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Performance Management, Managerial Authority, and Public Service Performance

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ABSTRACT

A central notion of performance management reform is that outcome-based accountability should be accompanied by increased managerial authority, thereby granting managers the flexibility to engineer performance-oriented change. Studies have revealed, however, that managerial authority does not follow automatically when performance management is adopted. This article examines whether increased managerial authority does indeed promote the effectiveness of performance management. The article relies on a 4-year panel on management and the performance of more than 45,000 students in 314 Danish schools and includes detailed socioeconomic controls, which allows for a differences-in-differences design. Unlike previous studies, these data provide simultaneous variations in both performance management reform and managerial authority. Testing four dimensions of managerial authority, the article finds that managerial authority over human resources positively moderates the effect of performance management, whereas decentralizing goal setting works in the opposite direction. These findings may help account for the differing effects of performance management found in previous studies and suggest that decision makers should be cautious about only partially adopting accountability-based reform.

INTRODUCTION

Attempts to measure and manage performance have been key features of recent public management reform (Bouckaert and Halligan 2008; Organization for Economic Co-operation and Development [OECD] 1997). Still, our knowledge of how performance management affects organizational performance remains limited, and studies have found differing and seemingly contradictory effects of performance management systems (Ammons 2002; Moynihan et al. 2011; Swiss 2005; Yang and Hsieh 2007). Explaining why these differing results occur remains a pressing and critical challenge to public management research. One important implication of this is that we should systematically seek to model and test whether differences in contexts may help account for the success or failure of performance management reform (Jennings and Haist 2004; Moynihan 2009; Yang and Hsieh 2007).

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The purpose of this article is to study whether the level of managerial authority influences the effect of performance management on organizational performance. Throughout what has been termed an "era of governance by performance management" (Moynihan 2008, 3), it has been widely assumed that a considerable degree of managerial authority is important for performance management systems to improve performance (Joyce 1993; Kettl 1997; Moynihan 2006; Moynihan and Pandey 2006; Swiss 2005). Accordingly, political attention should focus primarily on setting and tracking overall strategic goals while granting managers discretion over how best to pursue these goals, thereby "letting managers manage" (Kettl 1997, 449). Without managerial authority, managers may still be aware of strategic goals and have access to detailed performance information, but with little chance of using this information to change organizational structures and routines in pursuit of performance improvements (Moynihan 2008).

Addressing the interaction between performance management and managerial authority is pertinent in view of the empirical developments of performance management reform. Studies have demonstrated that the adoption of public sector performance management systems has often primarily focused on creating increasingly advanced performance information systems while neglecting to increase managerial authority accordingly (Breul 2007; Moynihan 2006; Moynihan and Pandey 2006). Understanding how this partial adoption affects public service performance is therefore also of great practical importance.

However, despite the centrality of managerial authority to standard performance management prescriptions, our knowledge of how they interact remains limited. A considerable amount of research has studied the effects of performance management and managerial authority separately, but although there are indications that managerial authority may be central to performance management success (Moynihan and Landuyt 2009; Moynihan and Pandey 2010), we are lacking studies that explicitly examine this relation.

When studying the conditioning effect of managerial authority, however, it is important to note that managerial authority may contain multiple dimensions (Verhoest et al. 2004). This makes it critical to differentiate between different aspects of managerial authority, not only because doing so might tell us which dimensions are more important to performance management success, but also because different dimensions possibly work in opposite directions. Accordingly, this article introduces four dimensions of managerial authority in order to distinguish between different—though in practice sometimes overlapping—areas of management that are regarded as important in creating effective public management, namely human resources, financial, task, and goal-setting managerial authority (Moynihan and Ingraham 2004; Verhoest et al. 2004, 2012).

In the following section, I elaborate on how managerial authority relates to performance management and I present hypotheses for each dimension of managerial authority. Second, the hypotheses are tested in a series of differences-in-differences models using survey data on Danish school management combined with register panel data for public schools for the period 2002–05, including information on the performance of more than 45,000 Danish students. Unlike data in previous studies, these data provide substantial variations in both the scope of performance management reform over time and the degree of managerial authority, thus making it possible to study whether and how they interact. Finally, I discuss how the findings contribute

to our understanding of performance management as well as their implications for future public management reform.

PERFORMANCE MANAGEMENT AND MANAGERIAL AUTHORITY

In line with New Public Management prescriptions, performance management places key emphasis on improving organizational performance. Putting less emphasis on input and process control, its proponents argue that performance should be the guiding concept in organizational decision making, routines, and structures and that strategic planning and performance evaluation should be promoted such that the notion of managing and working for performance permeates the organization (Moynihan and Pandey 2010; Swiss 2005). The performance management model is often represented as a cyclical process in which elected officials or top administrators focus primarily on defining organizational goals, setting performance targets, and subsequently holding subordinate agencies and managers accountable to these targets based on an evaluation of their measured performance achievements. This process is then to be repeated, possibly with adjustments in goals, targets, or performance indicators reflecting the experiences of previous cycles (Andersen 2008; Moynihan 2005a, 2008).

Moving toward a system of managing of and for performance has been argued to affect organizational behavior and performance in several ways. A primary goal for many—and perhaps most—public sector performance measurement schemes has been to make public service provision more transparent, thereby helping executives and legislatures secure compliance by holding managers accountable to official goals and performance standards (Halachmi 2002). The continuous process involving goal setting and performance feedback also provides signals to managers and employees about the current goals of their principals and how to prioritize between them. A more general aspect of this has been the desire to create a stronger focus on results and outcomes vis-à-vis input and process regulation among managers and their principals alike (Joyce 1993). In many instances, performance-related incentive schemes have been introduced to support these objectives (Swiss 2005). But performance management systems might also affect performance without the presence of financial incentives (e.g., Kelman and Friedman 2009). Similarly, goal-setting theory argues that setting goals may itself have a motivating effect, at least if the goals are generally accepted in the organization (Locke and Latham 1990, 2002). Finally, continuous feedback on performance can improve organizational learning efforts by identifying performance problems, and sometimes solutions, through comparisons both over time and across similar organizations (Greve 2003; Moynihan and Landuyt 2009).

However, performance management schemes also differ substantially in how they are designed and the term performance management is not used consistently across academic studies. Many studies implicitly use an inclusive version of the concept, where a weak version of the performance management cycle above is sufficient for using the concept, whereas others use the term more restrictively.[1] Thus, more

1 This is not necessarily a sign of real conceptual disagreement as much as a presentation of the empirical case under study. Note also that inclusive/restrictive here refers to the extension of the concept, that is to its empirical coverage (Sartori 1970).

restrictive uses of performance management denote only management systems that include one or more additional elements, such as the use of performance contracts, performance-related incentives, strategic planning, creating a performance-oriented culture, or increasing managerial authority. This makes it difficult to compare findings across studies, even within the same service sectors, which may explain some of the inconsistent results found in the literature. But it also suggests that we should study more carefully whether variations in these additional elements make a difference to the effects of performance management (Andrews, Boyne, and Walker 2011; Moynihan et al. 2011). This article therefore adopts an inclusive definition of performance management as "a system that generates performance information through strategic planning and performance measurement routines and that connects this information to decision venues, where, ideally, the information influences a range of possible decisions." (Moynihan 2008, 5). Additional elements are then treated as contextual characteristics that may or may not condition the effectiveness of performance management (Brambor, Clark, and Golder 2006; Jennings and Haist 2004).[2] Of particular importance here is the level of managerial authority.

Partial Adoption: Failing to Increase Managerial Authority

In one of the most cited distinctions among approaches to New Public Management, Kettl (1997, 449) differentiates between approaches of "letting managers manage" and "making managers manage," the key difference being whether market-based incentives should guide managerial discretion. But that which is similar in both approaches is that increased managerial authority should be granted in return for stronger results-based accountability (Lægreid, Roness, and Rubecksen 2006). Although goal setting remains with elected officials or top administrators, the practical and administrative implementation should be at the managerial level (Moynihan 2006; Moynihan and Pandey 2006). This is argued to set managers free to exercise their professional expertise and knowledge of local conditions and challenges, thereby enabling them to choose the most effective paths toward goal achievement. Thus, the bargain between results-based accountability and increased managerial authority lies at the heart of performance management and was a fundamental prescription of the movement for Reinventing Government (Joyce 1993; Osborne and Gaebler 1992).

Nevertheless, studies have shown that the adoption of performance management reform is often only partial. Although elaborate performance information systems are created, a corresponding increase in managerial authority is often neglected (Breul 2007; Brudney, Hebert, and Wright 1999; Verhoest et al. 2004). In a study of the adoption of performance management reform by US state governments, Moynihan (2006) found that the degree of focus on results and managerial authority correlated poorly. A consistent result was found for US state health and human service agencies (Moynihan and Pandey 2006). Such a development risks undermining the pursuit of performance improvements, as managers are left unable to respond adequately to

2 Alternatively, different configurations of such additional elements could be treated as different performance management types.

performance pressures, even when effort is made to analyze organizational challenges and learn from performance feedback. This is summarized in figure 1 as a movement from quadrants (1) to (2), thus failing to realize the performance management ideal type of quadrant (3).

Although there is a growing body of work on why partial adoption is frequent (Hood 2000, 2011; Moynihan 2005b, 2008), our knowledge of how partial adoption affects the impact of public sector performance management is highly limited. To my knowledge, no existing quantitative work has examined this specific question empirically. Some previous research has shown that increased managerial authority in the public sector is correlated with measures of organizational performance or effectiveness (Moynihan and Pandey 2005; Pandey, Coursey, and Moynihan 2007; Verhoest et al. 2004), although with no clear consensus on this matter (Andrews et al. 2009; Andrews, Boyne, and Walker 2011). But these findings do not reveal how the degree of managerial authority interacts with performance management to produce performance effects. Getting somewhat closer to this interaction, Moynihan and Pandey (2005) find that in a system of government by performance management, the centralization of decision-making authority is negatively correlated with a measure of perceived performance. For the purposes of this article, however, it is problematic that the study contains no variation in the scope of performance management systems. This makes it difficult to tell whether the finding is a result of the interaction between the two factors or a positive average effect of managerial authority. Moynihan (2005b) presents case evidence suggesting that results-based reforms have been successful in some instances under conditions of half-hearted adoption, but he also notes that this appears to be despite the formal limits on managerial authority.

Figure 1
Expected Implications of Limited Reform (Adopted from Moynihan 2006, 84)

	Low Focus on Results	**High Focus on Results**
Low Managerial Authority	(1) Bureaucratic systems, high focus on inputs, and little incentive or authority to increase technical efficiency.	(2) Pressure for performance, but managers have limited power to engineer change. Lack of authority undermines the scope of performance improvement and potential for results-based accountability.
High Managerial Authority		(3) Performance management ideal type: managers have clear goals and authority to achieve goals. Should facilitate manager attendance to program effectiveness, higher technical efficiency, and results-based accountability.

What we do know, however, is that managerial flexibility has been found to correlate positively with the purposeful use of performance information in decision making (Moynihan and Pandey 2010) and learning practices (Moynihan and Landuyt 2009). Although these studies also lack variation in the scope of performance management systems, this is less problematic, because they study behaviors directly related to performance management. These findings therefore point more clearly to the interaction between performance management and managerial authority. It remains to be studied, however, whether these behavioral consequences also translate into improved organizational performance (Moynihan et al. 2011). But with the active use of performance information being a likely condition for reform success (Hatry 1999; Moynihan and Pandey 2010), managerial authority may play an important moderating role in the process. In the following section, I elaborate on how this might work in practice.

Performance Management and Different Dimensions of Managerial Authority

Managers of public service organizations generally possess considerable discretion with respect to how organizational affairs are conducted (Kettl 1997; Moynihan 2005b). Nonetheless, there are important areas in which managerial authority may vary substantially across organizations. The literature contains a number of taxonomies of managerial authority and organizational autonomy (Moynihan and Ingraham 2004; Verhoest et al. 2004, 2012). The focus here is on authority over organizational aspects through which performance management might affect performance.

One approach to this is offered by Moynihan and Ingraham (2004, 429), who describe performance management as "an overarching management system . . . that offers the means to manage across systems" by relating the structures and rules of different management subsystems—as well as possible changes in them—to the achievement of overall organizational goals. Such management subsystems may include human resource management, capital management, and financial management and can be understood as the channels through which effective leadership can be exerted (Ingraham and Donahue 2000; Ingraham, Sowa, and Moynihan 2004; Moynihan and Ingraham 2004). Similarly, Ammons and Rivenbark (2008) find that integrating performance information into existing management systems is central to its use in decision making. Rather than operating separately according to their own rationales and standard operating procedures, with inherent risks of goal displacement (Simon 1947), it is argued that these management subsystems should be directed toward overall organizational performance through a system of performance management. Moreover, they should be integrated so that the rules and practices of one subsystem is designed to also support other subsystems in their contribution to overall performance (Moynihan and Ingraham 2004).

Following this model, if managing for performance is to succeed, managerial authority will be fundamental in ensuring sufficient management capacity (Hou, Moynihan, and Ingraham 2003). Indeed, management subsystems may be impossible to integrate properly if managerial authority over them is highly restricted—something that is argued to often characterize public sector performance management schemes (Jennings and Haist 2004; Moynihan and Ingraham 2004). In the following

section, I therefore present hypotheses concerning whether the level of managerial authority over different organizational aspects influences the impact of performance management.

Hypotheses

As most public service production is highly labor intensive, managerial authority over human resources suggests itself as one of the most important conditions for public sector performance management success. Although increasing managerial authority over personnel administration frees management from central or political restrictions, these restrictions really concern the relationship between management and employees. It relates to the extent to which management is free to use human resources in the pursuit of strategic goals. For this reason, politicians and top management will often face strong opposition from labor unions, which may well result in the kind of partial reform adoption described earlier.[3] Thus, human resource managerial authority is also closely associated with civil service reform challenging traditional civil service protections related to, among other aspects, employment security, job design, and pay schemes (Kellough and Nigro 2006; Moynihan 2006; Swiss 2005).

An important focus of much recent civil service reform in many countries has been the attempt to relax rigid, seniority-based pay systems in favor of more flexible pay systems allowing for decentralized negotiations of pay supplements related to individual functions, qualifications, or performance (Dahlström and Lapuente 2010; Kellough and Selden 2003; OECD 2005). Such reform arguably provides stronger incentives for employees to accommodate managerial priorities. Following economic rationales of more differentiated, merit-based compensation may also favorably change recruitment patterns. When coupled with a system of performance management, pay incentives can be used strategically to support organizational changes for performance improvement. This can be achieved by, for instance, rewarding specific behaviors and qualifications that are required for the organization to pursue its performance goals given the particular local conditions and performance challenges it faces.

H_1 Managerial authority over pay negotiations positively moderates the effect of performance management on organizational performance.

Another important aspect of managerial authority over human resources concerns whether management has the authority to hire and fire. Without authority over hiring, local managers may be unable to attract and hire the job candidates that are best suited to the organization's particular needs and challenges. Similarly, being unable to lay off staff who have proven unable to properly support and improve organizational performance, either because of lacking ability or changes in organizational challenges, can be a hindrance to realizing organizational performance potentials. On the other hand, this does not necessarily mean that legislators should adopt a "fire at will" approach, which might prove detrimental to employee perceptions of procedural fairness (Kellough and Nigro 2006; Swiss 2005) and might increase personnel turnover to

3 In the Danish school system, around 95% of the teachers are organized in the national teachers' union.

an extent that undermines organizational stability (O'Toole and Meier 2003). Within these bounds, however, I hypothesize that:

H_2 Managerial authority over hiring and firing positively moderates the effect of performance management on organizational performance.

Managerial authority over financial decisions—with particular focus on the authority to allocate financial resources to different tasks within the organization—may also be an important factor. This relates more explicitly to the interaction between the political level and management. Thus, centrally decided rules and decisions concerning the allocation of budgetary funds at the local level may intervene in the priorities of local management, thereby limiting the discretion of managers to allocate resources according to local needs. For financial management to support performance management effectiveness, it is therefore important that these are integrated at the (local) level of operations and not only in central planning (Pollitt 2001). One important concern, however, is that a low level of human resource managerial authority may undermine—or at least dominate—the effect of formal authority over financial management, because payroll costs usually account for by far the larger part of the budget of public service organizations (Moynihan 2006). Still, we should expect that:

H_3 Financial management managerial authority positively moderates the effect of performance management on organizational performance.

A more general aspect of managerial authority is task autonomy (Verhoest et al. 2004, 2012), which concerns organizations' authority over decision making related to the more general choice of means, including decisions about the production processes used to pursue organizational goals.[4] Without some degree of freedom in the choice of how to organize public service production, the logic of holding managers accountable for organizational performance is severely impaired, as managers risk being reduced to messengers or middlemen between politicians or top management, on the one hand, and frontline bureaucrats on the other. Also for this dimension, however, the effect of a high degree of managerial authority can be reduced if human resource and financial management managerial authority fail to provide management with the leverage needed to ensure the sufficient and loyal implementation of the chosen organization of production (Verhoest et al. 2004).

H_4 Task autonomy positively moderates the effect of performance management on organizational performance.

Finally, I turn to a somewhat more ambiguous question, namely whether decentralizing goal setting (Verhoest et al. 2004) should also be expected to promote performance management success. This relates to whether goals and performance targets are imposed on organizations from above or are determined by the organizations themselves (Boyne and Chen 2007). A key feature of performance management as a

4 Hypotheses concerning managerial authority over capital and information technology management could also be included (Hou, Moynihan, and Ingraham 2003; Moynihan and Ingraham 2004) but are not pursued here due to a lack of relevant empirical data. Since public service organizations are typically highly labor intensive relative to the size of capital inputs, this should be of limited importance to this study.

system of accountability is that managers are held accountable to the goals decided by their principals. If organizations and managers are given significant discretion already in the early stages of goal setting, there is little that elected officials or top management can hold them accountable to, which may result in adverse performance effects due to agency loss (Binderkrantz and Christensen 2009; Moe 1984). In addition, a lack of clearly articulated goals may result in goal ambiguity, which is likely detrimental to the success of performance management (Moynihan 2008; Moynihan and Pandey 2005). Moving beyond this top–down perspective, however, local influence on goal setting may help ensure greater congruence between individual and organizational goals (Jennings and Haist 2004), thereby creating a stronger sense of ownership and goal commitment among managers and employees (Brehm and Gates 1997; Wright 2004; Yang and Pandey 2009). Furthermore, managerial authority over goal setting may take the local conditions and challenges facing the individual organization into account more seriously and have this reflected in the goal-setting procedure in a manner that the central or political levels would be unable to achieve. What remains uncertain, however, is whether and how much such locally decided goals would deviate from the priorities of elected officials and top management. Because of these opposing arguments, Hypothesis 5 is formulated as a nondirectional hypothesis.

H_5 Goal-setting autonomy moderates the effect of performance management on organizational performance.

DATA AND METHODS

Public management reforms in Denmark, as in other Nordic countries, have included some marketization but are mostly characterized by strategies for modernization, focusing on new ways of managing and delivering services (Greve 2006; Pollitt and Bouckaert 2004). Performance management reforms have been introduced widely in the Danish public sector (Binderkrantz and Christensen 2012; Ejersbo and Greve 2008), but reform efforts have been promoted mainly through persuasion and guidance information rather than through formal orders (Greve 2006). This was also the case for public schools, where considerable variation has been found in the content and use of performance goals and performance feedback (Mehlbye 2001). Performance management tools were introduced gradually and at different tempi in public schools from the late 1990s and onward, making it possible to track their impact over time. No direct financial incentives were tied to performance achievements in public schools, although performance information may have affected budget appropriations and pay decisions in more informal ways.

The panel data for this study cover 314 Danish public schools in the period 2002–05 with standardized test scores from more than 45,000 students. The data consist of a survey among school principals from 2004 (71% general response rate) combined with register panel data on Danish school performance as well as detailed information on a number of important school and student socioeconomic controls. Unlike data in previous studies, these data provide substantial variations across organizations in both the degree of managerial authority and the scope of performance management

over time. Using a differences-in-differences design, this makes it possible to study if and how these interact in their effect on organizational performance.

Besides being an important and high-expenditure service area of the welfare state, school organizations in general—and the Danish school system in particular—meet the requirements for studying performance effects well, thus also explaining why public schools have become a popular empirical subject in recent public management research (Andersen and Mortensen 2010; Meier et al. 2007; O'Toole and Meier 2003). Particularly, high-quality performance measures are available in the form of exam grades from nationally standardized tests, which can be interpreted in view of detailed information regarding the socioeconomic backgrounds of individual students. It is also an area with a very large number of "like units" that lend themselves to comparison, as they operate within the same legislative and regulatory framework. Furthermore, the Danish school system is highly decentralized, the municipalities being responsible for funding and regulating schools locally but also with substantial discretion at the school level (Andersen and Mortensen 2010), which makes for considerable variation in school organization and management.

Measures

Organizational Performance

Performance is measured as the student grade point average on nationally standardized tests in mathematics and Danish. These tests are taken at the exit level, when students are typically 15–16 years old, which should generally motivate them to perform well. The tests are graded by external examiners appointed by the Ministry of Education. More than 98% of all students take these tests (Andersen 2008), which underlines their quality as comparable performance indicators. There are no direct financial incentives tied to school performance, and the tests are designed to measure relatively general abilities. Thus, the risks of perverse reactions such as "teaching to the test" should be limited. Although academic ability may not be the only relevant educational outcome, it is certainly a principal—and perhaps the most important—goal of public school education (O'Toole and Meier 2003; Public School Act 1993, §1).[5] Table 1 provides descriptive statistics on all included variables and a correlation matrix between the variables of theoretical interest.

Performance Management Reform

Whether schools were using performance management is measured using five survey items probing whether schools were using the following instruments: "Company contracts," "Written goals for your school," "Written evaluations or feedback on achieved results," "Quality development," and "Management by objectives." These concepts were widely used in school debates and government publications and would generally be recognized by school principals (Andersen 2008). The items were measured in a battery based on the following question: "If your school uses any of the following

5 Although alternative goals exist, they are not necessarily conflicting goals (although they may compete for resources), and for some alternative goals, there might also be positive spillover effects.

Table 1
Descriptive Statistics and Correlation Matrix

		Mean	Range	SD	*N*	1	2	3	4	5	6	7
1	Student performance	7.95	1.5 to 13	1.28	45,883	1.00	—	—	—	—	—	—
2	Performance management	3.40	0 to 5	1.74	1,246	.026	1.00	—	—	—	—	—
3	Decentralized pay negotiations	0.478	0 to 1	0.500	1,246	−.053	.41*	1.00	—	—	—	—
4	Hiring and firing	1.036	0 to 2	0.784	1,246	−.071*	−.013	.14*	1.00	—	—	—
5	Financial autonomy	0.837	0 to 1	0.369	1,246	−.016	−.012	−.018	.21*	1.00	—	—
6	Policy autonomy	2.430	0 to 3	0.916	1,246	−.082*	−.006	−.000	.11*	.094*	1.00	—
7	Goal setting autonomy (reversed)	0.372	0 to 1	0.483	1,246	.044	−.052	−.004	−.21*	−.16*	−.11*	1.00
Controls												
Parents' education												
8	No parent with more than lower secondary education	0.119	0 to 1	0.324	45,883	—	—	—	—	—	—	—
9	One or both parents with upper secondary education	0.484	0 to 1	0.500	45,883	—	—	—	—	—	—	—
10	One or both parents with short-cycle higher education	0.0652	0 to 1	0.247	45,883	—	—	—	—	—	—	—
11	One parent with medium- or long-cycle higher education	0.204	0 to 1	0.403	45,883	—	—	—	—	—	—	—
12	Both parents with medium or long higher education	0.128	0 to 1	0.334	45,883	—	—	—	—	—	—	—
13	Dummy: girl	0.496	0 to 1	0.500	45,883	—	—	—	—	—	—	—
14	Dummy: immigrant	0.0731	0 to	0.260	45,883	—	—	—	—	—	—	—
15	Dummy: student living with both parents	0.730	0 to 1	0.444	45,883	—	—	—	—	—	—	—
16	Gross income of parents (1,000,000 Dkr)	0.584	−2.90 to 19.9	0.293	45,883	—	—	—	—	—	—	—
17	Gross capital of parents (1,000,000 Dkr)	0.267	−316 to 100	1.998	45,883	—	—	—	—	—	—	—
18	Students' average SES	2.426	1 to 3.68	0.382	45,883	—	—	—	—	—	—	—

Note: Variables 2–7 are measured at the school level with up to four observations over time for each school; SES, socioeconomic status.
*$p < .05$.

instruments, how long have they been in use?" The response categories were "not in use," "in use less than 1 year," "1–2 years," "3–5 years," "more than 5 years," and "don't know." These response categories make it possible to identify if and when schools adopted each of the four performance management instruments. The reason schools vary significantly within these narrow categories is that performance management techniques were not introduced into the school system until the late 1990s, shortly before the survey was administered in 2004.

These items cover important aspects of performance management reform and when they are combined into one index, they reflect the cyclical understanding of performance management where goals and targets are formulated and performance information is gathered and evaluated in order to improve future decision making. To test their validity in describing the broader performance management notion, a principal component factor analysis was conducted on the original five items coded according to the number of years each instrument had been in use. This produced one factor with an eigenvalue greater than one, explaining just over 50% of the variation and with all items loading well on this factor (.53–.81). Reliability analyses further show a satisfactory Cronbach's alpha at .76.

For each year, each item was then coded zero or one according to whether a school had started using the instrument at least 1 year prior to that year's tests, thereby creating variation within schools over time. The items were then summed to produce an index with a range of 0–5, measuring each school's level of adoption of performance management in a given year.[6] Displaying the development over time, table 2 shows a large increase in the adoption of performance management among Danish public schools from 2002 to 2005.[7]

Managerial Authority

Human resource managerial authority focuses on the relationship between management and employees. This differed only to a limited extent from school to school, as all teachers are covered by the same legislative framework and collective agreement. Nevertheless, the municipalities and local school boards have granted school management varying degrees of discretion. Managerial authority over pay negotiations (H_1) is measured in terms of whether schools had implemented a specific pay reform from

6 As this new index was constructed from dichotomous variables, tetrachoric correlations were used to calculate factor loadings (Babakus, Ferguson Jr., and Jöreskog 1987; Bonett and Price 2005). Pooling the data for the 4 years, all items loaded highly on the first factor (.77–.89), and the index yielded a Cronbach's alpha of .82. Factor loadings differed somewhat when the 4 years were analyzed separately, but all variables generally loaded well on the first factor, with the lowest loadings ranging between .49 and .73. Similarly, Cronbach's alpha differed slightly over the 4 years, ranging from .60 to .78.

7 How variables are operationalized reflects assumptions about the nature of the causal relationship between the treatment and outcome variables. Particularly, this operationalization assumes that there is no added causal effect of performance management beyond the effect that arises after the first year of adoption. Testing for the robustness of the results, I performed separate analyses where the effect of performance management was assumed to increase also beyond the first year but with a decreasing marginal effect over time. This was done by assigning each item a value from zero to four reflecting how long each instrument had been used. These values were summed to produce an index ranging from 0 to 20 and then transformed logarithmically. The results obtained were almost identical to the results presented here, with only minor deviations in the sizes of the *p* values.

Table 2
Developments over Time in the Use of Performance Management

Performance Management (No. of Tools)	Proportion of Schools Using Performance Management			
	2002	2003	2004	2005
0	102 (33%)	19 (6%)	1 (0%)	0 (0%)
1	68 (22%)	32 (10%)	14 (5%)	6 (2%)
2	43 (14%)	36 (12%)	25 (8%)	19 (6%)
3	40 (13%)	53 (17%)	41 (13%)	37 (12%)
4	26 (8%)	57 (18%)	55 (18%)	51 (16%)
5	34 (11%)	114 (37%)	175 (56%)	198 (64%)
Total	313	311	311	311

2000 referred to as "New Pay" (*Ny Løn*). Although all teachers were covered by the same national collective agreement, this framework allowed room for local differences in the use of local negotiations over pay supplements. Thus, limited pay supplements could be given for certain predefined functions, qualifications, or results. Although this was not a case of large-scale civil service reform, it has caused some variation across schools. School principals were asked to state whether they use "'New pay' (local pay negotiations at the school)." The item was coded in the same way as the performance management instruments above. For each year, schools were thus coded zero or one according to whether decentralized pay negotiations were taking place at least 1 year prior to that year's tests.

This particular measure does not measure managerial authority directly but rather managers' actual use of pay negotiations. This means that some of the managers with the authority to negotiate pay may have chosen not to do so. Conversely, municipalities negotiate with local teachers' unions to determine whether schools are allowed to negotiate pay, so all schools using decentralized pay negotiations have also been granted the authority to do so. Nevertheless, this caveat is important to keep in mind when interpreting the results.

The remaining aspects of managerial authority are measured using a combination of individual survey items and indices based on multiple survey items, all covering different rules, tasks, or practices of the schools. For all of these items, school principals were asked to state who had the authority over or was responsible for introducing the different rules, tasks, or practices. Items were coded one if school management or teachers[8] had the authority and zero if the city council, central municipal administration, or school board had not delegated authority. The variables were then summed to produce the indices described below.[9] Due to the low number of categories in these indices, they were all transformed into dummy variables for the analyses. This also reduces the statistical assumptions necessary about the functional form of the moderating relationship.

8 In this case, teachers are assumed to have been delegated authority from the school principal.

9 Some respondents have (against survey directions) marked more than one category, which is not a problem if all answers fall within the same dummy category. This is not the case for some respondents, however, and these were treated as missing. "Don't know" answers were also treated as missing.

Managerial authority over hiring and firing (H_2) is measured using two items asking who has the primary responsibility for, respectively, hiring and firing teachers. Survey answers show that no public schools had delegated authority on these matters to teachers, so the value one for this particular index has only been assigned if the school principal had the authority. The two items were highly significantly correlated with a tetrachoric correlation of .52.

Financial management managerial authority (H_3) is measured using one item asking who had the primary responsibility for "Allocating resources within the school." Although this does not necessarily measure differences related to more detailed budget rules, it does provide a general picture of the level of budget flexibility facing school managers.

The index for task autonomy (H_4) was constructed from three items concerning the authority over "Ways of organizing (e.g., team cooperation between teachers)," "Teaching methods (e.g., project work, log books)," and "Pedagogics in general (e.g., H. Gardner's theory of the seven types of intelligence)." Although the index could have been designed in other ways, these three items were chosen because they cover fairly general aspects relating to the organization of the schools' key task, namely teaching. A principal component analysis based on tetrachoric correlations showed all factor loadings exceeding .76. With only three items, it also showed a satisfactory Cronbach's alpha of .68.

Finally, goal-setting autonomy (H_5) is measured using a single item asking who has the primary responsibility for "Deciding the academic requirements of the students." The term "academic requirements" is here interpreted to mean the required level of academic performance.[10] Again, this may not be the only goal for public schools, but it is probably the most important goal. The item therefore probes whether this highly important aspect of goal setting is delegated to the individual schools. For presentational purposes, this item was reversed so that zero and one, respectively, indicate high and low autonomy.

Statistical Model and Controls

In the panel models presented below, student performance measured at the individual level is regressed on the measures of performance management and managerial authority. An important advantage of using these data is that the objective measure of organizational performance helps avoid the risks of common-source bias often associated with survey data (Meier and O'Toole 2013). All models include a 1-year lag, so that changes in treatment status have just over 1 year to affect subsequent performance.

There are several ways of analyzing panel data. A traditional estimation challenge in public administration research is that models using cross-sectional variation to estimate causal effects are vulnerable to selection bias, which is a likely result if

10 The school principals might have understood this to refer to aspects related closer to task autonomy, such as autonomy over the curriculum or courses offered by the school. Similarly worded items measuring these aspects were also included in the survey, however, and they did not show the same conditioning pattern, suggesting that academic requirements do not reflect these dimensions.

the *adoption* of management tools is correlated with prior performance or with omitted variables that also affect performance. In order to limit this problem, all models include school fixed effects, which results in a differences-in-differences design (Angrist and Pischke 2009). Random effects models that include cross-sectional variation often provide a more statistically efficient estimator. However, Hausman tests comparing the coefficients obtained from fixed and random effects models rejected the null hypothesis of no difference between the two estimators, suggesting that the random effects estimates are likely biased (Wooldridge 2009). I therefore show only the fixed effects differences-in-differences estimates.

The differences-in-differences strategy is possible because the performance management treatment status of almost 90% of the schools changes over time. The school fixed effects models are powerful because they only include the estimated effects of within-school developments over the 4-year period while ignoring any cross-sectional correlations. This means that only the changes over time in the performance of treatment schools are compared with changes over time in the performance of nontreatment schools. Thus, instead of only making comparisons with other organizations, the causal logic behind this strategy is to use organizations as their own controls (Allison 2009). This entails that the models automatically control for any and all nonobservables that are constant over time (Wooldridge 2009)—in this case, for all school and municipal variables that are constant over time. Risks of selection effects between adopters and nonadopters would therefore require either that changes in performance management status are correlated with other uncontrolled organizational changes that also affect performance or that performance management is primarily adopted by organizations with a clear trend in performance *developments* over time (Angrist and Pischke 2009).[11]

Because students are not only nested in schools but also in different years (classes) within schools, the observations are not independent, and this may result in autocorrelated error terms which, in turn, tend to produce biased estimates of the standard errors. A further issue particular to differences-in-differences models is that they are sensitive to potential serial correlation over time. Following Bertrand, Duflo, and Mullainathan (2004) and Angrist and Pischke (2009), I corrected for both these issues by estimating group (school)-level cluster-robust standard errors that adjust for intragroup correlation. The models also include fixed effects for each year in order to control for general trends in performance levels over time.

It is well established that students' test scores also depend on their socioeconomic backgrounds, and this may be correlated with the choice of organization and management type. I have therefore included a number of highly detailed variables measuring students' socioeconomic background. The controls are based on anonymized administrative data accessed via the independent government institution Statistics Denmark, which renders them highly reliable. The controls measure the individual student's gender, parents' income, capital, and nationality (dummy for immigrant parents), parents'

11 There are no data on student performance before 2002, so it is not possible to examine such performance trends. The widespread adoption of performance management over time in this sample (cf. table 2) and the differences in the marginal effects of performance management at different levels of managerial authority suggest that performance management adoption is not strongly associated with performance trends.

length of education, and whether the student lives with both parents. The models also control for school changes over time in average student socioeconomic background based on an aggregated index measure of the student controls.

Apart from the measure of decentralized pay negotiations, the data contain no variation over time in the measures of managerial authority. These are measured only at the time of survey in the spring of 2004, shortly before the administration of tests for that year. Since managerial authority is measured close to the middle of the period under study and the level of managerial authority is likely to remain fairly stable over shorter time spans, the level of managerial authority has been treated as constant in the analyses. Should this result in measurement error, this is likely to primarily attenuate the size of the correlations.[12] In fixed effects panel models, the effects of such time-constant variables cannot be estimated, as they are already included in the fixed effect intercepts. This article, however, concerns whether managerial authority affects the impact of performance management on performance and not the effect of managerial authority itself. Most models include multiplicative interaction terms in order to study whether the effect of performance management on student performance is conditioned by the level of managerial authority. A typical recommendation when analyzing interactive patterns is to always include the constitutive terms of interactions, as their omission can often bias the other estimates (Brambor, Clark, and Golder 2006). This was also done for the measure of decentralized pay negotiations. Because the remaining dimensions of managerial authority were treated as constant over time, the constitutive terms of these variables are already included in the school fixed effects, thus avoiding biasing of the estimation (Allison 2009; Wooldridge 2009). These interaction models therefore do not include separate constitutive terms for the measures of managerial authority.

FINDINGS AND DISCUSSION

All five hypotheses concern interactions in which the effect of performance management is expected to vary over different levels of managerial authority. Table 3 presents estimates of the differences-in-differences models in which each of the five hypotheses are first tested separately and then combined in Model 7.[13] A general issue pertaining to interaction models is that interaction terms and their constitutive terms are correlated by construction. The separate tests in Models 2–6 are included because multicollinearity problems become severer when multiple interaction terms are based on the same variable, as all of these will then be correlated. Because multicollinearity is a real problem of the data that cannot be solved technically, Model 7 is still chosen as the

12 Although the presence of selection bias cannot be ruled out completely, in the present analyses, it would require that the level of managerial authority in 2004 is correlated with the *prior effects* of performance management (it is not in itself problematic if it is associated with prior performance levels as this is controlled for by the school fixed effects), but this is probably an unlikely and at the least a quite demanding kind of selection bias.

13 When the socioeconomic controls are omitted from the models, the results are highly similar to those presented here, although slightly less efficient.

Table 3
Differences-in-Differences Regression Estimates for Student Performance

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Performance management	−0.00852	−0.0117	−0.0198*	−0.0102	−0.0272	−0.0201*	−0.0584**
	(0.00926)	(0.00928)	(0.0103)	(0.0121)	(0.0270)	(0.0107)	(0.0276)
Decentralized pay negotiations		−0.198***	—	—	—	—	−0.190***
		(0.0667)					(0.0657)
Performance management × decentralized pay negotiations	—	0.0306**	—	—	—	—	0.0260*
		(0.0153)					(0.0152)
Performance management × hiring/firing = 1	—	—	0.0121	—	—	—	0.0205
			(0.0133)				(0.0130)
Performance management × hiring/firing = 2	—	—	0.0242*	—	—	—	0.0367**
			(0.0140)				(0.0150)
Performance management × financial autonomy	—	—	—	0.00210	—	—	−0.000679
				(0.0124)			(0.0134)
Performance management × task autonomy = 1	—	—	—	—	0.0109	—	0.0122
					(0.0288)		(0.0269)
Performance management × task autonomy = 2	—	—	—	—	0.0221	—	0.0139
					(0.0290)		(0.0270)
Performance management × task autonomy = 3	—	—	—	—	0.0212	—	0.0177
					(0.0269)		(0.0239)
Performance management × goal setting autonomy (reversed)	—	—	—	—	—	0.0263**	0.0347***
						(0.0115)	(0.0118)
Parents' education (reference: no parent with more than lower secondary education)							
One or both parents with upper secondary education	0.402***	0.401***	0.402***	0.402***	0.402***	0.402***	0.401***
	(0.0217)	(0.0217)	(0.0217)	(0.0217)	(0.0217)	(0.0217)	(0.0217)
One or both parents with short-cycle higher education	0.691***	0.691***	0.691***	0.691***	0.691***	0.691***	0.690***
	(0.0308)	(0.0307)	(0.0307)	(0.0308)	(0.0308)	(0.0308)	(0.0308)

Continued

Table 3 (*continued*)
Differences-in-Differences Regression Estimates for Student Performance

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
One parent with medium- or long-cycle higher education	0.856*** (0.0265)	0.855*** (0.0264)	0.856*** (0.0265)	0.856*** (0.0265)	0.856*** (0.0265)	0.856*** (0.0265)	0.855*** (0.0265)
Both parents with medium- or long higher education	1.261*** (0.0286)	1.261*** (0.0286)	1.261*** (0.0286)	1.261*** (0.0286)	1.261*** (0.0287)	1.261*** (0.0286)	1.261*** (0.0287)
Dummy: girl	0.287*** (0.0125)	0.287*** (0.0125)	0.287*** (0.0125)	0.287*** (0.0125)	0.287*** (0.0125)	0.286*** (0.0125)	0.287*** (0.0125)
Dummy: immigrant	−0.615*** (0.0331)	−0.615*** (0.0331)	−0.616*** (0.0331)	−0.615*** (0.0331)	−0.616*** (0.0332)	−0.616*** (0.0332)	−0.616*** (0.0331)
Dummy: student living with both parents	0.203*** (0.0138)	0.203*** (0.0138)	0.203*** (0.0138)	0.203*** (0.0138)	0.203*** (0.0138)	0.203*** (0.0138)	0.204*** (0.0138)
Gross income of parents (1,000,000 DKK)	0.482*** (0.0408)	0.482*** (0.0407)	0.482*** (0.0408)	0.482*** (0.0408)	0.482*** (0.0408)	0.482*** (0.0408)	0.481*** (0.0407)
Gross capital of parents (1,000,000 DKK)	0.0327*** (0.00595)	0.0327*** (0.00592)	0.0327*** (0.00595)	0.0327*** (0.00595)	0.0327*** (0.00596)	0.0327*** (0.00596)	0.0327*** (0.00593)
Students' average SES	0.114** (0.0550)	0.114** (0.0546)	0.114** (0.0552)	0.114** (0.0550)	0.116** (0.0552)	0.116** (0.0546)	0.122** (0.0548)
Constant	6.623*** (0.131)	6.630*** (0.131)	6.620*** (0.131)	6.623*** (0.131)	6.618*** (0.132)	6.623*** (0.130)	6.614*** (0.132)
Time dummies	Yes**	Yes	Yes**	Yes**	Yes**	Yes**	Yes
N (students)	45,883	45,883	45,883	45,883	45,883	45,883	45,883
N (schools)	314	314	314	314	314	314	314
R^2 (within)	0.1578	0.1582	0.1579	0.1578	0.1578	0.1580	0.1587
R^2 (overall)	0.1902	0.1906	0.1889	0.1902	0.1899	0.1896	0.1879

Note: School fixed effects with 4 years of observations for each school; school-level cluster-robust standard errors in parentheses; SES, socioeconomic status.
*$p < .10$, **$p < .05$, ***$p < .01$ (two-tailed tests of significance).

primary model, as it also controls for the other interactions. As it turns out, the results of the different models are highly similar.

Model 1 shows the estimated average effect of performance management on organizational performance across all schools in the sample. It is highly insignificant and very close to null. As mentioned initially, previous studies have found differing effects of performance management, and in a sense, this finding seems to confirm this rather unclear picture. But being only an average effect, it does not reveal whether performance management affects all organizations in the same manner. The remaining models distinguish between effects on different types of organizations based on their level of managerial authority.

Hypotheses 1 and 2 concerning the level of human resource managerial authority both find considerable support across the models, suggesting that human resource managerial authority positively moderates the effect of performance management. This is a strong indication that attempts at managing performance and creating performance-oriented organizations may often fail if management is unable to use human resources to pursue strategic goals. This result is of particular importance to human service organizations in which the productive capacity is predominately based on employee effort and the quality of their human capital (Moynihan 2006).

The first aspect of human resource managerial authority concerns whether pay negotiations have been decentralized. Although the separate test in Model 2 shows statistically significant interaction at the .05 level, it is only significant at the .10 level in the combined test in Model 7. Still, this would be satisfactory in a one-tailed test. Moreover, because the interaction terms in Model 7 are all correlated by construction, some multicollinearity is necessarily induced, which is an argument in favor of relying on Model 2 given that the two estimates are rather similar. The results thus suggest that decentralizing pay negotiations positively moderates the effect of performance management. This result is noticeable, as the pay supplements that were open for local negotiation were only relatively minor. This could suggest that using stronger incentives would have an even more favorable impact on the effect of performance management. On the other hand, a considerable body of literature has pointed out the risks of motivation crowding and other dysfunctional effects resulting from incentive schemes (Moynihan 2010; Weibel, Rost, and Osterloh 2010), and such effects may increase with the power of pay incentives (Andersen and Pallesen 2008). Nevertheless, the results clearly indicate that some level of decentralized pay negotiations can be an important tool in performance management reform.

Again, note that the actual use of local pay negotiations was treated as a proxy for managerial authority. Although actual use could only occur if principals had been granted the authority, not all school principals with the authority to do so have chosen to use local negotiations of pay supplements. The estimated effect, or at least part of it, may therefore derive not only from managerial authority but also from managers actively choosing to pursue performance improvements through the use of pay incentives. Although this presupposes managerial authority, it may also require the exercise of managerial discretion in a particular manner. Finally, it deserves brief mention that the interpretation of interactive models is symmetrical, suggesting that the effect of decentralized pay negotiations on performance is also positively moderated by

performance management. This result is therefore also of interest to debates over the impact of delegating authority to local management.[14]

The second aspect of human resource managerial authority concerns the authority over hiring and firing employees. In Model 3, the coefficients for the two dummy interaction terms show the difference in the estimated effect of performance management from the reference category when "Hiring/firing" takes on the value zero, which—because it is an interaction model—is the value of the performance management coefficient (Brambor, Clark, and Golder 2006). In the combined Model 7 controlling for the other interactions, the authority over hiring and firing is thus estimated to significantly moderate the effect of performance management.

An important advantage of a well-functioning system of measuring and managing performance is that organizations become better able to diagnose and allocate attention to their particular performance challenges. Particularly for human service organizations, it is therefore essential that managers are able to choose the candidates that best suit the needs of their organizations. One might also speculate that especially the authority over recruiting will be even more important to schools and other types of organizations that delegate considerable discretionary powers to frontline bureaucrats and are unable to monitor them closely (Brehm and Gates 1997). Again, these results were obtained from a sample of organizations with certain general restrictions on managerial authority over firing employees, so one should be cautious in extrapolating the results to more extreme "fire at will" approaches that may not only undermine perceived procedural fairness (Kellough and Nigro 2006) but also make organizations highly vulnerable to poor management.

Hypothesis 3, on the moderating impact of financial management, finds no support in these data. This is somewhat surprising given the importance of the allocation of resources within organizations for how internal tasks are prioritized and how well organizations are able to meet their performance challenges. A possible explanation may be that schools and many other human service organizations rely so heavily on human resources that their budgets are usually overwhelmingly dominated by human capital expenses. Indeed, for Danish schools, in the period 2002–05, pay expenses made up more than 80% of all operating costs. Formal authority over the budget may therefore be dominated by the level of human resource managerial authority (Moynihan 2006). This is also consistent with recent work on a public service–dominant approach stressing the central importance of the service-delivering personnel and their interaction with users to the performance of public services (Osborne, Radnor, and Nasi 2013).

Hypothesis 4, on the moderating impact of task autonomy, also finds little support. Although the direction of the coefficient is right, it is insignificant, both in Models 5 and 7. Task autonomy concerns the level of authority over production processes, and as such, it was expected to play a key role in successfully pursuing performance improvements through performance management. This negative finding may be the result of formal task autonomy being hampered by frontline bureaucrats who are unwilling or unmotivated to adapt to managerial decisions. This would again

14 The same conclusion cannot be drawn concerning the effects of the other moderating variables as they do not vary over time.

point to the importance of human resource managerial authority. However, a more case-specific factor is that Danish schools generally possess a fairly high degree of task autonomy (Mehlbye 2001). Thus, if all schools are placed close to one extreme of the spectrum, there may simply be inadequate variation left to cause measurable differences in the performance changes associated with performance management reform. More generally, public organizations often enjoy considerable discretion due to the nature of their tasks, so managers may already have the necessary flexibility to pursue performance-oriented changes (Moynihan 2008; Moynihan and Landuyt 2009).

Concerning the openly formulated Hypothesis 5, decentralization of goal setting has a highly significantly negative impact on the estimated effect of performance management and it is robust across both models (notice that the goal-setting dummy variable was reversed so that score one indicates low autonomy). This means that centralized goal setting—in accordance with the accountability model of performance management—suggests itself as preferable in terms of increasing performance compared with a decentralized goal-setting process that stresses local influence and involvement in order to generate local ownership over goals. Thus, this dimension appears to work in the opposite direction of the other hypotheses.

The theoretical argument focused particularly on how the lack of centrally set goals would leave politicians and central management with nothing to hold local managers accountable to. A contributing explanation may be that a lack of clearly announced central goals causes goal ambiguity, which is likely detrimental to the success of performance management (Moynihan 2008; Moynihan and Pandey 2005). This result is therefore perhaps not the most surprising. Still, findings on the importance of participation and goal commitment among managers and employees might suggest that this would not have been the case.

Marginal Effects and Effect Sizes

As mentioned, the coefficient on a moderated variable represents the marginal effect of this variable when the moderating variables take on the value zero. The performance management coefficient in Model 7 (–0.058) therefore shows that the estimated effect of performance management is significantly negative under the least favorable conditions in terms of the level of managerial authority. By recoding the moderating variables, an estimate can similarly be obtained of the marginal effect of performance management under the most favorable conditions when goal-setting autonomy is low but the levels of managerial authority on the other dimensions are high. Under these conditions, the effect of performance management is positive at .056 (not reported in table 3) and highly statistically significant (p = .009). These two scenarios obviously cover only a small part of the sample, but with 51 school observations, these groups are nonetheless of substantial interest. More importantly, however, when these restrictions to the extreme values of the moderating variables are loosened—and thereby many more schools included—the corresponding marginal effects remain not only significantly different from each other but also change from significantly negative to significantly positive. In other words, the estimated effect of performance management changes from negative to positive according to the level of managerial authority.

This is a highly important finding. It demonstrates not only the significance of managerial authority but also reveals a fundamental characteristic of performance management reform and, perhaps more broadly, of much public management reform, namely that the impact can be highly dependent on context (Jennings and Haist 2004), even to the extent that outcomes can be affected in opposite directions. But equally important, their impact depends on context in predictable ways that are subject to empirical modeling.

This finding also warrants a discussion of the estimated effect sizes. They may seem rather small, but when comparing the marginal effects of performance management under the least and most favorable conditions, the marginal effect changes by .11 (from –.058 to .056) for each one unit change in performance management. This corresponds to a 16% standard deviation (SD) difference in performance effects from a 1 SD change in performance management. As the performance management variable ranges from 0 to 5, the maximum possible effect difference for fully performance management–reformed schools experiencing different levels of managerial authority amounts to more than half a grade (5 × .11), corresponding to 43% of the SD of student performance.[15] Given the well-established importance to student performance of factors that are external to school organizations—particularly students' socioeconomic status (e.g., Angrist et al. 2013)—this also points to the more general importance of management to organizational performance.

Implications for Practice

Summing up, the findings demonstrate that a lack of managerial authority over the means of production—particularly over human resources—can cause strategic planning and careful tracking of performance developments to fail to deliver on their promises. Increases in managerial attention to and knowledge of the potential for performance improvements do not in themselves empower managers to change their organizations. The implementation of performance management systems carries with it costs in terms of time and resources, and managers might become frustrated if limited managerial authority hinders them in pursuing what they perceive to be necessary and important changes, especially if central management and politicians insist on holding them accountable to performance achievements. Similarly, a lack of decision-making authority may eventually cause managers to ignore any beneficial uses of performance information in decision making (Moynihan and Landuyt 2009; Moynihan and Pandey 2010). As the findings illustrate, this also indicates that performance management systems can be detrimental to organizational performance, even in the absence of perverse effects such as gaming and cheating (Kelman and Friedman 2009).

Thus, an important question is whether these findings warrant increasing managerial authority with the same speed that performance management has spread. A confirming answer is tempting in view of the present findings, but there are also reasons for caution. Increasing managerial authority can be at odds with traditional

15 Here, 18% of the schools change from unreformed in 2002 to fully reformed in 2005.

values regarding democratic accountability and legitimacy, which are associated with the bureaucratic organization, and increasing managerial authority at least requires the weighing of performance considerations against other types of accountability and legitimacy and ensuring that these traditional values are adapted to the new organizational forms (Aucoin and Heintzman 2000; Kettl 1997; Moynihan et al. 2011). Political control may also be used to secure aspects of performance other than those studied here, including equity and responsiveness (Andrews, Boyne, and Walker 2011; Boyne 2002), although these aspects of performance might also be included in performance measurement. A separate issue concerns whether extending managerial authority is even realistic in the face of existing institutional designs and political incentives (Hood 2011), perhaps not least within a US system of political appointments (Moynihan 2005b). This also warrants a broader discussion of the conditions under which not only the organizations themselves but also their superiors will be responsive to the reform values embedded in performance management (Moynihan and Hawes 2012).

What the results also show, however, is that decentralizing goal setting appears to be detrimental to the success of performance management reform. In practice, performance management regimes often rely on active local involvement and ownership (Greve 2006), for instance through the active local involvement of subordinate organizations in negotiating performance targets and performance contracts (Binderkrantz, Holm, and Korsager 2011). Another approach that has been used in Denmark is to set only very general goals at the national level and refrain from specifying the exact content of the goals but instead require local welfare service organizations to choose a set of explicit and written goals that are made publicly accessible and then evaluate their performance against these goals (Mehlbye 2001). The present findings suggest that in an effective system of performance management, goal setting should not be left to the discretion of local managers and their organizations. Without being able to hold managers accountable to centrally decided goals, the priorities of local managers may well deviate from those of their principals. Although this could result in the active pursuit of performance on alternative performance dimensions, the lack of an accountability mechanism could also reduce compliance or result in a purely symbolic adoption of performance management. Although the data do not reveal whether goal setting should be a matter of negotiation or only about assigning goals from above, the results suggest that in a system of performance management democratically elected representatives should still play a key role in public administration.

CONCLUSION

Studies of the effects of performance management have produced contradictory results. This suggests that attempting to identify any "true" effect of performance management is fruitless. Rather, the strategy of this study has been to explore circumstances that might affect the impact of performance management. In line with traditional but thus-far-untested prescriptions, this article contributes by pointing out the level of managerial authority as an important factor moderating the impact of performance management on public service performance. Indeed, the findings show that the estimated effect of performance management changes from negative to

positive according to the level of managerial authority. Thus, managerial authority over human resources is found to improve the impact of performance management, whereas the opposite is the case for goal-setting autonomy.

The quality of the data used for this study gives the findings considerable power. Particularly, the use of panel data allows the estimation of differences-in-differences models that automatically control for any systematic differences between performance management adopters and nonadopters that are constant over time. Although not eliminating all potential sources of bias, this greatly reduces the risks associated with selection effects. In terms of attributing causality to the results, this design therefore holds a significant advantage over purely cross-sectional studies. A further strength of the study is that it combines survey data with objective performance measures, thus avoiding the risks of common-source bias, which are often associated with survey data.

The primary limitation of the study concerns the research context of school management. For this sample, only the two aspects of human resource managerial authority seemed to improve the impact of performance management, but this may differ for other types of organizations. Particularly when we move beyond human service organizations that tend to rely primarily on the productivity of human resources, other dimensions of managerial authority may become more important. Related to this, future studies might also be extended to include other types of public organizations, in which the range in levels of managerial authority differs from that in this sample. More generally, the presence or absence of contextual factors other than managerial authority may also affect the impact of performance management. Based on previous studies, such factors might include differences in goal clarity, incentives, distance to citizens, or managerial characteristics (e.g., Moynihan and Pandey 2010). Modeling the impact of such factors will be an important next step in developing our understanding of performance management.

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