Rules of thumb economize on decision-making but may distort goals. The optimization approach suggests that those rules of thumb which minimize the sum of goal distortion and decision-making costs will be implemented. [3]

Simon (1957) has argued that bureaucrats satisfice rather than optimize. But what determines the satisficing level? If people stop searching when the expected marginal returns to information go below the cost of acquiring the information, then we are back to the optimization model. Even if people do not optimize, an optimizing model will yield good predictions if the satisficing level of performance is close to the maximum level.

Davis, Dempster and Wildavsky (1974) provide evidence showing that bureaucratic behavior is incremental. But optimization does not mean constant global searches or frantic changes from day to day. The method of production which maximized profits yesterday is likely to be the same method which maximizes production today. The fact that behavior is often incremental is thus entirely consistent with optimization (especially so, when the exogenous changes are also incremental).

Bendor (1988) has pointed out that "behavioral" models tend to be backward looking while rational choice models tend to be relentlessly forward looking. But certainly rational people use the past to predict the future - either via econometric estimation or updating Bayesian priors. Furthermore, what determines the bureaucracy's rate of adjustment? Is it just an inherent rate of sluggishness or an optimal rate of change?

Bender suggests that there are two central premises of bounded rationality: a limited number of alternatives are generated and a simple test will be applied to end the search. But these central premises are too open ended to yield any predictive power. At one end of the spectrum, these premises are perfectly consistent with maximization in the presence of *perfect* information. For example, consider the behavior of the for-profit firm in the presence of "bounded rationality": estimate the cost and revenue curves facing the firm (this estimate may be imperfect) and use the "rule of thumb" - quantity should be increased until marginal revenue equals marginal cost. This rule maximizes profits. It also satisfies the major tenants of bounded rationality. A limited number of alternatives are generated. In fact, the manager only needs to consider increasing production by 1 unit or decreasing production by 1 unit; overtime the firm will converge to the optimal. Furthermore, the firm only considers two variables (supply and demand) and there is a simple stopping rule.

Unfortunately, these central premises are perfectly consistent with a wide variety of other behavior. For example, a simple rule of thumb is to look at the astrological chart in the paper for guidance. What rule of thumb does the bureaucrat employ in choosing a rule of thumb? This question plagues the rule of thumb literature that is not embedded in optimization theory. For example, Padgett (1981) models an OMB manager who cuts more or less randomly until the total cut in the budget equals a certain number. Unfortunately, the possible rules of thumb, if not infinite, are quite high. Rules of thumb might be: reduce budgets for those bureaus with the largest budget first, reduce budgets for those bureaus with the smallest budgets first, reduce budgets for all bureaus by the same percentage, reduce the budget for those bureaus whose clientele voted against you in the last election, etc. Unless we are willing to be drowned in a sea of special cases, we will have to decide which rule of thumb is chosen. So how do we predict which rule of thumb an individual or bureau will choose? The best answer going is maximization.

There is another related problem. How simple is a simple test? When individual outcomes are unimportant and choices non-repetitive, one might choose a simple rule of thumb. When they are more important, the simple rules become more complex. This poses a serious problem for the social scientist who wants to explain behavior by non-optimizing rules of thumb. Each change in complexity will change

behavior and there is no convergence (as there would be if rules of thumb were short cuts to optimization). [4]

Thus the key difference between the optimization and "behavioralist" approaches is that optimization based models of bounded rationality argue that the rules of thumb chosen will optimize while sui genesis models of bounded rationality incorporate some rule of thumb with little justification.

Even if bureaucrats chose rules of thumb that were unrelated to optimization, competition within and between bureaus would result in the survival of those rules of thumb which did optimize the goals of the organization (this argument will be discussed at length in later sections).

The view that bureaucracies are headless organizations greatly exaggerates the cost of coordination. There are costs of coordination in any market including Arrow-Debreu type markets (someone has to pay the Walrasian auctioneer). If the invisible hand can coordinate a hundred million producers and sellers in the market place, it would be hard to explain why some combination of invisible and visible hand could not achieve a similar result in a system involving only thousands of people. Furthermore, there are large bureaucracies in the private sector and their survival suggests that any bureaucratic inefficiencies are at most relatively minor.

The "muddling through" literature claims that incrementalism is the only way to deal with the conflicting and complex goals imposed on the bureaucracy, but constrained optimization is a standard technique in handling complex management decisions. Furthermore, utility maximization has been a very rewarding approach to understanding individual behavior even though one could argue that individuals have conflicting goals (after all, that is the essence of scarcity).

Finally, the incrementalist theory is an extremely low level theory with little power. Saying that the sun rises at about the same time this morning as it did yesterday morning because it was too costly to optimize and consequently muddled through the day will give us a reasonably good prediction, but such a theory will never supplant Kepler. Saying that the businessman chooses the same price today as yesterday or that the bureaucrat asks for the same or a little bit more than yesterday because it is too costly to do

constrained optimization does not get us very far either, since the exogenous variable is only a lagged dependent variable.

Related to the incremental model is the lagged adjustment model. A number of people (see Leibenstein (1987) for a recent example) have argued that bureaucrats are highly routinized and hence slow to adjust to new circumstances. Thus we observe the bureaucratic behavior being somewhere between what was optimal 10 years ago and what is optimal today. The lagged adjustment or inertia model, like other disequilibrium models of human behavior, fails to account for rational expectations. In contrast, equilibrium models predict a system that is *ex ante* optimal responsive to new circumstances. While mistakes could be made, there would be no predictable biases for the system as a whole. That is, sometimes the bureaucracy would react too rapidly (because the external circumstances did not change as rapidly as predicted); while other times the bureaucracy would react too slowly because it had under-estimated the change in external circumstances.[5] This does not mean that every bureaucracy moves rapidly but that those bureaus with a comparative advantage in dealing with new circumstances will make up for those bureaus that are set up to handle less quickly changing events. Indeed, if there are other organizational forms such as markets which are more efficient at dealing with new circumstances, then the tasks will be shifted to these organizations. To the degree that inertial systems are set up, they are developed to maximize overtime, not just to maximize the output in the initial period. Any inflexibilities in the system means that part of the time the system leads and part of the time the system lags. A concrete example would be the building of a warehouse. If the system is growing, the warehouse would initially be too big and later be too small (even if it were the optimal size warehouse). If there are many warehouses being built during a period of anticipated growth, the average warehouse is the neither too small nor too large. The same holds for intellectual warehouses. Furthermore, if change is very rapid so that certain buildings or routines are quickly made obsolete, one does not make long term investments in them. Rather, buildings and routines are designed to deal with change.

B. Bilateral Monopoly Games: Niskanen's Model and Related Theories of Bureaucratic Power

The second view of bureaucracies has more of an economic flavor. The players now optimize, but as we shall see, the rules of the game are not-optimal and the players may not have rational expectations.

We start off with Niskanen's model since those that follow are just variants on a theme. [6] Niskanen argues that government bureaucracies, such as the defense department, are better informed than those who are supposed to oversee them. Since the utility functions of the bureaucrats tend to be positively correlated with size (income, power, prestige, and opportunity for advancement tend to increase as the size of the bureaucracy increases), bureaucrats will exaggerate the need for their services. Congress will be at the bureaucracy's mercy (congressmen don't have enough time to devote themselves to such intricacies) and hence the bureaucrats will tend to get their way. [7]

Once again competition undermines the argument.[8] Even if it were true that each bureaucracy were trying to maximize its size, that would not make each bureaucracy too large. Competition for funds between the bureaucracies would tend to create the information and force the bureaucracies to be the optimal size. Thus some government program might be undertaken by one of two agencies. The agency with the more persuasive argument and/or lowest expenditures would get the funding. [9] This is similar to an English auction (which eliminates all rents when the two highest private values are the same) and to the adversarial system used by courts to elicit information. There is also competition for managing the bureaucracy itself. Competition means that managers with a taste for size pay for it by receiving a lower salary. Furthermore, potential managers compete for the management job not only in salaries but also by the quality of information they give their principals. And if they successfully manage a small bureaucracy, perhaps by reducing its size by ten percent, then they may be appointed to manage a bureaucracy twice as large. [10]

But even if I am wrong about the quality of information that the legislature has about the bureaucracy, it is unreasonable to believe that bureaucrats would extort their monopoly power in the form of excessive production. If bureaucrats are so capable of pulling the wool over their clients eyes, why bother with making the firm too large. The share of the output that bureaucrats get from such a policy is certainly

very slight. Couldn't they just persuade congress, or whomever, that the bureaucracy could not function without them and that they therefore deserve twice as much pay. Furthermore, it is not clear that the heads of the bureaucracy benefit from lower level bureaucrats functioning in less than an optimal way, for then the rents that the head bureaucrats collect are of necessity much smaller. And competition for lower level jobs within (and outside of) the bureaucracy keeps excesses by lower level bureaucrats in check.[11]

The mathematical model that Niskanen used to demonstrate his thesis assumed that the legislature reveals an offer curve to the bureaucracy: For each level of output, Q , the legislature states the maximal budget, B , it is willing to provide. The bureaucrat then chooses that B, Q combination from the offer curve such that B is as large as possible given the constraint that the cost of providing Q is less than or equal to B (this cost function is known only to the bureau). Not surprisingly, this leads to larger budgets and outputs than would be the case if the legislature were provided information concerning the cost curves or if the legislature took a more active role in the process.[12]

Miller and Moe (1983) argued that such a characterization of the budgetary process is inappropriate. They developed a model that is virtually a mirror image of the Niskanen model. The bureau reveals an offer curve to the legislature: For each possible P , price per unit of output, the bureau states the Q that it will deliver. They assume that the bureaucrat does not know the legislature's demand curve and treats P as fixed. With a fixed P , the bureaucrat will choose the largest zero profit output ($B = P*Q = \text{cost}$), thereby revealing the true cost. The legislature can then choose that budget which maximizes social welfare.

Both models employ extreme myopic behavior. In the Niskanen model, Congress submits an offer curve without anticipating that the bureaucrat will want to maximize the budget. The legislature has no Bayesian priors regarding cost curves and does not try to manipulate the bureaucrat's choice. In the Miller and Moe model, the bureaucrat treats P as given when it is not and therefore does not try to manipulate the legislature's choice.

In the later part of their article, Miller and Moe consider the case where the price is not fixed and the bureau or Congress can consider any functional form linking budgets and outputs. Hence the interaction between the bureaucracy and Congress is a two-sided game. In comparison to the pure Niskanen model, the ability of the bureaucracy to manipulate information is reduced but not eliminated.

However, even Miller and Moe's characterization gives too much autonomy to the bureaucracy. They have chosen the wrong economic analogy. Their analogy is to a consumer purchasing a car from a monopolist supplier where it may be hard to get the seller to tell the truth.[13] But certainly the degree of difficulty in obtaining the truth is considerably less if the owner of the automobile company is trying to get information about a car his firm has produced. It is this latter (principal-agent) model which seems most appropriate here. Either the President or the Congress has considerable control over the government bureaucracy.[14] Congress or the President like any any consumer can discount the self serving statements by bureaucrats, but more importantly they can direct them to reveal information. We will consider principal-agent problems in the following section.

More recently Bendor, Taylor and Van Gaalen (1987) consider the case where the bureaucrat has programmatic preferences and wants to rig his superior's agenda to boost the odds that his preferred program will be selected. He does so by allocating more design time to his preferred program. But if their model is correct and even outsiders like Bendor, Taylor and Van Gaalen know that the bureaucrats are being manipulative, then surely the President and Congress should also be aware of this bureaucratic strategy (if not, someone should send them a copy of the Bendor et. al. article). Hence the President or Congress should be able to infer the bureaucrats preferences by the quality of the presentation and discount it, or Congress and/or the President might install an outside monitoring agency (if this were a serious problem), or they might have several agencies each design and be responsible for each plan, etc.[15]

Niskanen's model is an elegant representative of an extensive, but less formal, literature on bureaucratic power. Since theories of power are popular alternatives to economic efficiency explanations, it is

useful to close this section with a brief discussion of the limitations of power explanations. The first question is whether bureaus have any monopoly power to exploit. While one can view the government bureaucracy as a monolithic organization, in reality there are numerous bureaus competing with each other and with institutions outside the government. More importantly, the people who staff these bureaucratic organizations have virtually no monopoly power. There are simply too many competitors for these positions. An extensive sociological literature has tried to build models of collusion. Collusion may arise by building professional norms, [16] or by informal agreements built up by members of the bureau. But Congress and the President want to promote their own interests over the bureaucracy's and would create incentives to undermine such collusion. Hence coalitions might arise between members of congress and members of the bureaucracy that defeat pure bureaucratic coalitions. Furthermore, the ability to create a cartel on such a grand scale is highly questionable. Consider how difficult it has been for OPEC to exploit its potential monopoly power via cartel behavior. OPEC involves only a few sovereign countries (in comparison to the number of bureaus or bureaucrats); their main agenda item (to reduce total output) is a relatively simple goal compared to the type of agreements that might have to be made regarding bureaucratic collusion; the agreements between OPEC members are legal and can be made public; and they are unified in a common religious upbringing. If OPEC has problems maintaining cartel pricing, then bureaucrats should find it impossible to establish an informal cartel.

Furthermore, even if bureaus had monopoly power, it would be highly unlikely that they would exploit it in the way envisioned by the proponents of the bureaucratic power theory. Economic models of monopoly in the private sector predict that monopolist output will be too small, not too large. For similar reasons one would expect monopolist bureaucrats to use their monopoly power to extort higher wages rather than squandering it on excess production. Certainly, our knowledge of dictators shows that a considerable amount of their monopoly position is used to garner a large amount of wealth.

Another problem with the theory of bureaucratic power is that the concept of an equilibrium is often missing. Even if bureaucrats have power, this does not explain bureaucratic growth or change. A powerful bureaucracy that wants to grow should have already expanded to its limits. Change in bureaucratic

output then represent changes of power at the margin. Unfortunately, change in power is not typically measured directly but rather by result. Thus the "evidence" is often true by definition and does not satisfy the requirements of a scientific test.

Finally, the "evidence" for bureaucratic power is often perfectly consistent with the theory that the bureau has no power. If researchers observe that Congress always accepts bureaucratic decisions, this need not mean that the bureau is powerful, it may just mean that the bureau has anticipated the desires of Congress. In order to disentangle these two possibilities, one should look at changes in congressional committees brought about by election turnovers. If bureaus are all powerful, then differences in the makeup of Congress should have no effect on bureaucratic behavior. Weingast and Moran (1984) were able to demonstrate to the contrary. They showed how the the Federal Trade Commission became more consumer oriented when more liberal members were elected to Congress.

C. Principal-Agent Models

The Niskanen type models typically have optimizing behavior by the bureaucrat but the behavior of the superior is often reduced to an exogenously given parameter rather than being characterized as a strategic participant. Furthermore, the rules of the game are exogenous and not designed to produce optimal outcomes. In contrast, the principal-agent literature is concerned with the design of optimal contracts.[17] Thus the rules of the game are endogenous and those rules that are chosen are Pareto efficient.

In this section I briefly argue why one would expect optimal institutional design. I then consider principal-agent models. I argue that: 1) they have greatly exaggerated the uniqueness of such problems to the bureaucracy; 2) they have underestimated the ability of political markets to correct for these potential problems, and 3) they have derived incorrect conclusions from any agency costs that remain.

I have argued that the participants engage in maximizing behavior (for their own ends). It would be strange if the rules of the game were not, at a minimum, organized to produce Pareto optimal outcomes for the participants. The bureaucracy and its superiors have a long term relationship and transaction costs

are relatively low. Rules that produce inefficient transfers should have been replaced by those that produce more efficient transfers. Even if the system is not in perfect equilibrium, there should be no obvious biases in any one direction (since obvious biases should be accounted for by the participants). I will now argue that there is even a stronger result: that the rules are not only Pareto optimal, but also that they keep the bureaucrats at their competitive wage. That is, the bureaucrats have no rents to exploit. Congress and the President have considerable control over the rules of the game that they set out for bureaucrats. The pay scales and rules for bureaucrats are determined by competitive market mechanisms. It would be hard to argue that the supply curve of potential bureaucrats is vertical and that they can determine how much rent they collect. Congress need not pay above market wages (either explicitly through excessive salaries or implicitly by excessive perquisites such as large budgets).

The principal-agent problem also occurs in private markets and even in private markets where no bureaucracy is involved. For example, individuals are uninformed about their lawyers, managers are unaware of workers shirking, individuals cannot judge the durability of an appliance, etc. In the private market, numerous institutions arise to mitigate possible problems. For example, the risk is shifted onto the potential shirker by making him the residual claimant, workers are given above market wages with the threat of being fired if performance is not satisfactory, and department stores establish reputations so that one can rely on the store even if one does not know about the particular item sold in the store. [18] In a similar fashion, Congress and the Presidency can provide optimal contracts for bureaucrats and develop different organizational forms that reduce the potential for opportunism.[19] Thus vertical integration of bureaucracies reduces the opportunism that might arise between bureaus if there were horizontal integration; making the head of the bureaucracy a political rather than a civil service appointment insures proper direction; and monitoring by OMB, GAO and various congressional oversight committees reduces the potential for opportunism.

Bureaucrats may have different preferences from those of their superiors. However, even when their preferences are met, this does not imply an inefficient outcome. Consider the case, where government

bureaucrats like thick rugs.[20] This means that in the market for bureaucrats, the wage will be less when government offices have thick rugs. Like other job characteristics, amenities are paid for by the employee. If government bureaucrats truly prefer thick rugs, then it is not inefficient to provide them. This analysis can also be used in determining an upper bound on budget excess. First note that amenities are substituted for salaries only when the benefit of the amenity to the bureaucrat (and to Congress when Congress gets value from the amenity also) is greater than the benefit to the bureaucrat from an increase in salary equivalent to the cost of the amenity. That is, the total budget is less when the amenities are provided than when they are not (if congress does not value the amenity). It is hard to believe that many bureau heads would prefer a budget increase of 5 million dollars over a salary increase of 50 thousand dollars (possibly in terms of expected promotion), let alone, 5 million. Hence, for all, but cabinet level posts, budgetary excess is unlikely to be of the magnitude envisioned by the bureaucracy's detractors.

Civil service has been characterized as a method of creating monopoly power for slothful bureaucrats. However, the historical explanation is that it was a method of preventing opportunism by politicians. This argument parallels the argument for golden parachutes made by Knoeber (1986) who claims that such devices are to prevent opportunism by stockholders.

Furthermore, the characteristic principal-agent problem does not fit bureaucracies very well. The formal theory typically assumes a non-repetitive game; if the game were repetitive, then the principal could rely on the law of large numbers and estimate the mean state of the world facing the agent and thus infer the agent's behavior. Bureaucrats do not have one-shot outcomes.[21]

I have argued that the principle-agent problem of bureaucracies has been greatly exaggerated since there are numerous methods of reducing the potential for opportunism. However, not all methods of reducing opportunism are costless and some opportunism remains; but this still does not mean that bureaucracies are inefficient. If it is truly impossible to find any alternative structure that is more technically efficient because individuals lie and shirk and monitoring is costly (or because any structure has inherent problems of coordination), then the bureaucratic form is, in fact, efficient. It is inappropriate to

assume away the costs of shirking (if there is no economically superior solution) just as it would be inappropriate to assume away the shirking by draft animals in doing farm work. And even if other forms of organization have higher powered incentives and less opportunism than government bureaucracies, government bureaucracies are still efficient if these costs are less than the benefits (such as economies of scale) accruing from the bureaucratic form.

Furthermore, the existence of principle-agent problems does not imply that the agency will be too large. Asymmetric information and inability to monitor opportunism does not imply that principals on average underestimate the opportunism by their agents or overestimate the quality of services provided. Rather principals are likely to have unbiased estimates of the degree of opportunism by their agents. Thus some principals will underestimate the degree of opportunism by agents, but this is likely to be balanced by others who overestimate the degree of opportunism. [22] In the same way we expect Congress to know (as all of the rest of us do) that the Defense Department will overestimate its importance and discount the agencies requests.

More importantly, the potential for opportunism creates a tendency for bureaucracies to be smaller than they would be otherwise, not larger. When an agent engages in opportunistic behavior, the marginal value of the output per dollar spent on the input is less than it would be otherwise. In such a situation, the demanders of the input are likely to substitute away. Thus, if workers shirk, the response may not be to employ more workers but fewer workers and more machines. And since the production of this good is now more expensive than it would be in the absence of opportunism, the demand for the product or service may also be reduced if there are substitutes. Indeed, if the shirking or moral hazard is severe enough, the market for the good or service may fail altogether. Thus the potential for opportunistic behavior by a bureaucracy may encourage the executive branch to substitute outside contractors or to reduce the overall demand for the kinds of services the bureaucracy provides. The same holds true when we look at representatives as agents for voters. If voters can only monitor the extent of expenditures but not their content and if their agents choose inefficient allocations, then voters may vote for lower levels of government expenditures than otherwise by substituting private for public expenditures.[23] Thus the arguments

for governments and bureaucracies being too large fail again.

Finally, much of the empirical evidence for bureaucratic failure is flawed on methodological grounds. Many models of bureaucratic failure rely on the inability of the principal to monitor the bureaucracy. If the principal cannot observe the agent, then the researcher cannot either. Thus if government bureaucrats tend to be empire builders, researchers cannot observe this. If they could, then the principal could also. And since we are looking at long-term relationships with credible commitments, the principal could correct for such problems. For an example of measuring the agent's behavior, consider the work by Staaf (1977). Staaf shows empirically that the larger the school district, the greater the bureaucratic fat. But if this observation were truly the result of opportunistic behavior, then voters and politicians could make use of this cross section study (or make their own) and reduce either administrator salaries or the size of the administrations in large school districts. Hence measuring this type of opportunism involves an internal contradiction. When recontracting is possible, the potential for shirking is best measured indirectly by observing changes in the institutional structure (e.g., smaller school districts than would otherwise be the case), or by failure of the market to exist at all, not by directly measuring the supposed opportunistic behavior.[24]

D. A Comparative Static Analysis of the Oversight Function

So far the emphasis has been on why we might expect optimizing bureaucratic behavior. We now turn our attention to the design of the government bureaucracy by presenting a series of comparative statics results.[25]

i. Prior regulation versus post liability

Insight into the control of government bureaucracies can be gained by considering control in other areas. Automobile accidents are controlled both by regulation of the inputs (drivers are licensed, speeders are fined) and by liability for the output (reckless drivers pay for the damage). The choice between prior and post depends upon the relative costs of monitoring and the relative success of the incentive structure

to internalize costs. Some drivers may be judgement proof because they have limited wealth. Imprisonment as a substitute for a fine imposes costs not only on the individual being punished but also on society (guards cost money). Hence once again the full costs do not fall onto the individual driver. Because of this possibility of limited liability for accidents, the system fines people for inappropriate inputs (for example, speeding) even when there is no accident.

Bureaucrats can be punished for poor performance by not getting raises or by reduced allocations to their departments. Both methods impose only limited liability on the bureaucrat. When Congress desires high bureaucratic output, cutting budgets is very costly, and the method of control will shift to more detailed directives and input monitoring (See Calvert, McCubbins and Weingast, 1988). Input monitoring may include more explicit directions regarding the scope of the bureaucratic activity, as well as the instruments and procedures used in the bureau (See McCubbins and Page, 1987).

For similar reasons, the more difficult it is to fire a person, the more oversight there will be.

ii. Previous history

Previous problems with bureaucratic deviations from congressional intent will result in greater control by Congress. Instituting a special oversight committee, limiting appropriations, and reducing the scope of bureaucratic discretion are some of the possible methods of altering a wayward bureaucracy's behavior. See Scher (1963) and Sharkansky (1965).

On the other side of the coin, the greater the congruence between the cabinet head and the congressional committee, the less oversight that will be instituted. Congress may also choose to delegate legislative power to bureaucracies when there is unlikely to be serious differences between the two.

iii. The role of the constituents

McCubbins and Schwartz (1984) discuss two methods of control: police patrols and fire alarms. The former method relies on constant oversight by Congress; the latter method relies on the constituents to inform Congress of any deviation of implementation from congressional intent.

Those bureaucracies that can be policed by its constituents and where the constituents' interest is in agreement with Congress will need less direct oversight. Furthermore, Congress may reduce the cost of consumer oversight by having the bureaucracy pay for the costs (e.g., in the private sector, the environmental protection agency requires the firm to pay for environmental impact reports (Arnold 1987)). Where services are provided at different prices to different income groups, quality may be measured by monitoring the demand by fee paying servers (See Rose Ackerman, 1989) rather than directly trying to measure quality.

iv. Political importance of the bureau

The larger the budget of the bureaucracy or the more important the decision, the more oversight there will be. For example, Executive Order 12291 (46 Federal Register 131937) requires that executive branch agencies submit proposed major rules (defined as those having a projected economic impact in excess of 100 million dollars per year) to OMB's Office of Information and Regulatory Affairs sixty days before the publication of notice in the Federal Register; while non-major rules require only ten days notice (See Cooper and West, 1988). Furthermore, the more politically salient the issues are, the more oversight there will be.[26] Although all proposals are not reviewed and those cases that are reviewed are typically accepted, the threat of review is often enough to make agencies comply.

v. Degree of Competitiveness

Tirole (1986) has a model of collusion within the bureaucracy (see also the earlier work by Breton and Wintrobe, 1982). Collusion would most likely arise in a bureaucracy with little turn over. The greater the potential for collusion within the bureaucracy the greater the likelihood of implementing a system of competition between the bureaucracies.

The more competition for bureaucratic supply, the less oversight required. Each of the competitive bureaus will argue its best case against the other. Competition between the armed services is an obvious example of the use of competitive bureaus. Another important example is the competition between state

and federal bureaucracies. A less obvious example is the competition between Commerce and the Treasury (see Bendor, 1985).

E. The President, Congress and the Bureaucracy

So far the analysis has not taken into account the fact that the bureaucracy has at least two principals: congress (which is composed of various coalitions) and the president. In this section I will consider some of the issues that arise when an agent has two or more masters.

Before doing so, I will first discuss the incentives for congress and the president to monitor the bureaucracy. Alessi (1974) has argued that voters monitor the performance of politicians less than stockholders monitor the performance of firms, because voters cannot capture the benefit of improved political performance. In turn, politicians will be less inclined to monitor their bureaucracies. Hence government bureaucrats and employees (via their unions) will have a greater incentive and opportunity to increase their own utility at the expense of their employers. In earlier chapters, I have argued against the first point. Here, for the sake of argument, assume that politicians are not controlled by the voters. This still does not mean that bureaucrats will have their way. If politicians have greater freedom to neglect the interests of the voters and to pursue their own objectives, why should they cede any of this to the bureaucrats under them?[27] If politicians have greater discretion, bureaucratic behavior will reflect the interests of politicians rather than voters, not bureaucrats instead of their principals. While it is possible, that politicians may use their discretion to pursue the quiet life (thereby letting the bureaucracy to its own devices), the reverse is also quite possible. For example, politicians could fill the bureaucracy with their friends and encourage policies which erected barriers to the entrance of opposition parties. Finally, real world evidence suggests that political dictators, who have a great deal of discretionary power, do not cede their power to the bureaucracy.

Hill (1986), Hammond and Miller and Hill (1986), and McCubbins, Noll and Weingast (1989) have all considered the possibility that the bureaucracy can take advantage of disagreements between the leg-

islature and the executive or among the legislators themselves. For example, Congress might pass legislation "requiring" the bureaucracy to behave in a particular way. The bureaucracy may behave in a different way which is somewhat preferred by the president over the initial intent of Congress and greatly preferred by the members of the bureaucracy. Hence Congress will be unable to create a new coalition with the presidency to override the bureaucracy and restore its original intent.[28] Once again, rational expectations comes to the rescue. Congress and the presidency should anticipate such deviations and create an agreement between them that insures that the intended outcome is the actual outcome. An important method is to choose an agency head that is acceptable to both congress and the president. The confirmation process is designed to achieve this end.[29] Other methods include more detailed directives for the bureaucracy and the threat of reduced appropriations.[30]

F. Self-Interest and Social Welfare

Those who rail against bureaucracy argue that bureaucrats are interested in their own welfare rather than some other goal such as the public good. But the fact that bureaucrats are interested in promoting their own welfare no more proves political market failure than the existence of self-interest by businessmen proves economic market failure. Of course, bureaucrats, if they are collecting any rents, will promote the continuation and survival of the bureaucracy just as businessmen tend to do. There is nothing special about bureaucracies trying to perpetuate themselves, but they will only be able to do so if they satisfy their demanders. Thus the fact that bureaus change and grow should not be viewed as some kind of negative aggrandizement. Indeed, their capacity for survival and change is indicative that they have been serving their customers very well.

FOOTNOTES

[1] Although Weber admired bureaucratic effectiveness, he was quite concerned about the threat of bureaucracies to democratic systems.

[2] The arguments used here should not be confused with the view that everything in the world is Pareto optimal. The latter view would say that monopoly is Pareto optimal because the transaction costs involved in eliminating monopoly pricing would be greater than the benefits of creating a more competitive system. I make no such arguments here; rather I argue that the system is competitive.

[3] See Wittman (1983) for an analysis of the optimal rules of thumb in highway and sports rules.

[4] One might counter that there are an infinite number of things to maximize. But often the comparative statics results are the same regardless of the maximand (within in reason) and furthermore there are some very prominent choices for maximizing.

[5] If the costs of overreacting were greater than the costs of underreacting, then optimal behavior by the bureaucracy would result in a higher probability of underreacting. In either event the behavior is a response to uncertainty, not a response to predictable circumstances.

[6] For example, see Migue and Belanger (1974), who argue for more slack to satisfy some unspecified bureaucratic preferences, Breton and Wintrobe (1975, 1982), Orzechowski (1977), who argues that bureaucrats have a preference for labor intensity (in order to maximize the number of voters the bureau has), and Spencer (1982), who allows for a sequence of bureaucrats. Niskanen (1975) altered his model so that the degree of discretion by bureaucrats was reduced and he put more of the blame on congress.

[7] This is quite similar to the early works of Marx, who saw bureaucrats as furthering their own interests (only later did he claim that they served the interests of the ruling class). Bureaucrats were able to maintain their domination via their monopolization of knowledge. Weber (1968, P. 993) also argued that the bureaucracy could overrule its master by maintaining secrecy.

[8] Niskanen viewed the situation as being a bilateral monopoly between the supplier of the service (bureau) and the demander (Congress). But if his model is true, why would Congress and the Presidency

be so stupid as to set up such a monopoly supplier? One possibility is that these bureaucratic costs are minor in comparison to the benefits from scale economies. A second possibility is that Congress and the Presidency really wanted it that way, but then there is no conflict between the bureaucracy and the legislature and consequently no bureaucratic failure. Niskanen also considered a variant of this latter case and suggested that bureaucracies be split up into competing parts.

[9] See Neustadt (1980) who argues that skilled presidents will have Secretaries of State and Defense in opposition so that each will present different sides of the story. Also see Breton and Wintrobe (1982).

[10] The possibility of advancement has been pointed out by Breton and Wintrobe (1982); however, they argue that trust between members of the bureaucracy prevents such behavior.

[11] See Posner (1974), Martin (1972) and Tullock (1965), who have made the same point.

[12] Chan and Mestleman (1988) argue that this is not "over-production" because the utility of the bureaucracy is reduced if the budget is reduced. They also consider several other models which produce results on the contract curve.

[13] Even here, a true monopolist is likely to extort her monopoly position via higher prices rather than create needless uncertainty which lowers demand from risk-averse consumers.

[14] Some authors have argued that it is Congress in cahoots with the bureaucracies that make the bureaus too large. See Fiorina (1983) and Weingast and Moran (1983, 1986). In the previous chapters I have argued that Congress does not distort the interests of the people.

[15] Bendor, Taylor and Van Gaalen present several models in their paper. Their model 3 does incorporate monitoring. Such principal-agent models will be discussed in the section devoted to principal-agent models.

[16] But then again professional norms may be developed so that bureaucrats are more trustworthy and less likely to collude.

[17] Application of the principal-agent literature to bureaucracies includes Weingast (1984), Bendor, Tay-

lor and Van Gaalen model 3 (1987a, 1987b) and Tirole (1987)).

[18] If the agent is risk-averse and shirks, there may be no contract which makes both the agent and the principal as well off as they would be if monitoring of the agent were costless or the agent did not shirk, but such a situation is, alas, impossible.

[19] Lindsay (1976) argues that Congress only rewards things that it can measure and that somehow Congress is not able to measure things like delay and rudeness of bureaucrats. Therefore bureaucrats are rude and make people wait. But clearly this measurement problem is no more serious for government than for business. Furthermore, one could have a measure of waiting time (e.g., a sample survey of patient waiting time, or lengths of lines), and both business and government bureaucracies could measure the overall decrease in consumer demand. Also, it is not clear that bureaucrats are uninterested in directly satisfying their customers, since their customers may create the political pressure for expansion of the bureaucracy. Finally, to the degree that waiting time in lines is longer for government bureaucracies, this may just reflect the fact that they cater to lower income people (charity cases) whose shadow price of time is lower.

[20] I am not aware of any empirical studies that show that government offices have thicker rugs than private firms.

[21] Bureaucrats may work as a team. Hence it may be hard to infer individual contributions even in repeat play. However the superior should be able to judge the team as a whole in repeat play.

[22] Hence one should be suspicious of any theory that relies on fiscal illusion.

[23] The fact that the voters have not consistently voted for the candidate promising (or demonstrating a commitment to) lower government expenditures suggests that government expenditures are not too large.

[24] Similar methodological problems occur for those who employ political power as an explanation for bureaucratic choice and structure. Power relations might determine the amount of control but not the organizational structure (unless those in power have peculiar tastes for structure), just as wealth (the initial allocation of rights) does not determine the organization of exchange or the final allocation of rights

(when transaction costs are low).

[25] Note that rationale for these results differ substantially from the explanations provided by McCubbins and Page (1987) and Fiorina (1985). Their models assume that legislators delegate more power to the bureaucracy in order to shift the blame for the costs of regulation onto the bureau. Fiorina views administrators as mechanisms which add "political daylight between the legislators and those who feel the incidence of legislative actions (page), while McCubbins and Page (page 417) claim that delegation allows the "legislator [to] claim credit for addressing an important policy problem and at the same time shirk any blame for making hard policy choices. Elsewhere in this book I have argued that voters and the clients of the bureaucracy are not fooled by such tricks.

[26] This runs counter to the arguments by McCubbins and Page (1987) and Fiorina (1985) at note 25.

[27] This point has been made by Wintrobe (1987).

[28] For example, in the early part of their paper, McCubbins, Noll and Weingast consider a model that assumes that the agency first chooses a policy and that the politicians can either accept or reject by passing new legislation. The bureaucracy chooses a policy that cannot be defeated by a winning coalition.

[29] Many have argued that the Senate's ability to confirm is unimportant because it is often perfunctory and virtually all nominations are approved. However, a wise president anticipates the reactions by the Senate and hence nominates people who have a high probability of succeeding. Some evidence for this can be found by comparing the nominee to the previously defeated nominee. They are rarely similar. For example, President Reagan did not nominate any Bork clones after Bork was defeated even though they had been high on his earlier lists.

[30] See Fiorina (1986) who discusses at length the concerns expressed by congressmen regarding the implementation of the Interstate Commerce Act of 1887.