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A Mixed Relationship: Bureaucracy and School Performance

We argue the negative relationship between school bureaucracy and school performance that is commonly reported in the bureaucracy and educational policy literature is theoretically and empirically incomplete. Like most public agencies operating in complex task environments, we suggest that schools have to make trade-offs between the multiple outputs they are expected to produce. Bureaucracy plays an important role in determining the nature of these trade-offs: one that is more multidimensional than it is portrayed in the existing literature. We find bureaucracy's relationship with school performance depends on how performance is measured. It is negatively associated with test scores but positively associated with other performance measures such as attendance and dropout rates. This is consistent with an economies-of-scope perspective of bureaucracy, which emphasizes bureaucracy's role in managing the trade-offs inherent in pursuing multiple goals.

In this article we address a research question that is central to the education reform debate in the United States: How does bureaucracy shape school performance? This is not only an empirical question of key importance to the contentious arena of education reform, but also an issue with general theoretical implications that will further our understanding of how public bureaucracies respond to complex task environments.

The existing literature has generally found a negative correlation between measures of bureaucracy and measures of school performance (Bohte 2001). The presence and strength of this correlation, however, varies considerably from study to study, and there is considerable theoretical disagreement over the causal explanation underlying this relationship (Chubb and Moe 1990; Meier, Polinard, and Wrinkle 2000; Smith and Meier 1995; Smith and Granberg-Rademacker 2003). In this article we challenge both the accepted negative relationship between bureaucracy and school performance, as well as the key theoretical frameworks that compete to explain the empirical results. Our argument is not that the existing empirical studies or the theories that motivate them are necessarily wrong, but that they are incomplete. Drawing on the notion of economies of scope, we contend there are good reasons to expect that bureaucracy has both negative *and* positive relationships

with school outputs. We contend that schools, like most public agencies, are charged with producing multiple outputs, and the trade-off inherent in producing more of one of these outputs is producing less of another. Although it is generally recognized that schools produce multiple outputs, the implications of this multidimensional task environment are rarely considered in empirical studies that examine bureaucracy's impact on school performance. Such studies tend to conclude that bureaucracy is either bad or (much more rarely) good for school performance. We expect the nature of the relationship between bureaucracy and performance to depend on the particular output being examined.

We begin by examining the competing theories of the relationship between bureaucracy and public agency performance and the empirical record supporting them. We then seek to bridge the gap between these two theories and unify the mixed empirical record under a single explanatory umbrella. Our results provide strong support for our

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central contention that the primary problem with existing theoretical approaches is not that one is right and one is wrong, but that both are incomplete. The implications of our argument for education reforms and for theories of bureaucracy are then discussed.

Differing Perspectives on a Negative Relationship

Advocates of school choice, vouchers, contracting out, and similar market-based reforms in education argue that a central reason for poor-performing public schools is their unresponsiveness to the primary task environment (Chubb and Moe 1990; Friedman 1955). These claims draw heavily on public-choice theory and its conception of public bureaucracies as monopolies that sell the services they produce to monopsonist buyers: elected officials, for example, who allocate resources for these services on the basis of self-interested electoral considerations (Niskanen 1971; Tullock 1965). Given this advantage, agencies can afford to ignore the demands of their primary clientele, who have no exit option and must consume the service provided by the monopoly supplier. Unless the clientele can effectively employ their option of voice through the democratic process—that is, convince elected officials it is in their interest to adopt their demands—the primary consumers of public services will be relatively powerless. Therefore, the agency has little incentive to worry about inefficiency and subpar outputs, and it instead concentrates on maximizing its inputs.

Variants of this argument are repeatedly used to explain the underperformance of public schools. Rather than respond to the demands of parents and students for quality education, schools focus on the external demands produced by the democratic process. These demands are generated by all of the organized interests that seek to get legislatures and school boards to institutionalize their preferences through mandates, program creation, rules, monitoring procedures, and restrictions on discretionary decision making (Chubb and Moe 1990, 166–67). In effect, this is an argument that schools are bureaucratic agents with multiple principals acting through the democratic process. Parents and students make up one set of principals, but because the decision making of the institutional agents is tied to the democratic process, the actual consumers of educational services are at a disadvantage. Compared to teachers unions, for instance, parents and students are simply not an organized and potent political force, and they have a difficult time getting the democratic process—and therefore, schools—to respond quickly and effectively to their demands.

In such theoretical scenarios bureaucracy is viewed as both an indirect and a direct cause of school underper-

formance (that is, constraining the maximum achievement of school goals). Bureaucracy indirectly constrains performance because it is externally focused on its democratic principals rather than internally focused on its primary clientele. The complex and heterogeneous task environment of schools generates numerous demands to institutionalize interest-based preferences, and education bureaucracy grows with each mandate and rule, struggling to deal with multiple and often contradictory objectives. The long-term result of this complex task environment is stasis: Education becomes a system that is hierarchically top heavy, rule bound, and rigid. Of particular concern is the distance between street-level bureaucrats (teachers) and their administrative overseers. Because the latter are focused on attending to the confusing products of the democratic process rather than the demands of the classroom, the disconnect between clientele demands and agency response grows wider.

Bureaucracy is a direct cause of poor performance because bureaucrats are assumed to be maximizers, that is, motivated by rational self-interest. As public education is currently organized, those interests are arguably better served by maximizing inputs rather than outputs (Hanushek 1981). Ultimately, monopoly service providers have little motivation to pay attention to clientele demands because resources are not tied to performance (Bohte 2001; Chubb and Moe 1988; Ravitch 1997). If anything, low performance may serve bureaucratic self-interest better than high performance: Falling test scores or graduation rates can help justify calls for more resources.

Chubb and Moe's (1990) neo-institutional theory of the education policy process is the best known and most influential variant of this argument. After identifying democratic control as the underlying problem and bureaucracy as the proximate cause of poor performance, Chubb and Moe advocate providing education consumers an exit option as a means to force schools to respond to the demands of the primary consumers of their services. School choice, vouchers, charters, and virtually all other market-based reforms of education are justified, at least in part, by this argument (Box et al. 2001; McCabe and Vinzant 1999). Though the specific policy proposals vary, they share a basic set of objectives: Disconnect schools from external democratic control, eliminate centralized education bureaucracies, and force individual schools to respond to their primary task environment by exposing them to market or quasi-market forces. These prescriptive proposals are frequently controversial and have been challenged on both normative and empirical grounds (Cookson 1994; Henig 1994). Yet few object to eliminating bureaucracy, which is popularly viewed as an agent of incompetence and ineffectiveness. The scholarly record generally confirms the popular view in education—one of the most consistent empirical find-

ings supporting reform is the negative relationship between bureaucracy and school performance, a correlation that supports the ineffective and inefficient role assigned to bureaucracy in public-choice theory (Bohte 2001; Chubb and Moe 1990; Goodsell 1994).

Although they operate within the neo-institutionalist framework, Smith and Meier (1994, 1995) argue the relationship between bureaucracy and school performance portrayed by public-choice advocates is based on an incorrect premise about causality. Smith and Meier agree with market-reform advocates that poorly performing school districts—particularly those in large urban areas—also tend to be those with the largest bureaucracies. However, rather than viewing the correlation between bureaucracy and poor performance as evidence of bureaucracy constraining a school's response to its immediate task environment, Smith and Meier argue the opposite. Their hypothesis is that bureaucracy is a response to poor performance. The underlying causes of poor academic performance are viewed as student-related characteristics such as socioeconomic distress, high teen pregnancy and dropout rates, and immigrant students with English-language difficulties. All of these characteristics create demands for schools to respond to the problems faced by their primary clientele. And, Smith and Meier argue, they do—with programs covering everything from truancy to day care to bilingual classes. These responses unavoidably create administrative overhead, resulting in a larger bureaucracy. Chubb and Moe (1990, 168) agree with this basic logic, but instead of seeing bureaucracy as evidence of a meaningful response to demands from education's primary task environment, they see it as producing "excessive bureaucratic influence," with administrators increasingly divorced from the realities of the classroom and preoccupied with goals that are secondary to the primary mission of quality education. The ultimate result is that bureaucracy acts as a drag on school performance.

Though borrowing heavily from Chubb and Moe's basic theoretical framework, Smith and Meier essentially turn its causal logic on its head. Rather than rule-bound guardians of the underperforming status quo—resisting innovation, stifling teacher creativity, and ignoring the demands of the primary task environment—bureaucracies in their portrayal are evidence of a response to such demands. Larger bureaucracies do not cause poor performance, Smith and Meier argue; poor performance causes larger bureaucracies. This argument has received some empirical support from Meier, Polinard, and Wrinkle (2000), who utilize a panel study of Texas school districts to examine the temporal logic underlying competing hypotheses about the impact of bureaucracy on performance. They find an important response to low performance is to hire more bureaucrats, and this bureaucratic growth is associated with

smaller class sizes and more teachers. Rather than ignoring the demands of their primary clientele, bureaucracies are thus claimed to be tightly associated with "actions that are linked to improved performance" (590). This view is backed by research suggesting that, far from being unresponsive, schools are probably *too* responsive. Schools are sometimes portrayed as hypersensitive to the demands of their clientele and the local community, not just to the outputs of the democratic process (Benveniste, Carnoy, and Rothstein 2002; Hess 1999).

The Economies of Scope of Public Schools

The disagreement between Chubb and Moe (1988, 1990) and Smith and Meier (1994, 1995) over bureaucracy's role in shaping school performance is theoretical rather than empirical. Both agree there is a negative correlation between bureaucracy and school performance (though not necessarily on its strength or importance—see Smith and Meier 1994), but disagree on the underlying causal forces that produce this correlation. Our point of departure from the existing literature questions the empirical agreement: Under certain circumstances, we believe there are good reasons to expect a *positive* relationship between bureaucracy and school performance.

It has long been recognized that public agencies are tasked with producing multiple outputs, and bureaucracy's relationship with these outputs is multidimensional. This is certainly the case in education, where virtually all of the relevant literature acknowledges that both bureaucracy and school performance are multidimensional concepts (Chubb and Moe 1990; Friedman 1955; Smith and Meier 1994). Yet with few exceptions, this same research operationalizes these concepts unidimensionally in empirical tests (Smith and Granberg-Rademacker 2003). Of the exceptions that do exist, it is bureaucracy that is treated as multidimensional. Bureaucracy includes administrative levels, procedural rules, decision-making constraints, and a host of other characteristics that, at least in theory, can be operationalized empirically (Meier, Polinard, and Wrinkle 2000, 591). Unfortunately, in practice most comparative data sets in education include such information. The loose convention on empirically accounting for the impact of bureaucracy is to use size or (usually dummy) variables indicating a private school or some type of market-based institutional reform such as a choice or charter school (Bohte 2001; Chubb and Moe 1988, 1990; Meier, Polinard, and Wrinkle 2000; Smith and Meier 1994, 1995). Some studies, however, do try to capture the multidimensional nature of bureaucracy by including the relative size of different levels of the bureaucracy—for example, by including the organizational concentration of street-level bureaucrats and the organizational concentration of central administrators (Bohte 2001).

While there are at least intermittent attempts to deal with bureaucracy multidimensionally, school performance is equated, almost without exception, with some standardized test score measure. Even setting aside criticisms of standardized test scores as reliable indicators of academic performance (Rothstein 1997), schools are tasked with objectives that are unlikely to be tapped by such indexes. For example, schools have an important socialization task: to inculcate future citizens into democratic norms and the broader values of society (Callan 1997). Prioritizing the multiple objectives that public education is expected to pursue is a normative and philosophical question rather than an objective empirical exercise (Tyack and Cuban 1995). Yet the vast majority of empirical studies on education policy, not just those examining the relationship between bureaucracy and school performance, utilize some test score measure as a dependent variable.¹ Test scores may capture some element of the outputs that schools are expected to produce, but they do not capture all of them (Smith and Granberg-Rademacker 2003).

Considered more closely, the multidimensional nature of the concepts under study raise serious doubts about the general agreement concerning the negative relationship between bureaucracy and school performance. The multidimensional nature is particularly evident in the context of the latter; it is not at all clear how test score measures can fully represent such a vague and sweeping concept as “school performance” (Smith and Granberg-Rademacker 2003). The limitations of test scores as an indicator of overall school performance becomes clear when Smith and Meier’s argument (1994, 1995) is pushed toward some obvious conclusions. If, as they argue, bureaucracy is a response to problems in a school’s immediate task environment, and if bureaucracy is at least partially successful in addressing those problems, then some dimension of school performance *must* improve. If the programs and activities that bureaucracy represents in some fashion alleviate the negative consequences of student-based characteristics that lead to poor performance, then, all else equal, bureaucracy should be positively associated with that dimension of school performance, even if it results in a negative impact on another dimension of school performance.

To make this more concrete, consider, for example, the problem of at-risk students, defined for the present purposes as any group of students considered to have a high probability of dropping out. Following Smith and Meier’s argument, schools will respond to such problems in ways that expand the bureaucracy (by revamping or specializing curricula, or by instituting truancy or after-school programs). If this response is successful, more at-risk students will stay in school and graduate. Attendance rates and dropout rates are not only the most manageable from an administrator’s point of view, but also present the most

realistic opportunities for intervention with at-risk students. Given an at-risk student population, the most pressing challenge for administrators is keeping children in school. In other words, street-level bureaucrats are likely to measure improvements in overall school performance by outputs that are not readily linked to test scores but are critical to meeting the basic goals of public education.

Consequently, the positive impact of bureaucracy should show up in lower dropout rates and/or higher graduation rates. Yet there is an obvious cost to such success: Even though they remain in school, at-risk students are unlikely to boost test score averages. Indeed, they are likely to have exactly the opposite effect. In other words, there is a performance trade-off embedded in successfully responding to the problem of at-risk students—keep more of them in school and test scores will go down.

This argument is implicit in Smith and Meier’s (1994, 1995) work, though it is never explicitly articulated. Formally, this is an argument that schools face economies of scope. In the economic literature, economies of scope exist when it is more cost-effective for a single firm to produce two or more outputs jointly rather than have these outputs produced separately by different firms (Browning and Zupan 2002, 216). Schools, like firms, experience economies of scope because it is more efficient to assign them multiple goals than to create separate organizations to achieve each individual task (these goals include everything from vocational training to college preparation, inculcation of democratic values to implementing basic health and nutrition policies). While economies of scope in education make sense because schools can produce multiple outputs without the duplication of resources required to produce these outputs independently, it has a significant drawback: If an organization has limited resources and is expected to produce multiple outputs, it will be forced to make trade-offs if it wants to maximize the production of one particular output (Baumol and Binder 1994, 454). In other words, if an organization wants to produce more of one output, it often has to accept producing less of another output. Thus, analyses that judge bureaucracy’s performance based on a single output measure present a limited view of bureaucracy’s role in public organizations, leading to incomplete policy prescriptions.

While public administration scholars have long recognized that public bureaucracies are routinely charged with multiple goals and expected to produce multiple outputs, the implications of economies of scope are given surprisingly little attention in the education policy literature, and almost none at all in studies of the relationship between bureaucracy and school performance. Yet the handful of studies that do exist find strong empirical support for the output trade-offs that are implicit in the economies-of-scope argument. Wenger (2000, 27), for example, suggests that

test scores and graduation rates are independent “products of schools” and finds strong empirical evidence to back this claim—schools that increase test scores reduce their graduation rates, and vice versa. Similar empirical trade-offs are reported by Belfield and Levin (2002) and Lankford and Wyckoff (1992).

If schools face such direct trade-offs in producing school outputs, then it is reasonable to assume the relationship between school performance and a given predictor variable depends on how the former is operationalized. The economies-of-scope argument, in other words, suggests that educational bureaucracy may constrain some, but not all, aspects of school performance. This suggests the differences separating Chubb and Moe (1990) and Smith and Meier (1995) may not be as wide as they seem at first glance. Chubb and Moe’s argument may be correct, but only in a narrow sense—like Smith and Meier, they effectively constrain their theoretical view by relying too heavily on test scores as their primary dependent variable.

Bureaucracy may well be constraining test scores, but this may be an unavoidable product of successful efforts to boost other dimensions of school performance. Smith and Meier’s argument is similarly incomplete—followed to its logical conclusions, their causal explanation virtually requires bureaucracy to have a positive impact on some element of school performance. Rather than pursue the positive role of bureaucracy, they accept (and even confirm) the negative relationship and go no further—even though empirical confirmation of bureaucracy’s mixed role across differing dimensions of school performance would lend considerable support to the central elements of their argument. While such confirmation provides more support for Smith and Meier’s theoretical perspective than Chubb and Moe’s, it would not reject the neo-institutional theory that both employ to frame their studies. It would suggest, however, that this theoretical framework provides a limited and incomplete picture of how the institutional structure of public education shapes school performance. In doing so, it would also add a note of caution to the broad prescriptive inferences that are drawn from such works. In other words, the existing theoretical framework of both Smith and Meier and Chubb and Moe is limited because it focuses on only one side of the debate. Although they present conflicting causal inferences, both portray a negative relationship between bureaucracy and school performance. Economies of scope expand the debate by suggesting that one-dimensional measures of school output ignore the inherent trade-offs that schools face in producing multiple outputs.

Data and Methods

Our basic hypothesis is that if schools experience economies of scope, different levels of bureaucracy will exhibit

mixed (positive and negative) relationships with school output measures. Accepting the clear message of the existing research record, we expect at least some levels of bureaucracy to be negatively related to test scores. If schools face economies of scope in the fashion described by Wenger (2000), and if Smith and Meier (1994, 1995) are correct in their assessment of bureaucracy’s role in addressing student-based impediments to performance, then we expect some levels of bureaucracy to be associated with higher attendance levels and lower dropout rates.²

To test these hypotheses we employ a pooled data set from 350 multiracial Texas school districts with a minimum student population of 1,000 for 1991–96.³ To examine the impact of bureaucracy on school performance, we use this data set to specify a model that was originally suggested by Bohte (2001). Bohte argued for using measures of bureaucracy at specific levels of the organizational hierarchy to capture some of the multidimensionality of the concept: the percentage of staff in central administration, the percentage in campus administration, and the percentage who are teachers. To control for alternate causes of performance, Bohte includes measures of the environmental diversity that are known to predict aggregate output measures: the percentage of students who are low income, the percentage who are black, the percentage who are Hispanic, and the instructional spending per pupil.

We employ this data set and this particular model specification for three reasons. First, it allows us to begin with a known baseline for judging bureaucracy’s impact on school performance. Second, the methodological properties of this data set are relatively well known, not only having been discussed by Bohte, but also being the subject of a lengthy exchange between Nielsen and Wolf (2001) and Meier and colleagues (Meier, Polinard, and Wrinkle 1999; Meier et al. 2001).⁴ Using pooled data sets to estimate coefficients presents methodological challenges and choices that can influence inference (Baltagi 1995). Operating from a known set of reference points helps to provide face validity to our findings and increases the confidence that we can generate robust results. Third, in taking this approach we engage in replication, a substantive contribution to the scientific process in its own right (King 1995).

The standard school performance measure used as the dependent variable in studies employing this data set is the percentage of students passing the Texas Assessment of Academic Skills test (TAAS). This is a standardized test taken in various grades and mandated by the Texas legislature as a means of assessing the quality of education in Texas and holding schools accountable for their performance. The data set also includes other performance measures, including the attendance rate (the percentage of students in school on an average day) and the dropout rate (the percentage of students in grades 7–12 who dropped

out or did not re-enroll from the previous year). Such measures, it is argued, are valid measures that tap into alternate dimensions of school performance (Belfield and Levin 2002). Our basic approach is to take data and a model used to support the orthodox argument that bureaucracy negatively shapes school performance, and then test the economies-of-scope argument by simply altering the output measure used to operationalize performance. Our base model then, is the following:

$$\text{OUTPUT} = \beta_1 \text{PCADM} + \beta_2 \text{PCAMADM} + \beta_3 \text{PTEA} + \beta_4 \text{PBSTUD} + \beta_5 \text{PHSTUD} + \beta_6 \text{LOWINC} + \beta_7 \text{INSTPUP} + e$$

where

OUTPUT = One of three output measures: percentage passing TAAS, average daily attendance, or dropout rate

PCADM = Percentage of staff employed in central (district) administration

PCAMADM = Percentage of staff employed in campus administration

PTEA = Percentage of staff employed as teachers

PBSTUD = Percentage of student population who are black

PHSTUD = Percentage of student population who are Hispanic

LOWINC = Percentage of student population who are low income

INSTPUP = Instructional expenditures per student.

There are at least three potential problems with the model we describe. Employing a pooled data set can create complicated error structures that violate the base assumptions of regression (Says 1989). Of particular concern are serial autocorrelation and heteroscedasticity. There are a number of alternative estimation techniques to handle these problems, which have been discussed and adopted to varying degrees by others who have used this data set to model school performance (Bohte 2001; Meier, Polinard, and Wrinkle 1999; Meier et al. 2001; Nielsen and Wolf 2001). The primary issue in pooled analysis is efficiency rather than bias; accordingly, we focused on making the hypothesis tests associated with each coefficient as reliable and conservative as possible (see below for specifics). In addition to these two common concerns of pooled analysis is the fact that we are not describing a single model, but a system of equations. It may be unrealistic to assume there is no contemporaneous correlation of the error terms across them, and doing so may lead to errors of inference if the substantive loss of efficiency this entails is ignored (Zellner 1962). Again, alternative techniques are available to ad-

dress this concern, though they do not necessarily represent the same approach as those typically employed in pooled analysis.

A Breusch-Pagan test of independence confirmed contemporaneous correlation of the error terms (chi square = 75.7 with three degrees of freedom, with the null hypothesis of no contemporaneous correlation of residuals; bivariate correlations of the residuals run from -0.15 between the TAAS and dropout models to 0.20 between the TAAS and attendance model). Accordingly we adopted a “generalized least square seemingly unrelated regression” (GLS-SUR) approach to estimation, a technique designed specifically to address the problems created by correlated errors (see Zellner 1962 for a basic introduction and Baltagi 1995 for its application to pooled models).⁵ Lagrange multiplier tests showed no heteroscedasticity problems in the models with TAAS and dropout models, but they did show some remaining problems with the attendance model (chi square = 23.97 with one degree of freedom with the null hypothesis of homoscedasticity). To check the validity of our inferences from this model, we re-ran the model in ordinary least squares and generated panel-corrected standard errors—these resulted in no substantive difference from the results we report. Finally, we controlled for the possibility of autocorrelation by lagging the dependent variable (estimated rho in the models reported all approach zero). Lagging the dependent variable means that we lost one year of data and, coupled with missing data on some variables, reduced our overall N to 1,019. Still, we believe the result of this approach is a robust platform on which to test our hypotheses.⁶

Results

The results of our empirical test are reported in table 1. The first column of this table replicates Bohte’s (2001, 95) basic findings.⁷ In doing so, this column recapitulates the primary empirical finding of the relevant literature: With the notable exception of the street level, bureaucracy is negatively related to school performance. Bigger bureaucracies, represented by larger proportions of district staff employed in central and campus administrative positions, are associated with lower TAAS pass rates. This nominally supports Chubb and Moe’s (1990) argument that top-heavy hierarchies promote “bureaucratic interference” and act as a drag on school performance.

The next two columns report the same model as applied to our two other measures of school performance: attendance rates and dropout rates. The results here lead to quite different inferences about the role of bureaucracy in school performance. Consistent with the arguments of Smith and Meier, the percentage of central administration variable is positively and significantly associated with attendance

Table 1 Economies of Scope in Texas School Districts, 1991–96

Variable	TAAS pass rate	Attendance rate	Dropout rate
Lagged dependent variable	.76* (.03)	.55* (.02)	.46* (.02)
Percent central administration	-4.4* (.34)	.05* (.02)	.04 (.05)
Percent campus administration	-.66** (.38)	-.02 (.03)	-.11* (.05)
Percent teachers	.01 (.06)	.01* (.004)	.009 (.008)
Percent black students	-.18* (.02)	-.01* (.001)	.009* (.003)
Percent Hispanic students	-.15* (.01)	-.005* (.001)	.005* (.002)
Percent low income	.09* (.02)	-.0002 (.001)	.007* (.003)
Instructional expenditures per student (x1,000)	12.11* (.06)	.34* (.04)	-.54* (.09)
Constant	-6.8 (4.2)	40.9* (1.8)	1.52* (.56)
N	1,019	1,019	1,019
R ²	.71	.50	.47

**p* < .05
 ***p* < .10
 Unstandardized coefficients (standard errors) reported. All coefficients are GLS-SUR estimators.

rates. The percentage of campus administration variable is negatively and significantly associated with dropout rates.⁸ In other words, an increase in the level of bureaucracy tends to significantly increase attendance rates and significantly reduce dropout rates. The only output measure for which bureaucracy is uniformly associated with lower school performance is the test score measure—the output measure that is the dominant dependent variable in the relevant literature. Also interesting are the results for the street-level bureaucracy measure. The relative size of the district’s teaching staff has no impact on TAAS pass rates or dropouts (the coefficients are insignificant), but it does have a positive and significant impact on attendance. Street-level bureaucrats in our model have a surprisingly minimal impact on school performance. Thus, although bureaucracy is negatively associated with some aspects of school performance, it maintains a significant and positive relationship with outputs that are intended to improve overall school performance.

Care should be taken in attaching substantive interpretations to the coefficients. The coefficients do not represent the total impact of the variables—because of the lagged dependent variable, they show the impact during the first year only. The impact of the independent variables is modeled as a geometrically distributed lag whose impacts are spread across time. The total impact of a given independent variable across time can be calculated by dividing the independent variable’s slope coefficient by one, minus the coefficient of the lagged dependent variable (Pindyck and Rubinfeld 1991, 206). This means that a 1 percentage point

increase in the percentage of central administration is associated with an 18 percentage point decrease in TAAS pass rates and a 0.11 percentage point increase in attendance rates across the time period studied. To put this into perspective, the size of a district’s central administration would have to increase about 40 percent (from an average of 1.32 percent of total staff to 2.32 percent) to push down pass rates by one and a half standard deviations. The same increase in central administration would be associated with an increase of roughly one-seventh of a standard deviation in attendance rates. This suggests that school districts that are top heavy in central administration are associated with significantly lower test scores and slightly higher attendance rates. Similarly, an increase of 1 percentage point in campus administration is associated with a decrease of 0.27 percentage points in TAAS pass rates (roughly one-fiftieth of a standard deviation) and a decrease of 0.20 percentage points in the dropout rate (about a tenth of a standard deviation). This suggests that districts with larger campus-level bureaucracies have trivially lower test scores but substantively lower dropout rates.

The control variables perform consistently with the expectations established by previous research. Greater minority and low-income student populations are associated with lower TAAS pass rates, lower attendance rates, and higher dropout rates. All of these findings are consistent with the record of the broader research literature. Educational expenditures are positively associated with pass rates and attendance rates and negatively associated with dropout rates. This adds to the growing evidence that resources matter to education (Verstegen and King 1998).

Discussion

Our primary contention is that the current literature presents an incomplete picture of the theoretical and empirical relationship between bureaucracy and school performance. Theoretically, we suggest that existing studies do not adequately account for the possibility that schools face economies of scope. Empirically, this theoretical oversight has led to an inadequate comparative investigation of bureaucracy’s relationship to varying school outputs—a somewhat surprising oversight, given that most of the relevant literature readily acknowledges that schools produce multiple outputs (Bohte 2001; Chubb and Moe 1990; Smith and Meier 1995). Though our empirical test of these claims employs data, models, and methods used to support conventional wisdom about the negative correlation between bureaucracy and school performance, we find evidence to question this orthodoxy.

In contrast to most existing studies, we find that bureaucracy is associated with increases and decreases in measures of school performance, findings that make sense from

an economies-of-scope perspective. Our results suggest that bureaucracy mediates the trade-offs that schools face in responding to their task environments. Although bureaucracy is a popular scapegoat for the perceived poor performance of public agencies, there is ample evidence that traditional bureaucratic organizations are highly capable of effectively accomplishing a wide range of public-sector objectives (Boyne 1998; Goodsell 1994). Such capabilities extend to education, though it is unrealistic—most likely impossible—for bureaucracy to successfully achieve all of the goals assigned to education. The outputs that bureaucracy is favorably associated with in our study suggest that traditional public schools are capable of responding quite well to demands generated by their immediate task environment. Ironically, these successes likely fuel the conclusions of failure—keeping marginal students in school may help their prospects in life, but it does little to boost the test scores that are employed as the standard yardstick of performance. In providing a theoretical rationale for a positive relationship between bureaucracy and school performance, and finding supporting empirical evidence, our argument is ultimately a logical extension of the theoretical perspectives of Smith and Meier (1994, 1995) and Meier et al. (2001). We do not claim to have comprehensively contradicted public choice broadly, nor Chubb and Moe's (1990) neo-institutional framework specifically. However, we claim there is evidence that such theories have limitations in explaining the relationship between bureaucracy and performance that have not been fully explored or appreciated.

As this study illustrates, bureaucracies are successful at fulfilling what tend to be considered secondary goals, that is, attendance rates and graduation rates. Although bureaucracy is often judged by higher-order goals such as test scores, administrators have less control over those outputs. Rather, to achieve higher test scores, administrators first must focus on keeping children in school. In other words, attendance rates and dropout rates are fundamental to improving test scores and overall school performance. No school, after all, can educate a student who is not present. While the existing literature tends to judge bureaucracy according to outputs that it cannot control, bureaucrats focus on improving outputs that, although less visible, are linked to the fundamental goals of public education.

Although we have focused specifically on education, we believe the basic framework of our argument is generally applicable to the public sector. Bureaucracy scholars have frequently observed that public agencies are given multiple, vague, and even contradictory goals (Downs and Larkey 1986; Simon 1947). Given this, public agencies routinely face trade-offs in producing outputs. Examining public agencies from this perspective may shed light on our understanding of how public agencies deal with their complex task environments.

Notes

1. For example, of the 382 studies examined by Hanushek (1997), 277 use test scores as the dependent variable.
2. We used these three measures as dependent variables because they fit well with our arguments with regard to goals, and they all have been widely employed in other studies as measures of educational performance. We employed several other dependent variables (SAT/ACT scores, test scores broken down by race) with results comparable to those reported here.
3. This data set was generously supplied by Kenneth Meier. The data were originally generated by the Texas Education Agency.
4. Meier, Polinard, and Wrinkle (2000) use a very similar data set and a similar estimation approach to what we employ here.
5. This approach also allowed us to test for the possibility that the coefficients of the variables of interest across all three equations were jointly zero. This possibility was rejected for all three bureaucracy variables.
6. We tried a number of alternative estimation approaches, all of which resulted in substantively similar inferences to those reported here. We stuck with the GLS-SUR approach because it seemed to offer the best balance between the competing statistical challenges.
7. The major difference between our model and Bohte's is the inclusion of a lagged dependent variable. We independently replicated all of Bohte's models and confirmed all of the reported results. The minor differences in coefficient size between Bohte's models and our replications were well within the standard errors reported by Bohte.
8. Dropout rates are notoriously difficult to measure—students who drop out one year may return to school or take the GED. There are various ways to measure dropout rates, which may result in very different indicators of performance. The approach used here is generally compatible with the recommendations of the National Center of Education Statistics, which bases dropout rates on multiple years of data (Winglee et al. 2000).

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