Formal Models of Legislative/Administrative Interaction: A Survey of the Subfield

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What do formal models of legislative/administrative interaction tell us? This article reviews the literature on the behavior of agencies and legislatures toward each other as developed through the construct of formal modeling. The emphasis is on the substantive findings of the models rather than the detailed methodology of their construction. Gill considers two general areas: models with a budgetary focus, and a sample of models with alternative perspectives.

The purpose of this article is to review an important developing subfield of public administration: formal models of legislative/administrative interaction.[1] Formal modeling was originally an approach confined to voting behavior, public policy analysis, and occasionally legislative behavior. Scholarship on institutions generally took more sociologically oriented approaches (Weber, 1946; Simon, 1947, 1957; March & Simon, 1958; and Wilson, 1975). Change was precipitated by the introduction of economic tools in the form of social choice theory. The core idea of this approach is that complex organizations and their outputs can be analyzed as sums of discrete, rational subunits that are modeled and predicted with formalistic language and structures. Unfortunately, the technical complexity of some the contributions diminishes their ability to reach a wider audience. Behind the hurdle of economic formulas, mathematical abbreviations, and statistical constructs are a collection of powerful insights into the study of bureaucratic behavior. In this article, I briefly review and summarize a set of these formal models of legislative/administration interaction that have contributed substantially in this area. My intent is to discuss these models in nontechnical and nonmathematical language that highlights the concepts and insights rather than the detailed methodology. In order to provide a brief history of the field, I have omitted some of the interesting subtleties. Although this is unfortunate, it is necessary to provide a general overview while highlighting the major contributions of each work in such a way that readers who are not familiar with this literature can consider its dominant themes. I first review models of legislative/administrative interaction that focus on the budgetary relationship. These models are rooted in the Niskanen (1971, 1975) tradition. Then I discusses contributions that are not focused on the budgetary aspects of the relationship. This is an eclectic sampling that highlights innovative contributions that are formal models or models incorporating some formal component.

Formal models are logical, rigorous constructs that attempt to explain some aspect of administrative behavior in formalistic language that can be tested against observed phenomenon. A formal model is evaluated by its ability to explain known behavior or events in precise, symbolic terms. Such models are most useful when their application produces conclusions that would not otherwise be intuitive or immediately clear. The symbology of this type of model allow a rigorous manipulation of variables to produce results that typically are not possible through standard analysis. This type of modeling shows how a set of simple rules applied to a hypothetical situation can illuminate less obvious characteristics.

The mathematical and statistical complexity of these models varies considerably. The development of this approach is related to the increased use of economic and mathematical tools in political science, most notably in the analysis of voting behavior, that occurred in the 1950s and 1960s. The fields of political science, policy studies, and public administration acquired the techniques of game theory, decision theory, various stochastic processes, advanced statistical tests, linear programming, and probabilistic analysis. The adaptation of many of these tools originate with the work of political scientists such as Simon (1947), Downs (1957), Luce and Raiffa (1957), Buchanan and Tullock (1962), Tullock (1967), Riker and Ordeshook (1973), and Ferejohn and Fiorina (1974). Many ideas are imported from economists such as Bhagwati (1965, 1969) or political economists such as Olson (1965). Allison (1969, 1971) attempted to model bureaucratic decision making using three different models which drew upon the works of Downs (1967) and March and Simon (1958). Although Allison's three models are a simplification, they remain important and are often cited because they offer the idea that governmental decision making can be categorized and analyzed through relatively simple constructs.

Niskanen's Model

The forerunner of bureaucratic models and the most cited is that of Niskanen (1971 and 1975). The Niskanen model focuses on the budgetary relationship between legislatures and agencies. In this relationship, the legislature has a demand for the output of the agency and the agency has a demand for funds from the legislature. Niskanen assumes that the standard economic laws of supply and demand in regard to quantity are in effect. The single goal of the agency is a perpetually increasing budget. There are two major advantages the agency possesses in this model: (1) it is assumed that the agency has perfect knowledge about the legislature's demand and budget ceiling, and (2) the agency is not required to itemize and cost individual outputs; it can present all-or-nothing proposals.

These assumptions lead to an imperfect environment in the economic sense: the agency practices perfect price discrimination. This means that it charges the maximum price the legislature is willing to pay for any specified level of output. The agency will produce past the level where marginal cost equals marginal value (an additional unit has greater cost than value to the legislature) providing a level that exceeds a socially optimal point. As a result, the agency's budget is always too large, the output is too great, and the legislature never receives a fair level of services for the funds spent. This scenario is called the first solution of the model or the demand-constrained result.

A rational legislature seeks increased agency production as long as the value of an additional unit is greater than the cost of that additional unit. When the two are equal, the legislature is at its optimal economic point. The second solution, the budget-constrained solution, occurs when the costs are rising steeply enough that the agency cannot produce the output level for which the legislature is at this optimal point. As a result, the agency will produce only the amount for which the costs are

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barely covered by the proscribed budget. Even at this level, the agency still charges the maximum price that the legislature will pay, and again output still exceeds the socially optimal level. Niskanen concludes that these forces produce a government that is always too large.

By focusing on the relationship between an agency and the legislature, Niskanen distills the essence of bureaucratic priorities down to one overriding goal: survival through budgeting. The construct here is extremely simple. Niskanen declines to further formalize the model which leaves significant opportunities for others to build on the intellectual foundation for more advanced and complex structures (e.g., Romer and Rosenthal, 1978; Miller and Moe, 1983; Mackay and Weaver, 1981; Breton and Wintrobe, 1975; Bendor and Moe, 1985, 1986). In addition to questioning Niskanen's basic assumptions, a preponderance of critics have identified flaws such as an inconsistency between agenda control based on authority versus information, and an empirical criticism of his committee approach.

Budgetary Models of Legislative/Administrative Interaction

Romer and Rosenthal

Expanding on the Niskanen framework, Romer and Rosenthal (1978) produced a detailed model that explores the agenda-setting power inherent in a Niskanen-type bureaucracy. The agency exercises agenda-setting monopoly power by offering voters (through a hypothetical referendum) an expenditure proposal. Should the voters reject the single alternative offered, the expenditure level reverts to either zero or the previous period's level. Romer and Rosenthal thus consider that the agency does not necessarily offer an all-or-nothing proposal as does the Niskanen agency. The Romer-Rosenthal agency often must offer an all-or-status-quo ultimatum. As with Niskanen, the agency seeks the highest possible expenditure level, and must determine the level offered for vote by estimating the location of the median voter. In this construct, the model focuses on voters, who can be voting legislators or voting citizens.

This model produces some interesting conclusions. First, there is the somewhat paradoxical result that most voters are better off and allocative efficiency is improved if the agency can impose a level without voter approval. This results from the possibility that a rejection of the level proposed causes a zero-expenditure or suboptimal level under certain circumstances. The authors' calculations show that as long as the status quo or zero (ultimatum) level is less than the median of the most preferred budget level, then this ultimatum level is the inverse of the highest possible budget that the agency can win. Conflict

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stems from the ability, in this model, for high demand interest groups to substantially control agendas at the expense of low and moderate demand interest groups. The implied, but not explicitly stated conclusion from this model is that bureaus have less than complete agenda control because the expenditure level and its ensuing policy output reverts to either zero or the status quo if the proposed level is rejected.

Mackay and Weaver

Also concerned with the power of agenda setting in this type of model, Mackay and Weaver (1981) extend the Romer-Rosenthal model to include multiple interacting agencies with multiple agendas. Many of the complexities that were assumed away in previous models are present here in great measure. Using a two-agency, three-voter model with one voter acting as the decider, the authors are able to depict graphically the multiple cases. There is, however, some loss of generality from the assumption that voters can have only quadratic utility functions. In the basic model, the two agencies are separately engaged in substitutable policies and receive budgets based on voting preferences subject to agenda setting. As a baseline the authors first determine the budget level that would exist in the absence of any agenda setting by agencies. In the first variation, agency A practices a Romer-Rosenthal type agenda-setting budget offer, and agency B receives a competitive level determined by the voters. It is not surprising that this arrangement leaves agency A advantaged, although the calculations are less than clear. In addition, if the agencies produce complementary output rather than competing or substitutable output, then agenda setting by agency A actually benefits agency B as well. The model also shows that an increase in an agency's reversion level reduces its own expected budget and increases the other agency's budget. This makes intuitive sense because as the reversion level approaches the agenda-setting budget, it becomes more attractive to voters to select the reversion level and spend the difference on the other agency. The model also shows that if the agencies are producing substitutes, there are always mutual gains to the two agencies from consolidating, and often gains from colluding.

Miller and Moe

Objecting to the agency's agenda-setting power implied by the Niskanen model's all-or-nothing choice to the legislature, Miller and Moe (1983) state that the power of the agency comes instead from technical or functional expertise. The bureaucrats practice agenda setting because asymmetrical information levels exist and they prefer it to remain that way. Miller and Moe refer to this as information-based agenda control rather than authority-based agenda control (Romer and Rosen-

thal, 1978). Because the agency restricts the information to maintain information-based agenda control, the argument that the Niskanen construct leads to committee power and agency superfluousness is effectively mitigated. Miller and Moe model two scenarios: one where the legislature conceals demand for agency services, and one where the legislature reveals demand for agency services. In this model, the agency must provide cost per unit of services and cannot provide the all-or-nothing alternatives that Romer and Rosenthal modeled. The key difference is, therefore, the removal of any authority-based control by the agency. They find that even when the agency restricts information (information-based agenda control), the agency cannot price discriminate by providing only one supply curve that matches the demand curve.

Since the legislature knows the cost per unit of services, they will set a constant amount (p) which is the maximum that they are willing to pay. The point where this price intersects the supply curve determines the quantity (q) of services provided. This point remains under the demand curve, demonstrating the inability in this model for the agency to exploit asymmetrical information. Furthermore, there is a gain to the legislature because the agency would have benefited at their expense had the price per unit schedule remained confidential. Miller and Moe conclude from this model that when costs increase linearly with output level and the legislature is aware of the function, then the agency is denied authority based agenda control.

Bendor, Taylor, and Van Gaalen

Bendor, Taylor, and Van Gaalen (1985) develop another model in this tradition. They are concerned with the interactive effects of deception and monitoring in the relationship between the agency and the legislature. The contention is that an information asymmetry exists in the form of bureaucratic technical expertise, and that this expertise gives agencies strategic opportunities. The core issue is the extent to which this technical expertise is used to obtain agenda control with the legislature. The authors identify two types of agenda control: editing the range of policy alternatives and manipulating the information given to the legislature. Another issue with the standard Niskanen framework is the assumption that the legislature can measure the output that it has purchased from the agency. Niskanen also noticed this problem. The authors are specifically concerned with the difference between bureaucratic activity and bureaucratic output.

This model makes use of an intermediate activity of which the legislature has greater knowledge than it does of the final output. For example, Congress members can readily find out how much a tank should cost, but do not typically have the expertise to determine how much incremental national security is provided by this one unit of tank. For this information, the Congress member would be forced to rely on the word of a Department of Defense expert, who could possibly be practicing the two types of agenda control. Second, this model assumes that the agency must submit a per-unit price schedule (like Miller and Moe, 1983), not the "all-or-nothing" ultimatum. Third, the agency cannot bargain with the legislature

because the budget is unilaterally appropriated according to the median legislator's preferences. These rules are the foundation of the game where the agency seeks greater budgets through a strategy that involves varying levels of deception, and the legislature seeks to maximize net benefits from the distribution of funds while employing varying levels of oversight in an attempt to detect any deception. Deception varies because as the agency falsely overestimates in order to obtain greater budgets, it also increases the risk of detection. With detection comes penalties. Monitoring also varies because there a is cost associated with increasing the level.

A cycle begins when the legislature asks the agency to submit a production function which indicates the per-unit cost of producing the intermediate activity. In this cycle, the agency knows the legislature's demand and provides a production function based on this information and a deception level derived from the anticipated monitoring level and the agency chief's risk adversity or proclivity. The agency trades the expected budget, with deception, against the expected probability of detection and the amount of penalties levied as a result. Penalties are not explicitly defined in the model, but are considered non-budgetary and painful to the agency.

The authors add a critical innovation at this stage. Noticing that not all agencies behave in the same manner under these assumptions, they determine that the variance is significantly due to the elasticity of demand for the output of the agency. That is, if demand is inelastic, then the legislature's increase in quantity demanded will not compensate for the decrease in price received. Conversely, if the legislative demand for the output is elastic, the increase in output demanded compensates for a fall in price. Of course, the relationship need not be linear, so that the agency is required to analyze the elasticity within an expected range. It is critical to understand that the intermediate stage of this model makes it possible for the agency to deceive and provide an artificial demand function based upon maximizing the budget subject to anticipated elasticity and expected monitoring.

The model provides three uncertainties: demand uncertainty (relaxing the assumption that the agency knows the demand function of the legislature), penalty uncertainty (possible changes in the level of penalties for levels of deception), and supply uncertainty (changes in the cost of inputs).   These uncertainties interact with the level of risk adversity of the agency chief. There are some surprising results, such as the conclusion that the risk seeker behaves more cautiously after the environment becomes more uncertain, while a segment of risk avoiders increase their level of deception. This is caused by the shifting of the marginal cost of deception.

In general, the authors find that when the basic structural relationship outlined by Niskanen and Miller and Moe is enhanced by more realistic constructs, such as uncertainty and legislative punishment for deception, a risk-avoiding agency is less inclined to deceive the legislature. Thus the model departs from its predecessors by finding that bureaucracies do not always exaggerate their costs and understate their outputs. Second, all agencies are not alike. Previously the agency was considered a

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generic entity with regard to its budget seeking strategy, but these authors find that there are variables such as risk adversity or proclivity, elasticity region, changing legislative demand for their specific output, and three environmental uncertainties. Finally, the relationship between the legislature and the agency is shaped to a great extent by the relative amounts of deception and oversight employed. Increased levels of legislative monitoring, with increasing costs, do have a significant impact on the tendency for the agency to seek excess budgets.

Conybeare

A thorough review of the basic Niskanen model is undertaken by Conybeare (1984) who focuses on situations that might cause the budget-maximizing agency to behave differently. He evaluates the effects of specialized resources, public goods, outside competition, and lower productivity. Specialized resources have no practical application outside of the particular subsystem. Examples are tanks, specialized computer systems, and even individuals (typically experts). The higher the proportion of these specialized resources, the lower the ability of the legislature to take portions of the agency's mission elsewhere. This, of course, enhances the agency's position. Conybeare also distinguishes agencies producing a public good from those engaged in activity more easily replaced by the private sector. If legislators believe that the private market is unwilling to produce the desired level of a public good, then the agency producing that good has an enhanced bargaining position. Local agencies are also faced with the ability of citizens to change jurisdictions—such as parents moving to a different community with a better school system. Another form of competition facing some agencies is that of multiple agencies and one sponsor. Conybeare asserts that if multiple agencies can offer the sponsor (legislature or executive) identical or substitutable products, then each agency is inclined not to practice the standard Niskanen style price discrimination. Conybeare also finds that low productivity and efficiency fundamentally alters the output of the agency. A demand-constrained agency can be transformed into a cost-constrained agency if the inefficiencies are sufficient. In addition, even if the agency could operate above the ideal competitive level, the handicaps of low productivity and efficiency are sufficient to reduce output enough to remove any difference.

Conybeare identifies and discusses various aspects of Niskanen's model that require additional detail. He is concerned generally with the effects on bureaucratic power defined in the Niskanen model. By identifying aspects of bureaucratic anatomy that differ and subsequently alter the relationship with the legislature, he is actually asserting that agencies are not all alike and that wide generalizations about legislature/agency interaction that do not take into account the special features inherent to every agency are destined to be inaccurate empirically.

Bendor and Moe

One of the most significant and detailed models of legislative/administrative interaction is that by Bendor and Moe (1985, 1986). This new modeling framework has some roots in the Niskanen tradition, but departs dramatically from the simplified assumptions. Bendor and Moe develop a dynamic model of bureaucratic behavior that more accurately reflects empirical evidence by including the reiterative aspect of the budgetary process. This model has five important attributes:

1. A focus on three-way interaction between bureaucracies, politicians, and interest groups

2. Allowance for institutional features in each group

3. A dynamic, time-series approach

4. Participants make choices, not single optimizations

5. Participants are not fully informed

The model is developed to provide for these features by departing from the static maximization approach that preceded the work. They use a federal level agency where the main output is enforcement. High levels of enforcement benefit consumers, and low levels of enforcement benefit corporations. This is complicated in the second stage, where taxation is added to the model, and this tax base is derived strictly from the consumer group.

In the Bendor/Moe model, each of the groups has defined goals and preferences. The agency wants larger budgets, more slack, and less legislative oversight. The legislature consists of 101 elected politicians with the single-minded goal of reelection. Finally, there are interest groups: one that benefits from increased agency output and another that is hurt by increased agency output. Within these groups, a circular flow of influence exists. Citizens are able to pressure the legislature by voting and communicating. The legislature influences the agencies through budgeting and oversight. The agency affects citizens with the costs and/or benefits of its programs. Finally the citizens link their support of the politicians with their positions on support of the agency. In each period, the legislature sends the agency a budget that is plus or minus 10 percent from the previous budget, and each individual legislator must take a public position on the -10 percent to +10 percent scale by analyzing his or her budget vote in the past period and determining the amount of support from citizens that was gained or lost as a result. If a budget produces increased net support from the interest groups, then the legislator will continue to support increases. Conversely, negative net response from the interest groups will cause a reversal of the support for increased budgets. The agency receives the median of the legislature's total votes. Furthermore, if the past period had an increase in the budget, but an interest group says that the agency produced less, then oversight is triggered for the next period. Otherwise, oversight decays exponentially.

Of course the agency has rules as well. Increased budget and slack contribute positively to the agency's utility. But oversight and deviation from the ideal budget point contribute negatively to the agency's utility. The agency controls its own efficiency:

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this is defined as the fraction of the total budget spent on enforcement. The socially optimum point (not the objective of the agency) is the point where marginal costs equal marginal benefits, including budgetary costs. Consumers and corporations possess political resources, and these are spent on legislators in order to obtain support. This is defined by legislators voting to increase or decrease the agency budget, where increasing is said to benefit consumers at the corporation's expense, and decreasing is said to benefit corporations at consumer's expense.

Having created all of these definitions, goals, and rules, the Bendor and Moe run the following seven scenarios with differing parameters:

Scenario 1: The agency has only one goal, which is budget maximization. This leads to a pluralistic outcome at the level where the political resources of the business groups and the consumer groups are equal.

Scenario 2: A second agency goal of slack is added. Slack is defined by Bendor and Moe as appropriations devoted to any use other than output. This scenario leads to lowering agency efficiency, and falling output. A proconsumer legislation is then caught in a bind: it is inclined to give the agency more funds to increase output, but this then rewards the agency for falling output.

Scenario 3: In this scenario, the agency practices backward looking behavior. This leads to the same conclusion as Scenario 2, with enforcement tending to zero.

Scenario 4: Builds on Scenario 3, but makes the agency slow to adapt to changing conditions. The legislature increases funds faster than the agency becomes unproductive, temporarily passing the equilibrium point. Then the legislature cuts funds, sending the first negative message in order to signal a desired increase in efficiency. The result eventually settles to the pluralistic equilibrium point.

Scenario 5: Legislative oversight is added to the model. After a series of adjustments, the agency learns to adapt its behavior to avoid oversight and the result is a level at the pluralistic equilibrium point.

Scenario 6A: In this scenario the agency is concerned centrally about implementing a pro-business policy, where enforcement is less than the socially optimal point. This scenario leads to reduced efficiency, even when the legislature provides additional funding. Enforcement cycles in a compromise region bounded by the agency ideal on the low side and the pluralistic equilibrium point on the high side.

Scenario 6B: This is a variation of the last scenario where the agency has a pro-consumer preference rather than a pro-busi-

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ness one. This leads to the pluralistic equilibrium point, but at a very moderate budget level.

This fragmentation was cleared up when the additional dimension of taxation was added to the model. This new parameter means that all budgets are financed by taxes on consumers, and all additional agency outputs create costs to these consumers. With taxation, virtually all of the previously described scenarios lead to the pluralistic equilibrium point. Eliminated are the degenerate solutions and the compromise regions.

Under a wide range of conditions, the regulatory system constructed in the model gravitates toward a pluralistic equilibrium. This equilibrium is reached incrementally by the actors, who only vaguely understand the effects of their actions during any given period. This equilibrium point is not the socially optimal point, it is a lower enforcement level that favors the corporations over the consumers and reflects the relative levels of interest group resources. Therefore the perceived power of the bureaucracies is not as high as expected. The system of checks built into the system keeps them within strict boundaries. In addition, the bureaucratic inertia that is so criticized has some positive utility under this model because it retards ambitions towards higher budgets and more slack. Finally Bendor and Moe note a bias within the system that favors corporations and conservatives. This asymmetry arises because cutting budgets will curtail overspending, but an increase in the budgets does not necessarily cause an increase in spending if the agency is not in favor of increased output. That means that the increase can be absorbed into inefficiency and not increased output should the bureaucracy wish to retard the delivery.

In a follow-up article, Bendor and Moe (1986) use the same basic construct, but add a legislative committee with strict agenda control and electoral districts that containerize political power and resources to varying degrees. These extensions lead to some surprising results, committees that have agenda control do not exercise the political power that one would normatively expect. This is because efforts by one group to capture the committee in order to alter the agenda will certainly be matched by other competing groups. As a result, strict agenda control by the committee does not lead to a different determination of the model equilibrium. The mobility of resources adds a rich dimension to the model. When resources are relatively free of regional boundaries, Bendor and Moe find that agenda control alters the equilibrium point only if a dominant interest group exists (which uses information asymmetry to capture the committee), and the starting point of the model is far removed from the pluralist equilibrium point. In contrast, if resources are immobile, then agenda control works as anticipated by neoclassical models. The primary contribution of the sec-

ond model set is the inclusion of agenda setting at the committee level, and the effects on the behavior of that committee caused by the level of mobility of resources.

Nonbudgetary Models of Legislative/Administrative Interaction

Nonbudgetary models have developed the themes of independence, discretion, agency rulemaking, and legislative involvement in agency structuring. Recently, James Q. Wilson (1989) pointed out that government agencies may be thought of as agents in a principal-agent relationship, but then they certainly have multiple principal: Congress, the President, agency executives, and the courts. The relationship is obviously more complex than the purely budgetary approach would indicate. Much of the literature in this category is often more oriented toward policy studies and uses of the legislative/administrative relationship as a model component rather than the central focus.

Migué and Belangér

Managerial discretion in government and non-profit organizations are the concerns of Migué and Belangér. They construct a model very much in the Niskanen tradition, but with the focus on the bureaucrat's discretionary resources. The model provides managers with two ways to spend discretionary profit: increase output, or a combination of nonoutput related expenses which effectively raise the cost of producing the current output. The ensuing model departs from and contradicts Niskanen in that if any of the nonoutput related expenses provide positive increasing utility to the bureaucrat, he or she will never attempt to reach the maximum level of bureaucratic output possible. This is because the budget line for the bureaucrat is concave to the origin indicating that at some point the marginal utility received for increasing output will, by definition, fall below the positive marginal utility of increased expenditures on non-output related items. Among the other findings is the interesting conclusion that agencies with more inelastic demands for output tend to operate further above least cost than agencies with relatively elastic demand for output. This is consistent not only with common sense, but also a large body of empirical literature. This model not only provides some interesting insights, therefore, but also validates those insights with production of additional conclusions that are supported empirically.

Calvert, McCubbins, and Weingast

Discretion is defined by Calvert, McCubbins, and Weingast (1989) as deviation by the agency from the positions agreed upon by the legislature and the executive at the time of the agency chief's appointment. They propose that discretion occurs during later time periods when the agency chief and his organization have different incentives and rewards than either the legislature or the executive. Furthermore, this model defines discretion as an agency objective in a game in which appointed bureaucrats, the President, and Congress compete to shape policy outcomes. The result is that, even when the agen-

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cy makes decisions, these decisions are consistent with the objectives of either executive branch or congressional politicians.

Fiorina and Noll

Another framework for legislative/administrative interaction was proposed by Fiorina and Noll (1978). They model how congressional involvement leads to the growth of inefficient agencies, as individual members attempt to be responsive. Specifically, they find that some agencies create incentives and opportunities for executives and committee members, behaving in a rational and self-interested manner, to facilitate processes that result in an excessively bloated and bureaucratic administrative structure. The conclusion is that if the income elasticity of demand for a particular government service is any level over zero, then the government process, through Congress and the agencies, will respond with increasing bureaucratization as legislators attempt to manipulate bureaucratic output to enhance their likelihood of reelection. Congressional responsiveness thus tends to produce a higher quantity of agency output, but not necessarily a higher quality of agency output. Note that this provides an alternate cause of excessive government independent to that of Niskanen.

Weingast

A case study model developed by Weingast (1984) argues that agencies behave toward legislatures as corporations behave toward customers. Focusing on the regulatory process, Weingast uses the case of the Securities and Exchange Commission to model the implementation of congressional preferences as driven by reelection concerns. He models voters as the ultimate principal in the process with legislators as their agents. In this model, Congress exercises substantial control over agency decision. The chain of principal-agent relationships beginning with the voter, flowing through the congress-persons, and ending with the agencies is designed to systematically remove any element that does not specifically adhere to the principal-agent power center. Voters look for congressional representatives that serve their home interest through exercising control over agencies. Representatives that fail to do so are eventually replaced with ones that will. Agency heads that are sensitive to legislators principal-agent relationships with voters pursue regulatory practices that support the legislators' (and therefore the voters') preferences. In particular agency heads must be attuned to the positions of the members of Congress sitting on the relevant committees. Failure to subscribe to this chain of principal-agent relationships causes difficulties for any administrator.

Ferejohn and Shipan

A model with a widened outlook was recently produced by Ferejohn and Shipan (1990). They are concerned with the rela-

tionships that occur between all three branches of government. In particular their focus is on sequential agency policy making, and the effects of congressional and legislative influences on the final policy. The model starts with an agency, a committee, a unicameral legislature, and a one-dimensional policy space. The committee practices agenda setting because it alone can introduce proposals to the full chamber (done under an open rule). The authors establish some highly simplified assumptions: preferences are monotonic on the one dimensional scale, each actor has complete knowledge, and the model functions on a single iteration only. The agency is assumed to have a policy preference at some distance from the that of the median legislator. The median committee member is between the two extremes but closer to the median legislator. Wherever the median committee member lies on the line, there is a point equally far away from the averaged position of the agency and the median legislator: the point where the committee member is indifferent to the median legislator's choice. Ferejohn and Shipan demonstrate that the agency can choose a policy that is the superior of either its originally preferred position or this indifference point. The agency can, therefore, enhance its ability to determine the policy because of the sequential order of agency policy making (as opposed to the differing order of legislative policy-making). Congress influences the process inertly because the agency calculates with perfect knowledge about the preferences in the legislature. The model is further enhanced to add the effects of judicial review and a presidential veto. In both cases, the presence of these additional actors reduces the power of the agency to establish a preferred policy position. This model is an important contribution because it helps widen the scope of the legislative/administration relationship to incorporate important outside influences.

Concluding Remarks

This review of a relatively new subfield of public administration has included some of the more important and more innovative constructs that constitute formal models or have produced important tools for formal modelers. The budgetary models of legislative/administrative interaction are highly developed and build systematically on the Niskanen framework. Additions to that framework include: the idea that rejection of the agency's proposed budget does not necessarily mean a zero-budget result, the inclusion of multiple interacting agencies into the model, and an agency's technical expertise as well as its resulting ability to exercise some degree of information-based agenda control. Bendor, Taylor, and Van Gaalen extend the model to include the effects of deception, monitoring, and various uncertainties. Conybeare reviews the basic model and finds variations in the construction of agencies and, therefore, great variation in how they interact with the legislature. Finally, Bendor and Moe add the dynamic aspect to the model. As a result of these efforts, the basic Niskanen model incrementally takes on significant and increasingly complex features. The result is that formal models more closely resemble empirically observable phenomenon. For all of its value, the Niskanen model

failed to explain what we see taking place everyday. Its primary value appears to be as a straw-man architecture rather than as a finished work.

When formal models of bureaucracy leave the province of budgetary interaction, they become less centrally focused. Lacking a single foundation, the contributions tend to be more diverse. These models address issues such as bureaucratic discretion, agency organization, and agency efficiency.

Current works tend to see legislative/administrative interaction as a component in a broader, often constitutional, context (Eskridge and Ferejohn, 1992; Ferejohn and Shipan, 1989; Macey, 1992). In addition, the development is by no means complete. Future models need to emphasize a rigorous statistical component that adds the probabilistic elements inherent in legislative/administrative interactions. Another unexplored area is the applicability to settings outside the United States. For instance, what aspects change in such models in a parliamentary system? To remain among public administration's most promising fields, formal models must continue to incorporate a widening range of institutional settings and address a greater set of interacting institutions within the public domain.

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Notes

1. For another review, see Bendor, 1990.

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