

The Big Question for Performance Management: Why Do Managers Use Performance Information?

*Donald P. Moynihan**

Sanjay K. Pandey†

**University of Wisconsin–Madison; †Rutgers University, Newark*

ABSTRACT

This article proposes that understanding public employee use of performance information is perhaps the most pressing challenge for scholarship on performance management. Governments have devoted extraordinary effort in creating performance data, wagering that it will be used to improve governance, but there is much we do not know about the factors associated with the use of that information. This article examines the antecedents of self-reported performance information use from a survey of local government managers. The results show that public service motivation, leadership role, information availability, organizational culture, and administrative flexibility all affect performance information use.

INTRODUCTION

Terms such as “performance” and “results” have become ubiquitous in contemporary governance. Major administrative reforms are driven by a belief that governments suffer from a “performance deficit” (Kamensky 1996) that can be best overcome by measuring the effort and result of government activity. These beliefs are so deeply embedded that they have been variously described as a “movement” (Radin 2006) and “doctrine” (Moynihan 2008).

The most widespread governmental reform in recent decades has been the requirement for agencies to track and measure strategic goals, targets, and achievements (Brudney, Hebert, and Wright 1999; Moynihan 2008). Within our growing state of agents, performance goals underpin contractual forms of accountability, the means by which webs of connected principals and agents allocate responsibility. Citizens, elected officials, and public managers have more performance information now than ever. Every year, new rivers flow into the existing sea of data. These trends are unlikely to be reversed. Performance management both preceded and outlived the New Public Management and continues to be viewed as a central plank in the future of governance (Kettl and Kelman 2007).

This article was originally presented at the 2008 meeting of American Political Science Association. We are grateful for helpful comments from Tony Bertelli, Richard Williams, Pam Herd, Kelly LeRoux, Dale Krane, and Robert Smith, as well as to three anonymous reviewers from *JPART*. Address correspondence to the author at dmoynihan@lafollette.wisc.edu.

doi:10.1093/jopart/muq004

© The Author 2010. Published by Oxford University Press on behalf of the Journal of Public Administration Research and Theory, Inc. All rights reserved. For permissions, please e-mail: journals.permissions@oxfordjournals.org

Behn has argued that one of three “big questions” for public management research centers on how to measure performance in a way that fosters achievement, and specifically asked, “how can public managers use measures of the achievements of public agencies to produce even greater achievements?” (Behn 1995, 321). We propose a slightly different question, which we believe is another big question for public management, and perhaps the biggest question for performance management: why do managers use performance information? Whether public officials are actually using performance data to manage is the best indicator of whether performance management is worth the effort (Hatry 1999). Without knowledge of why such use occurs, it becomes difficult to establish the conditions for performance management success. Van Dooren (2008, 22) argues that, “if we want to study the successes and failures of performance movements, we have to study the use of performance information.” Determining the actual impact of reforms is exceptionally difficult (Pollitt 2000), but performance information use offers a more tractable measure of success. More broadly, the use of performance information suggests the type of purposeful and goal-oriented behavior that elected officials and members of the public say they want from bureaucrats.

Performance information use is important not just to students of administrative reform but can also inform scholarship on public policy, network theory, principal agent theory, and other areas of cross-disciplinary interest. Although governments have devoted a great deal of energy and resources into creating performance information systems, they have largely neglected the question of how to foster information use. This may be beginning to change at the federal level, with President Obama’s Chief Performance Officer stating that, “the ultimate test of our performance management efforts is whether or not the information is used” (Zients 2009). Although there is some empirical research on this question, there is much we do not understand. A group of younger scholars at the most recent Minnowbrook conference proposed that the performance information use remains one of the most important yet understudied issues in performance management (Moynihan et al. forthcoming), whereas Van de Walle and Van Dooren (2008, 2) argued, “while the production of performance information has received considerable attention in the public sector performance measurement and management literature, actual use of this information has traditionally not been very high on the research agenda.”

This article builds upon the existing empirical literature by developing and testing a model of performance information use on a survey of local government officials. We treat performance information use as a form of organizational behavior that is influenced by individual, job, organizational, and environmental factors.

A MODEL OF PERFORMANCE INFORMATION USE

Previous Research

There are a number of empirical pieces on performance information use in the public sector, and the majority of such research is recent. Heinrich (1999) noted that most empirical evidence came from the private sector. Her study of performance standards in job training found that data were used but much depended upon the design of the overall performance system and that there was little to guide designers beyond neoclassical economic arguments for financial incentives.

Since then, more research has emerged to offer alternatives to neoclassical models, usually relying on self-reported survey data. It appears fair to assert that this previous work has not resulted in a common or overarching theory of performance information

use. de Lancer Julnes and Holzer (2001) theorized a basic distinction between rational/technocratic and political/cultural factors. Other research has focused more on explicitly political variables. Bourdeaux and Chikoto (2008) examined the role of the governor, the legislature, and the state political context. Melkers and Willoughby (2005) categorized variables in terms of community characteristics, respondent characteristics, organizational culture, and performance measurement characteristics. Moynihan and Ingraham (2004) and Dull (2009) both placed the role of leadership as central. The study by Askim, Johnsen, and Christophersen (2008) of municipal benchmarking networks in Norway examined network characteristics, administrative factors, political variables, task characteristics, and history dependence. Moynihan and Landuyt (2009) characterized performance information use as an element of organizational learning and identified structural and cultural variables that predict such use.

Many of the results of such research are discussed below in the context of specific hypotheses in order to indicate where this article builds upon and departs from previous research. Here, we summarize some of the additional findings of this research that are not directly tied to our model. Some of these findings result from testing similar variables across models. For example, the provision of adequate resources has been consistently found to be associated with performance information use (Askim, Johnsen, and Christophersen 2008; de Lancer Julnes and Holzer 2001; Moynihan and Landuyt 2009). The existence of dedicated learning forums is also associated with use (Askim, Johnsen, and Christophersen 2008; Moynihan and Landuyt 2009). Evidence from US state governments and Norwegian municipal governments associates performance information use with more liberal political settings (Askim, Johnsen, and Christophersen 2008; Bourdeaux and Chikoto 2008; Moynihan and Ingraham 2004). There is mixed evidence on size. Larger US state governments have been associated with performance information use (Bourdeaux and Chikoto 2008; Moynihan and Ingraham 2004), but smaller governments were more likely to use performance data among Norwegian municipalities. Political competition (Askim, Johnsen, and Christophersen 2008) has been found to be positively associated with use, although other models have not found significant results (Moynihan and Ingraham 2004), and in some instances, political conflict has been shown to have a negative or non-significant effect (Dull 2009). The presence of basic bureaucratic competence and expertise in performance management is associated with use (Bourdeaux and Chikoto 2008; Dull 2009). Measures of legislative involvement vary in their influence on use among executive branch officials, ranging from positive (Bourdeaux and Chikoto 2008), negative (Moynihan and Ingraham 2004), to nonsignificant (Dull 2009).

Other findings are specific to particular studies. The following variables have been found to be positively associated with performance information use: administrative stability (Askim, Johnsen, and Christophersen 2008); internal requirements and lower levels of government (de Lancer Julnes and Holzer 2001); inclusion of organizational members in performance management processes (Melkers and Willoughby 2005); and chief executive power (Bourdeaux and Chikoto 2008). Factors that have been negatively associated with performance information use include efforts by the central agency to control the policy agenda (Moynihan and Ingraham 2004) and measurement challenges (Dull 2009).

Qualitative work has examined fewer variables and has generally not attempted to construct formal models. But it has identified some common findings that overlap with much of the quantitative work cited above. Leadership and organizational culture are recurring

themes (Broadnax and Conway 2001; Franklin 2000; Moynihan 2005). Radin (2006) points out that some tasks are more compatible with performance management than others, whereas Ammons and Rivenbark (2008) find that the quality of performance data matters.

Conceptualizing Performance Information Use as Organizational Behavior

We conceptualize performance information use as a form of organizational behavior. Like other forms of organizational behavior, employees have discretion about whether and the degree to which they engage in it but are influenced by the social context and formal systems in which they work. We test categories of variables consistent with this conceptualization, incorporating individual beliefs, job attributes, organizational factors, and environmental influences.

Our model draws upon some of the variables used in previous research, although we seek to use alternative measures of the underlying concept. For example, rather than measure leadership support for performance management, we measure whether the leader is in a generalist or specialist position. Rather than measure public participation in performance management routines, we measure if more general forms of participation matter. The model also includes variables whose relationship with the dependent variable has been previously untested, including public service motivation (PSM), reward expectations, role clarity, task-specific experience, the role of budget officials, and the influence of professional organizations.

Individual Beliefs

There is significant evidence that altruistic beliefs affect public employee behavior in ways that benefit the organization. Much of this evidence falls under the rubric of the PSM concept (see Perry and Hondeghem 2008). High PSM employees exhibit higher levels of organizational commitment, enjoy higher job satisfaction, experience greater job involvement, and require less extrinsic rewards (Pandey and Stazyk 2008). There is also evidence that PSM fosters positive citizenship behavior both internal (Pandey, Wright, and Moynihan 2008) and external to the organization (Brewer 2003; Houston 2006).

There has, thus far, been surprisingly little investigation into how PSM might affect organizational decision making. There are two reasons to assume that PSM might foster performance information use. First, performance information use involves costs for the employees. Performance information use is a behavior that imposes costs on the employee. It displaces traditional modes of decision making and heuristics, while adding another decision criterion, making decision processes more rather than less complex. Although using performance data might generate organizational benefits, individual benefits are unlikely or uncertain. It thus resembles a form of extra-role behavior where employees make gifts of their time and effort to the organization without the expectation of individual reward.¹ Such behavior is likely to be exhibited by employees driven by prosocial or altruistic motives.

¹ It is worth noting that the accuracy of this assumption may vary with the context public officials find themselves in. We believe this characterization is accurate for our sample of local government officials, and most government officials generally. For such officials, performance information use is difficult to observe and therefore an impossible-to-enforce behavior that is not obviously tied to self-interest. But in contexts with high-powered financial or tenure incentives tied to performance data—such as those in performance contracts—performance information use may be related to their self-interest. There are also some instances where organizations formally organize processes of mandatory performance information use (e.g., Behn 2007), thereby removing the voluntary component of performance information use. In such settings, performance information use is less likely to be a form of extra-role behavior.

Second, it is plausible that high PSM employees identify with and care about the achievement of organizational goals. It has been proposed that PSM fosters higher individual and organizational performance, although without definitive evidence (Brewer 2008). If high PSM employees see performance information use as a means of achieving organizational goals, they may also see it as a means to fulfill their desire to serve.

H₁ Managers with higher levels of PSM are more likely to use performance information.

Job Attributes

Job attributes represent the interplay between the individual and organizational level (Wright 2001). In contrast to the intrinsic approach represented by PSM, other approaches assume self-interest. From this perspective, extrinsic motivators and incentives may foster performance information use. Organizations do not reward performance information use but do reward individualized performance to varying degrees. If individuals perceive that their organization links pay and promotion with goal achievement, employees have an extrinsic incentive to use performance information (Jennings and Haist 2006).

H₂ Managers who perceive a link between extrinsic rewards and performance are more likely to use performance information.

Another factor that affects the types of decisions individuals make, and by extension their tendency to use performance data, is their organizational role. Previous research tends to treat role differences in terms of membership of different organizations and of seniority or hierarchical level. Both qualitative (Radin 2006) and quantitative (Askim, Johnsen, and Christophersen 2008; Dull 2009) research report that variation in the use of performance data depends upon the type of program an employee worked in.² Other research tests the influence of seniority, finding no relationship (de Lancer Julnes and Holzer 2001; Dull 2009) or a positive relationship (Moynihan and Landuyt 2009).

Another test of how organizational roles matter is to distinguish between specialist (i.e., function specific) and generalist roles. The model controls for whether the respondent is a generalist leader (a City Manager or Assistant/Deputy City Manager) or the head of a task-specific agency. There are good reasons to believe that leaders with more general responsibilities are less likely to use performance information than those with task-specific responsibilities. First, a leadership role requires dealing with external stakeholders and political negotiation. This leaves less time for management activities. Second, the more senior the leader, the less specialized the knowledge. Unlike agency-level officials, generalist leaders lack a sense of context to interpret performance information—they struggle to know why performance is good or bad or what to do about it. There are some exceptions, such as a the “stat” model that sees senior officials question agency officials on performance data, but these exceptions are regarded as innovations precisely because they are unusual (Behn 2007).

H₃ Task-specific leaders are more likely to use performance information than generalist leaders.

² In an alternative version of the model, we controlled for the specific functions our respondents manage, using dummy variables for Finance/Budgeting, Public Works, Personnel/HR, Economic Development, Parks and Recreation, Planning, and Community Development. Consistent with the research cited above, we found that some functions were more likely to use performance data than others. Specifically, a function characterized by a clear task and direct service to the public (Parks and Recreation) was significantly related to performance information use.

A final role factor is the amount of experience that an individual has with a specific position. Organizational learning theory points to the importance of task knowledge to learning (Moynihan 2005). Managers rarely learn directly from quantitative numbers, but from interpreting these numbers, making sense of what they mean given their knowledge of the context in which they work. Individuals with a deep knowledge of task are therefore advantaged in the ability to apply performance data. Lewis (2008) finds that bureau-specific experience was a significant predictor of why some managers' received higher program evaluation scores than others. One measure of task-specific knowledge is time in a particular position.³

H₄ Managers with greater task-specific experience are more likely to use performance information.

Organizational Factors

All levels of government have devoted considerable effort into creating and disseminating performance information. This effort reflects a supply-side approach to performance information, assuming that provision of performance data is the key to its use (Jennings and Haist 2006). There is some research support for this view. Various measures that track the availability of performance information have been found to be positively associated with use (Bourdeaux and Chikoto 2008; de Lancer Julnes and Holzer 2001; Moynihan and Ingraham 2004; Moynihan and Landuyt 2009). By contrast, Melkers and Willoughby (2005) find that the availability of measures in budget documents actually reduces the influence of these measures in the budget process and suggest that this may be the result of information overload.

Ammons and Rivenbark (2008) point out that it is not only the existence of measures but also the ability to tie these measures to management systems that fosters use. We test whether the perceived availability of measures and the linkage of these measures to management processes (via benchmarking, strategic planning, customer service measurement, and linking to budgets) are associated with performance information use.

H₅ Managers who perceive performance information is available and tied to management systems are more likely to use it.

A contrast to the supply-side view is the demand-side approach. Although the supply-side approach assumes that information availability drives use, a demand-side approach suggests that simple access to data is not enough. Managers must want to use performance data. This demand is shaped by the organizational environment and cultural norms. There is evidence to support the idea that organizational culture matters. Case research illustrates the importance of building an organizational culture that is supportive of performance information use (e.g., Broadnax and Conway 2001; Franklin 2000). Yang and Hsieh (2006) find that

3 It is possible that experience in the same position may indicate an inability to be promoted and, therefore, might be negatively associated with management practices perceived as positive. But this is not a significant concern since our respondents are agency heads, Assistant City Managers, or City Managers. It is also possible that time in organization might have a negative effect on performance information use since employees may become jaded. Melkers and Willoughby (2005) find that organizational tenure is negatively related to one of their three measures of performance information use. We did test the effects of organizational tenure in an alternative specification of the model and did not find it to have a significant linear or curvilinear relationship. Because of its strong correlation with our measure of experience, we drop it from the final model.

organizational support for performance measurement is correlated with perceptions that it is effective. There is also evidence that goal or mission orientation is associated with performance information use (de Lancer Julnes and Holzer 2001; Moynihan and Landuyt 2009).

One limitation of this previous research is that it defines culture narrowly, in terms of its orientation toward performance information systems. The findings tell us that cultures that are supportive of mission or performance systems are more likely to see those systems used, but tell us little about how more basic aspects of the organizational culture relate to performance information use. Some broad cultural concepts are likely to be relevant. For example, if managers are in an environment that rewards innovation and allows them to question existing routines, they are more likely to use performance data. But if they are in an environment that emphasizes procedural continuity and warns against risk taking, they are not likely to use performance data. We therefore hypothesize that where managers perceive a developmental culture, they will be encouraged to use performance information. Developmental cultures are associated with a focus on the organization, flexibility, adaptability and readiness, growth, and resource acquisition (Quinn and Rohrbaugh 1981; Zammuto and Krakower 1991; Pandey, Coursey, and Moynihan 2007). Developmental cultures correlate with self-reported measures of organizational effectiveness (Moynihan and Pandey 2005), although de Lancer Julnes and Holzer (2001) found that a similar measure of organizational culture was not associated with performance information use among their respondents.

H₆ A developmental organizational culture fosters performance information use.

Flexibility is another organizational factor likely to shape performance information use. If managers have the freedom to experiment with processes, they have an incentive to examine performance data to find rationales for innovation. If managers are restricted in their ability to pursue process change, insights derived from examining performance data are less likely to be useful, and therefore, the incentive to use data are reduced.

Performance management systems, reflecting a doctrinal connection with the New Public Management, were often presented as part of a package of reforms that also included the provision of greater autonomy to managers, in particular greater discretion with financial and human resources (Moynihan 2008). For example, Schick (2001) argues that performance measurement should be presaged by wider organizational changes, including greater managerial flexibility, if it is to succeed. Studies have found that flexibility and its flipside, centralization are antecedents to organizational learning (Moynihan and Landuyt 2009; Schulz 2001) and performance information use (Willis, Mastrofski, and Weisburd 2007).

H₇ Managers who perceive decision flexibility are more likely to use performance information.

Over a decade ago, Schick (1997) conjectured that public sector reform could see an evolution in the role of the budget officials, moving away from a traditional emphasis on micro-financial controls, to a sustained attention to the performance of agencies, both in terms of technical efficiency but also how they allocate their resources. Some reforms, such as the “stat” model (Behn 2007), or the Program Assessment Rating Tool (Moynihan 2008), are based on the logic that the performance that agencies made must be challenged if performance data are to be taken seriously. From this perspective, an adversarial dialogue fosters use. A contrary perspective is that an adversarial exchange can devolve into a “gotcha” approach, fostering defensiveness and even gaming (de Haven-Smith and Jenne 2006). Consistent with this criticism, some have proposed that homogeneity of beliefs

within organizational settings will encourage use since organizational actors have a common base of trust, understanding, and cooperation (Jennings and Haist 2006; Moynihan 2008). To test whether a more adversarial discourse between agency budget and other staff fosters or discourages performance information use, the model includes a measure of budget official willingness to challenge the plans and actions of department heads.

H₉ The willingness of budget staff to adopt an adversarial stance affects performance information use.

EXTERNAL FACTORS

To examine the role of external factors, we test how the influence of citizens and external professional organizations affects performance information use. It is possible that the use of performance information is a form of bureaucratic behavior that is disconnected from the public. Managers may believe that the public may evince strong support for performance but actually care little about the details. On the other hand, results-based reforms draw from popular sentiment that governments were not as effective as they could be. There is significant evidence that perceived citizen support for or involvement in performance management processes facilitates use. Research suggests that perceived citizen demand for performance-based accountability encourages performance information use (Moynihan and Ingraham 2004; Poister and Streib 1999). de Lancer Julnes and Holzer (2001) find that support among external interest groups (in the form of elected official/citizens) for performance management also fostered use. Yang and Hsieh (2006) find that stakeholder participation is a positive predictor of the perceived effectiveness of performance measures, whereas Ho (2006) finds that citizen involvement in performance measurement practices increases the perceived usefulness of data in the eyes of elected officials.

But we know little about whether more common forms of citizen participation—such as budget hearings, customer surveys, citizen phone calls, or emails—foster performance information use. One might assume that more participatory governments would be under greater pressure to demonstrate performance and, therefore, more likely to use performance data. Consistent outreach to and feedback from the public may create a pressure on managers to justify decisions, legitimate programs, and seek additional support from stakeholders (Van de Walle and Boivard 2007). But there is some reason to suggest that the relationship might be negative. In the battle for administrative attention, there may be a trade-off between information derived from citizen input and performance data. Participation has been portrayed as at odds with the technocratic decision approaches (Moynihan 2003). Public managers have sometimes proven reluctant to meaningfully incorporate citizen input into performance management systems (Heikkila and Isett 2007; Poister and Streib 1999) or view such participation as a way of legitimating rather than informing decisions (Moynihan 2003). Bureaucrats that use performance data may see less need to listen to citizen input and vice versa.

H₁₀ Perceptions of citizen participation affects performance information use.

In the public sector, new innovations are often fostered by professional norms (Roy and Seguin 2000). Professional organizations such as the American Society for Public Administration, Governmental Accounting Standards Board, National Academy of Public Administration, the National Council of State Legislatures, and the International City/County

Managers Association have issued recommendations and guidance that encourage performance management systems. Case research suggests that such professional guidance influences central agency officials and the adoption of results-based reforms (Moynihan 2008), but there is no clear evidence on whether it encourages agency managers to use performance data.

H_{11} Managers influenced by professional organizations are more likely to use performance information.

Because we rely on a national survey of municipal managers, the model controls for a number of additional environmental factors, including the size of government (in terms of per capita expenditures), income per capita, the homogeneity of population, population size, and region.

DATA COLLECTION

The data for this study were collected in phase four of the National Administrative Studies Project (NASP-IV). NASP-IV is a multimethod study, a key part of which is a survey administered to a nationwide sample. The theoretical population of interest for NASP-IV was comprised of senior managers in US local government jurisdictions with populations over 50,000. The general managers included the city manager and assistant/deputy city managers (29% of respondents), whereas the rest of the respondents headed key departments. The sample design and construction for the NASP-IV study was aided by the International City/County Management Association, who provided an initial contact list of respondents, which were verified, updated, and expanded, by the research team. When the study concluded, 1,538 respondents completed the survey, a response rate of 46.4%. The respondents come from 545 different jurisdictions. The mean age of respondents was 51.4 years. As expected, a sizable majority were male (71%), white (86%), highly educated (more than 60% with graduate degrees), and well compensated (68% with salaries over \$100,000).

Most measures used in the study have been tested and validated in earlier studies; some measures were developed in earlier administrations of NASP and others were written and/or refined for NASP-IV. Appendix provides additional detail on the survey items, including the source of previously used questions, and Cronbach alphas for indexes. Descriptive statistics and a correlation matrix are provided in table 1. The correlation matrix does not show correlations between independent variables indicative of collinearity.

Our dependent variable is the response to the question: "I regularly use performance information to make decisions," with the response ranging from 1 (strongly disagree) to 6 (strongly agree). The dependent variable is a relatively broad indicator of managerial use of performance data but is appropriate given the development of empirical research. Although the use of single-item measures is sometimes criticized, research in diverse areas such of job satisfaction, performance appraisal, job targets, and marketing find that single items are often not less reliable than multiple response items (Bergkvist and Rossiter 2007; Gardner et al. 1998; Wanous and Hundy 2001). Indeed, Gardner et al. (1998) point out that single-item measures avoid the risk of aggregating multiple measures whose inter-item correlation is due common method variance. Previous work on performance information use by managers tends to reflect a unidimensional understanding of information use, which is that it is purposeful, resulting in improved outcomes. Indeed, previous research that reported different measures of use found that these measures were so highly correlated that they were

Table 1
Descriptive Statistics and Correlation Matrix

Variable	Range	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Performance information use	1–6	4.067	1.343																	
2. Public service motivation	8–30	25.464	3.607	0.261																
3. Reward expectation	4–20	11.927	3.764	0.193	0.124															
4. Generalist leader	0–1	.286	.452	−0.017	0.117	0.188														
5. Task-specific experience	0–36	7.366	6.800	0.100	0.045	−0.006	−0.053													
6. Information availability	4–24	15.479	4.403	0.520	0.246	0.344	0.147	0.106												
7. Developmental culture	3–15	11.528	2.456	0.297	0.284	0.206	0.051	0.113	0.336											
8. Flexibility	2–12	9.36	1.973	0.214	0.203	0.197	0.126	0.092	0.262	0.248										
9. Budget staff takes adversarial role	1–6	3.73	1.451	0.115	0.093	0.076	0.099	−0.023	0.15	0.106	0.073									
10. Citizen participation	6–42	29.84	6.368	0.276	0.2957	0.168	0.129	0.006	0.404	0.220	0.174	0.111								
11. Professional influence	1–7	6.149	1.041	0.173	0.305	0.078	0.007	0.009	0.146	0.157	0.107	0.067	0.171							
12. Population size (log)	10.825–15.122	11.599	.691	0.065	0.031	0.027	0.089	−0.098	0.16	0.019	0.000	0.109	0.088	0.018						
13. Income per capita	9340–63015	22252.25	6545.395	0.026	0.008	0.132	0.047	0.068	0.198	0.048	0.037	0.009	0.061	−0.027	−0.126					
14. Population homogeneity	0.175–0.953	0.588	0.162	−0.030	−0.037	0.015	−0.039	0.063	−0.029	0.001	0.014	−0.031	−0.031	−0.009	−0.351	0.244				
15. Government size	165–9452	1746.96	1074.863	−0.010	0.032	−0.064	0.001	0.003	0.055	−0.014	−0.040	0.027	0.037	0.012	0.221	0.059	−0.081			
16. Western region	0–1	0.398	0.49	−0.036	−0.036	0.090	0.063	−0.054	0.031	0.018	0.027	−0.008	0.004	−0.057	0.05	0.017	−0.229	−0.193		
17. Northeastern region	0–1	0.044	0.205	−0.011	0.018	−0.176	−0.043	0.05	−0.067	−0.055	−0.161	0.058	−0.036	−0.035	−0.058	0.043	−0.039	0.2693	−0.175	
18. Midwestern region	0–1	0.232	0.422	−0.049	0.015	−0.099	−0.047	0.027	−0.100	−0.045	−0.041	−0.019	−0.043	−0.0349	−0.083	0.091	0.390	−0.0763	−0.444	−0.123

aggregated into a single scale (Bourdeaux and Chikoto 2008; de Lancer Julnes and Holzer 2001; Dull 2009). As with previous research, we rely on self-reported indicators. This approach brings limitations, in particular the potential for an upward response bias. Because we are taking a behavioral approach, we focus on individual estimates of their own use, rather than individual perceptions of wider group use, as most previous research has done.

Since the dependent variable is ordinal, we employ an ordered probit analysis.⁴ In order to ease interpretation of the results, we employed MEOPROBIT method (Cornelissen 2006), which is a means of re-estimating ordered probit results in a way that provides marginal probability estimates that are similar to ordinary least-squares coefficients. The estimate represents how a one-unit increase in the independent variable results in a mean change on the dependent variable. Examples of such interpretations are provided below (table 2).

RESULTS AND DISCUSSION

In terms of our individual-level variable, we find that PSM is positively correlated with reported performance information use. A one-unit increase on the 30-point PSM scale results in a .04 increase in the 6-point performance information use scale. The finding also contributes additional circumstantial evidence to the question of whether PSM fosters higher performance. Brewer (2008, 146) notes “there is little empirical evidence on the PSM—performance relationship.” The results here find that PSM is positively associated with a form of behavior that is a logical contributor to both higher individual and organizational performance.

The finding on PSM is also important when considered in relation to the nonresult for the measure of reward expectations. The findings suggest that performance information use in our sample of city managers is driven by altruism rather than self-interest. This is an important result because contemporary reforms often attempt to use performance indicators to create contract-like arrangements. These reforms rest on what may be incorrect assumptions about what drives performance information use in the public sector. Our results suggest that performance systems should be designed to appeal to a sense of public service rather than to reward expectations, particularly in tasks where contractual arrangements will be incomplete.

Of course, this finding may not apply universally to all public officials. Much depends on the nature of the performance data and how closely it is linked with extrinsic reward. One possible criticism of the result is that the reward expectations experienced by our sample, like most governmental officials (Perry 1986), are simply inadequate to test whether high-powered incentives would foster performance information use.⁵ The

4 One concern with ordinal regressions is that they violate the parallel regression assumption that the relationship between each pair of outcome groups is the same, that is, that the coefficients are related in the same way to any category of the outcome variable relative to the other categories of the outcome variable. To deal with this problem we also ran the model using the partial proportional odds model, a form of the generalized ordered logit model (see Williams 2006 for more detail). The results were equivalent to the ordered probit results we report here. Because the ordered probit approach we employ here lends itself to greater ease of interpretation, we dropped the partial proportional odds model at the suggestion of a reviewer.

5 Although we cannot definitively exclude the possibility that significantly higher rewards than those experienced by respondents would change performance information use, we note that the mean score for reward expectation is above the midpoint for the scale and that there is substantial variation in the measure (see table 1). Therefore, even among those who perceive high reward expectations among a sample that appears to experience reasonable variation in rewards, we do not see significantly greater use of performance information.

Table 2
Results of Performance Information Use Model

	Ordered Probit	
	Marginal Effects	<i>p</i> Score
Individual beliefs		
Public service motivation	0.038	0.001
Job attributes		
Reward expectation	0.005	0.595
Generalist leader	-0.346	0.000
Task-specific experience	0.006	0.290
Organizational factors		
Information availability	0.146	0.000
Developmental culture	0.051	0.001
Flexibility	0.042	0.024
Budget staff take adversarial role	0.023	0.338
External factors		
Citizen participation	0.011	0.062
Professional influence	0.066	0.063
Controls		
Population size (log)	-0.022	0.703
Income per capita	-0.057×10^{-4}	0.317
Population homogeneity	-0.221	0.371
Government size	0.005×10^{-2}	0.127
Western region	-0.048	0.571
Northeastern region	0.262	0.141
Midwestern region	-0.006	0.960

Note: Ordinal logistic model: $N = 1,132$; Wald $\chi^2 = 432$; Psuedo $R^2 = .116$ (cut points: 1 = 1.828; 2 = 2.627; 3 = 3.287; 4 = 4.209; 5 = 5.260). Marginal effects and *p* values calculated with Stata's "MEOPROBIT" by Cornelissen (2006).

findings on PSM, and extrinsic reward, and performance information use may be quite different in contexts where extrinsic motivators are high powered and/or where managers feel that performance systems are being used to undermine the altruistic goals that motivate their behavior (Dias and Maynard-Moody 2007; Weibel, Rost, and Osterloh 2009). It may also be the case that for our sample, there is a relatively weak link between the type of effort managers believe will be rewarded and what is measured by performance systems. Incentives are likely to foster to performance information use where there is a strong direct link between individual reward and performance data. But this is difficult if for no other reason than that for most public services, outputs are the result of the interplay of many individuals, and the precise contribution of any individual is hard to determine (Perry 1986). As a result, most individual-level reward systems rely on a mix of subjective and informal assessments of performance. Doing well on such systems depends on a wide variety of factors, of which performance information use is unlikely to be prominent (Feldman 1981).

The role an actor plays matters. Being a generalist leader (city managers and deputy/assistant city managers) resulted in a .35 mean reduction on the 6-point performance information use scale. It is important to note that there is evidence that leaders, including elected officials, can inspire performance information use among managers. But much of this research suggests that this influence comes not from the direct use of information,

but by communicating credible commitment to performance systems, through symbols, the allocation of resources, and leadership attention (Askim, Johnsen, and Christophersen 2008; Bourdeaux and Chikoto 2008; Dull 2009; Ho 2006; Melkers and Willoughby 2005; Moynihan and Ingraham 2004). It may be possible for generalist leaders to encourage performance information use even as they do not follow their own advice. It is also important to note that the findings are relative—they do not suggest that generalist leaders do not use performance data, but that specialist leaders report that they use data more, controlling for the other factors in the model. Although task-specific experience does matter, time in current position is not significantly related to reported performance information use.

Three of the four organizational factors are positively related to reported performance information use. Consistent with previous research and a supply-side perspective on data use, we find that access to and integration of information into performance management systems predicts greater use. A one-unit increase on the 24-point information availability scale results in a .146 mean increase on the performance information use scale.

Aspects of the organizational culture also matter. The model shows that having a more open, innovative, and risk-taking culture is associated with higher reported performance information use for our sample. A one-unit increase on the 15-point developmental culture scale resulted in a .05 mean increase in the performance information use scale. Having greater flexibility increases reported performance information use. A one-unit increase in the 12-point flexibility scale is correlated with a .024 mean increase in the performance information use scale.

Taken together, the findings on information systems and organizational culture underline the need for a balanced approach to considering organizational factors. The results provide additional evidence that the potential for learning from performance information necessarily requires not just a supply-side approach that ensures that useful information is easily available but also a demand-side approach that fosters norms consistent with information use (see also Moynihan and Landuyt 2009). The other organizational factor, an adversarial stance by budget officials, was not significantly associated with reported performance information use.

The findings on external factors are not definitive. Both professional influence and participation are positively related to performance information use but are significant only at the 10% level. The findings therefore do not imply a clear rejection of these variables but instead suggest the need for additional testing and imply the need for additional specification of environmental variables that might affect performance information use. Although none of the controls proved significant, there are additional environmental factors—such as social capital—that have plausible influences on performance information use (Tavits 2006) but where suitable data at the municipal level is lacking.⁶

6 In some specifications of the model, an alternative measure of population homogeneity—percent of whites—was negatively related to performance information use at marginal levels of significant. This is consistent with a finding by Bourdeaux and Chikoto (2008). However, this result did not hold once we used the more nuanced indicator of homogeneity in the form of the Herfindahl index.

CONCLUSION

This article argues for examining performance information use as a key variable if we are to develop systematic knowledge about contemporary governance. The usual caveats and flaws of cross-sectional survey data apply. In particular, the potential that common source bias inflates the relationship between independent variables and the dependent variable cannot be dismissed. But in testing such relationships, capturing a large number of comparable individual responses on items that are difficult to externally observe—such as PSM or culture—is a key requirement, necessitating survey-based approaches. In addition, the use of previously tested measures of the majority of variables, as well as the relatively low correlation between these measures, suggests discriminant validity among the items tested and reduces concerns about common source bias.

The article offers a number of contributions. First, it suggests that performance information use is more likely to be driven by altruism rather than self-interest among government officials. A logical next step would be to examine how this finding varies in different contexts—does it, for example, hold in high-powered contract settings where intrinsic motivation may be crowded-out? Is the result even more pronounced in settings where employees feel that their intrinsic motivations are being satisfied?

Another contribution is to test the effect of other well-established predictors in organizational theory on performance information use for the first time, including organizational culture, flexibility, and professionalism. The findings not only provide new information on the antecedents of performance information use but also inform other research literatures, by demonstrating an additional effect of variables such as organizational culture. For variables that have been previously tested in some forms, the model offers new insights by using broad-based independent variables. There is a tendency in previous empirical work to test the aspect of a concept that is likely to have the strongest connection with performance management. As a result, we know that leadership/political support for performance management matters, goal-oriented cultures matter, and that citizen support for and involvement in performance management processes matters. Such narrow construction of independent variables helps to answer the question: “how can organizations foster performance information use?” But we know less about how more commonly occurring and broadly constructed organizational concepts matter to performance information use. Such variables help answer the question “which organizations are more likely to succeed with performance management?” This article tests many such variables, offering evidence on how more broadly constructed measures of leadership, citizen participation, and organizational culture matter.

The findings cannot be considered definitive but take one additional step toward a better understanding of why public employees use performance information. In particular, one should be cautious about extrapolating the factors that shape performance information use at the local level to other levels of government since the closeness of local government officials to the public and the actual services delivered may foster an attention to performance management not seen at other levels of government (de Lancer Julnes and Holzer 2001; Jennings and Haist 2006). Further research can profitably examine performance information use in different settings, testing a variety of variables using both quantitative and qualitative techniques.

APPENDIX
Variable Measurement

Variable (Source)	
Performance Information use	I regularly use performance information to make decisions (1 = strongly disagree, 6 strongly agree).
Public service motivation (Perry 1996)	Meaningful public service is very important to me. I am often reminded by daily events about how dependent we are on one another. Making a difference in society means more to me than personal achievements. I am not afraid to go to bat for the rights of others even if it means I will be ridiculed. I am prepared to make sacrifices for the good of society. (1 = strongly disagree, 6 strongly agree; Cronbach alpha = .849)
Reward expectation (Rainey 1983; Spector 1997)	If I accomplish my work objectives, it increases my chances for a pay raise. Fulfilling all my job responsibilities does little to improve my chances for a promotion. Raises are too few and far between. Pay structures and personnel rules make it hard to reward a good employee with higher pay here. (1 = strongly disagree; 5 = strongly agree; Cronbach alpha = .704.)
Generalist leader	1 = City Manager/Assistant/Deputy City Manager; 0 = leader of task-specific agency (Finance/Budgeting, Public Works, Personnel/HR, Economic Development, Parks and Recreation, Planning, and Community Development).
Task-specific experience	Years in present position
Information availability (adapted from Brudney, Hebert, and Wright 1999)	Please indicate the extent to which your <i>organization</i> has implemented each of the following: Benchmarks for measuring program outcomes or results. Strategic planning that produces clear organization mission statements. Systems for measuring customer satisfaction. (1 = not at all; 6 = fully) Performance information is integrated in my department's budget preparation process. (1 = strongly disagree; 6 = strongly agree). Cronbach alpha = .791.
Developmental culture (adapted from Zammuto and Krakower 1991)	My department is a very <i>dynamic</i> and <i>entrepreneurial</i> place. People are willing to stick their necks out and take risks. The glue that holds my department together is a <i>commitment to innovation</i> and <i>development</i> . There is an emphasis on being best. My department emphasizes <i>growth</i> and <i>acquiring new resources</i> . Readiness to meet new challenges is important. (1 = strongly disagree; 5 = strongly agree; Cronbach alpha = .791).
Flexibility	My department is able to shift financial resources within its budget to accomplish its mission. My department is able to shift non-financial resources within its budget to accomplish its mission. (1 = strongly disagree; 6 = strongly agree; Cronbach alpha = .734).
Budget staff takes adversarial role	Please indicate the extent to which the budget staff performs the following functions: Challenge plans and actions of department heads (1 = not at all; 6 = a great deal).
Citizen participation	How important are the following methods of gaining citizens feedback for your department? Town hall meetings; Budget hearings; Citizen/customer surveys; Citizen feedback via the web; Direct contact via phone, mail, e-mail office visit; Indirect contact via elected officials (1 = not important at all 7 = very important; Cronbach alpha = .739).
Professional influence	I use my profession to help set standards for what I consider good performance for myself (1 = strongly disagree, 7 = strongly agree).
Population size	Jurisdiction population in 2000, Census data
Income per capita	2000 census data
Homogeneity	Herfindahl index (sum of squares of different racial groups), 2000 Census data
Government size	Per capita total expenditures in 2000, Census data
Region	Regions according to census definitions, Southern region is reference variable

REFERENCES

- Ammons, David N., and William C. Rivenbark. 2008. Factors influencing the use of performance data to improve municipal services: Evidence from the North Carolina benchmarking project. *Public Administration Review* 68:304–18.
- Askim, Jostein, Åge Johnsen, and Knut-Andreas Christophersen. 2008. Factors behind organizational learning from benchmarking: Experiences from Norwegian municipal benchmarking networks. *Journal of Public Administration Research and Theory* 18:297–320.
- Behn, Robert D. 1995. The big questions of public management. *Public Administration Review* 55:313–24.
- . 2007. *What all mayors would like to know about Baltimore's CitiStat performance strategy*. Washington, DC: IBM Center for the Business of Government.
- Bergkvist, Lars, and John R. Rossiter. 2007. The predictive validity of multiple-item versus single-item measures of the same constructs. *Journal of Marketing Research* 44:175–84.
- Bourdeaux, Carolyn, and Grace Chikoto. 2008. Legislative influences on performance management reform. *Public Administration Review* 68:253–65.
- Brewer, Gene A. 2003. Building social capital: Civic attitudes and behavior of public servants. *Journal of Public Administration Research and Theory* 13:5–26.
- . 2008. Employee and organizational performance. In *Motivation in public management: The call of public service*, ed. James L. Perry and Annie Hondeghem, 101–7. Oxford: Oxford Univ. Press.
- Broadnax, Walter D., and Kevin J. Conway. 2001. The social security administration and performance management. In *Quicker, better, cheaper: Managing performance in American government*, ed. D. Forsythe, 143–75. Albany, NY: Rockefeller Institute Press.
- Brudney, Jeffery L., F. Ted Hebert, and Deil S. Wright. 1999. Reinventing government in the American States: Measuring and explaining administrative reform. *Public Administration Review* 59:19–30.
- Cornelissen, Thomas. 2006. MEOPROBIT: Stata module to computemarginal effects after estimation of ordered probit. <http://ideas.repec.org/c/boc/bocode/s456788.html> (accessed August 12, 2009).
- de Haven-Smith, Lance, and Kenneth C. Jenne. 2006. Management by inquiry: A discursive accountability system for large organizations. *Public Administration Review* 66:64–76.
- de Lancer Julnes, Patria, and Marc Holzer. 2001. Promoting the utilization of performance measures in public organizations: An empirical study of factors affecting adoption and implementation. *Public Administration Review* 61:693–708.
- Dias, Janice J., and Steven Maynard-Moody. 2007. For-profit welfare: Contracts, conflicts, and the performance paradox. *Journal of Public Administration Research and Theory* 17:189–211.
- Dull, Matthew. 2009. Results-model reform leadership: Questions of credible commitment. *Journal of Public Administration Research and Theory* 19:255–84.
- Feldman, Jack M. 1981. Beyond attribution theory: Cognitive biases in performance appraisal. *Journal of Applied Psychology* 66:127–48.
- Franklin, Aimee L. 2000. An examination of bureaucratic reactions to institutional controls. *Public Performance and Management Review* 24:8–21.
- Gardner, Donald D., L. L. Cummings, Randall B. Dunham, and Jon L. Pierce. 1998. Single-item versus multiple-item measurement scales: An empirical comparison. *Educational and Psychological Measurement* 58:898–915.
- Hatry, Harry. 1999. *Performance measurement: Getting results*. Washington, DC: Urban Institute.
- Heikkilä, Tayna, and Kimberley Roussin Isett. 2007. Citizen involvement and performance management in special-purpose governments. *Public Administration Review* 67:238–48.
- Heinrich, Carolyn J. 1999. Do government bureaucrats make effective use of performance information? *Journal of Public Administration Research and Theory* 9:363–93.
- Ho, Alfred Tat-Kei. 2006. Accounting for the value of performance measurement from the perspective of city mayors. *Journal of Public Administration Research and Theory* 16:217–37.
- Houston, David J. 2006. “Walking the walk” of public service motivation: Public employees and charitable gifts of time, blood, and money. *Journal of Public Administration Research and Theory* 16:67–86.

- Jennings, Edward T., and Meg Patrick Haist. 2006. Putting performance measurement in context. In *The art of governance*, eds. Patricia W. Ingraham and Laurence E. Lynn, 173–94. Washington, DC: Georgetown Univ. Press.
- Kamensky, John. 1996. Role of the “reinventing government” movement in federal management reform. *Public Administration Review* 56:247–55.
- Kettl, Donald F., and Steven Kelman. 2007. *Reflections on 21st century government management*. Washington, DC: IBM Center for the Business of Government.
- Lewis, David E. 2008. *The politics of presidential appointments: Political control and bureaucratic performance*. Princeton, NJ: Princeton Univ. Press.
- Melkers, Julia, and Katherine Willoughby. 2005. Models of performance-measurement use in local governments: Understanding budgeting, communication, and lasting effects. *Public Administration Review* 65:180–90.
- Moynihan, Donald P. 2003. Normative and instrumental perspectives on public participation: Citizen summits in Washington, D.C. *American Review of Public Administration* 33:164–88.
- . 2005. Goal-based learning and the future of performance management. *Public Administration Review* 65:203–16.
- . 2008. *The dynamics of performance management: Constructing information and reform*. Washington, DC: Georgetown Univ. Press.
- Moynihan, Donald P., and Noel Landuyt. 2009. How do public organizations learn? Bridging structural and cultural divides. *Public Administration Review* 69:1097–105.
- Moynihan, Donald P., Sergio Fernandez, Soonhee Kim, Kelly LeRoux, Suzanne J. Piotrowski, and Bradley Wright. Forthcoming. Performance measurement amidst governance complexity. *Journal of Public Administration Research and Theory*.
- Moynihan, Donald P., and Patricia W. Ingraham. 2004. Integrative leadership in the public sector: A model of performance information use. *Administration & Society* 36:427–53.
- Moynihan, Donald P., and Sanjay K. Pandey. 2005. Testing how management matters in an era of government by performance management. *Journal of Public Administration Research and Theory* 15:421–39.
- Pandey, Sanjay K., and Edmund C. Stazyk. 2008. Antecedents and correlates of public service motivation. In *Motivation in public management: The call of public service*, eds. James L. Perry and Annie Hondeghem, 101–17. Oxford: Oxford Univ. Press.
- Pandey, Sanjay K., David H. Coursey, and Donald P. Moynihan. 2007. Organizational effectiveness and bureaucratic red tape: A multi-method study. *Public Performance and Management Review* 30:398–425.
- Pandey, Sanjay K., Bradley E. Wright, and Donald P. Moynihan. 2008. Public service motivation and interpersonal citizenship behavior: Testing a preliminary model. *International Public Management Journal* 11:89–108.
- Perry, James L. 1986. Merit pay in the public sector. *Review of Public Personnel Administration* 7:57–69.
- . 1996. Measuring public service motivation: An assessment of construct reliability and validity. *Journal of Public Administration Research and Theory* 6:5–22.
- Perry, James L., and Anne Hondeghem. 2008. *Motivation in public management: The call of public service*. Oxford: Oxford Univ. Press.
- Poister, Theodore H., and Gregory Streib. 1999. Performance measurement in municipal government: Assessing the state of the practice. *Public Administration Review* 59:325–35.
- Pollitt, Christopher. 2000. Is the emperor in his underwear? An analysis of the impacts of public management reform. *Public Management Review* 2:181–99.
- Quinn, Robert E., and John Rohrbaugh. 1981. A competing values approach to organizational effectiveness. *Public Productivity Review* 5:122–40.
- Radin, Beryl. 2006. *Challenging the performance movement: Accountability, complexity, and democratic values*. Washington, DC: Georgetown Univ. Press.
- Rainey, Hal G. 1983. Public agencies and private firms: Incentive structures, goals, and individual roles. *Administration & Society* 15:207–42.

- Roy, Claude, and Francine Seguin. 2000. The institutionalization of efficiency-oriented approaches for public service improvement. *Public Productivity & Management Review* 23:449–68.
- Schick, Allen. 1997. *The changing role of the central budget office*. Paris, France: OECD.
- . 2001. Getting performance measures to measure up. In *Quicker, better, cheaper: Managing performance in American government*, ed. Dall Forsythe, 39–60. Albany, NY: Rockefeller Institute.
- Schulz, Martin. 2001. The uncertain relevance of newness: Organizational learning and knowledge flows. *Academy of Management Journal* 44:661–81.
- Spector, Paul E. 1997. *Job satisfaction: Application, assessment, causes, and consequences*. Thousand Oaks, CA: Sage.
- Tavits, Margit. 2006. Making democracy work more? Exploring the linkage between social capital and government performance. *Political Research Quarterly* 59:211–25.
- Van Dooren, Wouter. 2008. Nothing new under the sun? Change and continuity in twentieth century performance movements. In *Performance information in the public sector: How it is used*, eds. Steven Van de Walle and Wouter Van Dooren, 11–23. Houndmills, UK: Palgrave.
- Van de Walle, Steven, and Tony Bovaird. 2007. *Making better use of information to drive improvement in local public services: A report for the Audit Commission*. Birmingham, AL: School of Public Policy, Univ. of Birmingham.
- Van de Walle, Steven, and Wouter Van Dooren. 2008. Introduction: Using public sector information. In *Performance information in the public sector: How it is used*, eds. Steven Van de Walle and Wouter Van Dooren, 1–8. Houndmills, UK: Palgrave.
- Wanous, John P., and Michael J. Hundy. 2001. A single-item reliability: A replication and extension. *Organizational Research Methods* 4:361–75.
- Weibel, Antoinette, Katja Rost, and Margit Osterloh. Pay for performance in the public sector—benefits and (hidden) costs. *Journal of Public Administration and Theory*. Advance Access published May 27, 2009, doi:10.1093/jopart/mup009
- Willis, James J., Stephen D. Mastrofski, and David Weisburd. 2007. Making sense of COMPSTAT. *Law & Society Review* 41:147–88.
- Williams, Richard. 2006. Generalized ordered logit/partial proportional odds model for ordinal dependent variables. *The Stata Journal* 6:58–82.
- Wright, Bradley E. 2001. Public sector work motivation: Review of current literature and a revised conceptual model. *Journal of Public Administration and Theory* 11:559–86.
- Yang, Kaifeng, and Jun Yi Hsieh. 2006. Managerial effectiveness of government performance measurement: Testing a middle range model. *Public Administration Review* 67:861–79.
- Zammuto, Raymond F., and Jack Y. Krakower. 1991. Quantitative and qualitative studies of organizational culture. *Research in Organizational Change and Development* 5:83–114.
- Zients, Jeffery. 2009. *Testimony before the Committee on Homeland Security and Governmental Affairs, United States Senate*. September 29, 2009