# *Plus ça Change:* Public Management, Personnel Stability, and Organizational Performance

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Ideas swing wildly in and out of fashion—take, for instance, the notion of stability in administration. For decades conventional wisdom simply assumed that stability contributes to public administrative performance. Such core bureaucratic features as standard operating procedures, regular structure, incremental decision making, and fixed rules are emblematic of the persisting features of such organizations. At least since the early years of the last century, scholars linked stable patterns to efficient functioning. Stability was often seen as virtually the sine qua non of bureaucracy (Weber 1946, p. 228).

The literature on public administration in recent decades, however, has heavily emphasized the contrary themes of organizational change and development, adaptability, entrepreneurship, and reform. The term *bureaucracy* has become equated with stodgy, hidebound, and inefficient operations. Much of the emphasis among recent proponents of good government has been on finding ways to encourage an escape from or a "banishing" of bureaucracy (Osborne and Plastrik 1997)—and a move toward alternative forms and processes.

In this article, we sort through some of the contrasting arguments by beginning a systematic empirical exploration of the link between stability and public organizational performance. We do so in the field of public education, an important policy context that has received relatively little attention from scholars in public administration. Our test of the stability hypothesis, furthermore, is undertaken within an explicit model of performance. To begin, we establish a basis for this inquiry by reviewing features of the relevant literature, clarifying the core concept, and narrowing the empirical focus to one aspect of stability: constancy in personnel.

## STABILITY AND PUBLIC ADMINISTRATION: AN OUT-OF-FASHION STATEMENT

Few ideas these days seem as retrograde as the quaint notion that stability can be helpful in the world of public administration. One need only look as far as the high-visibility "innovations in government" project supported over many years by the Ford Foundation and cen-

tered at the Kennedy School of Harvard University. Similarly, the National Performance Review—pushed during the Clinton-Gore years—emphasized the advantages of freeing agencies from the heavy hand of extant structures and processes. Successive waves of administrative changes have emphasized different and sometimes conflicting solutions to a broad set of administrative challenges, with the common premise that a disruption of existing patterns should count as reform (Light 1997). The impetus for innovation is just as lively within particular policy fields. Educational policy, for example, has emphasized curricular changes, the introduction of new technologies, and the recruitment of new teachers and new kinds of teachers, along with an assortment of organizational and incentive-based experiments ranging from high-stakes testing to merit pay to charter and magnet schools (Elmore 1997). Nothing seems hotter than novelty.

The work of scholarly experts in public administration and management has similarly pushed themes that critique stability. Organizational change, organizational development and renewal, planned change, and of course the range of efforts to spark a new public management in many countries—these topics have been of intense interest to researchers, particularly those desirous of "breaking through bureaucracy" (Barzelay and Armajani 1992). Research has followed the manifold governmental efforts to innovate and reform, with particular attention to determinants of innovation and how to develop and institutionalize change (for a review of these themes and some of this literature, see Rainey 1997, especially pp. 317–49; for a comparative cross-national consideration of the new public management, see Barzelay 2001). While innovation has produced considerably less than its strongest proponents claim (Light 1998), the emphasis remains clearly positive (for a helpful overview, see Altshuler and Behn 1997). Some work has been influential among both practitioner and research audiences (Osborne and Gaebler 1992), and additional dimensions of the innovations theme continue to be advocated (Behn 2001). Stability, in contrast, rusts at the bottom of the public manager's toolbox.

Still, despite the attention given to change, reform, and entrepreneurship, some dissents can be heard. Terry (1995) has critiqued the perspectives sketched above and argued strongly, instead, for the importance of "administrative conservatorship," whereby administrative leadership cultivates and protects the core competencies, values, and institutional elements of agency life that are accumulated, often over quite extended periods. Administrative executives, Terry indicates, are "*conservators* because they are entrusted with the responsibility of preserving the integrity of public bureaucracies and, in turn, the values and traditions of the American constitutional regime" (pp. xix–xx, emphasis in original; see also Spicer and Terry 1993).

Distinct but not totally dissimilar arguments have been offered by a disparate set of scholars. The Blacksburg group has emphasized the importance of a long-term "agency perspective" that may serve as the best guarantor of the public interest (Wamsley et al. 1990). Earlier empirical work of Kaufman, particularly his classic *The Forest Ranger* (1960), shows administrative routines and ingrained patterns of oversight to be important "centripetal forces" that lend coherence to an otherwise chaotic policy setting that is rife with opportunities for atomistic decision making.

Indeed, motivating the current study is the notion that stability is not necessarily the bane of those committed to high performance. It may be able to offer opportunities for enhanced program achievement. Although this proposition had been a truism of standard organization theory (see Perrow 1986), it seems to have become lost in the rush to embrace en-

trepreneurial notions of public management, the enactment of innovations of all sorts, and various forms of reinvention and change.[1]

## STABILITY IN ADMINISTRATIVE SYSTEMS

Administrative systems are fundamentally inertial: once put into operation, they tend toward stability. Stability means, quite simply, constancy in the design, functioning, and direction of an administrative system over time. Administrative stability can be seen along a number of related but distinguishable dimensions:

- *Structural stability,* the preservation of organizational features over time. Structural stability itself is multidimensional and includes such elements as size, formalization, differentiation, and span of control.

- *Mission stability,* the consistency over time of the goals of an administrative unit. When bureaus are asked to change course with frequency, they may experience disruptions. One distinctive feature of public agencies, furthermore, is that their mission is for the most part externally determined (Wilson 1989): policy changes, as established by political executives, legislatures, or judicial determinations, exert profound impact on the missions of agencies and therefore on the stability these units experience.

- *Production or technology stability.* Lynn, Heinrich, and Hill (2000) contend that governance systems are characterized by a mode of production or type of technology, and that altering the form of production essentially shifts governance arrangements.[2] Analysts of public administration have long been aware of the importance of agency technology, particularly "core technology" (Thompson 1967). The recent emphasis on information technology and the many difficulties agencies have in adapting to it in a productive fashion (see Fountain 2001) should not obscure the more general point that stability or instability in agency technologies of all sorts can be consequential for performance.

- *Procedural stability.* Related to production but distinct from it is the set of rules, regulations, and standard operating procedures used in a public agency. Units that pursue the same missions with similar technologies sometimes develop quite different procedures for getting the job done. Welfare-to-work programs illustrate this variation across the states and even across offices within a given state (Sandfort 1999). Stable procedures create opportunities for coordinating action across large numbers of individuals without overwhelming their capacity (Allison 1971).

- *Personnel stability.* The types of stability mentioned above all deal with features of the administrative system. Bureaucracy, according to Weber, is characterized

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[1]   Overgeneralization should be avoided regarding the impact of stability on performance. In this article we argue that stability can be helpful, and we test one aspect of this idea against evidence; however, we expect the overall impact of stability, as well as of certain types of stability, to be contingent. We are exploring some of the contingencies in additional research.

[2]   Their primary term for this set of features is *treatments,* by which they mean "primary work or core processes or technology" (p. 15).

by career employees, so the people who occupy positions within the organization are an additional element of stable administration. If the positions or their relationships shift over time, a system experiences instability. But even if the structural and procedural aspects remain constant and the goal of a public agency persists, changes in personnel can represent an important variety of instability.

## PERSONNEL STABILITY

Personnel stability is the focus of empirical analysis in this article. Selection criteria, motivation, and agency incentive systems often have received scholarly attention (Ban and Ricucci 2002). The stability of the personnel over time, however, has been much less frequently explored. One reason may be the classic view that individuals within the system are *career* bureaucrats.[3]

Still, leadership stability has been a concern; a point of persistent tension between U.S. politicos and career appointees is the relative impermanence of the former, who constitute, in the famous phrase of Heclo (1977), a "government of strangers." Turnover among politicos has exacerbated the difficulties involved in building competence, mutual trust, and long-term commitment (cf. Dunn 1997).

Other aspects of personnel instability have received some attention recently. A few jurisdictions have abandoned commitments to lifetime merit appointments in favor of flexibility and responsiveness; the state of Georgia, for instance, no longer offers job protection to new employees. At the national level, analysts have noted that careers in public service have become more varied. Those who seek such careers, particularly individuals with advanced degrees in public affairs, now work in the private and nonprofit sectors as well as in government, and they are much more likely to change agencies, organizations, and even sectors several times over the course of a career (Light 1999). While these flows of human resources can bring fresh perspectives to public organizations, they may also engender complications.

Personnel experts sometimes express concern about burnout-generated turnover (Golembiewski 1990). In public education itself, personnel shortages in key fields like mathematics and science have made headlines in recent years, and teacher burnout has been the object of policy change in a number of jurisdictions. Educational system administrators have been increasingly difficult to recruit for extended tours of duty (Hess 1999). Ironically, then, even as public management and public education press for change, concerns have been raised about the performance consequences of personnel instability.

In this article we will explore this issue systematically by estimating models of how personnel stability influences school-district performance in one large, diverse state. We are interested especially in two forms of personnel stability: durability of top-level public managers in their senior roles and retention of front-line teaching professionals.

Why should either type of stability matter? Top managers navigate in a complex environment; they need time to learn the basic demands of the job. Assessing the surroundings, both in and outside the administrative system, can take time. Even the most skillful managers can be expected to improve efficacy by learning their institutional, political, resource, personal, and administrative contexts. Time can also give other stakeholders a chance to ascertain top management's intent and style. Over an extended period, and particularly

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3    Despite the stereotype of bureaucracy as unchanging, substantial personnel turnover does exist, and it varies greatly across public organizations (Kellough and Osuna 1995).

among managers who do quality work, this familiarity can breed trust. Top managers who have developed reputations can use longevity to exercise power.[4]

Stability alone, of course, is not management's sole contribution to program performance. The quality of management exhibited by a given manager can be expected to have an impact. Furthermore, the sheer degree of managerial activity devoted to monitoring and negotiating the external environment can also pay off. Accordingly, the analysis reported below considers these additional dimensions of management as well as the issue of stability.

Front-line professional workers, particularly in so-called street-level bureaucracies (Lipsky 1980) that deal with unpredictable needs and demands from clients, can also be aided in their work by longer periods on the job. Extended time in high-stress, front-line positions can lead to burnout and departure, of course; but for those who endure, the multifaceted skills acquired in the trenches can make a significant difference in performance. Classroom teaching surely fits this pattern. Veteran teachers learn how to juggle the many tasks involved in delivering quality instruction. They gradually see how to translate pedagogical theories into workable practices in their own particular settings. They also can learn over time how to sort through the distractions that can absorb energy and attention during a school day. They will have developed experience with difficult cases and multicultural nuances. Many of these craft-like skills, developed through years of experience, are only partially transferable to other districts with different mixes of students and different curricula. Sheer time in position in a local setting can help.

These characterizations offer a rationale for the hypothesis that personnel stability of both top-level managers and front-line workers can assist in delivering program outputs. We will now place this stability hypothesis into a more general model of public management and public program performance.

## MODELING THE IMPACT OF STABILITY

In considering the hypothesized impact of personnel stability—and stability more generally—upon the performance of an administrative system, we begin with a general model developed to specify the influence of public management on public program performance. In our initial modeling effort, we framed the stability issue more narrowly by focusing in particular on hierarchical stability (O'Toole and Meier 1999 and 2000). Initial tests of portions of the model have been encouraging (Meier and O'Toole 2001 and 2002a).[5] Here we use that model in a broadened form, by substituting the degree of stability overall for the extent of hierarchical stability[6] in the O'Toole-Meier model:

$$O_t = \beta_1(S + M_1)O_{t-1} + \beta_2(X_t / S)(M_3 / M_4) + \varepsilon_t \qquad [1]$$

4    Such stability can also reduce policy churn, the adoption of frequently changing reforms without leaving sufficient time for implementation. Policy churn is identified by Hess (1999) as a major problem affecting urban school system performance.

5    The empirical work thus far has not tested the impact of stability on performance.

6    The more specific version of the model included a term H, for extent of hierarchy (normalized between 0 for pure network arrangements and 1 for pure hierarchies) in place of the general stability term, S. The initial formulation indicated that the extent of stability in a system is the key variable. In our "Notes on the Extension of the Model," we referenced a number of additional factors that could influence stability and encouraged researchers to consider this theme in a more general sense: "Although hierarchies are more stable than networks, all other things being equal, factors other than hierarchy can induce stability in a system" (O'Toole and Meier 1999, p. 522). The current investigation explores one aspect of this larger set of stabilizing influences.

where

O is some measure of outcome,

S is a measure of stability,

M denotes management, which can be divided into three parts,

$M_1$ management's contribution to organizational stability through additions to hierarchy/structure as well as regular operations,

$M_3$ management's efforts to exploit the environment,

$M_4$ management's effort to buffer environmental shocks,

X is a vector of environmental forces,

$\varepsilon$ is an error term,

the other subscripts denote time periods, and

$\beta_1$ and $\beta_2$ are estimable parameters.

The O'Toole-Meier model of management is autoregressive, nonlinear, and contingent. The autoregressive component is captured by the lagged dependent variable, thus requiring time-series data for estimation purposes. The nonlinear elements are represented by various interaction effects, some designated as reciprocal functions. The model is contingent simply because the stability term can be considered one end of a continuum, with fluid arrays on the opposite pole. As the stability variable moves toward zero, the model estimates how management affects programs in settings marked by great and unpredictable changes over time.[7]

In the model, S can be considered a composite of the various kinds of stability outlined earlier: structural stability, mission stability, and so forth. More stability means that current operations in an agency or program have more impact on future performance. The more stability, in short, the larger the impact of the autoregressive term and the smaller the impact of the second, or environmental, term.

While we expect many kinds of stability to matter for public agencies, the focus in the present study is on personnel stability, or $S_P$. Other aspects of stability within public organizations such as school systems are also worthy of investigation, when appropriate measures for them are available.[8] Excluding these is appropriate under the present circumstances. No bias is introduced, so long as the other varieties of stability can be expected to be uncorrelated with personnel. Personnel stability is somewhat of an abstraction, in that different kinds of personnel can exhibit different degrees of stability. This analysis incorporates measures of personnel stability for two key kinds of system employees: top system managers (school district superintendents) and front-line workers (teachers).

O'Toole and Meier (1999) concede that a data set capable of operationalizing their full model does not exist and perhaps is even unlikely to exist in the future. The same can be said

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7    Modeling the performance of overall networks of organizations, including efforts to manage the network, is considerably more complex than modeling the performance of an organization operating within an interdependent setting. We are at work on aspects of the first-mentioned subject as well, although this work goes beyond the reach of the present article.

8    Structural stability is largely constant across the entire sample examined in this study. We are pursuing some additional aspects of stability in work that is not reported here.

for the adjusted form of the model displayed above in [1]. Some theoretical gains can be made, however, by testing parts of the model or more simplified forms of it. Work completed thus far has offered support for incorporating a broad measure of network management[9] as a contributor to performance (Meier and O'Toole 2001 and 2002a). Additional empirical work has validated a second management measure that captures important aspects of managerial quality designated $M_Q$ (Meier and O'Toole 2002b); we employ this measure of managerial quality as a proxy for $M_1$, since quality management can be considered to offer a contribution to stability of program operations. The model also includes some nonlinear elements, evidence for which has been adduced in earlier studies (Meier and O'Toole 2001 and 2002a). Since probing for multiple nonlinear impacts of personnel stability via a single research design is impractical, we simplify the model further for present purposes by retaining stability only in the first term of the model. The upshot is a deliberately underspecified model designed to explore some of the issues raised in the general formulation. With these adjustments, the model reduces to:

$$O_t = \beta_1(S_P + M_Q)O_{t-1} + \beta_2(M_2X_t) + \varepsilon_t \qquad [2]$$

The particular interest in this investigation is personnel stability—of both top managers and of front-line workers. Since the autoregressive form means that a large part of any variance is likely to be explained by the lagged dependent variable $O_{t-1}$, it can be difficult to pick up the impact of other variables of interest. Accordingly, we test both this model and a further simplified form that excludes the lagged dependent variable:

$$O_t = \beta_1 S_P + \beta_2 M_Q + \beta_3(M_2X_t) + \varepsilon_t \qquad [3]$$

Equations [2] and [3] are both used in the analysis here. A set of appropriate controls, represented by $X_t$, a matrix of environmental forces, is included in the analysis.

## THE UNITS OF ANALYSIS

Our data are drawn from a set of Texas school districts. We sent a mail questionnaire on management styles, goals, and time allocations to district superintendents. (The return rate was 55 percent with 507 useable responses.)[10] We pooled five years (1995 through 1999) of data on performance and control variables to produce a total of 2535 cases for analysis. All nonsurvey data were from the Texas Education Agency.

School districts in the United States generally and all districts in this study are independent local governments with their own taxing powers.[11] Although school districts are the most common public organizations in the United States, they have some distinct characteristics. They are highly professionalized organizations with elaborate certification processes for various occupations. The organizations themselves tend to be decentralized

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9   We use $M_2$ as a combination of $M_3$ and $M_4$ to designate this concept: $M_2 = M_3 / M_4$.

10   Districts that responded to the survey, conducted during 2000, were no different from nonrespondents in enrollment; enrollment growth; students' race; ethnicity and poverty; or test scores. There were slight differences in a few other factors. Respondents had 0.48 more students per class, paid their teachers $200 more per year, but had annual operating budgets of about $100 per student less.

11   *Independent* in the case of school districts means that the district selects its own governing board (as opposed to having another jurisdiction appoint the board) and it possesses independent taxing power.

with a great deal of street-level (classroom) discretion. If the findings here can be generalized, they would be applicable to similar types of organizations.

Personnel stability can be a recurring issue in such districts. School-district managerial talent is mobile within the state (and somewhat mobile across states). While some superintendents remain for extended periods in one locale, most individuals typically move among several districts as they pursue their careers. Furthermore, districts replace their superintendents for various reasons. This movement inevitably means instability at top managerial levels; those in the system must adjust, and anticipate the adjustment, to a new top manager and that person's influence on a range of district decisions. Indeed, shifts in the top managers often trigger other personnel changes near the top, among deputies, assistant superintendents, principals, and so forth. Superintendents in Texas have an average tenure of approximately 5.3 years in their positions; their mean tenure within the district in any capacity is 8.7 years. We are interested in seeing whether and how instability at the top influences educational performance.

Stability in the teacher corps in a given district should matter as well. Inexperienced teachers are likely to be less effective as they engage in trial-and-error searches to determine which of their academic skills actually matter in the classroom. The teacher shortage in particular specialties compounds the difficulty. To recruit new teachers on a regular basis, at the very least, school systems must devote significant budgetary resources to human resources management. Some systems find it necessary to make particularly sizable and costly efforts; the Houston (Texas) Independent School District, for instance, employs a recruiter in Moscow, Russia. Average years of teacher experience in Texas school districts is 11.6 years. We expect that stability of personnel, for top managers and teachers alike, will contribute positively to educational performance. Since managerial quality and networking also matter, and since other variables clearly influence such performance, we include them in the analysis.

### MEASURES

### Personnel Stability

We examine two measures of personnel stability: one for school-district superintendents (managerial stability) and a second for school-district teachers (teacher stability). Managerial stability is simply the number of years the superintendent has been employed by the district *in any capacity.*[12] Teacher stability is measured as the percentage of teachers employed by the district during the preceding year who continue to work for the district. In other words, teacher stability is measured as 100 minus the year's turnover rate. For both measures, then, higher scores mean more stability. Data on managerial stability were obtained from the survey respondents; data on teacher stability were provided by the Texas Education Agency. Interestingly, the two forms of stability are unrelated to each other empirically (correlation is .09), thus suggesting that different forces shape personnel patterns in these different loci within educational systems.

### Management

Two measures of public management are included as potential explanatory variables in this analysis: managerial quality and managerial networking. *Managerial quality* is a notori-

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[12]    The measure as a result taps both stability and capacity—the latter in the sense of knowledge about the organization.

ously difficult concept to measure. In earlier work, we validated a measure based on the residual from a model explaining salaries of district superintendents. The salary-setting process in Texas school districts approximates a competitive labor market with full information. As a result, management skills should be positively rewarded by the market. To isolate this quality component, we predict logged superintendent salaries with eleven variables that measure job size, human-capital factors, personal characteristics, and prior school-district outputs similar to common salary models in the literature (see Ehrenberg, Chaykowski, and Ehrenberg 1988).[13] Details of this analysis are reported elsewhere (Meier and O'Toole 2002b).

The resulting model predicts 78 percent of the variance in salaries, thus comparing favorably to other models in the literature. The objective is to remove as many nonquality factors as possible from the superintendent's salary. The remaining residuals are then standardized (converted to a mean of 0 and a standard deviation of 1) for use in the subsequent analysis as a rough indicator of management quality.[14] This measure is clearly a messy one, since the residual contains all factors that are not included in the model. The impact of this measurement error, however, will attenuate any relationships between a quality measure and other variables such as organizational outputs.

A systematic validation for this variable produced encouraging results. The measure contributed positively and in a statistically significant fashion to school-district performance in regression analyses using ten dependent variables.[15] (The complete set of analyses is available in Meier and O'Toole 2002b.)

A second measure of management is included, as well: *network management.* Public managers increasingly manage in a setting that requires that they gain cooperation and support from external actors who are not their subordinates. School districts operate within a network of other organizations and actors that influence their students, resources, programs, goals, and reputations. The extent to which a superintendent can manage the school district's network should be related to school district performance (Meier and O'Toole 2001 and 2002a).

In order to measure the network management activity of school superintendents, we selected five sets of actors from the organization's environment: school board members, local business leaders, other school superintendents, state legislators, and the Texas Education Agency. In our mail survey, we asked each superintendent how often he or she interacted with each actor, on a six-point scale ranging from daily to never. Superintendents with a networking management approach should interact more frequently with all five actors than should a superintendent with an approach focused on internal management. A composite network management-style scale was created via factor analysis. All five items loaded posi-

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13    District characteristics that are included as predictors are the district's total budget, tax rate, and average revenue per student; these district characteristics are logged. Four human-capital characteristics are included: experience as a superintendent, tenure in the current job, age, and possession of a doctorate. Personal characteristics included are whether the superintendent is female, black, or Latino. The adjustment for prior year's test scores is also included because we think managerial quality is affected by prior performance, and quality then affects future performance. Over time, in other words, there is reciprocal correlation. The adjustment for this endogeneity is handled via an instrumental variables technique. Six student characteristics and district resources are used as instruments; the purged measure of prior performance is then included in the model.

14    This process permits us to compare the impact of management quality with the impact of managerial networking, which is also measured as a standardized scale (see Meier and O'Toole 2001 and 2002a).

15    Controls in that set of analyses are identical to those employed in the present investigation. In the case of an eleventh dependent variable, there was no relationship.

tively on the first factor, producing an eigenvalue of 2.07; no other factors were significant.[16] Factor scores from this analysis were then used as a measure of network management, with higher scores indicating a greater network orientation. The network management measure and the managerial quality measure are uncorrelated with each other (r = –.01).[17]

## Control Variables

Any assessment of organizational performance must control for both the difficulty of the job faced by the organization and the resources in its possession. Fortunately, a well-developed literature on educational production functions (Hanushek 1996; Hedges and Greenwald 1996) can be used for guidance. Eight variables, all commonly used, are included—three measures of task difficulty and five measures of resources.

Schools and school districts clearly vary in how difficult it is to educate their students. Some districts have homogeneous student populations from upper middle-class backgrounds. Students such as these are quite likely to do well in school regardless of what the school does (see Burtless 1996). Other districts with a large number of poor students and a highly diverse student body will find it more difficult to attain high levels of performance, because the schools will have to make up for a less supportive home environment and deal with more complex and more varied learning problems (Jencks and Phillips 1998). Our three measures of task difficulty are the percentages of students who are black, Latino, and poor. The last-mentioned variable is measured by the percentage who are eligible for free or reduced-price school lunch. All three measures should be negatively related to performance.

While the linkage between resources and performance in schools has been controversial (see Hanushek 1996; Hedges and Greenwald 1996), a growing literature of well-designed, longitudinal studies confirms that like other organizations, schools with more resources generally fare better (Wenglinsky 1997). Five measures of resources are included. The average teacher salary, average instructional expenditures per student, and class size are directly tied to monetary resources. The average years of teaching experience and the percentage of teachers who are not certified are related to the human resources of the school district. Class size and noncertified teachers should be negatively related to student performance; teacher experience,[18] teacher salaries, and average instructional expenditures should be positively related to performance.

## Performance Measures

Performance measures are highly salient in educational policy circles these days. Generalizing from his experience in Texas, President George W. Bush strongly advocates standardized testing to measure educational performance, despite the controversy that surrounds such measures (see McNeil 2000). Although virtually all organizations have multiple goals and thus are subject to multiple performance indicators, some objectives are defined as more

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16    The network management factor correlates at –.27 with time spent managing the district (in contrast to time spent in contacts outside the organization).

17    Management quality is also uncorrelated with both measures of personnel stability (–.02 for each), as is network management (.04 correlation with teacher stability; –.08 with management stability).

18    This measure—mean number of years in the profession for a district's teachers—captures something quite different than does our teacher stability measure, which focuses on year-to-year turnover within a district. The correlation between the two is .39.

important by the organization's political environment than are others. This study incorporates ten different performance indicators in an effort to determine if personnel stability, in combination with management, affects a variety of organizational processes.

Although each of the performance indicators is salient to some portion of the educational environment, the primus inter pares is the overall student pass rate on the Texas Assessment of Academic Skills (TAAS). The TAAS is a criterion-based test that all students in grades 3 through 8 and grade 11 must take. The grade 11 exam is a high-stakes test, and students must pass it to receive a regular diploma from the state of Texas. TAAS scores are used to rank districts, and it is without question the most visible indicator of performance used to assess the quality of schools. Our measure is the percentage of students in a district who pass all (reading, writing, and math) sections of the TAAS.

Four other TAAS measures are also useful as performance indicators. The state accountability system assesses performance of subgroups of students, and districts must perform well on all these indicators to attain various state rankings. TAAS scores for Anglo, black, Latino and low-income students are included as measures of performance indicators.[19]

Many parents and policy makers are concerned with the performance of school districts regarding college-bound students. Three measures of college-bound student performance are used—average ACT score, average SAT score, and the percentage of students who score above 1100 on the SAT (or its ACT equivalent). Texas is one of a few states where both the ACT and the SAT are taken by sufficient numbers to provide reliable indicators of both. As is true in statewide samples in which there is no correlation between scores and the number of students taking the tests when the proportion of tested students is more than 30 percent of the total who are eligible to be tested, Texas scores are uncorrelated with the percentage of students taking the exams.[20]

The final two measures of performance might be termed bottom-end indicators—attendance rates and dropout rates. High attendance rates are valued for two reasons. Students are unlikely to learn if they are not in class, and state aid is allocated to the school district based on average daily attendance. Attendance, as a result, is a good indicator of low-end performance by these organizations; the measure is simply the average percentage of students who are not absent. Dropout rates, although they are conceded to contain a high degree of error, are frequently also used to evaluate the performance of school districts.[21] The official state measure of dropouts is the annual percentage of students who leave school from eighth grade onward.

## FINDINGS

The first line of analysis focuses on explaining the overall TAAS pass rate. Table 1 displays results of regression analyses for two models, the first omitting the autoregressive term and

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19    The various pass rates do not correlate as highly as one might imagine. The intercorrelations between the Anglo, black, and Latino pass rates are all in the neighborhood of .6, suggesting that the overlap is only a bit more than one-third.

20    The relationship between the percentage of students taking the tests and the test scores in Texas is actually positive, but it explains less than two percent of the variance.

21    School districts often have annual student turnover of 20 percent or more. School districts do not necessarily know where students have gone unless they receive a request for a transcript. In addition, school districts have few incentives to find out why any given student has not returned for a new academic year.

**Table 1**
The Impact of Management on Performance: Standardized Tests

| Independent Variable | Dependent Variable = TAAS Pass Rate | | | |
| --- | --- | --- | --- | --- |
| | Slope | t-Score | Slope | t-Score |
| Network management | .6846 | 4.58 | .1977 | 1.96 |
| Management quality | .9182 | 5.57 | .1732 | 1.56* |
| Stability—teachers | .1374 | 5.53 | .0511 | 3.05 |
| Stability—managers | .0739 | 4.51 | .0251 | 2.27 |
| Controls | | | | |
|   Teachers' salaries (K) | .3598 | 3.27 | .2114 | 2.86 |
|   Instruction spending (K) | −.0173 | .04* | −.2460 | .94* |
|   Black students % | .2183 | 13.60 | −.0583 | 5.22 |
|   Latino students % | −.0984 | 9.42 | −.0349 | 4.91 |
|   Low income students % | −.1830 | 12.49 | −.0220 | 2.14 |
|   Class size | −.4436 | 4.21 | −.1405 | 1.98 |
|   Teacher experience | .1736 | 1.74 | .1020 | 1.52* |
|   Noncertified teachers | −.1668 | 4.73 | −.0887 | 3.74 |
|   Lagged pass rate | — | — | .7083 | 55.04 |

Coefficients for annual dummy variables omitted.
Dependent variable R-square, .61; TAAS pass rate R-square .82.
Dependent variable standard error, 7.43; TAAS pass rate standard error 4.99.
Dependent variable F, 239.58; TAAS pass rate F, 678.43.
Dependent variable N of cases, 2503; TAAS pass rate N of cases, 2503.
*not significant, $p < .05$, one tail

the second including it.[22] For each equation the control variables, with the exception of instructional spending, are correctly signed, and most are statistically significant.[23]

The focus of our interest is on the impact both of personnel stability and of management. In each equation, both measures of personnel stability are positively and significantly related to school-district performance. The impact of teacher stability is slightly more than that for managerial stability in both cases. While they clearly are not the most important determinant of districts' standardized test performance, both kinds of stability contribute to the explanation.

Since the measure of teacher stability in the sample ranges between 44.4 (55.6 percent of a district's corps of teachers departed in one year[24]) and 100 (zero turnover), the maximum impact of teacher stability is considerable: more than 7.6 percentage points on a district's pass rate, if one uses the equation without the lagged dependent variable, and almost three percentage points even in the much more stringent autoregressive specification—where a huge portion of the variance is accounted for by the lagged dependent variable.[25]

[22]   We assessed the normal problems of serial correlation and heteroscedasticity in pooled models. We include individual dummy years to control for the changes in variables from year to year. Diagnostics showed only marginal levels of heteroscedasticity that should not affect the results, an expected diagnosis given the large sample size.
[23]   Instructional spending is incorrectly signed albeit not significant statistically. For the equation including the lagged dependent variable, all others aside from teacher experience are statistically significant; teacher experience works in the expected direction but falls slightly short of significance.
[24]   This level of exceedingly high turnover could be a behavioral symptom that, in turn, is driven by other causes. Several of the most plausible sources of turbulence are included in the model via the set of controls; idiosyncratic factors obviously are not. Since the focus of this research is to explore the influence of the impact of management and stability on performance, not to explain turnover per se, the issue is not pursued further here.
[25]   We also reran the analysis for a much larger sample: all 1000+ districts in Texas. Given the five-year time series, this exploration amounts to a 5000-case data set. Doing so requires dropping two independent variables

Managerial stability also contributes to district performance. Here the measure is in years of experience in the district; since the range in the data set is forty-one years, the maximum impact of this feature is less but is still worth noting: approximately 3 or 1 percentage point on the pass rate, respectively, depending on whether the equation excluding or including the lagged pass rate is considered. Since the two elements of stability are uncorrelated, the combined maximum impact of stability could amount to as much as nearly 11 percentage points.[26] Considering the short shrift given to such unglamorous organizational features as stability in recent years, these positive performance impacts are quite remarkable. Clearly, some enhancement in outcome is due to the leverage gained by retaining those who know the system and apply their talents to the educational and managerial tasks at hand.

In addition, management itself is positively and significantly related to district performance on pass rates. In the first equation reported in Table 1, both measures of management boost performance beyond the impact attributable to personnel stability. Since both management measures are standardized and thus range between approximately minus 3 and plus 3, these equations suggest that quality management's maximum impact is approximately 5.5 points on the TAAS, and network management's maximum impact is approximately 4.1 points. Even while taking into account the stability impacts, therefore, management quality and network management help to determine district pass rates. For the equation including the lagged dependent variable, which constitutes a much tougher test, network management continues to have a positive and statistically significant impact. Management quality has the correct sign, but it just misses the .05 threshold for statistical significance in this specification.

Taken as a whole, the analyses reported in Table 1 constitute evidence that management and stability affect school district performance. That even the autoregressive form of the production function continues to show the importance of both personnel stability and management is a particularly impressive demonstration.

Overall pass rate on the TAAS exam is an important and salient measure of school-district performance, but it is not the only one. Table 2 presents the regression coefficients for the four stability and management variables for the nine additional performance indicators, thus representing the results of analyses parallel to the first column of Table 1. Table 3 repeats the same analyses but with the inclusion in each case of the lagged dependent variable, thus producing results parallel to the second column of Table 1.

The results in Table 2 are supportive of our theoretical arguments regarding stability, and they confirm the importance of management as well. Of the thirty-six coefficients reported here, all but three are properly signed; approximately two-thirds are statistically significant.[27] In every analysis, one or more of the stability or management variables are statistically significant. In seven of the nine additional analyses, one or both measures of personnel stability are statistically significant; in eight of the nine analyses, the same can be said for one or both of the management measures. *Both* stability and management contribute

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derived from the survey: network management and managerial stability. In this estimation, teacher stability maintained its impact and is statistically significant. The impact of management quality also continues to appear.

26   For the autoregressive form, the comparable figure is approximately 4 percent. Although this result may not seem overwhelming, the autoregressive term means that an increase in performance today broadens the base for future increases as well, via the lagged dependent variable, and therefore improvements reverberate into the future. If the improvements continued indefinitely, the total impact would be 13.3 percentage points, relatively close to the 11 percentage points without the lag.

27   Including the analysis for overall TAAS pass rate results in totals of thirty-seven properly signed coefficients out of forty, with more than two-thirds statistically significant.

**Table 2**
Management, Stability, and Other Measures of Performance

| Performance Measure | Management | | Stability | | $R^2$ | N |
|---|---|---|---|---|---|---|
| | Network | Quality | Teacher | Manager | | |
| Latino pass % | .5394 | .7722 | .0634 | .0659 | .36 | 2283 |
| | (2.07) | (2.74) | (1.37)* | (2.36) | | |
| Black pass % | .4920 | .5691 | .3417 | .1093 | .37 | 1548 |
| | (1.29)* | (1.47)* | (4.54) | (2.93) | | |
| Anglo pass % | .7728 | .7986 | .1347 | .0781 | .45 | 2475 |
| | (5.20) | (4.88) | (5.44) | (4.79) | | |
| Low income pass % | .2693 | .9401 | .1345 | .1265 | .52 | 2492 |
| | (1.42)* | (4.48) | (4.20) | (6.07) | | |
| Average ACT score | .0445 | .0932 | −.0072 | .0018 | .36 | 2196 |
| | (1.64)* | (3.14) | (1.41)* | (0.64)* | | |
| Average SAT score | 3.7900 | 3.6348 | .8699 | .1592 | .50 | 1814 |
| | (2.59) | (2.28) | (2.96) | (1.05)* | | |
| Percent above 1100 | .3743 | .7481 | .0636 | −.0185 | .30 | 2387 |
| | (1.89) | (3.40) | (1.81) | (0.86)* | | |
| Dropout % | −.0368 | −.1014 | −.0006 | −.0016 | .16 | 2483 |
| | (1.76) | (4.40) | (0.17)* | (0.71)* | | |
| Class attendance | −.0015 | .0655 | .0120 | .0000 | .24 | 2503 |
| | (0.10)* | (3.89) | (4.71) | (0.02)* | | |

All equations control for teachers' salaries; instructional expenditures per student; class size; teacher experience; percent of teachers not certified; percentage of black, Latino, and low income students; and yearly dummy variables.
* not significant, $p < .05$, one tail

positively to performance in statistically significant ways in all but three estimations. This pattern amounts to strong evidence that personnel stability contributes to educational performance and also clearly supports the notion that management itself matters, aside from the personnel impacts captured by stability.

Table 3 shows the coefficients for the same nine analyses, with the lagged dependent variable included in each equation. Picking up impacts of independent variables is quite difficult in such cases. Even so, the results further support the importance of personnel stability. They also continue to indicate that management can contribute to performance. Here thirty-four of thirty-six coefficients are correctly signed, and all equations show one or more of the independent variables as statistically significant. Half of the personnel stability coefficients are statistically significant, and two-thirds of the nine equations show personnel stability in some form as statistically significant. The management measures do not perform as well, particularly network management. Still, management influences performance in positive and statistically significant ways for one-half of the set of ten performance measures overall. Indeed, if the criterion for statistical significance is relaxed to $p < .10$, twenty-five of the total of forty coefficients in the autoregressive estimations are significant. Given the stringency of the tests used to produce the results displayed in Table 3, and given the range of performance indicators considered, the results are noteworthy—particularly regarding personnel stability.

Some of the details deserve more careful attention and further analysis, although space constraints preclude extensive additional attention in this article. One example can suffice.

**Table 3**
Management, Stability, and Performance: Autoregressive Estimation

| Performance Measure | Management | | Stability | | $R^2$ | N |
|---|---|---|---|---|---|---|
| | Network | Quality | Teacher | Manager | | |
| Latino pass % | .2787 | .3523 | .0148 | .0377 | .58 | 2216 |
| | (1.32)* | (1.56)* | (0.39)* | (1.68) | | |
| Black pass % | .2640 | .3989 | .1254 | .0519 | .59 | 1490 |
| | (0.87)* | (1.29)* | (2.02) | (1.73) | | |
| Anglo pass % | .3110 | .1909 | .0576 | .0336 | .71 | 2467 |
| | (2.85) | (1.59)* | (3.16) | (2.82) | | |
| Low income pass % | .2028 | .1580 | .0700 | .0543 | .75 | 2491 |
| | (1.47)* | (1.03)* | (2.99) | (3.56) | | |
| Average ACT score | .0346 | .0631 | −.0055 | .0001 | .45 | 2091 |
| | (1.35)* | (2.27) | (1.11)* | (0.05)* | | |
| Average SAT score | 1.0705 | 1.3360 | .4979 | .0893 | .67 | 1655 |
| | (0.87)* | (1.01)* | (1.94) | (0.72)* | | |
| Percent above 1100 | .2458 | .4301 | .0498 | −.0134 | .39 | 2366 |
| | (1.33)* | (2.09) | (1.51)* | (0.67)* | | |
| Dropout % | −.0134 | -.0669 | −.0014 | −.0006 | .34 | 2483 |
| | (0.72)* | (3.27) | (0.45)* | (0.31)* | | |
| Class attendance | .0013 | .0126 | .0066 | .0004 | .71 | 2503 |
| | (0.14)* | (1.25)* | (4.36) | (0.44)* | | |

All equations control for teachers' salaries; instructional expenditures per student; class size; teacher experience; percent of teachers not certified; percentage of black, Latino, and low-income students; a lagged dependent variable; and yearly dummy variables.
* not significant, $p < .05$, one tail

The analysis for pass rates among black students indicates that a maximum of almost seven points in a district's pass rate can be explained by teacher stability*, even controlling for the lagged dependent variable.* The level of impact that a regular cadre of teachers could have with such students is phenomenal. It may be that students from particular family backgrounds or certain circumstances are especially sensitive to stability among the role models and mentors in their midst at school.[28] Or perhaps experience matters in adjusting pedagogy to the needs of individual students. If so, policy makers and educational administrators would do well to attend to some of these differential impacts.

In short, the results of this study support the notion that personnel stability can be an important determinant of public organizational performance, at least for education, and that the impact of stability can be particularly strong for certain measures and clients of public organizations. Given the presumed importance of teachers in the educational process, that stability among teachers would be more important than stability at the level of top management in school districts makes sense—indeed, the strength of the relationship between stability and performance for teachers exceeds that for district superintendents in most but not all of the ten estimations.

Nevertheless, stability at the top seems often to matter as well. This finding is noteworthy for at least two reasons. First, superintendents are insulated from the classroom, so

[28]    The sensitivity of black student TAAS performance to personnel stability at school seems more general. Note the enhanced impact of managerial stability as well, surely an influence at some remove from most students' day-to-day educational experience (Tables 2 and 3).

to be able to demonstrate such an impact on performance from this level in the organization constitutes a particularly telling result. Second, other relevant aspects of management are already controlled for in the analysis. In particular, managers' activity in the network of external parties is already taken into account, as is management quality. It would appear, then, that managerial stability per se can be helpful.

This finding should be treated with appropriate caution. Sometimes organizational change can be a good thing, especially in underperforming organizations. The results here pertain only to personnel stability; they cannot necessarily be generalized to all forms of stability, although they certainly render the broader stability hypothesis more intriguing. The evidence, furthermore, does not support a broad castigation of all personnel changes. The stability-related findings hold after controlling for managerial quality. They surely do not buttress any argument that bad managers (or, for that matter, poor teachers) should be retained merely to keep things constant. Further, the value of personnel stability might actually lie in part in the abilities of experienced, knowledgeable, and widely respected people—both teachers and superintendents in the case of school districts—to initiate and implement some of the right kinds of changes at the right time.[29] All in all, then, these findings do support carefully framed arguments for personnel stability but do not promote an uncritical conservatism.

## NONLINEAR RELATIONSHIPS

All findings reported thus far involve linear estimations for the full set of school districts on which data are available. We are interested in exploring nonlinear elements, since both the theory (see equation [1]) and some earlier analyses indicate that these can be expected when dealing with public-managerial and related relationships. Nonlinear impacts can be assessed either via interaction terms or by examining relationships with different subsets of the sample. The former, while elegant, is often plagued by severe collinearity problems that prevent interpretation of coefficients. Accordingly, we explore nonlinear relationships among the independent variables here via physical controls, that is, by partitioning the data set.
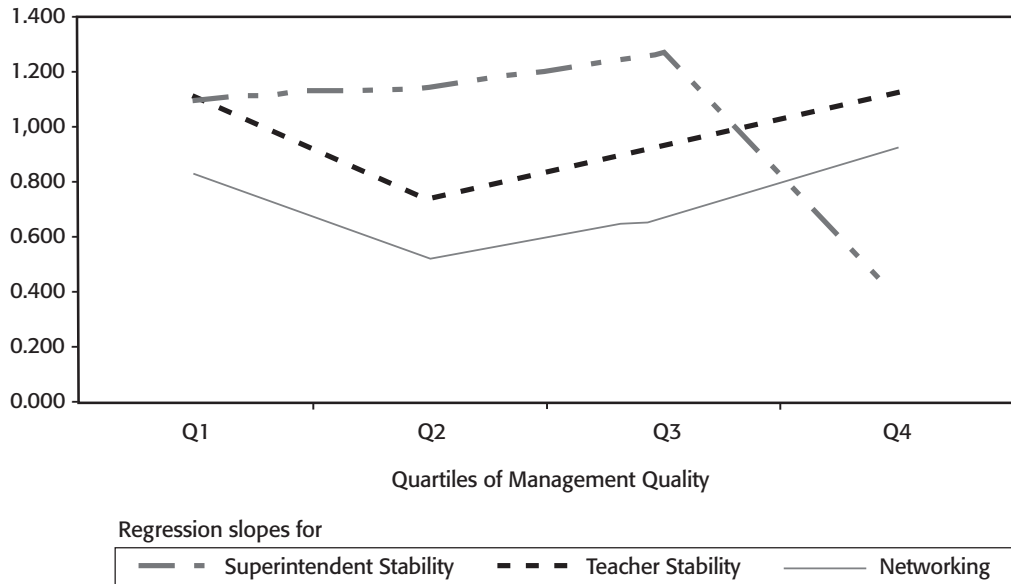
We divide the school districts into quartiles four times—by values of each of the key independent variables, successively (that is, management quality, network management, teacher stability, and managerial stability)—and examine changes in the impacts of the other independent variables on performance.[30] For each quartile of partitioning and each of the independent variables, we have calculated the resulting regression coefficients for the other variables. The coefficients can then be graphed, as in Figures 1–4. Each of these figures shows the full set of coefficients for each quartile of the partitioned variable: twelve coefficients in each. To illustrate, in Figure 1, the solid line shows the size of the networking coefficient for each quartile of the management quality variable. For the lowest quartile (those near the bottom in managerial quality), the coefficient is .83, for $Q_2$ the figure drops to .52, for $Q_3$ it rises to .675 and then climbs to .921 for $Q_4$. This generally u-shaped pattern of interactions means that networking matters more for those highest and lowest in managerial quality.

These figures, taken as a set, confirm the expectation of nonlinearity. Fully linear relationships would show (roughly) identical and constant coefficients on each graph—four horizontal and nearly equivalent lines at some height reflecting the impact of that variable.

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29    Note in this regard, for example, the function of $M_3$ in equation [1].
30    For these analyses, the performance indicator used is the overall TAAS pass rate. The estimations omit the lagged dependent variable but include all other controls.
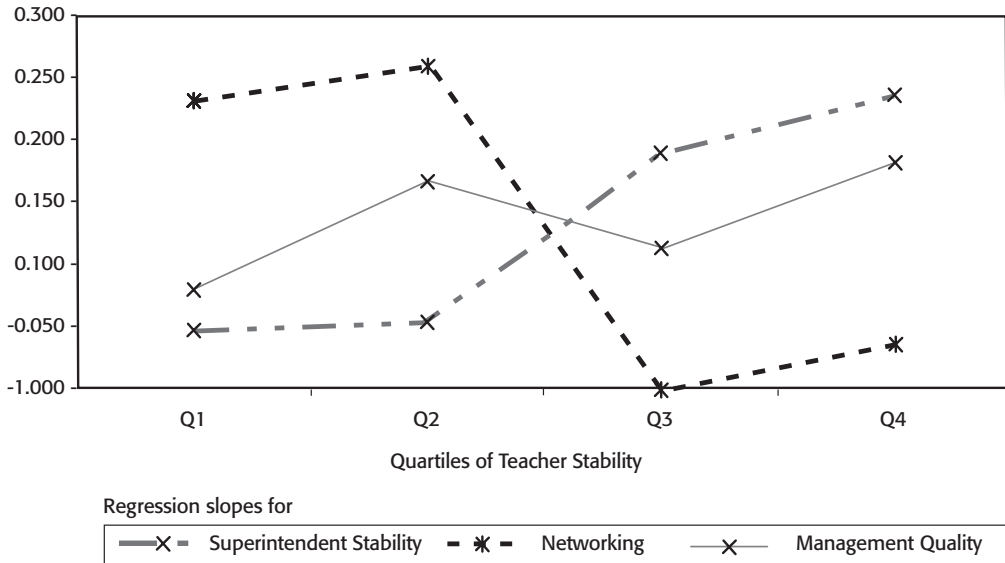
**Figure 1**
The Interaction of Management Quality with Networking and Stability:
Quartile Regression Coefficients



Quartiles of Management Quality

Regression slopes for

— · — Superintendent Stability    — — — Teacher Stability    ———— Networking

**Figure 2**
The Interaction of Networking with Management Quality and Stability



Quartiles of Networking

Regression slopes for

— · — Superintendent Stability    — — — Teacher Stability    —×— Management Quality
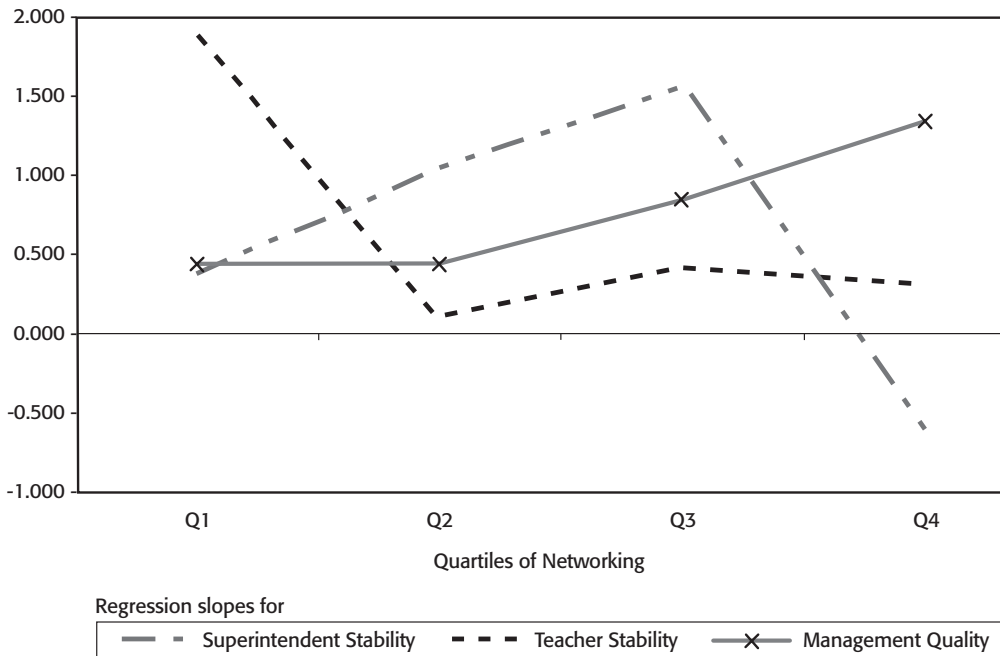
**Figure 3**
The Interaction of Teacher Stability with Superintendent Stability,
Management Quality, and Networking



Quartiles of Teacher Stability

Regression slopes for

—X—  Superintendent Stability      — ✳ —  Networking      —X—  Management Quality

**Figure 4**
The Interaction of Superintendent Stability with Teacher Stability,
Management Quality, and Networking



Quartiles of Superintendent Stability

Regression slopes for

— ✳ —  Teacher Stability      —X—  Networking      —✳—  Management Quality
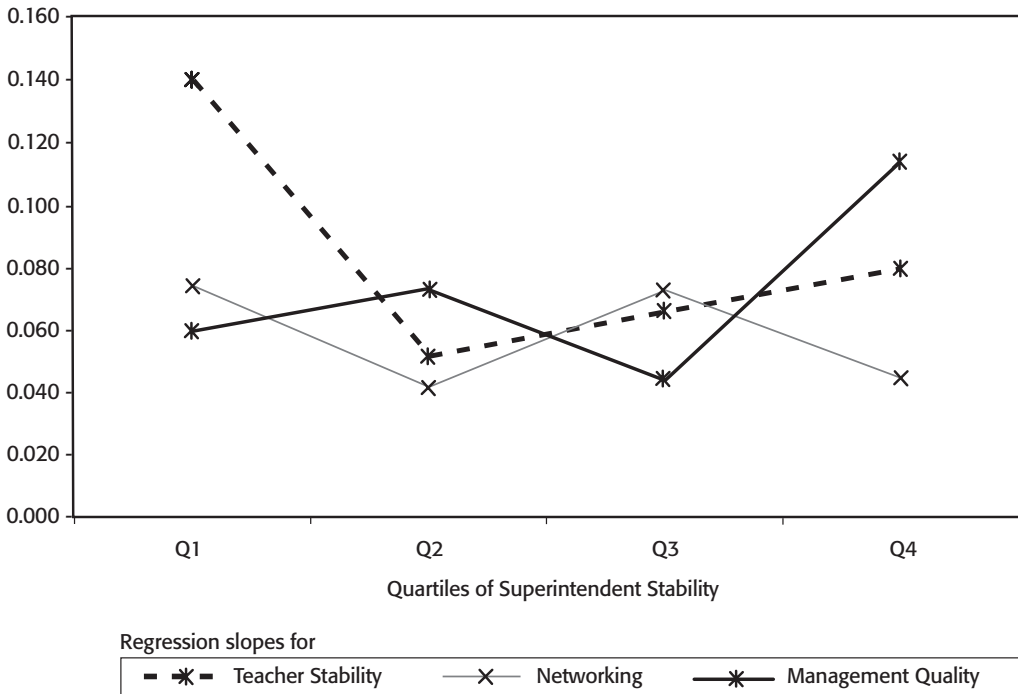
For all four of the management and stability variables, nonlinearity is clearly evident. Even in the case reflecting the most consistency of impact (Figure 1), the size of the superintendent stability coefficient varies by 332 percent from lowest to highest. In the cases of quartiles of network management (Figure 2) and teacher stability (Figure 3), the shifts in strength are substantially more dramatic.

Second, some of the relationships are particularly interesting. Explicit comparisons of these results with the model do not constitute definitive tests, since the tests involve some simplification of the original formulation. Still, one expectation sketched earlier—that more stability would mean greater impact from the first term of the model and lessened impact from the second—is supported in the case of teacher stability (Figure 3): more stability is accompanied by a drop-off in the impact of networking. When managerial quality is high, the impact of networking and teacher stability is high, but management stability is less important (see Figure 1). This pattern fits with the notion that the best managers may be able to leverage more from their own actions and the other variables they can influence, directly or indirectly. Management quality, in turn, seems to matter more when superintendents engage in a great deal of networking in their environments (Figure 2). The interaction of teacher stability with management quality is also interesting: the former has its greatest impact at very low and high levels of managerial quality (Figure 1). Conversely, teacher stability is far less important when networking is high (Figure 2). These illustrations are only a few of the ways that management and stability interact. Probing these interactions and the practical and theoretical reasons for them is fertile ground for future management scholarship. The findings here also suggest that practical strategies focused on any single aspect of management are likely to be contingent on the entire matrix of activities under examination here.

## CONCLUSIONS

Like Rodney Dangerfield among his acquaintances or the Kyoto Protocol at the Bush White House, stability just doesn't get much respect these days from management gurus. The vaunted virtues of entrepreneurship and reengineering, change and reinvention—these are the coins of today's reformist realm. A careful rendering of the best thinking about public management over the decades, however, offers justification for considering this issue afresh. Administrative arrangements are autoregressive systems, and change certainly entails costs as well as possible benefits. The O'Toole-Meier model suggests that stability in public programs is a dimension worthy of systematic investigation and that it could shape performance for the better.

A consideration of the notion of stability shows that it takes on many forms in administrative systems. Here we have explored just one of these—personnel stability—and its impact on educational performance. We have also incorporated an explicit consideration of public management. The results of our analyses reconfirm the importance of management while it offers substantial support for the notion that personnel stability at both managerial and front-line levels contributes positively to performance. The findings regarding stability are persuasive in a number of respects. They are unambiguous on the most important and salient performance indicator, persist in analyses of many other measures of performance, and can even be documented in most autoregressive estimations. Further, the examination of interactions among the independent variables of management and stability, conducted with a set of analyses of partitioned samples, indicates that not only do the variables matter, the relationships among them are nonlinear and complex. The model contends that management actions are likely to be contingent on stability. This empirical evidence suggests

that the impact of management actions on performance is likely to be contingent on the full range of management decisions and how the various features interact.

This study, in short, offers further confirmation for some of the core ideas reflected in our model of public management and program performance. That the results regarding personnel stability fly in the face of those who would celebrate impermanence, mobility, and the like makes the findings reported here of particular interest.

An additional point is worth emphasizing in this regard, one that might have been obscured thus far by the terminology we have used. We have referred to *management* and *stability* variables. In an important sense, however, all four have to do with public management. The latter two reference an aspect of what usually is referred to as personnel management. Unlike items such as jurisdictional wealth or student characteristics, personnel stability derives from the administrative system itself and those who are part of it. While they are not totally in the control of school district leaders, these variables are susceptible to influence by the individuals who make decisions about how such organizations are run. In a real sense, therefore, all four variables tap aspects of public management.

This point is worth an explicit mention because, taken as a whole, the set of four independent variables accounts for an impressively large slice of educational performance in Texas school districts. Taken together and treated as aspects of management, the combined importance of these features is sizable. For those who would say that public management constitutes, at best, a tiny part of the reasons that programs work as they do, we would say: look to education in Texas for rather dramatic rebuttal. We expect that as other scholars develop similar, theoretically informed indicators of management in other public organizations, the results will be similar.

This investigation might seem to amount to a fairly comprehensive exploration of the issues in question. This article reports on the role of four public management variables in shaping educational performance, uses ten performance measures, includes numerous controls, tests for relationships with and without the autoregressive form, and unpacks interactive effects. In these respects, the study offers convincing evidence. Still, it is important to emphasize that the results are but early findings regarding a broader and more complex set of issues.

Additional research of several sorts is advised. Two forms of personnel stability are investigated here; an analysis of additional key personnel—for instance, school principals (read mid-level managers)—would help to complete the picture. Stability itself consists of much more than personnel issues, and the other dimensions need to be examined systematically as well. The core findings should be explored beyond Texas and beyond the field of education, so that it will be possible to determine how general the impact of personnel stability is. Even within the sample we have examined here, a fuller exploration of just how stability of top managers and teachers helps performance would be useful. Finally, the topic of nonlinearity deserves more thorough exploration in order to develop an understanding of how several of the separable aspects of public management can interact to shape outcomes. On the big questions under investigation, in other words, the fun has just begun.

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