

Controlling Federal Agencies: The Impact of
External Controls on Worker Discretion and
Productivity

Laura Langbein
School of Public Affairs
Dept. Public Administration and Policy
American University

Abstract

Previous scholarship in political science and public choice has investigated why legislatures sometimes choose to delegate policy choice to executive agencies, and sometimes make their own detailed choices, but there is little research on the consequences of the choice to delegate or not. This paper provides empirical evidence regarding the actual consequences of legislative delegation and agency discretion on the work of U.S. government employees. The findings suggest that delegation directly affects both employee discretion and productivity. Legislative delegation is also associated with more executive political appointees, whose presence reduces both employee discretion and productivity. The findings also show that whether employees with more discretion are more productive than those with less depends on their commitment to the job: employees who are motivated by liking their work more than their pay use their discretion to enhance productivity, while employees who are motivated by liking their pay more than their work use their discretion to reduce productivity. This is further evidence that, at least in the public workplace, intrinsic motivation matters.

Controlling Federal Agencies: The Contingent Impact of External Controls on Worker Discretion and Productivity

Introduction

There are many theories regarding the choice by a legislature to delegate authority to executive branch agencies, or to retain that prerogative for itself. (For example, see Epstein and O'Halloran, 1994, 1999; Hammond and Knott, 1996; Horn, 1995.) There are even some empirical tests of these theories.¹ However, there are few investigations of the consequences of the decision to delegate. The purpose of this paper is to examine whether legislative delegation of discretion to agencies is reflected in the discretion of individual agency employees, and in the productivity and quality of their work.² Several alternative outcomes seem theoretically likely. One possibility is that, when the legislature chooses to place discretion in the agency, the White House steps in to prevent agency drift and to control the work of agency employees with political appointees. This would simply replace delegation from the legislature with control from the executive, resulting in no increase in the discretion of agency employees. (This is most likely when government is divided, or when the preferences of the median legislative oversight committee member differ from Presidential preferences.) Another expectation is that legislative delegation is not entirely replaced by executive control, resulting in agency discretion. This may simply push the original problems of high legislative decision-making and transactions costs, and the resulting problems of legislative committee drift, downward into the bureaucracy. When legislative and executive overseers grant agencies considerable discretion with broad legislation, flexible rules, and reliance on career rather than political top managers, bureau employees can use their expertise and discretion to work productively to further agency goals, or they can use their discretion to shirk. They can shirk by being "lazy", or by using their expertise to

¹ Langbein (2000) compares delegation and discretion in the public and private sector, but the evidence pertains only to one occupational sub-profession (electrical engineers).

² This study does not examine delegation to the courts.

work in ways that may not be related to agency goals. Another possibility is that bureaus with discretion delegate decisions to lower level officials, but severely constrain them with rules and excessive supervision. In this case, lower level employees in agencies with top-level discretion find themselves with little discretion. Officials with little discretion may then report being productive in doing their assigned work, or they may report that they are unproductive, either by not working “hard,” or by “working” but not helping the agency mission.

What happens when democratic principals in a separation-of-power governance system delegate discretion to agent-employees? Facing multiple and often disagreeing principals, employees may find themselves with considerable discretion; they could also find their discretion constrained by political appointees or middle managers. If bench-level employees find they have considerable discretion in how they do their job, they could either “shirk” or “work”. The outcome could also depend on the employee’s utility function: employees primarily motivated by norms (relative to money) may respond to delegation differently from employees motivated primarily by money.

This paper regards legislative delegation and executive control by political appointees as exogenous to employee discretion and productivity, at least in the short run.³ It provides empirical evidence regarding the actual consequences of legislative delegation and the presence of political appointees on the discretion and productivity of U.S. government employees. The findings suggest that legislative delegation (and thus overall agency discretion) is associated with greater executive oversight (i.e., more political appointees); both directly affect employee discretion. Employees in agencies that appear to have relatively less discretion than others report having less discretion, controlling for numerous other employee and agency characteristics. Political appointees reduce employee discretion. Agency delegation also has a direct effect on employee productivity, but the sign of the effect also depends on the legislature’s likely reasons for delegation. Political appointees, however, appear to reduce employee productivity. Independent of agency discretion and the presence of political appointees, whether employees with more discretion are more productive than those with less depends on the

³ Krause (1996; 2007) points out, that, over time, employee actions sometimes influence the principals’ principles.

nature of their commitment to the job: employees who are motivated by liking their work more than their pay use their discretion to enhance productivity, while employees who are motivated by liking their pay more than their work use their discretion to reduce productivity. This provides evidence that, at least in the mostly white-collar federal workplace, selection (or self-selection) based on commitment to shared norms (intrinsic values) can drive out shirking or moral hazard (extrinsic values).

Delegation and discretion in public bureaus

Discretion is the power or the right of deciding according to one's own judgment. If the legislature decides to delegate to the executive rather than to decide for itself, the legislature is cast as a principal, the bureau as an agent. Under many circumstances, we can expect that the principal-agent problem of moral hazard and adverse selection will characterize agency discretion, driving agents with discretion to shirk. Others contend that felicitous selection of agency personnel can sometimes counterbalance the problem of moral hazard (Miller, 2000).

But agency discretion is not randomly assigned. Understanding the reasons for delegation affects theoretical expectations about its likely impact on both employee discretion and productivity. This section outlines theories about causes of delegation and the expected consequences for employee discretion. The following section considers consequences for employee productivity. The theoretical expectations drive the specification of the variables in the empirical model.

Disagreement among principals

Delegation is often thought to increase when multiple principals disagree. All employees in federal agencies work in a setting where disagreement among multiple principals is common, even when the government is unified. But the scope and dimensions of disagreement are greater for some agencies than others. For example, there is usually less disagreement among political principals in foreign and defense policy than in regulatory policy, where the disagreements are particularly pernicious and where affected groups (big business, small business, public interest groups, professional safety and environmental interests, etc.) are politically active.

One set of arguments predicts that disagreement among multiple principals will increase employee discretion. The formal argument pertains to discretion in public bureaus that have multiple, disagreeing principals with an effective veto over the others--the President, the House, and the Senate. Faced with competing signals among multiple principals, agents can choose to implement policy within a policy space set by the diversity of the principals' preferences (Hammond and Knott (1996), Steunenberg (1996), Torenvlied (1996), Ferejohn and Shipan (1990), Wood and Waterman (1994), Moe (1990), Ferejohn and Shipan (1990), Noll and Weingast (1991), Simon (1946), and Long (1949)). When multiple principals disagree, the time and political costs of deciding also increase accordingly (Horn, 1995). Politicians reduce these transactions costs by agreeing on a vague policy, delegating the details to the agents, who then have more discretion.

It is also possible that disagreement among multiple principals reduces rather than expands agents' discretion. There are two versions of this argument. One version (Moe, 1990) contends that agencies are structured by a dominant legislative coalition that wants to ensure that its preferred policies are carried out effectively by the agents. Anticipating that it has neither permanent nor complete property rights to the exercise of authority, the enacting coalition protects the agency from the current or future exercise of political authority by the opposition by specifying in "excruciating detail" (Moe, 1990: 228) exactly what the agency is to do, and how it is to do it. The empirical expectation is that political conflict among principals engenders more rules, reducing agents' discretion, and ultimately reducing the effectiveness of their activities. Instead of producing output, employees spend time complying with rules (Kelman, 1990; Thompson, 1998; Fehr and Gachter, 2000b). Scholz' (1991) adds that, in the context of enforcing regulations, the principals who sponsor the regulatory legislation (usually Democrats) anticipate their eventual replacement by principals with different principles. They respond by crafting legislation that mandates enforcement "by the book" rather than flexible enforcement, where agency officials in the field have discretion to negotiate the terms and timing of compliance by regulated entities.

Political appointees

As disagreement among principals increases, two other consequences are likely. First, the executive has more incentive to control the activities of agents by using political appointees to closely monitor the activities of career agency employees. Empirically, this means that the presence of political appointees in an executive agency is expected to reduce the discretion of agency employees. Political appointees could possibly increase the mission oriented output of employees, but that is not necessarily the case, especially when agency employees and the executive do not share the same view of the agency mission, or when agency employees are caught between the competing expectations of disagreeing principals (Gilmour and Lewis, 2006; Weimer, 2005).

Vague goals

Disagreement among principals may also increase the decision-making costs of reaching an agreement among principals on what the agents are to do, and on what rules they are to follow. One way to reduce these decision making costs is to be vague concerning agents' tasks and even about the rules (Horn, 1995; McCubbins and Page, 1987; Wood and Waterman, 1994), introducing uncertainty into agents' conceptions of what the principals preferences are (Bawn, 1995; Spence, 1997). The risk averse agent will then act within the veto-proof set of what the agent sees as the principals' fuzzy goals. For a given amount of expected disagreement among principals, as the variance in the expectation increases, the zone of discretion for the risk-averse agent decreases. In the face of uncertainty about principals' preferences, the risk-averse employee does what everyone else around him is doing, which is the same thing that was done yesterday, as long as those actions evoked no adverse reaction by any of the principals. The usual characterization of such an organization is that it is stagnant, inefficient, and unresponsive (Wood and Waterman, 1994: 147; LaPorta et al., 1997; Light, 1995). Empirically, the expectation is that employees who are unclear about what they are to do, or unclear about the relation between their daily activities and the agency mission, will report that they have less discretion. They are also likely to be less productive.

The importance of uncertainty depends partly on the amount of fuzziness in agents' perception of disagreement among principals. It also increases with the distance between principal and agent (Langbein, 2000). Distant principals lack information about

what the agent is doing, and the agent does not know what each distant principal wants. Further, the higher up on the organizational hierarchy the principal is, the easier it is for principals to resort to vagueness to reduce their decision-making costs, which contributes to uncertainty on the part of agents. The expectation is that when distant principals are important, attentive, and disagree, agents become uncertain regarding principals' expectations, and their zone of discretion decreases. By contrast, when proximate principals are important, attentive, and disagree, they cannot resort to vagueness to resolve disagreements. Agents know a lot about these principal's preferences. In the relative absence of uncertainty, disagreement among relatively proximate principals, such as mid-level managers, increases agents' discretion.

There are many other sources of uncertainty that affect the relations between principals and agents in public institutions. Calvert, McCubbins and Weingast (1989); McCubbins, Noll and Weingast (1987); and Epstein and O'Halloran (1999) point to the principals' uncertainty about the precise location of the agents' preferences, and to the principals' uncertainty about eventual outcomes, as sources of agents' discretion. This uncertainty is most likely when tasks are complex and when output is hard to measure.

Empirically, this leads to several expectations. First, employees in technical agencies (e.g., NASA) and agencies whose output is hard to measure (e.g., Dept. of State) will report more discretion. Employees in large agencies are likely to have more horizontally "loose" connections and more vertical layers; the consequence is that the distance between front line employees and political principals is likely to be greater than in smaller agencies. Consequently, employees will report less discretion in large than in small agencies, or in agencies with more "layers." However, mid-level career supervisors can potentially help to translate the wishes of principals to front-line agents. If this is the case, then the relative presence of supervisors can increase employee discretion. On the other hand, in each of these cases, supervisors can also closely monitor employees, reducing their discretion.

Monitoring

Principals reduce their uncertainty by structuring agencies to facilitate both *ex ante* and *ex post* monitoring of agency decisions by interest or other outside groups.

They do so by writing regulations with cumbersome administrative procedures for oversight, review, hearings and appeals designed to maximize the revelation of information by the agents, reducing agent discretion.

Monitoring, however, can take a variety of forms. One type of ex ante monitoring requires agents to adhere to numerous rules and regulations and other administrative procedures (“red tape”) before taking any action (Moe, 1990; McCubbins, Noll, and Weingast, 1989). These additional steps are designed to alert the principals about the agent’s intended decision before any action is taken and will reduce agents’ discretion (Horn, 1995; Moe, 1990). Another type of ex ante monitoring is direct oversight by important and attentive principals, whose approval is needed before the next step can be taken. Ex ante monitoring by direct supervision may expand or reduce agents’ discretion (Horn, 1995; Moe, 1990; Langbein, 2000). If it reduces agents’ discretion, more time is spent supervising and checking up, and, on the agent’s side, responding, and waiting for instructions and approval. The end result is a less effective, productive organization (Ammons and Newell, 1989; Milgrom and Roberts, 1992). The opposite may be true if the supervision expands discretion. Monitoring can also be ex post. Ex post monitoring (e.g., monitoring by performance standards) is believed to be compatible with more discretion and greater effectiveness (Thompson, 1991, 1993, 1998). Discretion also varies positively with the amount of monitoring by customers or clients, when they are important; their monitoring is always ex post (Brehm and Gates, 1997: ch. 9), and may actually reduce employee discretion.

Task complexity

Discretion is also thought to vary with the complexity of the task to be undertaken; the usual assumption is that there is more discretion when tasks are complex (Horn, 1995; McCubbins and Page, 1987; Heiner, 1983; Bhattacharya and Teske, 1994). The technical agencies include NASA; Dept. of Defense; and the FAA. In these cases, the legislature does not have the expertise to carefully circumscribe agency activities, but it does have the incentive to impose “red tape” and numerous reporting requirements. Once again, the overall effect on individual employees is expected to be neutral: there is considerable substantive but little procedural discretion. In these agencies, the White House is

unlikely to fill the hole left by legislative discretion with political appointees, but the absence of political appointees may mean that both the executive and the legislature have an increased incentive to use burdensome procedural regulation to reduce employee discretion (Kellman, 1990).

Output hard to measure

Other agencies are complex because their output is hard to measure. When output is hard to measure, political disputes may be particularly difficult to resolve, and monitoring will be also be costly. For example, it is considerably easier to monitor the output of EPA (number of regulations; improvement in environmental quality) than it is to monitor the output of the State Department (“good” foreign relations), the Dept. of Defense (national security), or even the Dept. of Justice (“justice”; domestic security). The expectation in this case is that agency substantive discretion cannot easily be controlled by procedural constraints, so that this type of agency discretion will lead to greater employee discretion.

When agency tasks are relatively easy to measure, it is less costly for legislators to write clear regulations to guide agencies. Even when there is political disagreement, the eventual decision about the level and distribution of benefits (agriculture, welfare, housing, Medicaid, Medicare, education, etc.) can be settled by a logroll (Weingast, Shepsle and Johnsen, 1981). The consequence is that, in general, employees in client service agencies (Agriculture, HHS, HUD, SSA, Dept. of Education, FAA, Treasury (especially IRS), Veteran Affairs, and GSA) may find themselves with little discretion. On the other hand, when output is easy to measure, monitoring can also be ex post. Customers can directly monitor the performance of client service agencies, as they judge the speed, accuracy, quality, and quantity of the service immediately after it is delivered.. This also leads to the expectation that employees in client service agencies will report that they have less discretion than comparable employees in other agencies. They may also report greater productivity. By contrast, employees in agencies whose output is hard to measure work in an environment where monitoring is costly. The expectation accords with that in the previous paragraph: employees in agencies whose output is hard to measure will report greater discretion than comparable employees in other agencies.

Discretion and productivity in public bureaus

Employee discretion could either facilitate or reduce employee productivity in federal agencies. Moreover, there are many reasons to believe that its impact may depend on the type of agency, the type of task, and the type of employee. While Scholz (1991) finds that flexible enforcement (implying employee discretion) will be more effective in bringing about eventual compliance than maximum enforcement that goes by the book (Bardach and Kagan, 1981), it is not clear what explains this finding or whether it is restricted to the regulatory agencies he studied, or to particular types of employees.

Monitoring: political appointees, mid-level managers, peers and clients

The usual assumption in the context of the dominant principal-agent model is that agents, left to their own discretion, will either shirk (that is, do nothing), or do something that the principals do not want (sabotage or bureaucratic drift) (Brehm and Gates, 1993, 1997). In other words, no matter what the reason for delegation, principals who delegate to agents lose control, and must balance that against the decision-making and other costs of not delegating. Congress not only faces that delegation dilemma with respect to executive agencies; the same dilemma exists within each executive agency (Miller, 2000). Thus, “solving” the legislative-executive principal-agent problem only pushes it down to another level within the executive.

In theory, opportunities for agents’ moral hazard can be constrained with persistent monitoring by principals and by the design of information-revealing agency procedures and efficient reward systems. However, even when agency procedures produce information at no cost to the legislative principals (McCubbins and Schwartz, 1984), it is costly for principals to make use of that information and to otherwise monitor agents’ behavior. Nonetheless, some forms of monitoring may be cheaper and more effective than others. We already noted that ex post monitoring, while not foolproof, may be more productive than ex ante monitoring (McCubbins and Schwartz, 1984; Thompson, 1998; Langbein, 2000). With respect to rewards, optimal incentive systems appear impossible when the work product requires joint effort, and when outcomes are

hard to measure. There is no *ex ante* incentive system that simultaneously motivates agents to take actions that are Pareto optimal for the principal(s), does not waste money, and meets a budget constraint (Holmstrom, 1982; Miller, 2000, 2001). (See Baker, 2000, for an example of an effective incentive system when work is not jointly produced.) Unlike private organizations, reward systems in the federal government, while they make some use of pay-for-performance, are less flexible, and may be counter-productive (Radin, 2006).

In the absence of ready access to flexible and powerful pay-for-performance incentives, agencies have ready access to the use of political and non-political supervisors to monitor the work of lower level employees: there are many monitors in public agencies. Supervision can either increase or reduce employee discretion and productivity. Political supervision can either augment mission-oriented output, or it can reduce productivity when agents face conflicting expectations between political and career supervisors. Similarly, career supervisors can facilitate communication between political principals and employees, increasing employees' output, or they can be barriers to productivity.

Monitoring by professional peers signals the presence of "trust." Professionals in the same field share similar values and have repeated contacts; they have an incentive to cooperate because they know that professional peers are a source of future assistance in securing a better job (LaPorta et al., 1997; Kreps, 1990, 1997). Thus, a large organization governed by the norms of a single profession compared to one governed by a more diverse set of principals is not as likely to be encumbered with rules and disagreeing, distant principals that are likely to reduce both discretion and effectiveness.

Monitoring by peers also occurs within workgroups. Within an agency, cooperative, hard-working work groups should increase productivity, but could also induce free-riding and reduce individual productivity. In other words, individuals in productive work-groups should be more productive, because the productivity of others signals trust and expectations, especially when effort is costly to observe (Whitford and Ochs, nd; Arcem and Gunn, 2005). However, it is also possible that exactly the same situation invites free-riding and less work by individual employees.

Customers or clients may be another important monitoring group. The usual assumption is that monitoring by this set of principals is more prevalent in the private than the public sector. Further, as these external, proximate principals become increasingly important, agents will have correspondingly more discretion to figure out how best to respond to these external principals, enhancing organizational effectiveness. Once again, the expectation is that it is the importance of the customer/client that is relevant, and not just the sector (Thompson, 1998; Barzelay, 1992; Bozeman, 1987). The expectation is that employees in client-oriented public service organizations, while they may have little discretion, will be more productive than comparable employees in other types of agencies.

Multiple principals and uncertainty

Government agencies in the U.S. have multiple principals, each with veto power over the agency. Dixit (1997) adds that, when multiple principles disagree, and, by extension, when their conflicting preferences are unclear, employees have weak performance incentives; they are answerable to different constituencies with conflicting and often unclear preferences. In being beholden to everyone, they are beholden to no one. The consequence is not only less discretion, but also a less effective organization. Thus we expect that employees who are unsure about what is expected of them, and unsure about the relation of their job to the mission of the agency, will not only report less discretion, but less productivity too (Whitford and Ochs, nd).

Size of agency

La Porta et al. (1997) also argue that, without trust, there is less cooperation in large organizations. Size means that production is often joint. Consequently, employees need to cooperate with many others (including possibly clients and customers, as well as other employees) who they see rarely. The larger the organization, the fewer the repeated interactions there will be between any two employees, or between employee and customer. In the absence of trust, these one-shot contacts, characteristic of large organizations, become non-cooperative games, whose equilibrium is not optimal for the organization (Miller, 1992). Further, without trust, managers in large organizations are

especially likely to invoke rules and active ex ante monitoring of employees. They are also likely to be more distant from agents, promoting uncertainty among agents about principals' preferences. Bohte and Meier, 2001 and Meier and Bohte, 2001 show that organizational complexity and the span of control of the organization's top and mid-level managers, both characteristics of large organizations, affect employee discretion and productivity. For these reasons, the implication is that employees in large agencies may report not only less discretion, but also lower productivity.

Task complexity

The dominant principals-agent models that frame the issue of discretion as a moral hazard dilemma assume that principals' preferences are exogenous with respect to agents. However, agent discretion may come entirely or partly from their ability to influence the preferences of their principals, and thereby to control their own agenda (Niskanen, 1975; Krause, 1996; Wood and Waterman, 1994). The ability of agents to control their own agenda may be greater when tasks are highly technical and when there are few competing sources of supply or information. This may be particularly likely in the case of public supply of national defense, the space program, and foreign policy, and in some areas of technical regulation. One consequence is greater discretion in highly technical agencies. However, the absence of competition could also reduce productivity in these highly technical agencies: there is no competition in the supply of national defense or foreign policy in the U.S. By contrast, social services are produced by government agencies at all levels, and by the non-profit sector as well, and there is no information monopoly in social services.

Love or Money?

In light of the recognition that the moral hazard problem between agents and principals may be intractable, growing theoretical and empirical evidence suggests that selection can reduce the moral hazard dilemma in a repeated principal-agent game (Brehm and Gates, 1997; Miller, 2000; Langbein, 2002). First, even in non-repeated games, many players cooperate even when the dominant solution is to defect (i.e., do nothing or maximize individual rather than group gains) (Fehr and Gächter, 2000a, 2000b;

Orbell, 1991; Ostrom, 1998) Second, workforce games are repeated, and cooperation increases in repeated games (Fehr and Gächter, 2000a, 2000b). Third, non-cooperators are more likely to cooperate when others do (Orbell, 1991). Fourth, there is evidence that people work not only for instrumental ends (e.g., to make money) but also to pursue consumption values (Frey, 1994; 1997; Deci and Ryan, 1985; Kreps, 1997). Fifth, when people work for intrinsic values, they are more likely to cooperate with others who share those values. When such a cooperative “heuristic” prevails, it appears that primary reliance on extrinsic rewards and sanctions (such as performance pay, ex ante monitoring, and ex ante and ex post sanctions) actually crowds out intrinsic values (Scholz, 1991; Frey, 1994). The implication is that careful selection of agents who generally share the preferences of principals (even when they are conflicting) can reduce the moral hazard dilemma (Frank, 1991; Schotter, 1998; Miller and Whitford (nd); Miller, 2000). Thus, we should observe that federal workers who have discretion and share the values of the organization are more productive than otherwise similar workers with similar amounts of discretion, but who are less intrinsically devoted to their job.

Overall, norms are expected to matter for productivity. Specifically, employees with discretion will be more become more productive as the intrinsic value of their work, relative to the extrinsic value, increases. By contrast, employees with discretion will be less productive as the commitment to work for money, not love, increases.

Other factors

Other factors also affect productivity. Workers with clear job expectations will be more productive. This means that productivity will be higher for workers in service agencies, where jobs are easily monitored by clients; for workers with clear job expectations; and for workers in jobs whose activities are clearly connected to the agency mission. Productivity should also be lower in agencies with tasks that are hard to measure, but the opposite is possible too, especially because output is hard to measure.

It is also necessary to control for potentially confounding factors in testing these expectations. I control for pay grade, pay type, education, experience, whether the respondent is a supervisor, gender, and race.

Summary

Previous research in political science hypothesizes differences in discretion within public agencies, and examines why these differences exist, but that literature does not examine why differences in agency discretion should matter. Agency discretion does not necessarily lead to discretion at the street level, where it matters; and discretion at the street level may lead to more, or less, productivity. Understanding the reasons for differences in discretion and output within public sector organizations is essential in order to find whether discretion enhances or retards employee effectiveness. Delegation by external principals to bureaucratic agencies may or may not wind up as discretion in the hands of employees within the agencies.⁴ The empirical evidence below sheds light on this question, and on the issue of when discretion at the agency and individual level enhances or retards employee effectiveness.

Evidence from U.S. federal government agencies

This study uses measures of employee discretion and productivity developed from the 2000 survey of federal employees carried out by the Merit Systems Protection Board (MSPB). It assesses whether employees in agencies that are given more discretion by the legislature actually have more discretion to do their jobs, and whether that discretion results in shirking or working.

The survey was mailed to 750 employees selected randomly from each of 23 executive branch agencies, for a total possible sample of 17250 respondents. The 41% response rate was typical for surveys of this nature.

There are two dependent variables in this study: employee discretion and productivity. Productivity is assumed to be endogenous to discretion, and both are endogenous to the various external characteristics of multiple external and internal principals. The two equations can be written as:

$$Y_1 = f(X_1, Z_1, Z, \mu_1) \quad (1)$$

⁴ The ultimate impact of discretion on the allocative and technical efficiency of bureau performance remains an open question that is beyond the scope of this research.

$$Y_2 = f(X_1, X_2, Y_1, Z_1, Z_2, Z, \mu_2) \quad (2)$$

where Y_1 = employee discretion; Y_2 = employee productivity; X_1 = theoretically relevant exogenous variables in both equations (agency type, political appointees, supervisors, agency size; job clarity); X_2 = theoretically relevant exogenous variable in (2) (intrinsic relative to extrinsic motivation); Z_1, Z_2 = control variables unique to (1) and (2), respectively; Z = control variables shared by (1) and (2); and μ_1, μ_2 , the stochastic terms in (1) and (2) respectively, and which are expected to co-vary substantially.

It is important to understand the properties of these stochastic terms. Because of random measurement error typical in survey responses; because the variance in the random component is unlikely to be constant; and because the same respondents are used to estimate both equations, the stochastic terms in both equations are assumed to be similarly heteroscedastic. It follows that, since the same respondents are used to estimate both equations, it would be unreasonable to assume that the stochastic terms for respondents in the discretion equation are independent of the stochastic terms for respondents in the productivity equation.

This implies two different ways of estimating the equations, each with different advantages and disadvantages. Both estimate the two equations jointly, so that equation (2) is not entirely independent of equation (1). One estimation method uses two stages. The first stage estimates equation (1) using robust standard errors to reduce heteroscedastic errors expected from the randomness likely in individual responses to survey questions. The second stage uses the variables in Z_1 as instruments for discretion in equation (2) in order to reduce the inevitable measurement error that would otherwise bias estimation of the impact of Y_1 (discretion) on Y_2 in equation (2). That is, the value of Y_1 (discretion) predicted by equation (1) (i.e., \hat{Y}_1), and identified by Z_1 , is used instead of Y_1 in equation (2). Like equation (1), equation (2) also estimates parameters with robust standard errors. The advantage of this two stage method is that it controls explicitly for heteroscedastic responses in each equation. It also reduces sources of noise

in theoretically critical independent variables (discretion) that bias estimates of their impact (on productivity).⁵

Another estimation method explicitly accounts for the fact that the respondents in the two equations are identical. The equations for Y1 and Y2 are “seemingly” unrelated, because they use two different dependent variables, yet they are related, because their estimates are based on data from the same respondents and the equations share many of the same exogenous variables. Thus I also use seemingly unrelated regression (SUR) to estimate the theoretical parameters. This method reduces the likelihood that the stochastic term in one equation is related to an included independent variable in the same equation because of the indirect relation between the two similar equations. It requires that both Y1 and Y2 are truly endogenous variables in their respective equations. I examine two sets of SUR estimates. In one, the impact of discretion on productivity is directly estimated. In the other, I use the instrument for discretion, estimated from the first equation, as the measure of discretion in the second stage regression, denoted again as Y1-hat. This should reduce random error in the theoretically relevant independent variable (discretion), and thereby reduce standard errors as well. This is exactly what happens.

All of the estimation methods produce the same results, with one minor exception noted below. I report the two-stage instrumented version with robust standard errors; in general, the parameter estimates with this method have lower standard errors, but in no case (with the same exception just mentioned) do the signs of parameter estimates or the conclusions using conventional levels of significance ever change; the magnitude of the parameter estimates changes little too, usually in the second decimal place.⁶

⁵ Two stage regression to reduce random measurement error is hazardous if the predicting equation is weak. In this case, the predicting equation is not weak; equation (1) explains 47% of the variance in Y1 (discretion). Thus, the “noise” in Y1-hat is about half the amount that would be present in an unadjusted version of Y1.

⁶ I also estimated the equations generating the results reported in Table 1 and 2 with standard errors clustered by agency. The clustered standard errors were slightly larger than those reported, but this effect appears often in the third decimal place and in no case changes the conclusion about significance. I also estimated the results in Table 1 and 2 with agency fixed effects (using either robust or clustered standard errors). Once again, the basic results reported in Tables 1 and 2 do not change. Predictably, the use of agency fixed effects produces collinearity between some of the agency type dummies, political appointees, and the separate agency dummies, but the basic results for the impact of mid-level supervisors and conditional discretion do not change. Most importantly, using fixed effects does not raise the R-square at all. In this particular case, it is easy to choose the results from the model that includes theoretical variables

The Endogenous Variables

The study measures discretion at the individual level with a scale comprised of 3 indicators. The first indicator is the response to the survey item, “At the place where I work, my opinions seem to count.” Strong agreement is scored by a score of 5, and strong disagreement with a score of 1 (mean = 3.29). The second indicator is the response to the question, “In the past two years, I have been given more flexibility in how I accomplish my work,” also scored on a 1 to 5 scale of agreement (mean = 3.30). The third is the level of agreement to “Employees participate in developing long-range plans in my work unit” (mean = 2.62). The reliability (Cronbach’s alpha) of a 3 item summative scale of these items is 0.71. Principal components factoring resulted in one factor with loadings of .85, .77 and .77 for each of the items, respectively. These results imply that the 3-item scale reliably measures a unidimensional concept. The scale mean is 9.51; the standard deviation is 2.76, and the range is from 3 to 15, indicating that there is considerable variance in discretion among Federal employees.

The study also uses a subjective, compound measure of individual performance. Respondents were asked to rate their individual productivity on a 10-point scale, from 1, “Not at all productive,” to 10, “Extremely productive.” The mean score for individual productivity was 8.47 with an observed range of 1 to 10, but a relatively small standard deviation of 1.37. Respondents were also asked to rate the quality of their own work on a 5-point scale, where 1 is “Poor” and 5 is “Outstanding.” The mean rating is 3.26, with an observed 1 to 5 range, and a standard deviation of only .60. In order to make both items numerically equivalent, I divided the first indicator (individual productivity) by 2 to make it equivalent to the 5-point quality scale. I then added a third component to the scale, reflecting a third element of productivity: the extent to which the work the employee performs contributes to the accomplishment of the agency’s mission. This was also measured on a 10-point scale, which I divided in half, and then added the response to the other two indicators.

and no a-theoretical dummy variables over the model that includes both types of variables. While it is never possible to rule out the possibility of omitted variable bias in non-experimental designs such as this, these results imply that it is unlikely that the omitted variables are related to omitted agency-specific characteristics.

The result is an additive index that reflects three central components of productivity, in the context of the literature on shirking. The absence of shirking means that employees work hard (quantity, or self-reported productivity), work well (quality), and contribute to the mission of the unit, rather than “do their own thing.” The composite index, ranging potentially from a score of 2 to 15, captures each of these components. The actual mean is 12.3; the standard deviation is 1.8, and the range is from 5 to 15, again exhibiting considerable variation.

However, the index is not clearly unidimensional. While factor analysis yields 1 underlying dimension, the dimension explains only slightly more than 1/3 of the factor space, and Cronbach’s alpha is only .64. It is quite possible that this measure in fact captures the very tension that it is supposed to capture: the variable with the lowest loading on the factor is the employee response to “contributing to the mission of the unit”, and that variable is least highly correlated with the other two. That is, employees who report that they work “hard” and “well” may also believe that they are not necessarily contributing to the mission of the unit. I investigate this possibility by comparing the impact of political employees and intrinsic (relative to extrinsic) norms on each of the three output measures measured separately. The results for quantity and quality, measured separately, reflect the results for the overall index reported below in Table 1. I do not report those separate estimates. However, as Table 2 shows below, the role of political appointees is different when it comes to mission output, measured alone, than it is when productivity is measured as a three-component composite scale in Table 1.

Theoretically Relevant Independent Variables

Agency type

I use a series of dummy variables for groups of agencies as a proxy for the likely discretion of each agency. Specifically, I expect that technical agencies (DOD, NASA, and FAA) will have the greatest amount of discretion granted to them by the legislature. This expectation is corroborated by Epstein and O’Halloran (1999: 189), who devise a discretion score that reflects two components. One is the delegation score, and the other is the constraint score. When committees draft legislation that gives agencies

considerable discretion, they also usually constrain that discretion with additional procedural constraints. The resulting discretion score is the difference between delegation and constraints. The Armed Services and Space Science and Technology Committees produce legislation affecting DOD and NASA with the highest discretion scores (50%). These are areas of considerable technical uncertainty among legislators; uncertainty about political outcomes could also be high in this area.

By contrast, I expect the client service agencies to have relatively low discretion, since the issues are not technical and Congressional staff can assist in writing grant formulas and rules that direct the money as Congress wishes. Consistent with this expectation, domestic service agencies (e.g., HUD, Education, and Labor) are governed by legislation that has somewhat lower Epstein-O'Halloran discretion scores (about 20% lower). In this area, there is considerable liberal-conservative disagreement on a multitude of issues (e.g., centralization vs. decentralization of decision-making authority to the states; level of the benefits; rules regarding the behavior of beneficiaries), but technical uncertainty is fairly low. I group the client service agencies together. They include Agriculture, HHS, HUD, VA, SSA, Department of Education, FAA, Treasury (which includes IRS), and GSA. In fact, the lowest discretion scores (about 8%) apply to legislation emerging from Ways and Means and governing the IRS. In this area, while there is liberal-conservative disagreement regarding the optimum amount of federal revenues, a median should readily emerge. Further, there is little technical or political uncertainty in this area.

I expect regulatory issues to be very complex politically, and technically more complex than agencies that allocate grant money but less complex than DOD and NAS. Regulatory agencies should therefore have moderate levels of discretion; they may have considerable substantive discretion because of technical uncertainty, but they also have little procedural discretion because of political uncertainty. Using the Epstein and O'Halloran discretion score, legislation emerging from the Energy and Commerce committees lies between the extremes of the Armed Services and domestic service agency committees (27%). I include as regulatory agencies EPA, Commerce, Dept. of Energy, Dept. of Transportation (and FAA), Dept. of Labor, Dept. of Interior, and Treasury. (As I noted above, this coding scheme is exhaustive but it is purposely not

mutually exclusive. For example, the FAA is technically complex, but it is also a regulatory agency. Treasury includes IRS, which is low in technical complexity, but the agency also has regulatory responsibilities.)

There are also agencies that are not particularly complex either politically or technically, but produce output that is particularly hard to measure. This includes State, DOD, and Dept. Justice. My expectation is that these agencies have considerable discretion, because it is costly to monitor agencies where both outputs and outcomes are not readily apparent (Horn, 1995). Consistent with this expectation, Epstein's and O'Halloran's (1999) discretion scores for committees overseeing these agencies are relatively high.

In summary, correlating Epstein and O'Halloran's measure of agency discretion with my agency categories shows that technical agencies have high discretion ($r = 0.84$), and agencies with output that is hard to measure also have high discretion ($r=0.56$). Service agencies have low discretion ($r = -0.49$), and regulatory agencies also tend to have low discretion, but in general are in the middle group ($r = -0.33$).

Monitors, Distance, and Confusion

In addition to variation in Congressional oversight, employees face oversight from the President and from internal managers. Oversight from the Chief Executive is implemented by political appointees. I collected information on the number of political appointees in each agency from The Plum Book (U. S. Congress, 2000). (United States Government Policy and Supporting Positions: 2000 edition; U.S., Congress, Committee on Governmental Affairs, U.S. Senate, 106th Congress, 2nd Session.) There are more political appointees in agencies whose output is hard to measure ($r = 0.48$). These agencies also have more legislative discretion. Technical agencies also have a lot of discretion, but they do not have more political appointees than non-technical agencies ($r = -0.27$). As examples, the mean number of political appointees in technical agencies is 8, compared to the overall mean of 30. Regulatory agencies, which have a rather technical task, have fewer political appointees (mean=17) than non-regulatory agencies (mean = 38). Agencies whose output is hard to measure have an average of 76 political appointees, compared to agencies whose output I deemed as relatively less hard to

measure (14 political appointees). State department has the highest number of political appointees (202), while the FAA has 2, NASA has 4, the Air Force and Navy have 7 each, and the Army has 8. My expectation is that, controlling for agency size (and other variables), greater numbers of political appointees will reduce both employee discretion and productivity (Gilmour and Lewis, 2006).

Career supervisors also monitor employees. Career supervisors may clarify employee tasks, and give employees discretion to carry out the task, resulting in greater employee productivity. On the other hand, it is also possible for career supervisors to tie the hands of employees and to make them less productive. I measure the impact of career supervisors using the MSPB survey. The survey asked respondents whether they are supervisors. For each agency, I divided the number of respondents who said they are supervisors by the total number of respondents from that agency, and created a percentage. My basic expectation is that, on the average, career supervisors will have precisely the opposite effects of political appointees.⁷

For a variety of reasons discussed in the previous section, employee discretion is likely to shrink as the distance between the employee and their multiple principals increases. For example, as the distance increases, communication between the employee (the agent) and the principals becomes more indirect. One consequence is that employees are uncertain about what they are to do, and uncertainty fogs the zone of discretion, reducing it, and productivity as well. I use two proxies for the distance between employee and principals. One is agency size; there will be more paths between employee and any one principal in large than small agencies. Data on the total number of employees in each agency came from The U.S. Government Manual (U.S. Government Printing Office, 2000-2001 Edition). The other is the number of pages that pertain to each agency in The Plum Book (U.S., Congress, 2000). That book lists top administrators in each agency subunit; independent of agency size, agencies with more subunits have more pages of listings in The Plum Book. My expectation is that, along

⁷ I intentionally measure political appointees as numbers and career supervisors as percents. Political appointees communicate “messages” about agency mission; the messages are jointly consumed. The more political appointees there are, the louder the message. Thus, their absolute number is important, not their relative proportions. In contrast, career supervisors directly monitor the work of individual agency employees. For them to be effective, their presence, relative to the number of workers, is the appropriate measure.

with agency size, employees in agencies with more subunits have less direct communication with agency principals, and will report less discretion and lower productivity.

In the presence of multiple principals, uncertainty about principals' preferences is expected to reduce an employee's zone of discretion. Regardless of distance, I also expect that employees who do not have a clear understanding of what they are to do, or of how their job relates to the agency mission will also report a foggy, and thus small, zone of discretion, and lower productivity. I measure uncertainty by the response in the MSPB survey to the question: "I know what is expected of me on the job", where I code a "1" as low understanding and a "5" as high understanding, with intermediate scores between these anchors. The mean response to this question is fairly high (4.0), the standard deviation is 0.9, and the observed range is from 1 to 5. I measure the clarity of the link between the respondent's job and the agency mission with the response to the following item: "My performance standards are clearly linked to my organization's goals and objectives". I code a "1" as an unclear link and a "5" as a clear link, with intermediate scores between these two extremes. The mean response to this survey item is 3.3, the standard deviation is 1.1, and the observed range is also from 1 to 5.

Type of motivation: intrinsic and extrinsic rewards

With respect to productivity, discretion matters, but the impact of discretion on productivity depends on why people work. As the previous section indicates, theory and empirical evidence suggests that, in many cases, paying people (extrinsic rewards) for what they would otherwise want to do (intrinsic rewards) may actually reduce their output. With respect to why federal employees do their work, I measure the relative value of intrinsic to extrinsic reward by subtracting two scores. The first score (intrinsic rewards) is the response to a question about job satisfaction: "In general, I am satisfied with my job." The second score (extrinsic rewards) is the response to a question about pay: "Overall, I am satisfied with my current pay." Responses to both items ranged from 1 to 5, with 5 indicating the highest levels of satisfaction. Relative intrinsic value is indicated by the difference between these responses. The potential (and actual) range of

responses is between -4 (mostly motivated by money) and +4 (mostly motivated by the work). The mean is 0.4, and the standard deviation is 1.3.

The theoretical expectation is that intrinsically motivated employees (those whose score on relative intrinsic value is greater than zero) will use their discretion to increase output. For these people, more discretion combined with more intrinsic value is expected to raise productivity. Thus I multiply discretion scores (which can range from 3 to 15) by positive intrinsic value scores to measure the impact of norms for this intrinsically motivated group. Those whose relative motivation is zero or negative are all coded as zero on this interactive term, whose values range from 0 to 60.

Employees in the extrinsically motivated group (with negative scores on relative intrinsic motivation) are expected to use discretion to do nothing, to reduce quality, or to busy themselves with work that is unrelated to the agency mission. Once again, I multiply the discretion scores for these employees (ranging from 3 to 15) by their relative intrinsic satisfaction scores (which are all negative), producing a second interaction term that ranges from a low of -52 to a high of 0. For this group, as the scores go from very low to a high of 0, output should also increase. Another way of looking at the same thing is that, for this group, discretion and relative extrinsic rewards (the lowest negative scores) reduce productivity. If these expectations are true, the implication is that giving discretion to intrinsically motivated employees makes them more productive (using the 3-component measure), while giving discretion to extrinsically motivated employees makes them less productive. This would be consistent with Miller's (2000) expectation that selection (based on values) trumps moral hazard (based on pay).

These two interactive variables appear only in the equation for productivity (equation 2). Recall also that the measure of discretion used to estimate its impact on productivity is the value estimated from equation (1). Thus, I created the two interactive terms first by multiplying the estimated value of discretion (\hat{Y}_1) times the positive intrinsic value scale score, and then times the negative intrinsic value (i.e., extrinsic value) scale score.⁸

⁸ I also used the observed value of Y_1 to create these interaction terms. The results do not differ from those reported, but the standard errors are larger.

Control Variables

There are many control variables, and most, but not all, appear in both equations. For example, a workgroup's productivity is likely to affect how hard an employee in that group works (employee output), but not the employee's own discretion. If the other employees in the respondent's work group are productive, the respondent can choose either to free ride, and to let his own level of performance slip, or to cooperate and work at the same or even higher levels of performance than those in her work group. Thus it is statistically necessary and substantively important to control for and measure the impact of the respondent's view of the level of performance of those in his work group. Just as I measure the respondent's own level of performance by multiplying the respondent's assessment of her own productivity by her assessment of the quality of her work, I measure the respondent's assessment of her work group's performance in a similar manner. The MSPB survey asked respondents to rate the overall productivity of their work unit on a 10-point scale, from "not at all productive" (1) to "extremely productive" (10). The survey next asked respondents to rate the quality of work performed by their work unit as a whole on a 1-5 scale from "poor" (1) to "outstanding" (5). The level of performance of the work group is the (adjusted) sum of these two indicators. To make the responses to both of the questions numerically equivalent, I divided the response to the 10-point workgroup productivity scale by two, and then summed the two indicators. The mean score on this 10-point scale is 7.69, with a standard deviation of 1.42, and a range of 1.5 to 10, which is the maximum possible range.

Another aspect of the respondent's work group may affect her level of performance and may also be related to how much discretion the agency has. Specifically, respondents in work groups that have high levels of cooperative behavior could have high levels of discretion and performance if they also cooperate (Thompson, 2005). It is also possible that respondents could free ride, so that very high levels of cooperation in the work group allow the respondent to slack off. Further, work groups in agencies with considerable discretion borne of political strife may also find themselves with high levels of discord and non-cooperative behavior. Alternatively, work groups in these agencies may be better able to find solutions and to work cooperatively. It is thus

statistically and substantively important to control for and assess the impact of the level of cooperative behavior of the respondent's work group on the respondent's own level of discretion and performance. The MSPB survey asked each respondent how much he agreed, on a 1-5 scale, with the statement, "A spirit of cooperation and teamwork exists in my work unit." The average response is 3.4 (standard deviation = 1.2), and the observed range of responses is from 1 to 5.

The size of the respondent's work group is also important, for two reasons. First, workgroup size is an indicator of possible scale economies and diseconomies. Workgroup size may also affect employee discretion; larger workgroups offer more opportunities for less peer supervision and more free-riding. Second, the square of size is a measure of opportunities for cooperative behavior. It is well known that cooperation is more likely in repeated games. In very large work groups, the probability that two persons will have repeated interactions within a fixed period of time is lower than the same probability in a small work group. If interactions are random, then $1/[N*(N-1)]$ is the probability that two persons in a group of N persons will bump into each other. Thus the square of N is a slightly inflated inverse indicator of this concept. In this study, then, the size of the group (and its square) is a proxy for two different ideas. The squared term appears only in the productivity equation. The mean work group has 22.5 employees ($s = 42.3$); the observed range is from 1 to 999, which is the maximum permissible response, and may indicate that employees confused their workgroup with their entire agency.

Other variables measuring personal characteristics also need to be controlled for statistical reasons. For example, supervisors have higher levels of pay. Assuming that pay is positively, if imperfectly, related to past performance, supervisors are likely to report higher levels of current performance and they are likely to have more discretion. Thus, to examine the impact of discretion on performance, it is statistically important to control for whether the respondent is a supervisor (=1) or not. 24% of the respondents are supervisors.

Years of experience with the federal government, and its square, must also be controlled. For several reasons, new federal government employees may have less discretion and may perform at lower levels. They may know less about their job; and they have had fewer repeated interactions with colleagues, and therefore may have less

incentive to cooperate. At the other end of the scale, the most experienced federal employees may have the highest expertise, or they may have a lower level because the best employees leave. It is therefore possible that performance rises with years of experience up to a point, and then falls. More experienced employees may also be granted more discretion. The MSPB survey asked respondents to indicate the category of their years of experience. The categories were: <1; 1-5; 6-10; 11-15; 16-20; 21-25; 26-30; >31. I used the mid-point of these categories to make this an interval measure; I coded the last category as 32 years. The mean response is 18 years ($s=8.7$); the observed range is from .5 to 32 years of experience.

I also controlled for the worker's grade in the federal service. Presumably, higher paid, and thus higher grade, workers have higher levels of performance. They may also have higher levels and broader spans of authority and consequently more discretion. Grades range from 1 to 16. The mean grade is 11.5 ($s = 2.67$); the observed range is from 1 to 16.

However, pay grades cannot be examined independently of the type of pay system, which I score as a 3-point ordinal scale. About 1% of workers are in the lowest grades. They are wage grade employees (=1). Compared to other federal workers, these employees are likely to have little discretion, and their jobs probably have output that is relatively traceable to individual effort. Workers in the very highest grade (16) are in the Senior Executive Service (=3). They are likely to have considerable discretion and are likely to rate their performance level at the highest levels. Most workers (82%) are in the general schedule (GS) system (=2).

Education is also an important statistical control. It is not entirely reflected in the respondent's pay grade. Ordinarily, one would expect that educated workers would be more productive and would have more discretion. However, the federal pay system does not explicitly reward education and many relatively high grade workers (e.g., GS 15) may have less formal education than workers with lower pay grades. Further, educated workers may report themselves as performing at lower levels than comparably performing workers with less formal education. The MSPB survey measures education as a 7-point scale where 1 is less than a high school diploma; 2=high school or GED; 3=more than high school; 4=associates degree; 5= BA or BS; 6=more than BA or BS; 7=

graduate degree. The sample mean (and median) is 5 ($s=1.64$). The observed range is from 1 to 7.

Finally, I also controlled for gender (women = 1) and minority status (=1) because protected classes of people may rate their own performance differently than others rate their own performance, and they may be given jobs with less discretion. 41% of the respondents are women, and 21% are minority.

Results

Table 1 displays the results for the impact of these variables on both discretion and performance. Consider first the sources of individual discretion. The type of agency matters; that is, the reason for discretion affects the impact of agency discretion on individual discretion. The output of regulatory agencies is easy for regulated entities to monitor, and agency rulemaking activities are scrutinized by both interest groups and regulated entities. Similarly, the output of employees in client service agencies is easy to monitor ex ante and ex post. It follows that employees in these agencies report significantly less discretion than comparable employees in other agencies. Employees in regulatory agencies report about .2 less discretion on the 13-point scale (ranging from 3 to 15), while employees in client service agencies report .4 less discretion. However, employees in agencies thought to have the most discretion (DOD and NASA, for example) do not appear to have distinctively more discretion than employees in other agencies.

Supervision affects discretion too. As expected, political supervision reduces individual discretion, while supervision by career staff increases it. Also as expected, individual discretion drops as agency size increases.

The clarity with which the employee's task is defined also increases discretion by about slightly more than 1/2 a point on the 13-point scale. Linking performance standards to agency goals also appears to augment employee discretion by about 3/4 point.

Many of the control variables affect employee discretion as well. Workgroup cooperation increases individual discretion by nearly 1 point. Supervisors report more

discretion than the average employee, as do higher grade employees and white-collar employees in the GS and SES pay-types. Employees with more education report less discretion, once grade, pay-type, supervisory status, and years of experience are held constant.

With respect to the impact of discretion on performance, recall that individual performance is a subjective assessment, measured as the (adjusted) sum of quantity, quality, and mission-focus of work on a 15-point scale, with an observed range of 11 (scores from 5-15). The results suggest that discretion at both the agency and the individual level affects individual level performance, but in variegated ways. Employees in technical agencies report lower levels of output than comparable employees in other agencies, by about .3 point on the 11 point scale (Table 1), but these employees did not report more or less discretion than other employees. Individuals in agencies with hard-to-measure output report .7 more productivity than respondents in other types of agencies, but they also did not report any more or less discretion. Individuals in service agencies also report higher performance (by about .2 point), yet they report less discretion than workers in other types of agencies. Employees in regulatory agencies reported less discretion, but are not different with respect to productivity. Overall, there is no clear impact of top level agency discretion on the discretion and the performance of individual employees in each agency; sometimes there is no association and sometimes the estimate of impact is positive, and sometimes it is negative.

However, it is clear that the impact of individual discretion on productivity depends on why people work. As discretion increases for intrinsically motivated workers, productivity increases (by about .02 points on the 11-point scale). Discretion for intrinsically motivated workers is measured on a multiplicative scale that ranges from 0 to 60; thus, a 10-point increase on this scale increases productivity by .2. With respect to extrinsic motivation, as discretion increases and the level of extrinsic to intrinsic motivation increases also, the multiplicative score becomes increasingly negative, starting at 0 and dropping to -52. Like the coefficient for relative intrinsic motivation, the regression coefficient of performance on this scale is positive (.04) and significant, but the meaning is different. In this case, the positive coefficient means that those with the lowest scores on discretion-motivation have the lowest scores on the dependent variable

too. Those with the highest discretion-motivation scores still have intrinsic motivation that is less than extrinsic motivation, but only slightly less, with a score that is negative, but only slightly less than 0. The parameter estimate means that, for a 10-point drop in motivation-discretion (that is, as extrinsic rewards increasingly exceed intrinsic rewards), performance drops by .4. Thus, the regression coefficient appears positive and significant in both cases, but the quadrants are different. A positive association in the lower left quadrant implies that employees with high discretion whose extrinsic motivation most exceeds intrinsic motivation (a high negative value) report the lowest levels of output. For these employees, less discretion would improve productivity. Employees in the upper right positive quadrant report higher levels of intrinsic relative to extrinsic motivation. For these employees, more discretion increases output. Moreover, since the scale of the variables is roughly similar (0-60 for one scale, and -52 to 0 for the other), the magnitude of the coefficients is roughly comparable. The results imply that extrinsic rewards depress performance almost twice as much as intrinsic reward improves it. This would suggest, just as Kreps (1990) and Frey (1994, 1997) find, that extrinsic rewards can crowd out intrinsic motivation and make performance worse.

Political appointees not only reduce employee discretion; they also to reduce performance. The impact is significant, but seemingly not “large”. Each additional political appointee reduces performance by .002 on the 11-point scale. However, summed over the 70,000 “average” employees in the average agency, this point estimate is “large.” By contrast, career supervisors appear to expand discretion, but they have no significant direct effect on output. Nonetheless, they affect output indirectly because they do directly increase employee discretion.

Agency size (number of employees) and layering (pages in the Plum Book) appear to reduce output. However, persons who see their tasks as being clearly defined and clearly linked to the agency mission see themselves as more productive.

The control variables are also informative. Individuals may free-ride on the efforts of their co-workers, but group norms of productivity counteract these effects. That is, respondents in cooperative workgroups are themselves less productive, but persons in productive workgroups are themselves more productive. Women report no

significantly different performance levels than men, but minorities report higher performance levels.

The dependent variable reported in Table 1 aggregates three components of productivity: quantity, quality, and mission-orientation. Recall that the variable with the lowest loading on the productivity “factor” is the employee response to “contributing to the mission of the unit”, and that that variable is least highly correlated with the other two. It would thus be informative to re-estimate equation (2) with mission-oriented productivity as the dependent variable alone.⁹ Table 2 reports the results. Most of the results are similar to those reported in Table 1, including those with respect to the crowd-out of intrinsic by extrinsic motivation-discretion, but there are some exceptions. Women report poorer mission-oriented performance results than men, and so do respondents with more education. (Neither of these variables were significant in Table 1.). Most important, political appointees continue to reduce agency-mission oriented performance, but, in Table 2, career supervisors significantly increase it. (Recall that career supervisors had no significant effect on the overall index.)

Overall, the results raise questions about the veracity of the common allegation, based on a simple construction of principal-agent theory, that employee discretion leads inevitably to shirking or sabotage. While this view is not dominant in the traditional public administration literature (Perry, 1990; Crewson, 1997), it is a critical assumption of the “new public management (NPM).” NPM strives to make government agencies more like the “private sector,” which is assumed always to use money to reward performance that helps the organization. In fact, money in the private sector is used to reward performance only when performance is easy to monitor and measure (Baker, 2000). The results in this paper, framed in the language of principal-agent literature, suggest that motivations, preferences, and norms matter. Kreps (1994, 1997) and Frey (1990) show that this is true in the private sector. My results show that this is true also in the public sector. They provide empirical support for Miller’s prediction (2000) that selection “trumps” moral hazard. That is, giving discretion to intrinsically motivated

⁹ Regressions with separate measures of quantity and quality produced the same results as those reported in Table 1, but with poorer fit and somewhat larger standard errors. This is expected since indexes (such as that constructed for the dependent variable in Table 1) usually are less noisy than each of their separate components.

employees appears to increase performance, while giving discretion to extrinsically motivated performance reduces performance. Principals and agents matter, but there are both multiple principals and principles, suggesting a more nuanced version of the traditional principal-agent model.

The results also raise questions about the impact of an important class of principals: political appointees. Political appointees, appointed to improve the ability of the elected chief executive to monitor federal agency employees, predictably reduce employee discretion. In a sense, then, political appointees are effective, since reducing employee discretion is what they are “supposed” to do. Because they reduce discretion, political appointees have an indirect, contingent effect on employee productivity. For extrinsically motivated employees, reduced discretion raises performance, giving political appointees more control. However, for intrinsically motivated employees, reduced discretion reduces performance. Once again, depending on motivation, increased discretion can either increase or decrease output.

Political appointees also have a direct negative effect on performance. The point estimate of a .002 reduction in the performance of the average respondent (using the 3-component, 11 point scale) for each additional political appointee is significant, but it is not “large.” However, if all respondents within an agency are average, then, summed over an agency of 70,000 employees, then the impact of one additional political appointee on reducing agency performance would be quite large. No matter whether performance is measured as a three-component index, or as a single component (agency-mission performance), political appointees reduce performance. This suggests that political appointees may be very successful in securing executive control over agencies whose employees do not share the values of the executive. (It is telling that the defense department agencies have the fewest political appointees, while the agencies with more clearly “political” missions, such as Interior and Justice, have the most.) The opposite effects of political appointees and career supervisors on discretion and mission-oriented productivity, together with the contingent effect of discretion on output is not inconsistent with the evidence of a tradeoff between political responsiveness, career management, and bureau output, as suggested by West (2005), Weimer (2005) and Krause, Lewis and Douglas (2006).

Does aggregate agency discretion matter? Does agency discretion make employees less accountable? The evidence suggests no simple relation. Employees in service agencies report both less discretion and more output. Employees in technical agencies and agencies where output is hard to measure report no differences in discretion, but employees in technical agencies report lower performance while those in agencies where output is hard to measure report higher performance levels. In most agencies, political supervision reduces discretion, and discretion has a contingent effect on output, depending on employee motivation. That is, when intrinsic motivation exceeds extrinsic motives, employees with more discretion report higher levels of productivity. When there is conflict about agency mission (agency vs. President vs. Congress), especially likely in non-technical agencies, it is possible that intrinsic rewards may work better to improve employee productivity. Overall, there appears to be a tradeoff between accountability and productivity: political controls (executive) reduce discretion (arguably raising accountability) and productivity.

On the other hand, it may be that clear agency missions facilitate productivity, at least indirectly. At the employee level, it is clear that clarity of task and linking employee task to agency mission also raises both output and discretion.

The measures of discretion and productivity in this study raise issues of measurement validity. However, previous research (Langbein and Lewis, 1998) suggests that, at least for electrical engineers, reported performance correlates with pay in both the private and the public sector. In another study, reported discretion has construct validity (Langbein, 2000) in that it behaves the way it is expected to theoretically. Also, like other studies (Gilmour and Lewis, 2006; Krause, Lewis and Douglas, 2006), this study finds that political appointees reduce (agency) mission-oriented output, even though the measures of performance are quite different.

Goodness of fit statistics (results not shown) indicate that including discretion and motivation (intrinsic/extrinsic) as two separate variables is not better than those reported in Tables 1 and 2. Specifically, in a model in which discretion and motivation are entered into the productivity equation as two separate variables, discretion has no direct impact on productivity, but motivation does. However, the interactive version (reported in Tables 1 and 2) has a better fit to the data, with a higher “R-square”.

Typical of observational studies such as this one, these estimates may reflect omitted variable bias. One way to test for omitted agency-level characteristics is to compare the results in Tables 1 and 2 with those from a model that adds a dummy variable for each agency. As reported above, using agency dummies does not increase the explanatory power of the estimating equations, does not change the key parameter estimates, and only serves to produce collinearity problems.

Simultaneity is another form of bias due to an omitted variable. The equations for individual productivity may reflect simultaneity, since it is possible not only that discretion affects performance, but good performers may be given more discretion. However, it is not clear theoretically that it matters whether the estimate of the relation between conditional discretion on productivity reflects one-way or two-way causation.

In sum, the reported results appear robust to many model specifications. They suggest that external controls of federal agencies from both the legislature and the executive office of the President affect both the discretion and productivity of federal employees, but the impact is contingent on many other variables, particularly the employees' motivation. That discretion increases productivity when employees are intrinsically motivated raises questions about the effectiveness of pay for performance when employee performance is measured by political rather than professional career employees, especially when political appointees and career supervisors do not share a similar view of the agency mission. When the mission is shared, the findings show that employees who are motivated by liking their work more than their pay use their discretion to enhance productivity, while employees who are motivated by liking their pay more than their work use their discretion to reduce productivity. At least in the Federal public workplace, extrinsic reward may sometimes "crowd out" intrinsic motives.

Table 1: Regression of discretion and performance on agency type and other variables (robust standard errors, instrumented discretion in performance regression).

| | <u>Dependent variable</u> | | | |
|-----------------------------------------|------------------------------|---------|-------------------------------|---------|
| | <u>Individual discretion</u> | | <u>Individual performance</u> | |
| | Estimate | t-prob. | Estimate | t-prob. |
| <u>Independent variables</u> | | | | |
| Constant | .70 | .06 | 7.74 | .000 |
| MyDiscretHat*intrinsic | --- | --- | 0.02 | .000 |
| MyDiscretHat*extrinsic | --- | --- | 0.04 | .000 |
| Regulatory agency (=1) | -.19 | .05 | -.03 | .67 |
| Technical agency (=1) | -.11 | .36 | -.29 | .002 |
| Output hard to measure (=1) | .13 | .48 | .73 | .000 |
| Client service agency (=1) | -.37 | .000 | .19 | .019 |
| # political appointees | -.006 | .000 | -.002 | .021 |
| Pct. supervisors | .02 | .000 | .01 | .24 |
| # employees ('000s) | -.002 | .007 | -.002 | .012 |
| # pages in Plum Book | .004 | .47 | -.01 | .026 |
| Clarity of task | .59 | .000 | .25 | .000 |
| Reln of perf. std. to agency mission | .75 | .000 | .09 | .003 |
| Workgroup productivity | --- | --- | .44 | .000 |
| Workgroup cooperativeness | .82 | .000 | -.17 | .000 |
| Size of workgroup | -.001 | .35 | .00 | .15 |
| Size squared | --- | --- | -.00 | .46 |
| Supervisor (=1) | .34 | .000 | -.01 | .88 |
| Yrs. experience | -.02 | .000 | .01 | .36 |
| Yrs. squared | --- | --- | -.001 | .05 |
| Grade | 0.08 | .000 | .06 | .000 |
| Paytype | 0.35 | .004 | -.19 | .052 |
| Education | -.07 | .002 | -.00 | .87 |
| Gender (F=1) | .01 | .91 | .03 | .59 |
| Minority (=1) | -.04 | .58 | .23 | .000 |
| R2 | .47 | | .24 | |
| F-value | 193 | | 439 | |
| P-value | .000 | | .000 | |
| N observations | 4229 | | 3696 | |

Table 2: Regression of mission-oriented performance on agency type and other variables (robust standard errors, instrumented discretion from Table 1 discretion equation).

| <u>Independent variables</u> | <u>Dependent variable</u> | |
|-----------------------------------------|----------------------------|---------|
| | <u>Mission-performance</u> | |
| | Estimate | t-prob. |
| Constant | 4.12 | .000 |
| MyDiscret*intrinsic | .02 | .000 |
| MyDiscret*extrinsic | .05 | .000 |
| Regulatory agency (=1) | .05 | .59 |
| Technical agency (=1) | -.28 | .022 |
| Output hard to measure (=1) | .70 | .001 |
| Client service agency (=1) | .23 | .032 |
| # political appointees | -.003 | .003 |
| Pct. supervisors | .02 | .044 |
| # employees ('000s) | -.002 | .10 |
| # pages in Plum Book | -.01 | .02 |
| Clarity of task | .24 | .000 |
| Reln of perf. std. to agency mission | .19 | .000 |
| Workgroup productivity | .25 | .000 |
| Workgroup cooperativeness | -.06 | .08 |
| Size of workgroup | .002 | .20 |
| Size squared | .000 | .38 |
| Supervisor (=1) | .09 | .29 |
| Yrs. experience | .01 | .63 |
| Yrs. squared | -.00 | .16 |
| Grade | .07 | .000 |
| Paytype | -.25 | .037 |
| Education | -.05 | .036 |
| Gender (F=1) | -.25 | .001 |
| Minority (=1) | .31 | .000 |
| R2 | .13 | |
| F-value | 21 | |
| P-value | .000 | |
| N observations | 3958 | |

LIST OF REFERENCES

- Ammons, D. N. and Newell, C. (1989). City Executives: Leadership Roles, Work Characteristics and Time Management. Albany, N.Y.: SUNY Press.
- Arcem, D. G, and Gunn, B. (2005). "Working Well with Others: The Evolution of Teamwork and Ethics." Public Choice 123: 115-131.
- Baker, G. (2000). "The Use of Performance Measures in Incentive Contracting." American Economic Review 90 (2): 415-420.
- Balla, S. J. (1998). "Administrative Procedures and Political Control of the Bureaucracy." American Political Science Review 92 (3), September: 663-673.
- Bardach, E. and Kagan, R.A. (1981). Going By The Book: The Problem of Regulatory Unreasonableness. Philadelphia: Temple University Press.
- Barzelay, M. (1992). Breaking Through Bureaucracy: A New Vision for Managing Government. Berkeley: University of California Press.
- Bawn, K. (1995). "Political Control versus Expertise: Congressional Choices About Administrative Procedures." American Political Science Review 89(1), March: 62-73.
- Bhattacharya, M. and Teske, P. (1994). "Testing Theories of Legislative Delegation and Oversight: State Level Evidence." Presented at American Political Science Association Annual Meeting. New York (Sept.).
- Bohte, J. and Meier, K. J. (2001). "Structure and the Performance of Public Organizations: Task Difficulty and Span of Control." Public Organization Review 1 (Sept.): 341-354.
- Bozeman, B. (1987). All Organizations are Public. San Francisco: Jossey-Bass.
- Bozeman, B. (1992). "Red Tape and Task Delays in Public and Private Organizations." Administration and Society 24: 290-322.
- Bozeman, B. (1998). "Organizational Rules and the Bureaucratic Personality." American Journal of Political Science 42 (1), Jan.: 163-189.
- Brehm, J. and Gates, S. (1993). "Donut Shops and Speed Traps: Evaluating Models of Supervision on Police Behavior." American Journal of Political Science 37: 555-581.
- Brehm, J. and Gates, S. (1997). Working, Shirking, and Sabotage: Bureaucratic Response to a Democratic Public. Ann Arbor: U. of Michigan Press.

- Calvert, R. L., McCubbins, M.D. and Weingast, B. R. (1989). "A Theory of Political Control and Agency Discretion." American Journal of Political Science 33: 588-611.
- Chaney, C. K. and Saltzstein, G. H. (1998). "Democratic Control and Bureaucratic Responsiveness: The Police and Domestic Violence." American Journal of Political Science 42(3), July: 745-768.
- Deci, E. L., and Ryan, R. M. (1985). Intrinsic Motivation and Self-Determination in Human Behavior. New York: Plenum Press.
- DiPasquale, D. and Glaeser, E. (1999). "Incentives and Social Capital: Are Homeowners Better Citizens?" Journal of Urban Economics 45 (2): 354-384.
- Dixit, A. (1997). "Power of Incentives in Private versus Public Organizations." American Economic Association Papers and Proceedings (May): 378-382.
- Epstein, D. and O'Halloran, S. (1994). "Administrative Procedures, Information and Agency Discretion." American Journal of Political Science 38(3), August: 697-722.
- Epstein, D. and O'Halloran, S. (1999). Delegating Powers: A Transaction Cost Politics Approach to Policy Making Under Separate Powers. Cambridge. Cambridge University Press.
- Fehr, E. and Gächter, S. (2000a). "Cooperation and Punishment in Public Goods Experiments." American Economic Review 90 (4), September: 980-994.
- Fehr, E. and Gächter, S. (2000b). "Fairness and Retaliation: The Economics of Reciprocity." J. Economic Perspectives 14 (3): 159-181.
- Ferejohn, J. and Shipan, C. (1990). "Congressional Influence on Bureaucracy." Journal of Law, Economics and Organization 6 (Special Issue): 1-20.
- Frank, R. (1991). "Social Forces in the Workplace." Pp. 151-179 in Koford, K.J. and Miller, J. B., eds., Social Norms and Economic Institutions. Ann Arbor: Univ. of Michigan Press.
- Frey, B. S. (1994). "How Intrinsic Motivation is Crowded Out and In." Rationality and Society 6: 334-352.
- Frey, B. S. (1997). Not Just For the Money: An Economic Theory of Personal Motivation. Cheltenham, UK: Elgar.
- Gibbons, R. (1998). "Incentives in Organizations." Journal of Economic Perspectives 12 (4), Fall 115-132.

- Gilmour, J. and Lewis, D. E. (2006). "Political Appointees and the Competence of Federal Program Management." American Politics Research 34 (1): 22-50.
- Hammond, T. H. and Knott, J. H. (1996). "Who Controls the Bureaucracy: Presidential Power, Congressional Dominance, Legal Constraints, and Bureaucratic Autonomy in a Model of Multi-Institutional Policymaking." Journal of Law, Economics and Organization 12 (1): 119-166.
- Heimann, C. F. L. (1994). "Reinventing Government: The Challenge of Maintaining Organizational Performance While Cutting Bureaucratic Waste." Paper presented at Midwest Political Science Association Annual Meeting, Chicago (April).
- Heiner, R. (1983). "Origins of Predictable Behavior." American Economic Review 713 (Sept.): 560-595.
- Holmstrom, B. (1982). "Moral Hazard in Teams." Bell J. of Economics 13: 324-340.
- Horn, M. (1995). The Political Economy of Public Administration: Institutional Choice in the Public Sector. New York: Cambridge University Press.
- Keiser, L. and Soss, J. (1998). "With Good Cause: Bureaucratic Discretion and the Politics of Child Support Enforcement." American Journal of Political Science 42(4), October: 1133-1156.
- Kelman, S. (1990). Procurement and Public Management: The Fear of Discretion and the Quality of Government Performance. Washington, D.C.: American Enterprise Institute.
- Knott, J. H. and Miller, G. J. (2005). "Designing Independent Bureaucracies: Economic Development, the Core, and Credible Commitment." Paper presented at APPAM national conference, Washington, D.C., Nov. 3-5.
- Krause, G. A. (1996). "The Institutional Dynamics of Policy Administration: Bureaucratic Influence Over Securities Regulation." American Journal of Political Science 40 (4), November: 1083-121.
- Krause, G.A., Lewis, D. C., and Douglas, J.W. (2006). "Political Appointments, Civil Service Systems, and Bureaucratic Competence: Organizational Balancing and Executive Branch Revenue Forecasts in the American States." American Journal of Political Science 50 (3), July: 770-787.
- Kreps, D. M. (1990). "Corporate Political Culture and Economic Theory." In Perspectives on Positive Political Economy. Ed. by Alt J. and Shepsle, K.. Cambridge: Cambridge University Press.

- Kreps, D. M. (1997). "The Interaction Between Norms and Economic Incentives: Intrinsic Motivation and Extrinsic Incentives." American Economic Review (May): 359-364.
- Langbein, L. I. (2000). "Ownership, Empowerment and Productivity: Some Empirical Evidence on the Causes and Consequences of Employee Discretion." Journal of Policy Analysis and Management 19 (3): 427-449.
- Langbein, L. I. and Jorstad, C. (2004). "Trust and Productivity in the Workplace: Cops, Collusion, Communication, and Cooperation" Political Research Quarterly, 57 (1), March: 65-79.
- Langbein, L. I. and Lewis, G.B. (1998). "Pay, Productivity, and the Public Sector: The Case of Electrical Engineers." Journal of Public Administration Research and Theory (July): 8 (3): 391-412.
- La Porta, R., Lopes-de-Silanes, F., Schleifer, A., and Vishny, R. W. (1997). "Trust in Large Organizations." American Economic Association Papers and Proceedings (May): 333-338.
- Lazear, E. P. (2000a). "The Power of Incentives." American Economic Review 90 (2), May: 410-414.
- Lazear, E. P. (2000b). "Performance Pay and Productivity." American Economic Review 90 (5), December: 1346-1361.
- Light, P. (1995). Thickening Government: Federal Hierarchy and the Diffusion of Accountability. Washington, D.C.: Brookings.
- Long, N. (1949). "Power and Administration." Public Administration Review 9: 257-264.
- McCubbins, M. D. (1985). "The Legislative Design of Regulatory Structures." American Journal of Political Science 29 (Nov.): 721-748.
- McCubbins, M.D., Noll, R. and Weingast, B. R. (1989). "Administrative Procedures as Instruments of Political Control." Journal of Law, Economics and Organization 3: 243-277.
- McCubbins, M. D. and Page, T. (1987). "A Theory of Congressional Delegation." In Congress: Structure and Policy. Ed. by McCubbins, M.D. and Sullivan, T.. Cambridge: Cambridge University Press: 409-425.
- McCubbins, M. D. and Schwartz, T. (1984). "Congressional Oversight Overlooked: Police Patrols versus Fire Alarms." American Journal of Political Science 28: 165-179.

- Meier, K.J., and Bohte, J. (2001). Structure and Discretion: Missing Links in Representative Bureaucracy. Journal of Public Administration Research and Theory 11 (4): 455-470.
- Milgrom, P. and Roberts, J. (1992). Economics, Organization and Management. Englewood Cliffs, N.J.: Prentice-Hall.
- Miller, G. (2000). "Above Politics: Credible Commitment and Efficiency in the Design of Public Agencies." J. of Public Administration Research and Theory. 10: 289-328.
- Miller, G. (1992). Managerial Dilemmas: The Political Economy of Hierarchy. New York: Cambridge University Press.
- Miller, G. and Whitford, A. (nd). "Trust and Incentives in Principal-Agent Negotiations: The 'Insurance-Incentive' Trade-off."
- Moe, T. (1990). "Political Institutions: The Neglected Side of the Story." Journal of Law, Economics and Organization 6 (Special Issue): 213-253.
- Niskanen, W. (1975). "Bureaucrats and Politicians." Journal of Law and Economics 18 (3), December: 617-643.
- Noll, R. and Weingast, B. R. (1991). "Rational Actor Theory, Social Norms and Policy Implementation: Applications to Administrative Processes and Bureaucratic Culture." Pp. 237-58 in K. R. Monroe, ed., The Economic Approach to Politics: A Critical Reassessment of the Theory of Rational Action. New York: Harper/Collins.
- Ostrom, E. (1998). "A Behavioral Approach to the Rational Choice Theory of Collective Action." American Political Science Review 92 (1): 1-22.
- Ostrom, E., Walker, J. and Gardner, R. (1992). "Covenants With and Without Swords: Self-Governance is Possible." American Political Science Review 86 (2), June: 404-417.
- Radin, Beryl A. (2006). Challenging the Performance Movement: Accountability, Complexity and Democratic Values. Washington, D.C.: Georgetown University Press.
- Shepsle, K. A. (1992). "Bureaucratic Drift, Coalitional Drift, and Time Consistency: A Comment on Macey," Journal of Law, Economics, and Organization 8 (1): 111-118.
- Simon, H. A. (1946). "The Proverbs of Administration." Public Administration Review 6: 53-67.
- Scholz, J. T. (1991). "Cooperative Regulatory Enforcement and the Politics of Administrative Effectiveness." American Political Science Review 85 (1): 115-136.

Scholz, J. T., Twombly, J. and Headrick, B. (1991). "Street-Level Political Controls Over Federal Bureaucracy." American Political Science Review 85 (3), September: 829-850.

Scholz, J. T. and Wei, H. F. (1986). "Regulatory Enforcement in a Federalist System." American Political Science Review 80 (4), December: 1249-1270.

Scholz, J. T. and Wood, B. D.(1999). "Efficiency, Equality, and Politics: Democratic Controls Over the Tax Collector." American J. of Political Science 43 (4), October: 1166-1188.

Schotter, A. (1998). "Worker Trust, System Vulnerability, and the Performance of Work Groups." Chapt. 14 in Avner Ben-Ner and Louis Putterman, Economics, Values and Organizations. Cambridge: Cambridge University Press.

Soss, J., Schram, S., Vartanian. T. P., and O'Brien, E. (2001). "Setting the Terms of Relief: Explaining State Policy Choices in the Devolution Revolution." American J. of Political Science 45 (2), April: 378-395.

Spence, D. B. (1997). "Administrative Law and Agency Policymaking: Rethinking the Positive Theory of Political Control." Yale Journal on Regulation 14 (2): 407-450.

Steunenberg, B. (1996). "Agent Discretion, Regulatory Policymaking, and Different Institutional Arrangements." Public Choice 86 (No. 3-4): 309-339.

Thompson, F. (1991). "Management Control and the Pentagon: The Organizational Structure-Strategy Mismatch." Public Administration Review 51 (1) Jan./Feb.: 52-66.

Thompson, F. (1993). "Matching Responsibilities with Tactics: Administrative Controls and Modern Government." Public Administration Review 53 (4) July/Aug.: 303-318.

Thompson, F. (1998). "Public Economics and Public Administration." In Handbook of Public Administration (2nd ed.). J. Rabin, B. Hildreth, and G. Miller, eds. New York: Marcel Dekker: 995-1063.

Thompson, F. (2005). "The Political Economy of Public Administration." In Handbook of Public Administration (3rd ed.). J. Rabin, B. Hildreth, and G. Miller, eds. New York: Marcel Dekker: ??

Torenvlied, R. (1996). "Political Control of Implementation Agencies: Effects of Political Consensus on Agency Compliance." Rationality and Society 8(1), February: 25-56.

Warwick, D. P. (1975). A Theory of Public Bureaucracy. Cambridge, Mass.: Harvard University Press.

Weimer, D. L. (2005). "Institutionalizing Neutrally Competent Policy Analysis: Resources for Promoting Objectivity and Balance in Consolidating Democracies." Policy Studies Journal 33 (2): 131-

Weingast B., Shepsle , K. and Johnsen, C. (1981). "The Political Economy of Benefits and Costs: A Neo-Classical Approach to the Politics of Distribution," J. Political Economy 89 : 642-664.

West, W. F. (2005). "Neutral Competence and Political Responsiveness: An Uneasy Relationship." Policy Studies Journal 33 (2): 147-

Whitford, A. B. and Ochs, H. L. (nd). "Principal-Agent Negotiations with Teams of Agents: Experimental Evidence." Unpublished paper.

Wood, B. D. and Waterman, R. W. (1994). Bureaucratic Dynamics: The Role of Bureaucracy in a Democracy. Boulder, Colo.: Westview Press.

Wood, B. D. and Waterman, R. W. (1991). "The Dynamics of Political Control of the Bureaucracy." American Political Science Review 85 (3), September: 801-828.

Wood, B. D. and Waterman, R. W. (1993). "The Dynamics of Political-Bureaucratic Adaptation." American Journal of Political Science 37 (2), May: 497-528.