

“A Positive Theory of Bureaucratic Discretion as Agency Choice”^{*}

George A. Krause[†]
University of South Carolina

^{*} A much earlier (as well as very different and incomplete) version of this paper was prepared for delivery at the Fifth National Public Management Conference. The George Bush School of Government and Public Service. Texas A&M University. College Station, Texas. December 3-4, 1999. The current version has greatly benefitted from the thoughtful insights of Stephen Dilworth, Brad Gomez, and Dale Thomas. A special note of thanks goes to Andy Whitford for implicitly making me realize that the original version of this essay needed a central purpose. None of the aforementioned individuals bear responsibility for any shortcomings associated with this essay.

[†] Assistant Professor, Department of Government and International Studies, University of South Carolina. Columbia, South Carolina 29208. George.Krause@sc.edu (e-mail).

Introduction

In the study of public bureaucracy, an inherent tension arises concerning the role of politicians and administrative agencies regarding the latitude the latter possesses in implementing public policies. The fact is that administrative agencies do enjoy some degree of discretion over policy making via implementation (e.g., Bryner 1987; Meier 1993; Rourke 1984; Wilson 1989). Administrative discretion pertains to agency enforcement and rulemaking activities (Bryner 1987). Existing treatments of the positive theory of bureaucratic discretion have generally focused on only the supply-side of this concept as a means to determine the amount of discretion agencies obtain by treating it strictly as a choice of politicians (e.g., Bawn 1995; Calvert, McCubbins, and Weingast 1989; Epstein and O'Halloran 1994, 1996, 1999; Martin 1997; McCubbins 1985; McCubbins and Page 1987; McNollGast 1987, 1989; but see Volden 1999). Simply, this aforementioned strand of research on the positive theory of delegation has considered the amount of discretion that politicians wish to supply an agency from a game-theoretic framework. This has meant that only half of the story that makes up administrative discretion has been developed since the preferences of agencies have not been treated as instrumental in determining the amount of discretion that they truly receive in a political-bureaucratic equilibrium.

In this study, I wish to explore the other half of this story by focusing exclusively on the demand-side of administrative discretion under conditions of uncertainty. This concept refers to the choice confronting the agency as to how much discretion it wishes to obtain (i.e., demand). Specifically, I wish to investigate the manner in which different types of risk-bearing behavior and contextual conditions shape agency demand preferences for discretion in response to changes in uncertainty involving policy implementation outcomes. The emphasis on decision-making under uncertainty reflects the imperfect and incomplete information that agencies possess on how policy implementation will turn out (e.g., Pressman and Wildavsky 1973). This, in turn, allows for an opportunity to assess the range of policy behavior that bureaucratic agencies can engage in an uncertain world. This is because discretion is not simply the amount or level of slack provided by

political principals from a well-defined point but may also be a concept that affords these organizations to behave within a defined range of parameters.

The purpose of this essay is fourfold. First, I wish to argue that agency choice is critical to our understanding of how administrative discretion is determined. Next, I assert that the contexts or conditions under which agencies seek to obtain discretion will affect their decision-making calculus. Third, I set forth a positive theory of agency demand for discretion where a bureaucratic organization's decision is shaped by the uncertainty surrounding policy implementation outcomes, conditional upon their discretionary context. Using this formal model, I demonstrate that (1) both risk-averse and risk-seeking agencies will exhibit an inverse relationship between bureaucratic discretion and policy (implementation) outcome uncertainty; (2) the bureaucratic discretion-policy outcome uncertainty relationship will be the same for a risk-averse agency operating under a negative discretionary context as it is for a risk-seeking agency operating under a positive discretionary context; and (3) a risk-averse agency operating under a positive discretionary context will behave the same as a risk-seeking agency operating under a negative discretionary context with regards to this same relationship; (4) a risk-neutral agency's preference for bureaucratic discretion will be insensitive to changes in policy outcome uncertainty. Finally, I propose an appropriate statistical test for the theoretical hypotheses derived from the formal model. The structure of this essay follows accordingly.

The Importance of Understanding Agency Choice in Obtaining Bureaucratic Discretion

Bureaucratic policy implementation necessarily involves administrative discretion (Meier 1993: 57). Discretion refers to the ability of an administrator to choose among alternatives and to decide how the policies of government should be implemented in specific instances (Rourke 1984: 36). This device is important for successful policy making and is woven into the fabric of the Constitution as a means of diffusing both power and conflict among interests (Bryner 1987). According to Martin Shapiro (1984), administrative agencies are "supplementary lawmakers"

functioning akin to courts with the purpose of expanding legislative intent via their own decisions and interpretation of statutes. Discretion is obviously part and parcel to the administrative process, and sufficient discretion is essential for an agency to perform its tasks. However, the question remains, how is discretion determined within the venue of institutional politics?

This general question has been the source of considerable scholarly attention over nearly two decades and meaningful theoretical progress has been made. For instance, the foundational strand of scholarship emanating from the positive theory of administrative discretion has been the seminal work on the “deck-stacking” hypothesis set forth by McCubbins and various collaborators (Calvert, McCubbins, and Weingast 1989; McCubbins 1985; McCubbins and Page 1987; McNollGast 1987, 1989). In this theory, manipulation of administrative rules or procedures is undertaken by elected officials in order to avoid a moral hazard problem, whereby agencies can deviate from the preferences of their political superiors. Specifically, politicians choose to “hardwire” bureaucratic agencies in an *ex ante* fashion as a preventive means to constrain administrative behavior.¹ Although the deck-stacking hypothesis is an intuitively appealing theory, the empirical evidence to date has shown scant systematic support for this proposition in diverse policy areas including medicare payments (Balla 1998), state air pollution (Potoski 2000), and federal hydroelectric licensing programs (Spence 1999). Furthermore, research on hazardous waste implementation reveals that informal rules are successfully substituted by an agency in place of formal rules when politicians constrain agency decision making by reducing the agency’s discretion (Hamilton and Schroeder 1994; Hamilton 1996).

Recent theoretical research has focused on investigating the specific nature of the tension, or trade-off, between political control and agency expertise (Bawn 1995; Epstein and O’Halloran 1994, 1996, 1999; Martin 1997). Under such a framework, politicians are confronted with a choice between delegating greater authority to an agency in order to capitalize on the latter’s

¹ Moe (1989) also considers hardwiring as a means for politicians to constrain agency behavior; however, it is much broader in scope since it entails the structure of organizational design when an agency is created by political institutions.

expertise and informational advantages and granting the agency less discretion as a means to control public policy administration. The former option is designed to emphasize division of labor and efficiency in the implementation of public policy; whereas, the latter option serves to tighten the lines of accountability between elected officials and the bureaucracy. The decision is largely shaped by the technical complexity of the policy in question. The more complex a given policy, the more apt a politician will be to delegate responsibility to the agency, *ceteris paribus*. Furthermore, the attractiveness of a policy will also have an effect on discretion (Epstein and O'Halloran 1999).² As a policy becomes more attractive, the amount of discretion given to the agency will decline. In addition, another trade-off exists between the additional information obtained by politicians and the distributive losses felt by the agency since the latter cannot efficiently use its expertise in implementing policies.

Existing scholarship on the positive theory of administrative discretion assumes that politicians determine the levels of discretion agencies enjoy. Administrative agencies are treated as being exogenous to the decision of how much discretion politicians will bestow upon them. Simply, agencies are treated as if they do not play an explicit role in determining the amount of discretion they actually obtain. This is very reasonable if one takes a strict hierarchical view of public bureaucracy in a democracy. After all, elected officials have the appointment (e.g., Moe 1985; Wood and Waterman 1994), resource (e.g., Carpenter 1996; Wood and Anderson 1993; Wood 1990), oversight (e.g., Aberbach 1990; Fiorina 1982), and procedural means (McCubbins 1985; McNollGast 1987, 1989) to play a substantial role in shaping administrative behavior. In reality, however, this is a major omission if one is interested in fully understanding how bureaucratic discretion is determined. Relations between elected officials and bureaucratic agencies are a "two-way street" in matters involving policy administration (Krause 1996, 1999). This argument is grounded in the existence of a certain level of agreement occurring between

² This specific argument is applied within the context of legislative-executive relations.

political and bureaucratic institutions and in that this agreement produces a zone of acceptable behavior for the latter when administering public policy (Barnard 1938; Simon 1976).³

Unfortunately, the omission of the demand side of the administrative discretion equation in the current positive theory literature is noteworthy for several reasons. First, the policy making power from discretionary authority that accrues to administrative agencies is vast (Rourke 1984: 39). After all, administrative agencies are analogous to a goaltender in either hockey or soccer insofar that they are typically the last line of defense in policy administration since politicians are in the position of shirking responsibility for problems that may arise during implementation. Thus, a rational agency will find its interests best served by articulating its demands concerning discretion to politicians by actively lobbying in favor of legislation it supports while trying to defeat those proposals which it opposes (Rieselbach 1995: 212-214). Agencies are also engaged in other activities/stages of the policy process (Meier 1993: 57) thereby further accentuating the pro-active role displayed by administrative agencies in policy implementation. These activities enable these institutions to shape the amount of discretion they receive from political superiors. In addition, administrative agencies enjoy information advantages with respect to politicians. As a result, any “discretionary equilibrium” between politicians and agencies that exists must take into account the level of bureaucratic discretion the agency desires to obtain for policy implementation purposes. This makes sense when one considers that administrative agencies regularly provide information to legislators and to the White House in the formulation of policies that, in turn, often affects the degree of bureaucratic discretion obtained by the agency. Moreover, in many cases *both* politicians and agencies within a given policy subsystem have an incentive to ensure that policy administration is successful (e.g., distributive or redistributive policies involving the allocation of tangible benefits). In these circumstances, both sets of institutional actors have an explicit stake in a smooth implementation process. Thus, politicians’ realization that they do not

³ This work referred to the relationship between an employer and a subordinate.

have the time, expertise, or interest to implement policy on their own will lead them to listen to an agency's preference regarding the amount of bureaucratic discretion it seeks ("demands"). Finally, an agency can utilize their clientele to support its policy mission (Quirk 1981; Rourke 1984), thus helping to assist its ability in conveying its demand for bureaucratic discretion.

The fact that bureaucratic discretion has been treated as being purely a political choice (supply-side), and not an agency choice (demand-side), is a matter of serious concern. Since previous approaches ignore the demand-side equation of bureaucratic discretion, the focus of this essay will be solely on agency choice in obtaining this commodity. The next section of this essay focuses on how discrete differences in the discretionary context under which an agency performs is critical for understanding the agency's demand for bureaucratic discretion.

The Dilemma of Agency Choice: Positive Versus Negative Contexts for Bureaucratic Discretion

Before one can fully understand the agency's choice in determining the amount of discretion it seeks to obtain in dealing with uncertainty over policy (implementation) outcomes, one first must consider that administrative organizations may possess differential views of this commodity-based on whether the circumstances make it relatively more desirable (Positive Context) or less desirable (Negative Context). Francis Rourke (1984: 41) asserts that discretion is a variable commodity that can be either embraced or spurned by administrators depending upon the nature of its use. James Q. Wilson (1989: 179– 181) maintains that the bureaucratic autonomy sought by the agency may lead it to expand or cut back the scope of agency activities in response to congressional demands. These statements indicate that an agency's discretion can also be viewed as being determined by its own choices and decisions, not just those of politicians. One can argue that an agency's utility associated with bureaucratic discretion can also vary depending on the context in which public policies are to be implemented. The nature of the balance of marginal benefits and costs associated with discretion is what distinguishes between the positive and negative contexts confronting the agency. This distinction can be formally stated as:

$$\text{Positive Discretionary Context: } \frac{dB}{dD} > \frac{dC}{dD} \quad (1a)$$

and

$$\text{Negative Discretionary Context: } \frac{dB}{dD} < \frac{dC}{dD} \quad (1b)$$

where the agency's marginal benefits associated with bureaucratic discretion, $\frac{dB}{dD}$, exceed its marginal costs, $\frac{dC}{dD}$, in a positive discretionary context and where the opposite is true in the negative discretionary context.⁴ Given that this definition of discretionary contexts are based on the relative balance of marginal benefits and costs of bureaucratic discretion, we posit that discretionary context will not pertain to the direction or sign of relationships involving agency utility analyzed in our model, but instead will determine the shape or curvature of such functional relationships. In those instances where the balance of marginal benefits and costs associated with discretion are equal to one another ($\frac{dB}{dD} = \frac{dC}{dD}$), then the discretionary context will be neutral since it is neither more or less favorable to use this commodity.

Therefore, *ceteris paribus*, positive circumstances lead the agency to view discretion as relatively more desirable since the agency deems its environmental and organizational conditions favorable. In this case, the agency can mitigate blame directed to the organization if policies go awry and/or feel confident that additional discretion will enable it to more effectively tackle the problem. Specifically, an agency operating in a positive discretionary context will be relatively more active in seeking this commodity since it is perceived as being vital to the bureaucratic organization's interests. Conversely, an agency operating in a negative discretionary context will feel that it has much to lose and too little to gain in policy implementation, thus will seek relatively less of this commodity. In such instances, marginal increases in delegated authority by elected officials to administrative agencies are viewed as being undesirable from the point of view of the latter since they do not wish to be scapegoats if favorable policy outcomes are not obtained.

⁴ These contexts must be defined in terms marginal costs and benefits since the agency must necessarily prefer/receive a non-negative level of discretion by assumption.

Thus, if a task at hand is very easy, little is to be gained from seeking additional discretion. In these cases, the agency has much to lose if policy outcomes do not turn out well and has little to gain if policy is successfully implemented. An agency within this context will be less inclined to seek additional discretion when it feels that by doing so this can only harm the agency and at best yield a minimal gain. This logic is entirely consistent with the view of bureaucratic discretion which holds that it can be either embraced or spurned by administrators depending upon the nature of its use (Rourke 1984: 41).

So what constitutes positive versus negative discretionary contexts confronting an agency on a substantive level? There are several conditions that can be stated that demarcate between when an agency will be in a positive versus a negative discretionary context. The first two are environmental in nature and thus completely beyond the control of the agency. The existence of *divided versus unified government* will have meaningful ramifications in determining whether bureaucratic discretion is viewed relatively favorably or unfavorably by bureaucratic agencies. For instance, in the presence of divided government, agencies will have a comparatively easier time attributing responsibility for policy failure to political institutions, *ceteris paribus*. On the contrary, during periods of unified partisan control of electoral institutions, agencies will be in a negative discretionary context on this dimension. This is because agencies can be more easily singled out if policy administration is deemed unsuccessful due to the lower information costs incurred by politicians and the clearer signals the former receives in dealing with particular policy problems. *Issue salience* is also important in determining the context by which agency preferences concerning administrative discretion are formed. If issue salience is high for the policy under the agency's jurisdiction, then the agency will view bureaucratic discretion in a relatively less favorable light, *ceteris paribus*, because agencies involved in highly salient issues will be easy targets for blame by elected officials and the media. However, if issue salience is low, then the agency will be relatively more willing to seek additional discretion, *ceteris paribus*, since it does not have to worry about being under glare of intense scrutiny for its efforts in

implementing policy.

Two organizational factors also delineate an agency as operating in a positive or negative discretionary context. When *task complexity* facing an agency is high, then the agency will have a comparatively greater willingness to seek additional discretion, *ceteris paribus*. This is because the agency will want additional flexibility in handling policy that is complex to administer. Conversely, when task complexity is low, agencies will be relatively less inclined to seek additional discretion, *ceteris paribus*, because it is not necessary for them to capably perform administrative duties. In addition, the agency may have much to lose in terms of bearing the brunt of criticism from political overseers. If the agency demands considerable discretion and the policy is not implemented in a successful manner, then the agency's credibility surrounding future attempts at seeking bureaucratic discretion will be damaged. Finally, the existence of *agency stability* plays a vital role in determining whether an agency will function in a positive or negative discretionary context. Holding all else constant, agencies which are stable are better equipped to handle a relatively greater amount of discretion; whereas, agencies which are unstable are better off with relatively less discretion since a higher probability exists for it being misused. Thus, stable agencies will view discretion in a positive context, while unstable agencies will see it in a negative light.

Bureaucratic Discretion and Policy Outcome Uncertainty:

A Demand–Side Theoretical Model

In this particular theoretical exercise, the aim is to assess the amount of discretion an agency will “demand” from elected officials in relation to the amount of uncertainty pertaining to policy implementation outcomes, conditional on discretionary context. Given that agencies operate in an uncertain environment when implementing public policies (Downs 1967; Gormley 1989; March and Olsen 1976; March and Simon 1958; Simon 1976; Stinchcombe 1990; Wilson 1989), the uncertainty that comes along with the agency's decision involving the demand for

bureaucratic discretion is a worthwhile topic of investigation.⁵ However, the agency's utility from bureaucratic discretion and uncertainty separately must be posited, and then from this information we can deduce the bureaucratic discretion "demand-schedule" for an agency confronting policy outcome uncertainty. This latter concept pertains to the uncertainty surrounding outcomes resulting from policy implementation activities.⁶

The theoretical model is portrayed in **Figure 1** showing that the discretionary context has a conditioning effect on how agencies deal with policy outcome uncertainty when determining how much administrative discretion they wish to demand. The manner in which these concepts are linked to one another will become more evident in the presentation of the theoretical model.

[Insert Figure 1 About Here]

We first begin by making assumptions about the direction and curvature of the relationship between (1) agency utility and bureaucratic discretion, and (2) agency utility and uncertainty. The discretionary contexts are reflected by the curvature or shape of these aforementioned relationships. Positive discretionary contexts will always exhibit a *convex* agency utility function with respect to bureaucratic discretion and policy outcome uncertainty, respectively. Intuitively, for a risk-averse (risk-seeking) agency, a positive discretionary context indicates that each successive drop (rise) in discretion and uncertainty will result in an increasingly smaller (larger) than proportional reduction (increase) in agency utility. In a negative discretionary context the agency will possess a *concave* utility function with respect to discretion and uncertainty, respectively. Therefore, each successive drop (rise) in discretion and uncertainty will result in an increasingly larger (smaller) than proportional reduction (increase) in agency utility under conditions of risk-aversion (risk-seeking). Thus both risk-averse and risk-seeking agencies will

⁵ In a different study (Krause 2000), I derive the risk-bearing conditions for agency budgetary decision-making when confronting uncertainty, and also provide an empirical illustration involving the Securities and Exchange Commission (SEC).

⁶ This differs from Potoski (1999) who views political uncertainty concerning state-level electoral institutions.

possess *increasing* marginal utility with respect to bureaucratic discretion and uncertainty in a positive discretionary context, while experiencing *diminishing* marginal utility with respect to these factors in a negative situation. When a curve is neither convex or concave – i.e., linear, the positive and negative discretionary contexts are not distinguishable from one another by definition. In such instances where discretionary context does not matter, an agency will exhibit *constant* marginal utility from bureaucratic discretion and uncertainty. Once these theoretical relationships are posited, we can subsequently derive the relationship between an agency's demand for bureaucratic discretion in relation to the policy (implementation) outcome uncertainty that it confronts when administering public policy.

The theoretical model yields three general conclusions based on the assumptions stated above. First, risk-averse and risk-seeking behavior in the context of assessing the relationship between agency demand for bureaucratic discretion and policy (implementation) outcome uncertainty will always yield an inverse relationship. Second, the existence, and hence, nature of discretionary context will have meaningful ramifications for understanding the relationship between an agency's demand for this commodity in an uncertain world. Finally, a risk-neutral agency will be one whose preference for bureaucratic discretion will be insensitive to the policy outcome uncertainty that they experience. The next three subsections pertain to analyzing risk-averse, risk-neutral, and risk-seeking behavior under each discretionary context.

Risk-Bearing Behavior and Discretionary Context: Case I – Risk-Aversion

One might suppose that a risk-averse agency will be one that wishes to have less bureaucratic discretion as uncertainty rises since they will have the desire to take as little responsibility for the consequences of policy implementation as possible. This means that such an agency will delegate this responsibility to politicians by asking for as little discretion as possible, *ceteris paribus*. After all, administrative agencies may wish to cut back on the amount of discretion they desire in certain instances (Rourke 1984: 41; Wilson 1989:179-181). This

proposition can be assessed through a deductive comparative-static analysis.

Assume that an agency's utility function can be expressed in the following general terms:

$$U(D, \sigma) = f(D) + g(\sigma) \quad (2)$$

where agency utility is an additive function of bureaucratic discretion (D) and policy (implementation) outcome uncertainty (σ).⁷ For simplicity, let us assume that a risk-averse agency's utility function can be redefined as a power function of the following form:

$$U = c_1 - D^\alpha + c_2 - \sigma^\beta \quad (3)$$

where c_1, c_2 are positive constants, and utility is declining with respect to bureaucratic discretion and policy outcome uncertainty at the rate of α and β ($\alpha, \beta > 0$), respectively. Applying the power function rule of differential calculus in order to solve the partial derivatives of agency utility with respect to bureaucratic discretion and policy outcome uncertainty yields:

$$\frac{\partial U}{\partial D} = -\alpha D^{\alpha-1} < 0 \quad (4a)$$

and

$$\frac{\partial U}{\partial \sigma} = -\beta \sigma^{\beta-1} < 0 \quad (4b)$$

where a risk-averse agency must have decreasing utility with respect to both bureaucratic discretion (D) and policy outcome uncertainty (σ). An agency that is risk-averse with respect to bureaucratic discretion and policy implementation outcome uncertainty is one that receives disutility from each phenomenon. Simply, a risk-averse agency will prefer less (rather than more) bureaucratic discretion, *ceteris paribus*. This is because a risk-averse agency, all else being equal, will not wish to have the responsibility associated with bureaucratic discretion that allows them to be the onus of blame (instead of politicians) if policy implementation goes awry. Moreover, the risk-averse agency will prefer less (as opposed to more) policy outcome uncertainty, *ceteris paribus*. This may lead one to presume that a risk-averse agency will seek less discretion as policy

⁷ The mathematical proof of the general solution independent of function type can be found in the Appendix.

outcome uncertainty rises since it will not wish to have greater responsibility attributed to them by politicians, among others, if policy implementation is deemed unsuccessful. In order to see if this proposition is true, we must use the standard power utility function in (3) to examine the manner in which bureaucratic discretion will respond to variations in policy outcome uncertainty.

This requires solving for bureaucratic discretion (D) in (3) which produces:

$$D = (c_1 + c_2 - \sigma^\beta)^{\frac{1}{\alpha}}. \quad (5)$$

In order to solve this problem, agency utility must be held constant at a fixed value, \bar{U} .

Rearranging terms and solving for D in expression in (5) leads to:

$$D = (\bar{U} - \sigma^\beta)^{\frac{1}{\alpha}} \quad (6)$$

$$\text{where } \bar{U} = c_1 + c_2.$$

Next, we can solve for the *direction* of this relationship (i.e., first-order conditions) by taking the derivative of (6) with respect to σ . Applying the power and product rules, we obtain:

$$\begin{aligned} \frac{dD}{d\sigma} &= \frac{1}{\alpha} (\bar{U} - \sigma^\beta)^{\frac{1}{\alpha}-1} \cdot -\beta\sigma^{\beta-1} < 0 \\ &= \frac{-\beta}{\alpha} \sigma^{\beta-1} (\bar{U} - \sigma^\beta)^{\frac{1}{\alpha}-1} < 0 \end{aligned} \quad (7)$$

where a risk-averse agency will seek less (more) bureaucratic discretion in response to an increase (decline) in policy outcome uncertainty, *ceteris paribus*. In simpler terms, a risk-averse agency who neither enjoys bureaucratic discretion or policy outcome uncertainty will want less bureaucratic discretion when policy outcome uncertainty rises because it will fear the political retribution that it may receive from an unsuccessful policy implementation outcome more than the burden of having to handle a greater amount of bureaucratic discretion. Thus a risk-averse agency who obtains disutility from both discretion and uncertainty will have an incentive to seek less bureaucratic discretion as a means of extinguishing the policy outcome uncertainty that it confronts.

Discretionary context has yet to come into play; however, it is argued in this study that it is essential for understanding the decision-making calculus of agency demand for bureaucratic

discretion under conditions of uncertainty. Discretionary context, as noted earlier in this section, is determined by the curvature of the relationships involving agency utility with respect to bureaucratic discretion and policy outcome uncertainty. In the case of a risk-averse negative discretionary context, the rate of change (or slope) parameters associated with these posited relationships will be greater than unity by definition ($\alpha, \beta > 1$). Solving for the second-order conditions of agency utility with respect to bureaucratic discretion (D) and policy outcome uncertainty (σ) require taking the partial derivatives of (4a) and (4b), respectively

$$\frac{\partial^2 U}{\partial D^2} = -(\alpha^2 - \alpha)D^{\alpha-2} < 0 \quad (8a)$$

and

$$\frac{\partial^2 U}{\partial \sigma^2} = -(\beta^2 - \beta)\sigma^{\beta-2} < 0. \quad (8b)$$

This indicates that a risk-averse agency functioning under a negative discretionary context will exhibit decreasing marginal utility with respect to bureaucratic discretion as well as policy outcome uncertainty. Solving for the second-order conditions associated with (6) will indicate the nature of the curvature of the relationship between agency demand for bureaucratic discretion in relation to policy outcome uncertainty:

$$\frac{d^2 D}{d\sigma^2} = \frac{-(\beta^2 - \beta)}{\alpha} \cdot \sigma^{\beta-2} \cdot (\bar{U} - \sigma^\beta)^{\frac{1}{\alpha}-1} + \left(\frac{\beta^2}{\alpha^2} - \frac{\beta^2}{\alpha}\right) \cdot \sigma^{2\beta-2} \cdot (\bar{U} - \sigma^\beta)^{\frac{1}{\alpha}-2} < 0. \quad (9)$$

This comparative-static result reveals that an agency whose marginal disutility from bureaucratic discretion and policy outcome uncertainty is rising at an increasing rate will prefer successively lower amounts of this commodity as uncertainty grows, holding all else constant. Therefore, a risk-averse agency operating under a negative discretionary context will seek larger than proportional reductions in bureaucratic discretion as a rational response to rising uncertainty concerning the policy that they must implement, *ceteris paribus*.

In the positive discretionary context, the risk-averse agency will experience an inverse relationship between its utility with respect to bureaucratic discretion and policy outcome

uncertainty (i.e., $\frac{\partial U}{\partial D} < 0$; $\frac{\partial U}{\partial \sigma} < 0$). What differs in the positive context vis-a-vis the negative context is that the rate of change of this inverse relationship differs. Specifically, the rate of change (or slope) parameters associated with these relationships will lie between zero and unity ($0 < \alpha, \beta < 1$). Taking the partial derivatives of agency utility with respect to bureaucratic discretion (D) and policy outcome uncertainty (σ) in (4a) and (4b) respectively yields:

$$\frac{\partial^2 U}{\partial D^2} = -(\alpha^2 - \alpha)D^{\alpha-2} > 0 \quad (10a)$$

and

$$\frac{\partial^2 U}{\partial \sigma^2} = -(\beta^2 - \beta)\sigma^{\beta-2} > 0. \quad (10b)$$

Thus a risk-averse agency confronting a positive discretionary context will exhibit increasing marginal utility with respect to bureaucratic discretion as well as policy outcome uncertainty.

Solving for the second-order conditions of (6) determines the curvature of the relationship between agency demand for bureaucratic discretion in relation to policy outcome uncertainty:

$$\frac{d^2 D}{d\sigma^2} = \frac{-(\beta^2 - \beta)}{\alpha} \cdot \sigma^{\beta-2} \cdot (\bar{U} - \sigma^\beta)^{\frac{1}{\alpha}-1} + \left(\frac{\beta^2}{\alpha^2} - \frac{\beta^2}{\alpha}\right) \cdot \sigma^{2\beta-2} \cdot (\bar{U} - \sigma^\beta)^{\frac{1}{\alpha}-2} > 0. \quad (11)$$

This comparative-static result reveals that an agency whose marginal disutility from bureaucratic discretion and policy outcome uncertainty is increasing at a declining rate will prefer successively smaller cuts in this commodity as uncertainty grows, holding all else constant. Therefore, a risk-averse agency operating under a positive discretionary context will seek smaller than proportional reductions in bureaucratic discretion as a rational response to rising uncertainty concerning the policy that they must implement, *ceteris paribus*.

If discretionary context does not matter for the risk-averse agency, it will imply that they exhibit constant diminishing marginal utility (i.e., a negative linear relationship) with respect to bureaucratic discretion and policy outcome uncertainty. Thus, risk-averse agencies experiencing neither favorable or unfavorable discretionary conditions will prefer proportional reductions in bureaucratic discretion in response to policy outcome uncertainty, *ceteris paribus*. Simply, a risk-

averse agency whose marginal benefits associated with discretion equals its marginal costs, $\frac{dB}{dD} = \frac{dC}{dD}$, will have a downward sloping linear relationship with policy outcome uncertainty, $\frac{dD}{d\sigma} < 0$, $\frac{d^2D}{d\sigma^2} = 0$. In other words, the risk-averse agency's demand for bureaucratic discretion will be negative with respect to policy outcome uncertainty; however, they will not display a proclivity for additional gains or reductions in this commodity. This makes sense when one considers that if the marginal benefits and costs of bureaucratic discretion equal to one another, then discretionary context is neutral, and hence, the agency will not have any incentive to acquire successively more or less reductions in bureaucratic discretion in response to changes in policy outcome uncertainty.

Risk-Bearing Behavior and Discretionary Context: Case II – Risk-Neutrality

In the risk-neutral case⁸, it must necessarily be true that agency utility is completely unrelated to policy outcome uncertainty by definition (i.e., $\frac{\partial U}{\partial \sigma} = 0$). Although one cannot as confidently state the sign of the relationship associated with agency utility and bureaucratic discretion, it is sure to be small in magnitude relative to the risk-averse and risk-seeking cases $\left| \frac{\partial U_{RN}}{\partial D_{RN}} \right| < \left| \frac{\partial U_{RA,RS}}{\partial D_{RA,RS}} \right|$. This is because these latter type of agencies will derive greater (or less) utility from additional units of bureaucratic discretion.⁹ Moreover, we can deduce that the following pattern will hold:

$$\frac{\partial U_{RA}}{\partial D_{RA}} < \frac{\partial U_{RN}}{\partial D_{RN}} < \frac{\partial U_{RS}}{\partial D_{RS}} \tag{13}$$

where the slope for the risk-neutral agency falls somewhere between the risk-averse and risk-

⁸ For instance, this proposition is commonly accepted as a given in all research on risk and uncertainty in the field of financial economics.

⁹This discussion presumes that agency utility must not be completely inelastic to variations in bureaucratic discretion – i.e., $\frac{\partial U}{\partial D} \neq 0$. This is not an untenable assumption given that agency is likely to receive at least a modicum of utility (or disutility) from changes in this commodity.

seeking agencies, yet is assumed to be non-zero by definition. Then if $\frac{\partial U}{\partial \sigma} = 0$ and $\frac{\partial U}{\partial D} \neq 0$, it must follow that $\frac{dD}{d\sigma} = 0$. In other words, a risk-neutral agency will not seek additional increases or reductions in bureaucratic discretion in response to policy outcome uncertainty, ceteris paribus.¹⁰ Thus an administrative agency exhibiting risk-neutrality is insensitive to policy outcome uncertainty. If this is the case, then it naturally follows that discretionary context cannot affect the bureaucratic discretion-policy outcome uncertainty relationship since $\frac{d^2 D}{d\sigma^2} = 0$.

Risk-Bearing Behavior and Discretionary Context: Case III – Risk-Seeking

An agency that is risk-seeking will have the following utility function:

$$U = c_1 + D^\alpha + c_2 + \sigma^\beta \tag{14}$$

where it is the same form as (3), except that utility is increasing with respect to bureaucratic discretion and policy outcome uncertainty at the rate of α and β ($\alpha, \beta > 0$), respectively. This is because a risk-seeking agency will both prefer the greater responsibility associated with increases in bureaucratic discretion and increased uncertainty surrounding policy implementation outcomes, ceteris paribus. Applying the power function rule of differential calculus in order to solve the partial derivatives of agency utility with respect to bureaucratic discretion and policy outcome uncertainty demonstrates this to be the case:

$$\frac{\partial U}{\partial D} = \alpha D^{\alpha-1} > 0 \tag{15a}$$

and

$$\frac{\partial U}{\partial \sigma} = \beta \sigma^{\beta-1} > 0 \tag{15b}$$

where a risk-seeking agency must have increasing utility with respect to both bureaucratic

¹⁰Besides deducing this from the power function expression in (7) where $\alpha \neq 0$ and $\beta = 0$, this can also be shown to generally hold by applying the chain rule via implicit differentiation to the utility function

and setting it equal to zero: $\frac{\partial U}{\partial D} \bullet \frac{dD}{d\sigma} + \frac{\partial U}{\partial \sigma} = 0$. Solving for $\frac{dD}{d\sigma}$ yields $\frac{dD}{d\sigma} = \frac{-\frac{\partial U}{\partial \sigma}}{\frac{\partial U}{\partial D}} = 0$.

discretion (D) and policy outcome uncertainty (σ). Solving for D in (15), while also holding agency utility constant at a fixed value, \bar{U} yields:

$$D = (\bar{U} - \sigma^\beta)^{\frac{1}{\alpha}} \quad (16)$$

where $\bar{U} = -c_1 - c_2$.

Next, we can solve for the *direction* of this relationship (i.e., first-order conditions) by taking the derivative of (6) with respect to σ . Applying the power and product rules, we obtain:

$$\begin{aligned} \frac{dD}{d\sigma} &= \frac{1}{\alpha} (\bar{U} - \sigma^\beta)^{\frac{1}{\alpha}-1} \cdot -\beta\sigma^{\beta-1} < 0 \\ &= \frac{-\beta}{\alpha} \sigma^{\beta-1} (\bar{U} - \sigma^\beta)^{\frac{1}{\alpha}-1} < 0 \end{aligned} \quad (17)$$

where a risk-seeking agency, just as the case with a risk-averse agency, will seek less (more) bureaucratic discretion in response to increases (decreases) in policy outcome uncertainty.

Therefore, a risk-seeking agency who obtains increasing utility from both greater bureaucratic discretion and policy outcome uncertainty will seek less (more) of the former commodity as latter rises (declines). Why would such a counter-intuitive relationship hold? One possible explanation is that a risk-seeking agency may treat bureaucratic discretion in relation to policy outcome uncertainty as a double-edged sword, whereby, increases in uncertainty, provide incentive in cutting the demand for this commodity.

Consistent with the risk-averse scenario, if discretionary context matters, then the discretion-uncertainty relationship cannot be a linear one – i.e., $\frac{d^2 D}{d\sigma^2} \neq 0$. In the negative discretionary context, the rate of change parameters are less than unity yet greater than zero ($0 < \alpha, \beta < 1$). The subsequent second-order partial derivatives of agency utility with respect to bureaucratic discretion and policy outcome uncertainty must be negative by definition:

$$\frac{\partial^2 U}{\partial D^2} = (\alpha^2 - \alpha) D^{\alpha-2} < 0 \quad (18a)$$

and

$$\frac{\partial^2 U}{\partial \sigma^2} = (\beta^2 - \beta) \sigma^{\beta-2} < 0. \quad (18b)$$

In plain English, risk-seeking agencies operating under a negative discretionary context obtain diminishing marginal utility from bureaucratic discretion and policy outcome uncertainty, respectively. Therefore, such agencies operating under these conditions will exhibit smaller than proportional reductions (increases) in bureaucratic discretion relative to increases (decreases) in policy outcome uncertainty – i.e., $\frac{d^2 D}{d\sigma^2} > 0$. Thus, a risk-averse agency operating in a negative discretionary context will behave the same as a risk-seeking agency functioning under a negative discretionary context according to these comparative-static results.

Conversely, risk-seeking agencies functioning under a positive discretionary context will exhibit increasing marginal utility from bureaucratic discretion and policy outcome uncertainty ($\alpha, \beta > 1$) so that each relationship is convex: $\frac{\partial^2 U}{\partial D^2} > 0; \frac{\partial^2 U}{\partial \sigma^2} > 0$. This implies that this type of risk-seeking agency will prefer larger than proportional reductions (increases) in bureaucratic discretion relative to increases (decreases) in policy outcome uncertainty – i.e., $\frac{d^2 D}{d\sigma^2} < 0$. A risk-seeking agency under a positive discretionary context behaving in such a manner is suggestive of an organization who wishes to refrain from this commodity when uncertainty rises. Surprisingly, this behavior is the same we can expect from a risk-averse agency dealing with a negative discretionary context. In the case where discretionary context does not matter (i.e., is neither positive or negative), the negative relationship between bureaucratic discretion and policy outcome uncertainty will be linear – i.e., $\frac{d^2 D}{d\sigma^2} = 0$. The hypotheses generated from this theoretical model are presented in the next section.

Testable Hypotheses Generated from the Demand-Side Theoretical Model

The previous subsection proposes a theory of agency choice involving administrative discretion under conditions of uncertainty. Underlying this theory is the presumption that bureaucratic discretion is a tool of policy influence that administrative agencies may embrace or spurn (Rourke 1984: 41; Wilson 1989: 179– 181). As a result, an agency’s utility may rise or fall with increases in bureaucratic discretion. Moreover, an agency’s desire for discretion may rise or

fall with each *successive* additional units of this commodity.¹¹ A major implication of this analysis reveals that agency risk-bearing behavior is defined not just in terms of the effects of policy outcome uncertainty with respect to the level of discretion that it demands, but it is also conditional upon whether agency behavior is congruent or incongruent with the discretionary context that it is experiencing on a given dimension at any point in time. Specifically, I have shown that there exists an inverse relationship between an agency's preference for bureaucratic discretion and the policy (implementation) outcome uncertainty it experiences in both risk-averse and risk-seeking cases. Discretionary context does play a role in determining the *shape* of this relationship. Such an important distinction has critical importance for the study of administrative behavior in an uncertain world in broader terms. Simply, the uncertainty that bureaucratic agencies must deal with in their decision making will lead them to different courses of action based on the context by which they act. This section presents specific theoretical predictions of this model within the context of both environmental and organizational characteristics that determine whether the agency is operating under conditions favoring positive or negative contexts for agencies to demand bureaucratic discretion.

Hypothesis 1: Divided versus Unified Government

The *existence or absence of unified partisan control of the executive and legislative branches* will be important in understanding the discretionary context by which administrative agencies operate as decision-makers. As discussed earlier, divided government will constitute a positive discretionary context for the agency, while unified government will provide a negative discretionary context. However, the theoretical results demonstrate that a risk-averse and risk-seeking agency may exhibit the same behavioral response to policy outcome uncertainty. Specifically, a risk-averse agency operating under divided government will result in the same

¹¹ Based on the simplifying assumption noted in the previous section concerning risk-neutrality, agency utility, however, cannot be constant with respect to changes in bureaucratic discretion.

inverse discretionary response to uncertainty as a risk-seeking agency under unified government. In these two instances, the agency will prefer a larger than proportional inverse change in bureaucratic discretion relative to policy outcome uncertainty. For instance, the agency will prefer successively less bureaucratic discretion as policy outcome uncertainty rises even though their risk-bearing behavior and discretionary context could not be any more different.

Likewise, a risk-averse agency operating under unified government will result in the same inverse discretionary response to uncertainty as a risk-seeking agency under divided government. In these two instances, the agency will prefer a smaller than proportional inverse change in bureaucratic discretion in relation to policy outcome uncertainty. This suggests that discretionary context confronting administrative agencies offsets their risk-bearing behavior so that the positive context of the risk-averse agency leads it to behave like a risk-seeking agency. The distinction involving divided versus unified government has no substantive bearing on the agency's demand for discretion under conditions of risk-neutrality since it is indifferent to uncertainty by definition.

Hypothesis 2: Issue Saliency

As discussed in the previous section, *issue saliency* is also important in determining how agencies view bureaucratic discretion. If issue saliency is high for the policy under the agency's jurisdiction, then it will view discretion as providing a negative discretionary context. However, if issue saliency is low for the policy under the agency's jurisdiction, then the agency will operate in a positive discretionary context. Therefore, low issue saliency will lead a risk-averse agency to seek a smaller than proportional decline in bureaucratic discretion in response to a rise involving policy outcome uncertainty, while a risk-seeking agency will seek a larger than proportional reduction in this commodity. Conversely, high issue saliency will make a risk-averse agency seek a larger than proportional decline in bureaucratic discretion in response to a rise involving policy outcome uncertainty, while a risk-seeking agency will seek a smaller than proportional reduction in this commodity. As before with the divided/unified government hypothesis, issue saliency will

not have an effect on the amount of administrative discretion the agency wishes to obtain under the conditions of risk-neutrality.

Hypothesis 3: Task Complexity

The *technical complexity of policy tasks* (referred to as *task complexity*) performed by the implementing agency will also be important in determining whether bureaucratic discretion is viewed in a positive or negative light on behalf of the agency. As discussed earlier, from the agency's perspective high task complexity is conducive to bureaucratic discretion (positive discretionary context), while low task complexity is not (negative discretionary context). The theoretical results of the formal model indicate that a risk-averse agency confronting high task complexity will demand successively smaller reductions of bureaucratic discretion as policy outcome uncertainty rises; whereas, a risk-seeking agency facing the same degree of complexity will prefer successively larger decreases of this commodity. In the case of low task complexity, the risk-averse agency will demand successively larger reductions in this commodity in response to rising policy outcome uncertainty. The risk-seeking agency facing the low task complexity scenario will prefer successively smaller reductions in bureaucratic discretion as policy outcome uncertainty increases. Task complexity will have no effect on the relationship between agency demand for discretion and the policy outcome uncertainty it experiences in the case of risk-neutrality.

Hypothesis 4: Agency Stability

Agency stability will also be essential in determining whether the pursuit of administrative discretion under uncertainty results in particular type of risk-bearing behavior. For reasons discussed earlier, stable agencies will possess a positive discretionary context, *ceteris paribus*, since they will be better equipped to handle bureaucratic discretion. Unstable agencies will be operating under a negative discretionary context, *ceteris paribus*, since greater discretion

translates into a higher likelihood of bungling policy implementation. According to the theoretical model, a risk-averse agency under a stable (unstable) organizational setting will seek successively smaller (greater) reductions in bureaucratic discretion as policy outcome uncertainty increases. However, a risk-seeking agency that is stable (unstable) will seek larger (smaller) than proportional decreases in this commodity as policy outcome uncertainty rises. In the risk-neutrality scenario, whether the agency is stable or unstable will make no difference in how the agency's demand for bureaucratic discretion responds to policy outcome uncertainty.

A Proposed Method for Empirically Testing the Theoretical Hypotheses

Now we turn our attention towards developing an appropriate general statistical test of the theory set forth in the previous section. This requires two considerations that require immediate attention. First, any empirical model specification of the relationship between agency demand for bureaucratic discretion and policy outcome uncertainty must consider both *direction* (i.e., first-order conditions) and *shape* (i.e., second-order conditions). Specifically, the direction or sign of this relationship relates to information on the nature of risk-bearing behavior displayed by the agency, whereas the shape of this relationship determines the manner in which discretionary context matters, if at all. Thus an appropriate statistical model must take into account the dissimilar responses that may exist within a negative versus a positive discretionary context so that these specific states represent separate regimes. This approach will enable us to empirically distinguish between the different risk-bearing behavior and discretionary context combinations that yield the same theoretical result.

Therefore a switching regression modeling approach must be adopted that contains policy outcome uncertainty expressed along the lines of an abbreviated version¹² of the basic functional relationship in (6) that serves as the basis for the formal analysis: $D = -\sigma^{\frac{\beta}{\alpha}}$. This can be

¹² This is a simplified version of (6) that drops out the constants. The constants in the theoretical model (c_1, c_2) are captured by the intercept terms for each discretionary context (γ_P, γ_N).

represented by the following regression equations attempting to explain the demand for bureaucratic discretion by the agency in both a positive and negative context:

$$D_P = \gamma_P + \sigma^{\frac{\beta_P}{\alpha_P}} + \pi_P X_i + \varepsilon_P \quad (19a)$$

$$D_N = \gamma_N + \sigma^{\frac{\beta_N}{\alpha_N}} + \pi_N X_i + \varepsilon_N \quad (19b)$$

or equivalently:

$$D = C[\gamma_P + \sigma^{\frac{\beta_P}{\alpha_P}} + \pi_P X_i] + (1 - C)[\gamma_N + \sigma^{\frac{\beta_N}{\alpha_N}} + \pi_N X_i] + \varepsilon \quad (20)$$

$$\text{where: } C = 1 \quad \text{if } \frac{dB}{dD} > \frac{dC}{dD}$$

$$C = 0 \quad \text{if } \frac{dB}{dD} < \frac{dC}{dD}$$

where D_P and D_N represent agency demand for bureaucratic discretion in the positive and negative discretionary contexts in (19a) and (19b). These dependent variables are a function of their respective intercepts, γ_P and γ_N ; the standard deviation reflecting policy outcome uncertainty and corresponding parameters reflecting its nonlinear impact on agency demand for bureaucratic discretion $\frac{\beta_P}{\alpha_P}$ and $\frac{\beta_N}{\alpha_N}$; a vector of control variables corresponding to the vector X_i and corresponding parameter vector π_P and π_N ; and a pair of stochastic disturbance terms, ε_P and ε_N that each possess a zero mean and constant variance. Equation (20) combines expressions in (19a) and (19b), thus yielding an equivalent expression where a discretionary context dummy, C , is employed to denote whether the agency is operating under a positive or negative discretionary circumstances. Taking the natural logarithm for both sides of (20) linearizes the equation into the following regression specification:

$$\ln D = C[\ln \gamma_P + \ln \frac{\beta_P}{\alpha_P} \sigma + \ln \pi_P X_i] + (1 - C)[\ln \gamma_N + \ln \frac{\beta_N}{\alpha_N} \sigma + \ln \pi_N X_i] + \ln \varepsilon \quad (21)$$

where this empirical model's coefficients can now be interpreted as elasticities. Appropriate estimation of this exogenous regime switching system requires Full Maximum Information

Likelihood (FIML) methods (e.g., see Maddala 1983).¹³

Based on the natural logarithmic regime switching regression specification outlined above in (18), the theoretical predictions of the empirical model can be tested using each of the four environmental and organizational characteristics which reflect discretionary context in the form of separate or competing statistical models. For the theoretical prediction of a risk-averse agency under a negative discretionary context to be empirically valid, then $\frac{\beta_N}{\alpha_N} < -1$ since such an agency seeks less bureaucratic discretion as policy outcome uncertainty rises by a larger than proportional amount – i.e., concave downwards. While a risk-averse agency operating under a positive discretionary will necessarily exhibit an inverse relationship between the level of bureaucratic discretion it prefers and policy outcome uncertainty, it will seek smaller than proportional inverse changes in this commodity as policy outcome uncertainty rises, thus reflecting a convex downward relationship – i.e. $-1 < \frac{\beta_P}{\alpha_P} < 0$. Likewise, a risk-seeking agency operating under a negative discretionary context is hypothesized to exhibit smaller than proportional inverse changes in bureaucratic discretion in response to policy outcome uncertainty – i.e., $-1 < \frac{\beta_N}{\alpha_N} < 0$. Conversely, a risk-seeking agency functioning in a positive discretionary context will exhibit the same behavior as that of a risk-averse agency implementing policy in a negative discretionary context. Thus, a risk-averse agency operating under a positive context is hypothesized to seek larger than proportional inverse changes in bureaucratic discretion in relation to policy outcome uncertainty – i.e., $\frac{\beta_P}{\alpha_P} < -1$. In the case when discretionary context is neutral, one cannot distinguish between risk-averse and risk-seeking agency behavior – i.e., $\frac{\beta_N}{\alpha_N}, \frac{\beta_P}{\alpha_P} = -1$, where the relationship between preferences for this commodity and policy outcome uncertainty are both negative and proportional. If an agency is risk-neutral, then its demand for bureaucratic discretion will remain unaffected by changes in policy outcome

¹³ Since it is presumed that each state is known with *ex post* certainty, asserting that switching from one regime to another occurs exogenously, or outside of the structure of the model, is not a reasonable assumption to make.

$$\text{uncertainty} - \text{i.e., } \frac{\beta_N}{\alpha_N}, \frac{\beta_P}{\alpha_P} = 0 .$$

Discussion

Existing positive theories of bureaucratic discretion typically view this commodity as being solely determined in a top-down fashion by either legislators' decision-making calculus (e.g., Bawn 1995; Fiorina 1986; McCubbins 1985; McNollgast 1987, 1989; see Shipan and Huber 2000 for an excellent overview of this literature), or as a separation of powers struggle between the legislature and chief executive (Epstein and O'Halloran 1994, 1996, 1999). This body of research constitutes an extremely significant contribution to our basic understanding as to when and why administrative agencies receive discretion from political superiors (Potoski 1999). However, in these studies the degree of agency independence (i.e., discretion) is a choice not left to administrative organizations, but instead is purely a function of political institutions' choice. Thus, one obtains a portrait of the supply-side of administrative discretion which captures what the producers of this good (politicians) are willing to supply to their consumers (administrative agencies). Unfortunately, the other half of the story, the agency's demand (or desire) for discretion, has gone unexplored in these past accounts. This is a glaring omission. The rise of bureaucratic discretion over the past century has provided agencies with considerable policymaking power (Lowi 1969). This has resulted in providing bureaucratic institutions a voice of its own in shaping the contents of legislation by lobbying for legislation they support and trying to defeat those proposals which they oppose (Rieselbach 1995: 212-214). As James Q. Wilson (1989: 251) aptly notes in his discussion of agency response to legislative control "The bureaucracy is hardly the passive agent of its congressional overseers; like the wily man-servant in *The Marriage of Figaro*, it is constantly working to manipulate its master so as to achieve mutually profitable arrangements." Therefore, considering the demand side of bureaucratic discretion is essential if one wishes to obtain a truly equilibrium-based understanding of this commodity determined by explicit agency-political interactions.

An integral component of bureaucratic decision-making involves the agency's desire to seek a certain level of discretion when administering public policies. This decision is vital given that too much or too little discretion can leave the agency in a conundrum. In the former case, the agency is not provided with clearly defined directions to perform tasks, thus are highly susceptible for being held responsible by politicians and/or the public if problems occur with policy implementation. In the latter case, the agency does not have sufficient flexibility in order to achieve tasks associated with policy administration. In this study, the agency's pursuit of finding the right balance between these two poles is contingent upon the nature of its response to policy (implementation) outcome uncertainty, conditional on the discretionary context by which the agency is operating under.

The basic theoretical proposition set forth in this study is that understanding an agency's pursuit of administrative discretion in an uncertain environment means that one must consider the discretionary context reflected by the balance of marginal costs and benefits associated with this commodity. For example, while an agency may behave in a risk-averse fashion, we should also be concerned about the environmental and organizational context that it is operating within at the present time. Therefore, an agency demanding less administrative discretion in response to higher policy outcome uncertainty may reflect either risk-averse or risk-seeking behavior regardless of the discretionary context, yet the rate at which this inverse relationship varies will depend upon whether it is confronting a positive or negative discretionary situation. In a positive discretionary context, the theoretical model demonstrates that risk-averse agencies will seek decreasing marginal declines in bureaucratic discretion as policy outcome uncertainty rises; whereas, a risk-seeking agency will exhibit increasing marginal reductions in this commodity. Under a negative discretionary context, the comparative-static results indicate that a risk-averse agency will prefer larger than proportional inverse changes in bureaucratic discretion with respect to policy outcome uncertainty, and a risk-seeking agency will prefer a smaller than proportional inverse change involving this same relationship. In the case where discretionary context is neutral, we can neither

theoretically or empirically discriminate between risk-averse and risk-seeking agency behavior since they each will possess constant marginal declines in bureaucratic discretion in relation to policy outcome uncertainty. In the special case of risk-neutrality, the agency's discretionary context will have no conditional bearing on determining its risk-bearing behavior since their demand for bureaucratic discretion is completely divorced from policy outcome uncertainty. The theoretical predictions generated from this model are empirically testable, and are directly relevant to administrative agencies' desire to have variable levels of bureaucratic discretion at their disposal for policy administration purposes (Rourke 1984; Wilson 1989).

This study has important implications for advancing our understanding of how bureaucratic agencies operate within a political environment from a systemic level. The theoretical argument contained in this essay is suggestive of the considerable importance associated with agency response to uncertainty is conditioned by the context they experience on a given dimension at a single point in time. Specifically, if our wish is to understand the risk-bearing behavior of bureaucratic agencies in seeking bureaucratic discretion, then we must consider the context that they are operating under as an organization. In this particular analysis, agency decision-making is a function of context and uncertainty, where the former refers to the known environment that it observes *ex post* and the latter pertains to uncertainty concerning *ex ante* successful policy implementation. On a more fundamental level, the motivation underlying this study attempts to convey the important point that administrative agencies do not passively serve as the pawns of electoral institutions in a representative democracy as is often portrayed in much of the existing research on bureaucratic politics. Instead, these entities exhibit pro-active behavior, and thus can directly shape both the political and policy environment in which they operate (Carpenter 1999, N.d.; Krause 1996, 1999).

In the parlance of consumer theory in elementary microeconomics, the concept of equilibrium typically refers to the relationship between supply and demand of a commodity. If one views administrative discretion as a commodity that is supplied by electoral institutions and

demanded by bureaucratic agencies, then one cannot accurately characterize equilibrium relationships involving policy administration without explicit consideration of both components. David Spence (1997) fittingly remarks that existing positive theories of bureaucratic discretion emphasize the goals and decision-making of politicians in shaping administrative behavior, yet fail to consider agency goals and policy choice. While this study does not address the issue of equilibrium relations, it does, however, take an initial step towards this direction by investigating the nature of agency demand for bureaucratic discretion. Much scholarly effort is needed in exploring both the theoretical explication and systematic empirical testing of the demand side of the bureaucratic discretion, before knowledge is acquired which can appropriately complement the increasingly well-developed literature on the supply side of how political institutions choose to allocate this commodity to bureaucratic organizations. Ultimately, the penultimate goal of a political-bureaucratic equilibrium theory of bureaucratic discretion can only be attained when our understanding involving the supply and demand of this commodity are each sufficiently well-developed. While this essay has set forth a theoretical model and empirically testable propositions, much more remains to be explored on this topic by students of bureaucratic politics.

Appendix: General Solution to the Demand-Side Theoretical Model of Bureaucratic Discretion

The general solution that demonstrates the comparative-statics hold for the bureaucratic discretion-policy outcome uncertainty relationship is straightforward. If we begin with the generic agency utility function involving their demand for bureaucratic discretion under conditions of uncertainty as in (2):

$$U(D, \sigma) = f(D) + g(\sigma) \quad (\text{A-1})$$

where agency utility is an additive function of bureaucratic discretion (D) and policy (implementation) outcome uncertainty (σ). The partial derivatives of (A-1) are such that:

$$f'(D) = \frac{\partial U}{\partial D}; g'(\sigma) = \frac{\partial U}{\partial \sigma}. \quad (\text{A-2})$$

In order to solve for $\frac{dD}{d\sigma}$ and $\frac{d^2 D}{d\sigma^2}$ respectively, agency utility must be fixed so that $U = \bar{U}$.

Rewriting (A-1) based on fixed utility gives us:

$$\bar{U} = f(D) + g(\sigma). \quad (\text{A-3})$$

Setting (A-3) equal to zero and differentiating with respect to σ yields:

$$0 = f'(D) \frac{dD}{d\sigma} + g'(\sigma), \quad (\text{A-4})$$

and solving in terms of $\frac{dD}{d\sigma}$ gives us the following expression for the general first-order condition of this problem:

$$\frac{dD}{d\sigma} = \frac{-g'(\sigma)}{f'(D)}. \quad (\text{A-5})$$

Since I assume that agency utility has the same directional relationship with respect to D and σ separately in the risk-averse and risk-seeking conditions, $\frac{dD}{d\sigma} < 0$ by definition. In the risk-neutral case, $\frac{dD}{d\sigma} = 0$ by definition because $g'(\sigma) = 0$ and $f'(D) \neq 0$ by assumption. Solving for

the second-order conditions involves differentiating (A-5) via the quotient rule, and generates the

following general solution:

$$\frac{d^2 D}{d\sigma^2} = \frac{-f'(D) \cdot g''(\sigma) + g'(\sigma) \cdot f''(D) \cdot \frac{dD}{d\sigma}}{[f'(D)]^2}, \quad (\text{A-6a})$$

and substituting the equivalent $\frac{-g'(\sigma)}{f'(D)}$ for $\frac{dD}{d\sigma}$ gives us:

$$= \frac{-f'(D) \cdot g''(\sigma) + g'(\sigma) \cdot f''(D) \cdot \frac{-g'(\sigma)}{f'(D)}}{[f'(D)]^2}. \quad (\text{A-6b})$$

Multiplying both sides by $f'(D)$ and some combining terms yields the general solution for discretionary context:

$$= \frac{-[f'(D)]^2 \cdot g''(\sigma) - [g'(\sigma)]^2 \cdot f''(D)}{[f'(D)]^3}. \quad (\text{A-6c})$$

The sign of the function associated with the general solution to the second-order conditions will depend upon the sign of $f'(D)$ as well as for both $f''(D)$ and $g''(\sigma)$. There are eight possible combinations covering risk-aversion and risk-seeking agency behavior under non-neutral discretionary contexts:

Case I: If $f'(D) > 0$ and $f''(D), g''(\sigma) > 0$, Then $\frac{d^2 D}{d\sigma^2} < 0$; (A-7)

Case II: If $f'(D) > 0$ and $f''(D) > 0, g''(\sigma) < 0$, (A-8)

Then $\frac{d^2 D}{d\sigma^2} > 0$ when $\left| [f'(D)]^2 \cdot g''(\sigma) \right| > \left| [g'(\sigma)]^2 \cdot f''(D) \right|$
 $\frac{d^2 D}{d\sigma^2} < 0$ when $\left| [f'(D)]^2 \cdot g''(\sigma) \right| < \left| [g'(\sigma)]^2 \cdot f''(D) \right|$;

Case III: If $f'(D) > 0$ and $f''(D) < 0, g''(\sigma) > 0$, (A-9)

Then $\frac{d^2 D}{d\sigma^2} > 0$ when $\left| [f'(D)]^2 \cdot g''(\sigma) \right| < \left| [g'(\sigma)]^2 \cdot f''(D) \right|$

$$\frac{d^2D}{d\sigma^2} < 0 \text{ when } \left| [f'(D)]^2 \cdot g''(\sigma) \right| > \left| [g'(\sigma)]^2 \cdot f''(D) \right|;$$

Case IV: If $f'(D) > 0$ and $f''(D), g''(\sigma) < 0$, Then $\frac{d^2D}{d\sigma^2} > 0$; (A-10)

Case V: If $f'(D) < 0$ and $f''(D), g''(\sigma) > 0$, Then $\frac{d^2D}{d\sigma^2} > 0$; (A-11)

Case VI: If $f'(D) < 0$ and $f''(D) > 0, g''(\sigma) < 0$, (A-12)

Then $\frac{d^2D}{d\sigma^2} > 0$ when $\left| [f'(D)]^2 \cdot g''(\sigma) \right| < \left| [g'(\sigma)]^2 \cdot f''(D) \right|$

$\frac{d^2D}{d\sigma^2} < 0$ when $\left| [f'(D)]^2 \cdot g''(\sigma) \right| > \left| [g'(\sigma)]^2 \cdot f''(D) \right|;$

Case VII: If $f'(D) < 0$ and $f''(D) < 0, g''(\sigma) > 0$, (A-13)

Then $\frac{d^2D}{d\sigma^2} > 0$ when $\left| [f'(D)]^2 \cdot g''(\sigma) \right| > \left| [g'(\sigma)]^2 \cdot f''(D) \right|$

$\frac{d^2D}{d\sigma^2} < 0$ when $\left| [f'(D)]^2 \cdot g''(\sigma) \right| < \left| [g'(\sigma)]^2 \cdot f''(D) \right|;$

Case VIII: If $f'(D) < 0$ and $f''(D), g''(\sigma) < 0$, Then $\frac{d^2D}{d\sigma^2} < 0$. (A-14)

In the eight cases above, it presumes that discretionary context is non-neutral (i.e., a positive or negative discretionary context). In those instances where discretionary context is neither positive or negative, the second-order conditions must equal zero. If this is to be true, then the following must hold: $f'(D) \neq 0$; $f''(D), g''(\sigma) = 0$. This occurs for both risk-averse and risk-seeking agencies scenarios when the marginal benefits and costs associated with bureaucratic discretion equal one another (i.e., $\frac{dB}{dD} = \frac{dC}{dD}$); and also under the condition of risk-neutrality (i.e., $\frac{dD}{d\sigma} = 0$).

References

- Aberbach, Joel D. 1990. *Keeping a Watchful Eye: The Politics of Congressional Oversight*. Washington, D.C. Brookings Institution
- Balla, Steven J. 1998. "Administrative Procedures and Political Control of the Bureaucracy." *American Political Science Review*. 92: 663–673.
- Barnard, Chester I. 1938. *The Functions of the Executive*. Cambridge: Harvard University Press.
- Bawn, Kathleen. 1995. "Political Control versus Expertise: Congressional Choice About Administrative Procedures." *American Political Science Review*. 89: 62–73.
- Bryner, Gary C. 1987. *Bureaucratic Discretion: Law and Policy in Federal Regulatory Agencies*. New York: Pergamon Press.
- Calvert, Randall, Mark J. Moran, and Barry R. Weingast. 1987. "Congressional Influence over Policymaking: The Case of the FTC." In *Congress: Structure and Policy*. eds. Matthew D. McCubbins and Terry Sullivan. New York: Cambridge University Press.
- Calvert, Randall, Matthew McCubbins, and Barry Weingast. 1989. "A Theory of Political Control of Agency Discretion." *American Journal of Political Science*. 33: 588-610.
- Carpenter, Daniel P. 1996. "Adaptive Signal Processing, Hierarchy, and Budgetary Control in Federal Regulation." *American Political Science Review*. 90: 283-302.
- Carpenter, Daniel P. 1999. "Bureaucratic Choice as a Stopping Problem: A Formal and Empirical Analysis of FDA Drug Review." Paper presented at the 1999 annual meetings of the Midwest Political Science Association. Chicago, IL.
- Carpenter, Daniel P. N.d. (Forthcoming). *The Forging of Bureaucratic Autonomy: Organizational Reputations and Policy Innovation in Executive Agencies, 1862-1928*. Princeton, NJ: Princeton University Press.
- Downs, Anthony. 1967. *Inside Bureaucracy*. Boston: Little, Brown.
- Epstein, David, and Sharyn O'Halloran. 1994. "Administrative Procedures, Information, and Agency Discretion." *American Journal of Political Science*. 38: 697-722.
- Epstein, David, and Sharyn O'Halloran. 1996. "Divided Government and the Design of Administrative

- Procedures: A Formal Model and Empirical Test.” *Journal of Politics*. 58: 373-397.
- Epstein, David, and Sharyn O’Halloran. 1999. *Delegating Powers: A Transactions-Cost Approach to Policy Making Under Separated Powers*. New York: Cambridge University Press.
- Fiorina, Morris P. 1982. "Legislative Choice of Regulatory Reforms: Legal Process or Administrative Process." *Public Choice*. 39: 33-66.
- Fiorina, Morris P. 1986. “Legislator Uncertainty, Legislative Control, and the Delegation of Legislative Power.” *Journal of Law, Economics, and Organization*. 2: 33–51.
- Gormley, William T. 1989. *Taming the Bureaucracy: Muscles, Prayers, and other Strategies*. Princeton, NJ: Princeton University Press.
- Hamilton, James T, and Christopher H. Schroeder. 1994. “Strategic Regulators and the Choice of Rulemaking Procedures: The Selection of Formal vs. Informal Rules in Regulating Hazardous Waste.” *Law and Contemporary Problems*. 57: 111–160.
- Hamilton, James T. 1996. “Going by the (Informal) Book: The EPA’s Use of Informal Rules in Enforcing Hazardous Waste Laws.” *Advances in the Study of Entrepreneurship, Innovation, and Growth*. 7: 109–155.
- Hirshleifer, Jack, and John G. Riley. 1992. *The Analytics of Uncertainty and Information*. New York: Cambridge University Press.
- Huber, John, and Charles R. Shipan. 2000. “The Costs of Control: Legislators, Agencies, and Transaction Costs.” *Legislative Studies Quarterly*. Forthcoming.
- Krause, George A. 1996. "The Institutional Dynamics of Policy Administration: Bureaucratic Influence over Securities Regulation." *American Journal of Political Science*. 40: 1083-1121.
- Krause, George A. 1999. *A Two-Way Street: The Institutional Dynamics of the Modern Administrative State*. Pittsburgh, PA: University of Pittsburgh Press.
- Krause, George A. 2000. “Agency Budget Requests and Risk-Bearing Behavior in Bureaucratic Organizations.” University of South Carolina. Typescript.
- Lowi, Theodore J. 1969. *The End of Liberalism*. New York: Norton.

- Maddala, G. S. 1983. *Limited Dependent and Qualitative Variables in Econometrics*. New York: Cambridge University Press.
- March, James G., and Herbert A. Simon. 1958. *Organizations*. New York: Free Press.
- March, James G., and Johan P. Olsen. 1976. *Ambiguity and Choice in Organizations*. Bergen, Norway: Universitetsforlaget.
- Martin, Elizabeth. 1997. "An Informational Theory of the Legislative Veto." *Journal of Law, Economics, and Organization*. 13: 319–343.
- McCubbins, Matthew D. 1985. "Legislative Design of Regulatory Structure." *American Journal of Political Science*. 29: 721-748.
- McCubbins, Matthew D., and Talbot Page. 1987. "A Theory of Congressional Delegation." In *Congress: Structure and Policy*, eds. Matthew D. McCubbins and Terry Sullivan. New York: Cambridge University Press.
- McCubbins, Matthew D., Roger G. Noll, and Barry R. Weingast. 1987. "Administrative Procedures as Instruments of Political Control." *Journal of Law, Economics, and Organization*. 3: 243-277.
- McCubbins, Matthew D., Roger G. Noll, and Barry R. Weingast. 1989. "Structure and Process as Solutions to the Politicians Principal-Agency Problem." *Virginia Law Review*. 74: 431-482.
- Meier, Kenneth J. 1993. *Politics and the Bureaucracy: Policymaking in the Fourth Branch of Government*. Third edition. Monterey, CA: Brooks/Cole.
- Moe, Terry M. 1985a. "Control and Feedback in Economic Regulation: The Case of the NLRB." *American Political Science Review*. 79: 1094-1116.
- Moe, Terry M. 1989. "The Politics of Bureaucratic Structure." In *Can Government Govern?* ed. John E. Chubb and Paul Peterson. Washington, D.C.: Brookings Institution.
- Potoski, Matthew. 1999. "Managing Uncertainty through Bureaucratic Design: Administrative Procedures and State Air Pollution Control Agencies." *Journal of Public Administration Research and Theory*. 9: 623–639.
- Potoski, Matthew. 2000. "Designing Bureaucratic Performance: Administrative Procedures and the Political

- Control–Expertise Tradeoff.” Iowa State University. Typescript.
- Pressman, Jeffrey L., and Aaron B. Wildavsky. 1973. *Implementation*. Berkeley, California: University of California Press.
- Quirk, Paul J. 1981. *Industry Influence in Federal Regulatory Agencies*. Princeton, NJ: Princeton University Press.
- Reiselbach, Leroy N. 1995. *Congressional Politics: The Evolving Legislative System*. Second Edition. Boulder, CO: Westview Press.
- Rourke, Francis E. 1984. *Bureaucracy, Politics, and Public Policy*. Third Edition. Boston: Little, Brown and Company.
- Shapiro, Martin. 1988. *Who Guards the Guardians? Judicial Control of Administration*. Athens, GA: University of Georgia Press.
- Simon, Herbert A. 1976. *Administrative Behavior*. Third Edition. New York: Macmillan.
- Spence, David B. 1997. “Agency Policy Making and Political Control: Modeling Away the Delegation Problem.” *Journal of Public Administration Research and Theory*. 7: 199–219.
- Spence, David B. 1999. “Agency Discretion and the Dynamics of Procedural Reform.” *Public Administration Review*. 59: 425–442.
- Stinchcombe, Arthur L. 1990. *Information and Organizations*. Berkeley, CA: University of California Press.
- Volden Craig. 1999. “*The Political Economy of Restrictions on Bureaucratic Discretion*.” Paper presented at the Annual Meeting of the Public Choice Society, New Orleans. March 10-12.
- Wilson, James Q. 1989. *Bureaucracy: What Government Agencies Do and Why They Do It*. New York: Basic Books.
- Wood, B. Dan. 1990. "Does Politics Make a Difference at the EEOC?" *American Journal of Political Science*. 34: 503-530.
- Wood, B. Dan, and James E. Anderson. 1993. "The Politics (or Non-Politics) of U.S. Antitrust Regulation." *American Journal of Political Science*. 37: 1-40.
- Wood, B. Dan, and Richard Waterman. 1994. *Bureaucratic Dynamics: The Role of a Bureaucracy in a Democracy*. Boulder, CO: Westview Press.

FIGURE 1

A Positive Theoretical Model of Bureaucratic Discretion As Agency Choice

