

ABSTRACT

ROGERS, MARTHA KINNEY. Explaining Performance Measurement Utilization and Benefits: An Examination of Performance Measurement Practices in Local Governments. (Under the direction of Charles K. Coe).

Performance measurement (PM) has been used in management, budgeting, and reporting to stakeholders. Although local governments' use of PM has grown considerably over the past two decades, little empirical evidence explains variation in usage and benefits. Most research has been normative or descriptive, with the exception of a few multivariate models.

Using structural equation modeling and a survey administered by the Governmental Accounting Standards Board, this dissertation tests three models used to explain PM utilization and benefits in local governments: (1) Kong's 1998 model examined differences in factors that influence PM utilization in management and budgeting. The influential factors are organizational culture, rewards and sanctions, leadership, involvement of the central budget office, citizen/elected official participation, measurement capacity, and data quality. (2) Wang's 2002 model proposed differences in impacts from PM utilization in management, budgeting, and reporting. The impacts are improved communication, decision-making, coordination, efficiency, and effectiveness. (3) Ammons and Rivenbark 2005 research showed that a comprehensive PM approach (using PM in budget decisions, managing contracts, strategic planning, comparative benchmarking, and evaluating results) had a stronger effect on service improvement than PM utilization in reporting alone.

Testing these models revealed important differences between PM utilization in management, budgeting, and reporting. Rewards and sanctions were significantly associated with increased PM utilization in management (not budgeting or reporting). Participation by

the central budget office most strongly influenced PM utilization in budgeting. The existence of high quality data most influenced PM utilization in reporting.

PM utilization in management was more related to long-term benefits of efficiency and effectiveness than budgeting or reporting. PM utilization in budgeting was strongly associated to the short-term benefit of improved decision-making but only moderately associated with improved efficiency. PM utilization in reporting was strongly related with improved decision-making and improved effectiveness. Finally, a comprehensive PM approach including management, benchmarking, budget decision-making, and strategic planning shows a higher relationship with improved service improvement than using PM in reporting alone.

**Explaining Performance Measurement Utilization and Benefits:
*An Examination of Performance Measurement Practices in Local Governments***

By

Martha Kinney Rogers

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APPROVED BY:

Kenneth A. Klase, D.P.A.

Dennis M. Daley, Ph.D.

James E. Swiss, Ph.D.

G. David Garson, Ph.D.

Charles K. Coe, D.P.A.
Committee Chair

DEDICATION

I dedicate this dissertation to my mother and father, June and Margie Kinney, my husband, Darrell Rogers, and my children, Duane and Danny Rogers for all the sacrifices they have made in time, money, and other resources for me to pursue my education.

This dissertation is also written as a challenge to my grandchildren: Zackary, Skyler, Drew, Caleb, and Abbey Rogers for them to enjoy learning and to use increased knowledge to help others.

BIOGRAPHY

Martha Kinney Rogers was born in Randolph County, North Carolina to Robert (June) and Margie Kinney in 1951. She attended elementary school and high school in Randolph and Guilford County, graduating from Eastern Randolph High School in 1969. During the early part of her career, she balanced caring for her two sons, Duane and Danny and working for Walker Shoe Company as an inventory control clerk. She advanced to a Cost Accountant for the company and continued to work full-time there after she returned to school in 1980. She took college transfer classes from Randolph Community College, transferring those to the University of North Carolina at Greensboro (UNC-G). She graduated summa cum laude from UNC-G in 1986 with a bachelor's degree in accounting. In 1987, Martha became a Certified Public Accountant. In 1994, she became a Certified Internal Auditor.

Martha began her government career with Guilford County as an Internal Auditor in 1987. Being dissatisfied with government work, she returned to UNC-G to begin work on a Masters in Business Administration. By the time she graduated in 1993, she had finally begun to understand that government work is about equity, not just efficiency and effectiveness. After a stint in the budget office, Martha was promoted to the Internal Audit Director in 1996. Desiring to gain more experience in research and knowledge about public administration, Martha was admitted into the Ph.D. program at North Carolina State University in 2001. She pursued interests of budgeting, performance measurement, finance, auditing, and non-profit accountability for government funding during her time there.

Martha has taught record keeping classes to small business owners and tools and

techniques to beginning auditors for the Institute of Internal Auditors. In addition, she has taught several accounting and business classes at community colleges and local universities. Martha has also assisted in individual income tax preparation at a local CPA firm.

Professionally, Martha has served as the President of the Triad Chapter of The Institute of Internal Auditors and the President of the Piedmont Triad American Society for Public Administration Chapter. She has also been the Sunday School Secretary for her church for 20 years.

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CHAPTER 1: INTRODUCTION TO THE STUDY

The performance measurement (PM) revolution has been growing robustly for about twelve years (Frank and D'Souza, 2003). Performance measurement in and of itself does not have value; rather, it must be part of some overall management strategy to foster improvement (Behn, 2003). Swiss and Strauss (2005: 36) conclude:

“Performance measurement must lead to performance management, with changes in organizational behavior and decisions that in turn lead to demonstrably better outcomes for program clients.”

Wang (2002 a) suggests that there are three ways that PM utilization promotes performance in government agencies:

- Internal Management - Public managers and front line employees use performance measurement data to strategically plan and evaluate information pertaining to goals and expectations in their roles as managers and service providers for the public organization.
- Budgeting - Policy makers use performance budgeting data to improve the quality of policy, resource allocation, and service prioritization decisions.
- Reporting - Citizens and others use service efforts and accomplishment reports prepared by public managers to actively participate in meaningful decision-making in their roles as “owners” of the public organization.

The chapter begins with a short history of PM, followed by a discussion of how this research adds to the body of knowledge about performance measurement utilization. Finally, upcoming chapters are previewed.

HISTORY OF PERFORMANCE MEASUREMENT

This section discusses the importance of performance measurement utilization in various management, budgeting, and reporting reforms that have occurred in the United States.

Scientific Management

Arguably, the history of performance measurement began with the work of Frederick Taylor. Traditional bureaucracy focused on rules and regulations that specified the process whereby service was delivered to the citizens. Taylor stressed the “one best way” and encouraged both the private and public sector to measure job processes in order to improve productivity. Traditional bureaucracy uses input and process indicators in PM, which critics say can lead to a bureaucratic pathology overly obsessed with process, rather than focusing on substantive results.

Performance measurement literature officially began in 1910 according to Ridley (1927). In 1912 the Taft Commission on Economy and Efficiency proposed management reforms in the federal government including stronger emphasis on measurement of efficiency (Moon and deLeon, 2001). The International City/County Management Association (ICMA) issued *Measuring Municipal Activities* in 1938. This document recommended various types of information that local governments collect to find out how well services were being delivered (Fischer 1994; Ammons, 1995).

Program Budgeting

The Brownlow Report suggested program budgeting in 1937 as a system of linking inputs to outputs in the federal budget process. The Budgeting and Accounting Procedures

Act (1950) specified a performance budget format requiring budgets prepared in a functional or project/activity design (Melkers and Willoughby, 2001). This led to the Planning-Programming-Budgeting Systems (PPBS) in the 1960s to Management By Objectives (MBO) to Zero Based Budgeting (ZBB) and finally to Performance Based Budgeting (PBB).

President Johnson put PPBS into operation in 1965 to integrate planning and budgeting. Nixon recommended MBO in the 1970's to improve performance (Kelly and Rivenbark, 2003 a.). Local governments soon followed the federal government lead in becoming interested in MBO. A cross-sectional study of 15 cities found four out of 15 had adopted MBO presentation in budgets in the decade from 1977 to 1987 (Rubin, 1990). President Carter implemented ZBB in the late 1970's (Kelly and Rivenbark, 2003 a). ZBB forced agencies to start with zero each year and justify all expenditures.

Finally, PBB began in the 1990's as an alternative to traditional budgets that emphasized the base and an allocation based on fair share. PBB proponents argue that emphasizing performance measures that gauge efficiency and service levels rather than just emphasizing inputs improve the budgetary process. Detractors point to the fact that rational reform of the budgeting process has not worked out in the past. They say PBB is grounded in the neutrally political, mechanical perspective much like PPBS and ZBB that failed and were phased out (Harris, 1995). Willoughby and Melkers (2000) found that performance budgeting provides more informed decision-making and better communication but did not find conclusive evidence that it changes resource allocation decisions.

Kingdon's garbage can theory or Rubin's real-time budgeting theory, which posit that budget outcomes are reliant on political relationships and decision streams, may be more

useful in explaining the resource allocation processes than performance measurement (Kingdon, 2003; Rubin, 1990). Kelly (2002) likewise asserts that budget decisions are not usually made using rational cost analysis that links expenditures with outcomes.

Nonetheless, Kelly optimistically maintains that just as other rational reforms have brought lasting change to the budget process, so will PBB. For example, ZBB brought the practice of multiple budgets that are used somewhat today. Further, most PBB critics agree that performance measurement information in the budget document offers broadened accountability through its emphasis on results and outcomes.

Total Quality Management (TQM)

Like Taylorism, the more recent management reform, Total Quality Management focused mostly on process measurement. W. Edwards Deming started the quality revolution in Japan in the 1950s (Fischer, 1994). His disciples, Joseph Juran and Philip Crosby were more influential in the United States private sector. TQM was thus not widely adopted by the U.S. public sector until the 1980's after the federal government founded the Federal Quality Institute in 1988 to promote quality initiatives. In 1987, Congress enacted the enabling legislation for the Baldrige Quality Award and charged the National Institute of Standards and Technology with implementing the award (Bowman, 1994).

TQM emphasizes process measures more than outcome measures. There are five basic TQM principles (Berman and West, 1995:58):

1. "A commitment to customer-driven quality
2. Employee participation in quality improvement
3. A bias toward taking actions based on facts, data, and analysis
4. Commitment to continuous improvement
5. Developing a systematic perspective on service means and ends"

In the TQM model, the primary decision-makers are the manager and employee who seek service quality and customer satisfaction. In this pursuit, TQM often uses customer service surveys. To ensure service quality, employees must be able to distinguish between routine variation and real and systemic change. TQM assumes that employees want to contribute, are basically good, and want to experience meaning in their work (Connor, 1997:503). People feel helpful when they make contribution to the organization and respond positively to a culture of trust. Human contributions are maximized through team efforts, which are essential in TQM.

Swiss (1992) argued that orthodox TQM as promulgated by Deming is unsuited for most government agencies because it pays too much attention to process and not enough to outcomes. Further, even Crosby's system of TQM is not suitable for government, because it concentrates on zero defects and does not recognize that output uniformity is hard to achieve in providing governmental services. A strong continuous improvement culture is hard to realize in governments because political cultures emphasize the short-term and are subject to constant shifts in policy direction. Nonetheless, Swiss thought some aspects of TQM are applicable to government, such as employee empowerment, continuous improvement, and quantitative tracking of product quality, and client reactions. Moreover, the Baldrige criteria of leadership, strategic planning, customer value and market forces, information and analysis, human resource focus, process management, and business results are applicable to many government agencies.

New Public Management (NPM)

The Grace Commission, established by President Ronald Reagan in 1984, tried to make

government less “wasteful” and advocated that private sector solutions were superior to public sector solutions (Kelly and Rivenbark, 2003 a). The private sector emphasis (NPM) replaced bureaucratic rules with customer choice. NPM uses markets and competition as incentives. An emphasis on market efficiency includes pay-for-performance, performance measurement, participatory decision-making processes, and flexible organizational culture. NPM uses private or non-profit organizations to deliver services, separates policy and administration, and promotes multi-source suppliers of service, contracting, output measures, and control. A fundamental belief of NPM is that market incentives result in efficiency (lower cost) and effectiveness (meeting customer needs). Because of its emphasis on competition and providing customer choices, NPM uses comparative performance measures such as benchmarks and report cards.

Critics of the NPM aver that NPM does not work well in government. Many use Hirshman’s (1970) political and economic model of the self-correcting organization to explain why. Hirschman stated that customers can withdraw or exit the organization or they can stay and help to improve performance, but they must receive accurate information about the organization to aid the process. For example, if school vouchers are used, the parents who are most equipped with information and the skills to make the process better are the ones who will leave the organization if given the opportunity. This leaves lower class children with more problems and makes the performance of the school deteriorate even more (Hirschman, 1970).

Roberts (1997) pointed out problems with the implementation of NPM in Britain, including difficulty in relaxing procurement and personnel rules because of reluctance of

departmental headquarters to loosen control over agencies. Central business units were not willing to give operating divisions flexibility over pay and working conditions. Parliament also feared giving agencies discretion. Funding for productivity enhancements was erratic and unstable. Constitutional issues arose over the use of contractual employees. Bonuses for management attracted negative legislative attention. Legislators thought agencies misrepresented actual performance to get bonuses. Also, attempts to broaden managerial discretion weakened commitments to constituents such as organized labor, women, racial minorities, and small businesses.

These situations describe the power inequalities problem discussed by Moe (2005). He argued that although principal-agent relationships should result in collaboration and mutual benefit, they often degenerate into making the individuals worse off because “insiders” use cooperation to exercise power over others. Moynihan (2006) gives further examples of the difficulty in power sharing. In his study of managing for results utilization in the 50 states, he found state governments have emphasized strategic planning and performance measurement but failed to enhance managerial accountability. State managers were not given authority to make real changes and financial, purchasing, and human resource control systems were not changed.

NPM uses benchmarking as a tool to encourage competition and adoption of best practices. Three of the better-known benchmarking projects include the Innovations Group, the ICMA, and the North Carolina Institute of Government (IOG) benchmarking project.

The Innovations Group created a national performance center for U.S. local governments in 1991. Participants sent data to the Innovation Groups, which compiled and reported the

data. If a jurisdiction wanted to benchmark a particular area, it could contact the agency and obtain information. Jurisdictions paid to participate in this self-serve type project. The quality of the data depended on the level of effort of the participants (Ammons, Coe, and Lombardo, 2001).

The ICMA Center for Performance Measurement Benchmarking project began in 1984. Its participants included 44 cities and counties with populations above 200,000. Currently, there are over 100 participants. Initially, it examined four core services: police, fire, neighborhood, and support services. At first a policy committee was composed of the top administrators of the counties or cities. Later, this was replaced by a 10-member steering committee from the technical areas being studied. Each area had a technical advisory committee. The ICMA staff and project participants collect useful and relevant performance information that is uniform and comparable (Ammons, Coe, Lombardo, 2001; Poister and Streib, 1999 a; ICMA Website).

The North Carolina IOG benchmarking project also began in 1994. Unlike other benchmarking projects, the IOG project pays close attention to cost accounting. Since the model uses a full cost model, cost comparisons can be made among local governments and private contractors. The IOG project provides efficiency, effectiveness, and explanatory measures for the 15 cities that continue to participate in this project.

Results Based Management (RBM)

Results based management, a hybrid of TQM and NPM, began in the mid 1990s. RBM, though does not stress process management like TQM or market models, such as NPM.

Rather, RBM replaces the rules of traditional bureaucracy with outcomes. Moreover, RBM uses a control orientation based on principal agent theory or it can be adapted to TQM's emphasis on continuous monitoring. RBM is useful at any level of the organization – the governing body, chief executive, or department heads. RBM is particularly valuable when applied to areas like welfare programs that involve broad partnerships between the federal, state, local governments and the private and nonprofit sectors.

Swiss (2000:2) gives five principles of results based management, which are useful to decentralize functional structures and make process improvements.

1. Measurable results instead of procedures and processes
2. Long term strategic planning and shorter annual plans and goals
3. Empowerment of workers
4. Business process reengineering and use of teams
5. Incentives such as budget and personnel rewards and external market incentives

Reporting

In 1907 the New York Bureau of Municipal Research included accounting and management data in the New York City budget. Later in the century, reporting non-financial data drew the interest of many professional organizations, which began to recognize the need for PM in governments. In the 1970's, the American Institute of Certified Public Accountants (AICPA), the Government Accounting Office (GAO), the Financial Accounting Standards Board (FASB), and the National Council on Governmental Accounting (NCGA) recognized the need for non-financial performance information for government and nonprofits (GASB 2003 report).

The Financial Accounting Foundation established the Government Accounting Standards Board (GASB) in 1984. This board sets financial reporting standards for state and

local government accounting. Immediately after being formed, GASB called for PM experimentation with Service Efforts and Accomplishment (SEA) reporting (Brown and Pyers, 1998). Through this effort, GASB seeks to address the concern that traditional financial reports do not provide enough information on the bottom-line of government success or failure. The GASB defines service efforts and accomplishments to mean performance measures of efficiency and effectiveness. Although the GASB addresses internal uses of data, the main emphasis is on external users such as the public and bond rating agencies. The purpose of SEA reports is “to communicate relevant, reliable information about the performance of government programs and services to elected officials, citizens, and other users.” (GASB 2003 report: 1). So far, the GASB has only made suggestions, but it has the power as a standards setting board to mandate a form of SEA reporting for local and state governments.

In addition to the primary users identified by the other models, SEA reporting provides PM information for monitoring by citizens in their role as government owners. One tool used by SEA reporting proponents to ensure efficient ownership is the citizen committee. An example of citizen committees initiating PM is the Citizen Initiated Performance Assessment (CIPA) in Iowa municipalities (Ho and Coates, 2005). This project uses a citizen performance team composed of city council members, city administrators, and citizen representatives to develop performance measures for specific services. These citizen representatives are also involved in data collection and evaluation.

A potential limitation of citizen participation in performance measurement is that citizens cannot easily measure government services. Critics believe citizen surveys of

individuals who are not direct clients are not advantageous (NCPP Website). GASB participant focus groups pointed out the difficulty of engaging citizens beyond the “axe grinders.” Generally, except for school performance, GASB research has not found widespread use of PM by citizens and media. The GASB also finds it problematic that easy to read performance measurement reports are not readily available. For the most part, citizens who care about the details of government performance measures may be in the minority. The media is not interested in writing general reports on government performance. They are more interested in incidents of misdeeds (GASB 2003 report).

HOW THE CURRENT RESEARCH ADDS TO THE BODY OF KNOWLEDGE

The foregoing discussion illustrates how important PM has been in management systems of all kinds. Thus, considerable research has focused on it, but most research has been normative or descriptive. The principal research question concerns stakeholders’ use of performance measurement information. Does how they use performance measurement require different states of PM readiness and will different uses bring varying benefits?

Some empirical research has examined bivariate relationships; fewer still have developed multivariate models to explain the factors that promote performance measurement utilization. Even fewer have developed multivariate models to explain the benefits of performance measurement utilization. The most relevant multivariate models include the following:

- Kong (1998) explained the factors that promote PM utilization in the federal government, including organizational culture, goal clarity, training, involvement of stakeholders, leadership, measurement capacity, and data quality.
- Wang (2002 a) described the difference in immediate and long-term benefits from using PM in local governments. The immediate benefits included improved communication, decision-making, and coordination. The long-term benefits were improved efficiency, effectiveness, and accountability.
- Melkers and Willoughby (2005) examined budgeting, communication, and lasting effects of PM utilization in local governments. The explanatory factors were

- community characteristics, respondent characteristics, organizational culture, and performance measurement characteristics.
- Ammons and Rivenbark (2005) hypothesized that using performance measurement in key management systems including strategic planning and comparative benchmarking with high quality data (particularly efficiency measures) would produce greater service improvements than using it in reporting systems alone.

This dissertation will advance the research begun by Kong, Wang, Melkers and Willoughby, and Ammons and Rivenbark. Kong (1998) used path analysis to explain differences in direct impacts of PM utilization as well as indirect effects of intervening variables. Melkers and Willoughby (2005) and Wang (2002 a) used multiple regression to explain differences in a single dependent variable. Rivenbark and Ammons (2005) used a case study of 15 local government participants in the North Carolina IOG project.

This study advances their research by using structural equation modeling (SEM). This methodology is considered state of the art technology for testing and developing models. In addition to examining the effects of intervening variables, SEM can also model the effects of interactions, non-linearities, correlated independents, measurement error, and correlated error terms (Byrne, 2001, 3-4).

PREVIEW OF UPCOMING CHAPTERS

Chapter 2 discusses pertinent literature regarding the factors that promote PM utilization, the perceived benefits from PM utilization, and the control factors such as type of government (city versus county), respondent position, and the tenure and experience of the respondents in working with PM utilization that affect utilization and benefits. The chapter concludes with the hypotheses to be examined in this research. Chapter 3 presents the methodology and the threats to internal and external validity. This chapter discusses how the data was gathered, operationalized, and analyzed with this work. Finally, hypotheses are

discussed and linked to the various variables.

Chapter 4 discusses the descriptive variable statistics with the data analysis methodology, and the cleaning methods employed. Chapter 5 tests the bivariate relationships identified in the hypotheses using Pearsonian correlation. The data limitations as well as the theoretical relevance of the relationships are discussed.

Chapter 6 tests the multivariate relationships identified in the hypotheses using structural equation modeling. Specifically, it tests Kong's internal determinant model of factors promoting performance utilization in management, budgeting, and reporting. Chapter 7 analyzes the benefits provided by PM utilization in PM utilization in management, budgeting, and reporting. Particularly, it tests Wang's model of immediate and long-term impacts. It also tests the comprehensive utilization model proposed by Ammons-Rivenbark. Chapter 8 presents a comparative analysis of the four models examined in this research. This includes the Kong model, the Kong-Rogers model that was developed after factor analysis and model-building. It also compares the Wang model and the Ammons-Rivenbark model.

Finally, Chapter 9 summarizes the findings and presents practical applications and implications of the findings for PM utilization in management, budgeting, and reporting. The dissertation ends with a conclusion and a look at future directions in research.

CHAPTER 2 LITERATURE REVIEW

This chapter discusses the factors that promote PM utilization, the perceived benefits from PM utilization, multivariate models that have been developed to explain utilization and benefits from using PM, and control variables such as form of government and respondent demographics, and position held in the respective government. Finally, this chapter lists the hypotheses derived from the literature review and lists the expectations of the present study.

Kong (1998) identified organizational factors (organizational culture and goal clarity), human factors (training, involvement of stakeholders, and leadership), and measurement factors (measurement capacity and data quality) as variables that promote PM utilization in the federal government. A literature review has confirmed these factors as the ones to be tested by this research.

ORGANIZATIONAL FACTORS

Perhaps the most important promoting factor for PM utilization is the adoption of a “results-based” culture or climate. This promotes the use of performance measures through a focus on the “overall mission” of the organization. A “results-based” organization communicates goals and objectives to its employees, give them the authority to achieve established goals, recognizes when objectives are achieved, and holds the employees accountable if goals are not achieved. Incentives and rewards help to reinforce the clarity of goals. In a situation where workers do not clearly know what their goals are, performance measurement is not a useful tool. When there are clear “consequences” such as rewards and sanctions, then performance measurement is more important and utilization is clearly reinforced.

Organizational Culture

A cornerstone of an organization is its culture, which includes the values, beliefs, and shared understandings of the members of the organization. Effective organizations actively manage culture. They recognize it as the cement that holds the organization together.

Culture components can include motivation, goals, job design, support, internal customer supply chain, work group leadership, communication, empowerment, performance, morale, and readiness (Hennessey, 1998:526).

Hendrick (2000:316) embraced the normative values of “open, flexible, tolerant, and forgiving cultures.” She felt permissive cultures are necessary to allow organization learning to occur as individuals explore options and learn and make mistakes. Organizations need to share information beyond their defined boundaries with stakeholders and others. They need to elicit broader participation in key decisions (Broom, 1995). Hellein and Bowman (2002:77) determined that, for TQM to be implemented successfully, a required requisite was an organizational culture conducive to “cooperation, empowerment, and trust.” Klay (2003) also argued performance improvement is more likely where the development of learning organizations is encouraged. Kravchuk and Schack (1996) stressed performance-monitoring systems as a mechanism for enhancing organizational learning. PM systems help organize and understand processes and outcomes, thereby improving program effectiveness.

Katzenbach and Smith (1993) in *The Wisdom of Teams* stressed the importance of organizational learning through teams. They believed that teams promote performance and support learning and behavioral changes in organizations. Teams are expected to help integrate performance and learning (Van Wart, 1994). Teams or networks can help ensure

coordination across organizations. Organizations with a TQM orientation are more likely to use teams. Results based management also emphasizes use of teams.

Evidence Pertaining to Organizational Culture

Kong (1998: 65) used a construct of authority, accountability, recognition, and feedback to operationalize organizational culture. Kong employed “authority” to refer to whether agency managers or supervisors have the decision-making authority they need to help the agency accomplish its strategic goals. Accountability entails whether the agency managers or supervisors are held accountable for the programs, operations, or projects they are responsible for. Recognition is related to whether employees in those agencies receive positive recognition for helping the agency accomplish its goals. Communication refers to whether the individual to whom the respondent reports periodically reviews the results or outcomes of the program, operations or projects that he or she is responsible for.

Kong found that organizational culture as defined above was a significant factor in utilization of PM. Likewise, Wang and Berman (2001) found that mission driven governments had a positive association with PM utilization of outputs and outcomes. Mission driven governments were more likely to use outcome performance measurements that focused on results to be achieved rather than merely measuring production of outputs.

Expectations for Current Research Concerning Organizational Culture

Based on Kong, a favorable observed organizational culture will be positively correlated with the local government’s reported PM utilization.

Goal Clarity

Often goal clarity is difficult in governments because of a lack of clear knowledge about

how to provide services, the professional orientation of government workers, or the complex policy environment in which the government official has to operate.

In using PM, Swiss (2000) points to the benefit of having a clear conversion process with plainly established goals. A clear knowledge of how to convert inputs to outputs is necessary to tightly link PM to incentives but it is often difficult in government settings. Some performance measurements offer perverse incentives. For example, successful closing of criminal cases could lead to too many plea bargains by district attorneys (Kelly and Rivenbark, 2003 a). Perrin (1998) posits that PM is more appropriate for simple and directly delivered services than other types. For instance, prevention of crimes, fires, and child abuse is very difficult to measure, while garbage pick-up is easier.

Professionalism often leads to fragmented goal clarity among government workers. Lipsky (1980) discusses the professional orientation of “street bureaucrats.” According to this author, most “street bureaucrats” have freedom from supervisory control and administrative discretion to develop their own goals. Clients and others defer to the professionalism and discretion of public administrators since they have little knowledge of performance measures. Lipsky discusses the difficulty of performance measures because of goal conflict in street-level bureaucracies. This comes about because of the worker’s concern for the client conflicts with the general social role of the agency. There are also conflicting goal expectations from peers, reference groups, community activists, and clients. Finally, the ability of the street level bureaucrat to treat people is at odds with the need for the organization to process cases efficiently. This can lead to goal displacement.

Complex policy environments also contribute to the difficulty of goal clarity in

governmental settings. Meyers, Riccucci, and Lurie (2001) studied goal congruence in governmental organizations delivering welfare reform at the local levels in three states. They found that goal congruence among the participants was particularly problematic when policy goals or organizational systems were complex.

To overcome the difficulty of unclear processes, professionalism, and complex policy environments, incentives and sanctions are often employed. Incentives (rewards) and sanctions have been touted as one way to ensure that jurisdictions align individual performance with organizational goals and objectives (Straight, 2000). This has been called the “consequences” strategy to reward successes and discipline failure to achieve goals (Rivenbark and Ammons, 2005).

However, in reality, these schemes are often not deployed or are limited (Van Landingham, Wellman, and Andrews, 2005; Andrews and Hill, 2003). Daley (1995) discussed the difficulty of pay-for-performance in the federal government, which was viewed as ineffective by civil servants because of the non-availability of merit pools to deliver increases in pay. Also, employees distrusted performance appraisal as an ineffective tool to link performance and rewards.

Evidence Pertaining to Organizational Goal Clarity

De Lancer Julnes and Holzer (2001) ascertained that goal clarity or orientation was an important factor in the adoption of PM but not in the implementation of PM. They found that adoption of PM was significantly and positively affected by goal orientation defined as consensus on program goals.

In a more recent study, Chun and Rainey (2005) found that evaluative goal ambiguity

was significantly negatively related to managerial effectiveness. Evaluative goal ambiguity refers the extent to which organizations express their targets in an objective and measurable manner that does not allow deviance or interpretation from employees. This would support the hypothesis that organizations would not use PM if managers were not able to clearly understand and quantify their goals.

Kong (1998: 65) used goal clarity as a composite exogenous variable in his dissertation. His variable is composed of “the extent to which the respondent’s agency has communicated its organizational mission to its managers in a clear and understandable way, defined its strategic goals, communicated to its managers how their everyday job responsibilities relate to the attainment of the agency’s strategic goals, and communicated the link between the achievement of agency strategic goals and the performance of agency programs, operations, and projects. Agency mission is defined as explaining why the government component where the manager works exists, telling what it does, and describing how it does it. Agency strategic goals are defined as “long-term” goals that explain the purposes of the agency’s programs and the results they are intended to achieve.” Kong found that goal clarity had a positive and significant relationship with both budget and management utilization of PM.

Expectations for Current Research Concerning Goal Clarity

Based on Kong’s findings, reported goal clarity (incentives and sanctions) will be positively correlated with reported PM utilization.

HUMAN FACTORS

Kong 1998) found that three human factors promoted PM utilization: training,

involvement of stakeholders, and leadership. Training is a necessary component when organizations adopt PM utilization. Performance measurement requires development of human capital in both the “hard” measurement skills of developing, collecting, and analyzing data and in the “soft” skills of consensus, facilitation, and working in teams. If ample training is providing, local government employees will be more likely to use PM.

Active involvement of participants in the PM process is another essential component. Participation helps generate understanding and a tolerance of performance measurement, thus ensuring continuing utilization. Some of the more important stakeholders are the central budget office and citizens and elected officials of the jurisdiction. Involvement of a central budget office is very important in promoting PM. A budget office that has a passion and a proclivity for performance measurement will through its involvement in evaluations, reviews, and studies improve the measurement capacity. This will lead to higher quality data and enhance both managerial and policy making utilization of PM. Citizens and elected officials can also act as a promoter of PM if they demand improved data. Many groups are interested in more citizen involvement. Citizens can act as a pressure group, which demands PM data at websites and through SEA type reports.

There are many examples of the importance of leadership in using performance measurements at the federal, state, and local levels. This applies to both political, top management, and departmental leadership. If the leaders are committed to PM and stress its importance, using it in their decision-making processes, then it is more likely to be used throughout the organization.

Training

Poister and Harris (2000) argued that organizations embracing TQM must have a “long-term” commitment to training that requires a substantial part of the employee’s time. They also pointed out the need for group process skills such as consensus tools, facilitation skills, and team-building approaches. Although entities can rely on consultants to help with implementation, operational training from internal staff is necessary for ongoing success of PM (Kelly and Rivenbark, 2003 a). For instance, the Balanced Scorecard system requires considerable training and education to implement (Kaplan and Norton, 1992). Participation in professional organizations such as ICMA, state budget associations, and the American Society for Public Administrators (ASPA) is also important in implementing performance measurement (Kelly and Rivenbark, 2003 a).

Evidence Pertaining to Training

Kong (1998:66) asked to what extent the agency provides respondents training to accomplish the following tasks: conducting strategic planning, setting performance goals, developing program performance measures, using performance measurement information to make decisions, and linking performance of programs to the achievement of agency strategic goals. Kong found a significant and positive relationship between training and PM utilization for both management and budgeting.

Expectations for Current Research Concerning Training

Based on Kong’s findings observed training will be positively correlated with the local government officials reported PM utilization.

Stakeholder Involvement

Active involvement of stakeholders is a promoting factor for PM utilization. Behn (2002) believed that active participation is necessary to get over the natural barriers in implementing PM:

- Citizens emphasize personal results rather than what is important for society.
- Legislators place more emphasis on the immediacy of inputs rather than “long-term” impacts. Chief executives follow suit as they try to please their bosses.
- Public employees try to avoid mistakes that will certainly get them fired rather than produce successes that earn tiny amounts of praise.
- Creating better policies is more exciting than trying to achieve results with current policies.
- Administrators try to change policy, rather than focusing on the everyday, boring attention to detail that is necessary to make slow but steady progress toward improvement.

Behn contrasted the implementation of the federal performance program, Government Performance and Results Act (GPRA) and Comstat, finding that Comstat displayed more participation resulting in better performance. Swope (1999) also emphasized the participatory style of Comstat. Using geographic information systems (GIS) and database technology, commanders are held responsible for outcomes of crime in their district. Maple and Mitchell (2000) believed that using a combination of involvement and a strong focus on performance measurement could reduce crime.

Cederblom (2002) in his study of the Washington State Patrol also credited frequent face-to-face meetings with peers and higher managers as instrumental in instilling mid-manager commitment to using performance measures in the human resources function. Swiss (2000) also considered performance measures developed through face-to-face participation through MBO to be more effective than passive continuous monitoring performance measurement systems.

Evidence Pertaining to Stakeholder Involvement

Researchers have focused on several groups of stakeholders. Evidence shows there is support for the hypothesis that involvement of elected officials, citizens, the central budget office, and others promotes the utilization of performance measurement.

Involvement of Politicians: Research findings on political involvement are mixed. Some researchers have found political involvement to be positively related to PM utilization, while others have identified it as a negative barrier. Wang (2000) found that elected officials did not initiate PM systems or provide sufficient funding for implementation. His research showed that legislative involvement in PM at the county level is not as strong as at municipal, state, and federal levels. In their case study of Florida PM utilization in budgeting, Grizzle and Pettijohn (2002) criticized the Florida legislature as micromanagers rather than leaders.

On the other hand, some researchers have found legislative involvement to be a positive factor in the adoption of PM. Broom (1995) pointed out legislative involvement was crucial in implementing results based management in the states of Texas, Oregon, Minnesota, and Virginia. Moynihan and Ingraham (2003) found that governors in high performing states exhibited positive leadership in regards to the “managing for results” process. Bernstein (2000) found that support of senior elected officials was vital in five local governments he studied. Berman and Wang (2000) determined that involvement of county elected officials was an important variable in differentiating high users of PM from lower users. Legislative involvement has also been important at the federal level. Senator Roth provided leadership for Congress that was influential in the passage of GPRA (Rosenhoover, Hand and Lynch,

2003; Roth, 1992).

Involvement of Citizens: Wang (2000) found that citizen support was a factor in PM utilization in counties. Berman and Wang (2000) also found that citizen advocates was an important variable explaining differences between higher and lower PM users. Hill and Andrews (2005) in their study of performance-based reform in Virginia found that citizen involvement was one of the factors that made the state successful in continuing to use PM in budgeting and management. Wang and Berman (2000) found a positive association between external support including elected officials and citizens with both output and outcome performance measures. Relationships between citizen involvement and use of outcome performance measurement were stronger in their study of larger counties.

Involvement of Budget Staff: Hill and Andrews (2005) found that involvement of the central budget staff was an important factor in making PM utilization part of the budget “ritual” in the state of Virginia. These budget staff contributed to the use of PM utilization by showing its value to the managers. They also acted as consultants to the agencies. This helped to entrench the use of PM and ensure practical usage of the tools of performance measurement. Wang and Berman (2001) also found a positive association with central management involvement including the budget office and PM utilization of outputs and outcomes. The stronger relationship was with use of performance measurement outputs.

Involvement of Employees: De Lancer Julnes (2001) in a case study of the Teen Responsibility, Education, Achievement, Caring, and Hope (REACH) program in Illinois, determined that a majority of the partakers agreed participation was an important factor in using performance measures. Berman and West (1995) found that employee involvement

significantly explained TQM usage in larger cities. Kong (1998:67) likewise found a significant positive relationship between respondent involvement, and budget utilization of PM but not management utilization.

Expectations for Current Research Concerning Stakeholder Involvement:

Though research findings have been mixed, observed stakeholder involvement will be positively correlated with the reported utilization of PM.

Leadership

Most researchers agree that leadership is an important variable in implementing changes such as results based management, performance based budgeting or SEA reporting (Straight, 2000). Kelly and Rivenbark (2003 a) stressed the need for cooperative managers who are involved in benchmarking projects from the beginning and who are encouraged to give input. Coe (1999) posited that leadership was vital in decisions to invest time and money necessary for benchmarking projects to be successful. Swiss (2000) believed support from the top is crucial in implementing results based management systems. These leaders control the incentives that reward developing and using PM including budgetary rewards and recognition. The power to hire and fire also provides a powerful tool to promote PM utilization.

Hendrick (2000) proposed that strong leaders must be willing to take risks to facilitate change. These leaders become the champions and sponsors who stay the course and get the job done. Willoughby and Melkers (2000) theorized that lack of leadership and commitment, particularly attention to culture and change requirements are a reason PM projects are not successful.

Hellien and Bowman (2002) found that active leadership was the most important element of TQM implementation. Charismatic leaders who motivate and generate trust and feelings of safety are particularly effective. Likewise, Melkers and Willoughby (2001) found leadership and commitment necessary for the continuity of performance budgeting in the states. Kaplan (1992) found that leadership was necessary for the implementation of Balanced Scorecard systems. Thompson (2000) found that leadership was important to bring the National Performance Review goals of cultural change and partnership to the Social Security Administration.

Leaders who can find ways to focus the entire organization on innovation projects such as performance measurement are an important promoting factor (NCPD Website). In their study of federal NPR reinvention labs, Thompson and Ingraham (1996) found reengineering projects had turf battles involving issues of power and control. This occurred because all levels of the organization exert power and try to act in their own best interest. For this reason, involvement of front-line leadership is particularly important in facilitating change. Integrating leaders at all levels will overcome the dynamics of power struggles and help to overcome turf-based resistance. For instance, the GAO found that most congressional staff were not using Program Rating Assessment Tool information because of disagreements between their offices and the White House Office of Management and Budget (Kamensky, 2005).

In addition to being able to integrate all the levels of the organization, leaders need core competencies. Kelly and Rivenbark (2003 a) gave four useful qualities in providing leadership for PM utilization: 1) ability to focus employees on a shared vision, 2) ability to

communicate the vision, 3) reliability or consistency of a manager's action, and 4) ability to compensate for weakness in applying strengths.

In their survey of municipal managers, Moon and deLeon (2001) determined if managers have reinvention values, reform activity was more likely to occur. The traditional bureaucratic values of managers were more closely associated with organizations that did not change. Whether a manager was liberal or conservative made no difference.

Brudney, Herbert and Wright (1999) also examined the values of leaders. They found that agencies with administrators who valued organizational leadership and customer service were more likely to have adopted reinvention reforms. The fact that leaders had private sector experience did not matter. Unlike Moon and deLeon (2001), they found that leaders who were conservative were more likely to have adopted reinvention.

Ho and Ni (2005) examined 4,800 performance measures from 21 cities. Their regression model showed that professionalism of staff and influence of professional organizations such as the ICMA were strong factors in influencing utilization of performance measurements in budget documents.

Executive leadership at all levels of government has been an important factor in utilization of PM. Al Gore, President Clinton, and President Bush have all been supporters of PM. Grizzle and Pettijohn (2002) credited Governor Lawton Chiles with the partial success of PM in Florida. However, Van Landingham, Wellman, and Andrews (2005) in their study of PM in Florida, found that with the administrative change in 1998, lack of leadership was a factor hindering continued utilization of the reform in that state.

In addition to top-level executive commitment to PM, others have made the case that

leadership at a lower level is indispensable in promoting utilization. In their case study of the State of Florida, Grizzle and Pettijohn (2002) found that departmental managers who take the lead role in using PM tend to be more data driven in their management approach. Poister and Harris (2000) likewise found the top-level leadership of the three appointed PennDOT secretaries was invaluable in their study of TQM utilization. Lower level managers that showed commitment and “walked the talk” were also helpful in the commitment to TQM.

Evidence Pertaining to Leadership

Wang’s (2000) found PM utilization was associated with support from county administrators. Likewise, Berman and Wang (2000) found a positive relationship between counties that use PM and support from their county manager. However, support from county managers was not a significant factor in differentiating high PM users from low users. Berman and Wang (2000) found most counties that use PM also had support from internal managers and department heads.

De Lancer Julnes and Holzer (2001) found that internal leadership was more important in the adoption phase for performance measurement while external leadership or political leadership was more important in the implementation or utilization phase.

Berman and West (1995) used a construct, which they called representational strategy. This included the ability to obtain support from the city manager, other senior managers, mayor, councilpersons, agency directors, community participants, influential private citizens, and political participants. This construct was a significant factor in explaining TQM commitment.

Kong (1998:91) used a single item indicator for leadership commitment to achieving

results. He asked managers to “rate the strength of perception that their agencies’ top leadership demonstrates a strong commitment to achieving results.” Surprisingly, the federal government manager’s responses were not statistically related to the utilization of PM in budgets or internal management. Kong attributes this finding to the fact there was only one question on the survey pertaining to leadership. Perhaps another possibility could be the importance of commitment of leadership may be dampened in the federal government with a strong separation of powers.

Expectations for Current Research Concerning Leadership:

Though research findings have been mixed, observed leadership will be positively correlated with the reported utilization of PM.

MEASUREMENT FACTORS

Local governments that use performance measurement must conceptually understand and apply it, which entails having the knowledge, staffing, and technology to use PM. If this is lacking, then quality of data necessary for continued utilization will be absent, and jurisdictions will discontinue usage. Data that is meaningful, accurate, valid, timely, relevant, and of interest to stakeholders will be more likely to be used than data that lacks these characteristics.

Measurement Capacity

Availability of slack resources is an important factor that helps organizations develop the measurement capacity to utilize performance measurement. Having an adequate tax base supports PM implementation (Kelly and Rivenbark, 2003 a). Berry (1994) found the fiscal health of state agencies was a factor in the adoption of strategic planning innovation.

Sometimes, fiscal stress may cause an organization to implement PM to try to increase efficiency and productivity (Wang and Gianakis, 1999). On the other hand, researchers such as Berry, Brower, and Flowers (2000) have argued that cutback budgeting hinders the ability to implement performance measurement.

Rivera, Streib, and Willoughby (2000) found the presence of a favorable fund balance was associated with more reinvention activity. Wang and Berman (2001) found a positive relationship between financial resources and the use of PM. Generally, most researchers have shown reform activity is associated with a strong economy, a growing population, rising real estate values, and higher per capita income.

Evidence Pertaining to Measurement Capacity

Much research deals with having staffing, information technology, and cost accounting skills and systems (Hendrick, 2000; Kaplan and Norton, 1992). These factors are necessary to help ensure reliable and accurate data.

Staffing: Berman and Wang (2000) determined that most counties reported the ability to conceptually understand and apply performance measurement. However, fewer had the technical ability to collect and process data. Around 60% of the respondents said they could collect data in a timely manner and had staff that could analyze PM. High PM users were more likely to be able to relate outputs to program operations, collect data in a timely manner, have adequate information technology, and competent staff. The item that most often differentiated low users from high users was the presence of staff that could analyze performance data.

The Citizen-Driven Performance Measurement project reported that success of the

Dayton County, Ohio PM project came about because of good group process skills, strong quantitative data analysis, and management skills of the participants (NCCPP Website). Kelly and Rivenbark (2003 a) argued the ability of management to respond to a rapidly changing environment was a crucial resource. Willoughby and Melkers (2000) likewise found that lack of personnel was an important reason why some governments have not adopted PM in performance based budgeting.

In their case study of PM implementation in Florida, Grizzle and Pettijohn (2002) ascertained that the state of Florida allocated additional funding for PBB but a lack of PM management capability was a hindrance in PM utilization. In county budgeting, Wang (2000) found that a capable staff increases the use of PM. Wang and Berman (2001) also found a positive relationship between professional competency and PM outcome and output utilization. In a later study, Wang (2002 b) found that public officials need capable staff to interpret outcome data. Likewise, Jordan and Hackbart (1999) in their survey of state budget offices found that staff capacity was the most important factor associated with state's continued use of performance funding

Information Technology (IT): IT is needed to develop and use performance management systems (Wang, 2002 b.; Ammons, 1995). There is agreement that governments implementing performance budgeting must make adequate capital investment in information technology both for the user departments and for the budget office (Kelly and Rivenbark, 2003 a). Automation is crucial in PBB for detecting errors and inconsistencies (Smith, 1999). Sometimes, particular agencies have grant funds or funding from the federal government that require "picket fence" funding structures. Unless an agency has a financial

system that can accommodate dual reporting, it is difficult to maintain both cost data and grant reporting data (Berry, Brower, Flowers, 2000).

Melkers and Willoughby (2001) found that an adequate linkage between the budgeting system and the accounting system is necessary for the implementation of performance budgeting. They also pointed to the necessity of advanced technology to process large amounts of data. Berman and Wang (2000) found in their study of counties that only about half of the respondents reported they had adequate information technology. Poister (2003: 155) identified the need for the development of a fully functioning database for processing performance data.

Cost Accounting Skills and Systems: If a jurisdiction benchmarks against other jurisdictions, compares in-house costs to private contracts, or uses cost accounting in management or budgeting, it needs a cost accounting system (Williams, 2003). Internal service funds, full costing, and activity based costing have all been identified as ways to make cost comparisons more useful. Coe and O'Sullivan (1993) touted internal service funds as a full cost management tool that will permit more accurate benchmarking comparisons.

Organizations comparing cost data have to be cognizant of direct and indirect costs, treatment of capital costs, and cost allocation methods. Full costing is especially important if organizations engage in inter-jurisdictional benchmarking or if they use managed competition whereby public service providers compete against the private sector for the right to continue in jobs. Both Indianapolis and San Diego, which have managed competition programs, have invested in high quality cost accounting systems. Fernandez and Fabricant

(2000) felt that excessive reliance on budget documents rather than full cost accounting could result in inaccuracies in comparing a private company's cost to governments. They cited studies that revealed government in-house costs derived from budget documents was 30% less than full-cost models.

Berry and Van Landingham (2004) and Van Landingham, Wellman, and Andrews (2005) argued the precision of Florida's unit costs varied because it had been hindered by limitations in the state's current accounting system, which captured costs at the object of expenditure rather than activity or unit of output. Although the state was replacing its accounting system, implementing a new system was expected to take several years. Wang's (2002 a.) study of local governments found that the adoption of a cost-based accounting system did not increase the use of PM in budgeting. However, the GASB (2003) continues to call for accounting systems that support programs and services and allow governments to do activity based costing. Organizations also need payroll systems that recognize hours by program or activity in order to capture labor costs.

Kong (1998:66) found a strong relationship of measurement capacity with data quality and an indirect effect on utilization of PM. Kong's measurement capacity construct combined questions about adequate staffing, IT, skills, and, systems to support the measurement process.

Expectations for Current Research Concerning Measurement Capacity:

Based on Kong and other literature review findings, observed measurement capacity will be positively correlated with the reported utilization of PM.

Data Quality

Reliance on input and output data must be replaced by higher order data such as outcomes for performance measurement to become useful. Swiss (2000) stated that performance measures should be generally outcomes, measurable, important, and not easily attained. The GASB (2003) likewise agreed that data needs to be relevant, understandable, comparable, timely, reliable, and consistent. Ammons (1999) added that data should be comprehensive, not redundant and easily collectible. Researchers emphasizing citizen involvement in PM find usefulness and understandability to be the most important quality measures (NCPP Website). Some of the normative research on data quality is summarized below:

- **Outcomes:** Managers resist being accountable for outcomes over which they have no control. They like counting things they have control over. Managers are often held accountable for the short term such as the budget year while longer terms are necessary for outcomes to be achieved (Berry, Brower and Flowers, 2000; Swindell and Kelly, 2000; Williams, McShane and Sechrest, 1994).
- **Importance:** Ammons (1995) stated data must be of broad enough interest to promote citizen involvement. Heinrich (2002) recommended appropriate measures at different levels of management according to the importance for that area.
- **Relevance:** A Sloan Foundation study found that citizens were interested in how smooth New York City's streets were. They developed two measures that are important to citizens. These were the Smoothness Score and the Jolt Score (Fund for the City of New York Website).
- **Reliable:** Data should be replicable (Swiss, 2000). Data should be consistent from period to period (Pizzarella, 2002). Performance data auditing may help to ensure reliability (GASB, 2003 report).
- **Consistent data:** Wang and Gianakis (1999) pointed out that subjective measures such as those in citizen satisfaction scores do not always meet these criteria. Sometimes it is not clear if increases or decreases are better performance measurements. For example, police arrests might mean crime is up so agencies are not doing a good job in preventing crime or it may mean police are doing a good job and making arrests.

- **Stretch:** Often organizations will set goals too low so they will not be embarrassed if they do not meet them (Swiss, 2000).
- **Comparability:** Coe (1999) explained that problems with comparing cost data might include that organizations use different fiscal years for financial reporting, cost of living standards are higher in different areas of the country, and accounting practices differ. Sometimes comparability can result from different decision making frames (whether social or rational) or varying commitments to programs (Williams, McShane, Sechrest, 1994).
- **Timeliness:** Wang (2000) reported that many county managers felt that timeliness of data collection was an issue in utilization of PM.

Some research deals with how to “vet” data for performance measurement. Nyhan and Martin (1999) promoted data envelopment analysis (DEA). This is a special application of linear programming. By assigning mathematical optimal weights to inputs and outputs, it can provide a scalar measure of a best overall practice or calculate the amount of resources that could be saved or produced for an additional amount of input. Woodbury, Dollery, and Rao (2003) also recommended exploring the use of DEA in improving the comparability of Australian municipality’s efficiency measures.

Rubenstein, Schwartz and Stiefel (2003) encouraged the use of adjusted performance measures. This method statistically adjusts transactions to account for uncontrollable factors that could affect the organization’s performance. They gave the example of school districts, which could adjust for the socio-economic factors present in each district. Martin and Smith (2005) recommended modeling an organization’s performance measures simultaneously, using the methods of seemingly unrelated regression. This assumes a latent organization-wide variable that is unmeasured but affects all performance measures and reflects such things as environmental influences, overall organizational efficiencies, and data imperfections. This will purge the data of “overall” organizational effects.

Evidence Pertaining to Data Quality

Bernstein (2000) conducted a case study of implementation of PM in Multnomah County, Oregon; Portland, Oregon; Prince William County, Virginia; Tucson, Arizona; and Winston Salem, North Carolina. This case study showed that government officials believed that data quality for PM should be results-oriented, useful, valid, accurate, clear, understandable, and comparable.

Blessing (1991) found that state administrators believed poor data quality was a problem in implementing the SEA reporting model. Respondents expressed concern about timeliness, comparability, verifiability, and the costliness of producing outcome and efficiency measures. Wang (2000) surveyed county managers and also found concerns about data quality. Although most counties had little difficulty in locating performance data and tracking performance over time, fewer than 50% could control the cost of data collection and acquire data in a timely fashion. Many counties were not able to compare their own performance data with other jurisdictions or substantiate their performance results through an assessment of the validity and reliability of the data.

Kong (1998: 67) found that his construct of data quality was a significant factor in utilization of PM for management but not for budgeting.

Expectations for Current Research Concerning Data Quality:

Though research findings have been mixed, observed data quality will be positively correlated with the reported utilization of PM.

BENEFITS RESULTING FROM PM UTILIZATION

IMMEDIATE PM BENEFITS

Three immediate PM benefits identified by Wang (2002 a) include improved communication, decision-making, and coordination. PM provides a frame of reference that allows the staff, elected officials, the news media, and citizens to focus on the “performance” of the government. This often results in changing the substance or tone of the questions that elected officials ask.

Performance measurement also aids decision-making through generation of feedback. It aids organizational learning in the identification of problems, searching for solutions, reaching consensus on solutions, and implementation of solutions.

Coordination is improved through performance measurement. Using multi-level and cross agency measures as targets synchronizes agency goals. With targets for social indicators, inter-agency coordination is coordinated. Social indicator performance measures are used to foster external governmental coordination among non-profit agencies, federal, and state agencies goals.

Communication Benefits

Practitioners and theorists generally agree that performance measurement utilization in management, reporting, and budgeting improves communication. Benchmarking has been touted as improving communication between and among staff, elected officials, the news media, citizens, and between governments (Ammons, Coe, Lombardo, 2001). The Government Finance Officers Association (GFOA) endorsed performance budgeting because it involved and promoted effective communication with stakeholders (Kelly and Rivenbark,

2003 a). Swiss (2000) argued that results based management improves both upward and downward communication for managers. One of the purposes of the federal PM program, GPRA, was to improve communication for planning and evaluation of results (Radin, 1998). In strategic planning, PM provides better information to the governing board about the performance of the jurisdiction (Kaplan and Norton, 1992). Epstein (1992) stated that one of the uses of SEA reporting was to improve communication between managers and elected officials. This would help managers understand elected priorities and elected officials understand the problems of service delivery.

Evidence Pertaining to Communication Benefits

Case studies and survey evidence (as summarized in Table 2.1) have generally shown that communication is a benefit of PM utilization. Local government participants in benchmarking projects, performance based budgeting, and other performance measurement endeavors have reported this phenomenon.

In general, most researchers have reported a perception among state and local governments administrators that PM is effective in improving communication between departments and agencies and legislators, but less so between the government and the public.

Table 2-1 Survey Evidence Pertaining to Perceived Communication as a Benefit of Reported PM Utilization

Researcher	Respondents	Focus	Findings
Tracy and Jean, 1993	1 Case Study Portland, Oregon	SEA reporting	SEA reports improved communication about budgets.
Ammons, Coe, and Lombardo, 2001	82 local government participants	Benchmarking projects International City Managers Association (ICMA) Institute of Government (IOG)	70% of ICMA participants reported improved communications, 79% IOG participants, and 15% Innovations Groups
Melkers and Willoughby, 2001	104 state legislative and executive budget officials	Performance based budgets	54% agreed that communication between agency personnel and legislators has improved with implementation of PBB.
Wang, 2002 a.	100 chief executive officers of cities	Performance Measurement	44% reported improved legislature to administration communication. 25.5% reported enhanced communication through citizen interest in PM
Melkers and Willoughby, 2005	277 local administrators and budgeters	Performance Measurement	Out of a maximum score of 4 for effectiveness of PM in improving communication, respondents rated executive budget office 2.3, elected officials 2.22, the Public 2.17 and between departments or programs 2.12
Willoughby, 2004	212 state administrators and budgeters	Performance Measurement	38% of the budgeters reported PM effective in improving communication with the budget office, 33% with the legislatures and 32% with improving communication between departments. 51% of administrators reported improved communication with budget office, 42% with the legislature, and 50% between departments

Expectations for Current Research Concerning Communication Benefits:

Based on literature review findings, reported PM utilization will be positively correlated with perceived communication benefits.

Decision-Making Benefits

Through provision of high-quality rational data, PM utilization seeks to make

improvements to a variety of decision-makers. Kravchuk and Schaeck (1996) contended that PM is not successful unless it improves decision-making, which Ammons (1995) says it does. The GFOA advocates performance budgeting because it integrates long-term perspectives, establishes linkages to broader strategic goals, and focuses budget decisions on outcomes (Kelly and Rivenbark, 2003 a).

Melkers and Willoughby (2001) reported that 54.8% of the state budgeters believed that improved decision-making would be a very important benefit of performance budgeting reform. Mausolff (2003) found that PM improved decision-making in four employment agencies he studied through identifying, integrating, searching, and implementing needed changes.

The GASB argued that SEA reporting would provide a more factual basis for policy decisions (Epstein, 1992). Similarly, a goal of GPRA was to improve program staff and congressional decision-making by providing information on achieving policy goals (Radin, 1998). Kaplan and Norton (1992) argued that PM strategies such as Balanced Scorecard help managers and leaders focus on the important strategic problems. Some researchers feel that PM is only a starting point for improved decision-making. Managers and leaders have to address the how and why questions also (Perrin, 1998).

One additional benefit of PM has been to provide better financial, managerial, and cost accounting systems, which greatly improves decision-making. Benchmarking projects such as the IOG project provide assistance in developing cost accounting plans (Ammons, Coe, and Lombardo, 2001). The GASB's interest in performance measurement has resulted in an increase in the degree of accrual accounting required by generally accepted accounting

principles. Accrual accounting gives a truer picture of resources and costs, which are used as efficiency indicators (Epstein, 1992).

Evidence Pertaining to Decision-Making Benefits

As can be seen from Table 2.2, survey research has found association of improved decision-making with utilization of PM. Most officials report that PM utilization has enabled them to make better decisions through prioritization, changing the focus of the program, clarification of goals and objectives, and examination of alternatives. Simple awareness of factors that influence outcomes has been influential in improving decision-making.

Table 2-2 Survey Evidence Pertaining to Perceived Decision-Making as a Benefit of Reported PM Utilization

Researcher	Respondents	Focus	Findings
Poister and Streib, 1999 a.	674 municipal managers	Performance Measurement	20.4% reported substantial impact of PM in improved decision making. 11.9 % reported changes in program priorities, 16.6% changes in focus of programs
Berman and Wang, 2000	288 county managers	Performance Measurement	63.4% of counties with high PM use agreed that PM had helped them clarify goals and objectives compared to 17.7% of low users of PM.
Willoughby and Melkers, 2000	104 state budgeters	Performance Budgeting	Out of a maximum score of 4, mean was 2.16 for improving decision making in government
Ammons, Coe, and Lombardo, 2001	82 local government participants	Benchmarking projects	43% of ICMA participants reported identification of alternative approaches to delivery of services. 75% IOG participants. 62% of ICMA participants reported identification of common problems among jurisdictions. 46% IOG.
Wang, 2002 a	100 Chief Executive officers of cities	Performance Measurement	58.4% reported an impact of improved goal specification and 57% reported improved problem identification
Melkers and Willoughby, 2005	277 local administrators and budgeters	Performance Measurement	Out of a maximum score of 4 for effectiveness of PM in increasing awareness of and focus on results: Score: 2.50. Increasing awareness of factors that affect performance results: Score 2.40.
Willoughby, 2004	212 state administrators and budgeters	Performance Measurement	41% budgeters reported PM effective in increasing awareness of and focus on results. 34% reported that PM effective in increasing awareness of factors that affect performance results. 75% administrators reported PM effective in increasing awareness of and focus on results. 60% reported that PM effective in increasing awareness of factors that affect performance

Expectations for Current Research Concerning Decision-Making Benefits:

Based on literature review findings, reported PM utilization will be positively correlated with perceived decision-making benefits.

Coordination Benefits

PM utilization is thought to improve coordination through focusing on the outcomes. This can be outcomes that agencies are to achieve or societal outcomes that require external coordination between governments, agencies, nonprofit, and the private sector.

Evidence Pertaining to Coordination Benefits

Berry, Brower, and Flowers (2000) found that performance measurement systems improved coordination through organizational learning in three Florida agencies they studied. Surveys as outlined in Table 2.3 show that fewer governmental officials report improved external coordination in comparison to inter-agency or inter-departmental coordination improvements.

Table 2-3 Survey Evidence Pertaining to Perceived Coordination as a Benefit of Reported PM Utilization

Researcher	Respondents	Focus	Findings
Poister and Streib, 1999a.	674 municipal managers	Performance Measurement	14.3% reported better relations between administrators as a substantial impact of PM and elected officials. 16.4% reported improved community relations as a substantial impact of PM
Berman and Wang, 2000	288 county managers	Performance Measurement	26.6% reported improved group-decision making capabilities
Willoughby and Melkers, 2000	104 state budgeters	Performance Budgeting	Out of a maximum score, mean was 2 for improving coordination between agencies and the legislature
Wang, 2002 a	100 Chief Executive officers of cities	Performance Measurement	26.8% report interdepartmental cooperation as an impact of PM
Melkers and Willoughby, 2005	277 local administrators and budgeters	Performance Measurement	Out of a maximum score of 4 for improving cross-agency cooperation, coordination: 1.88, for improving external government cooperation/coordination 1.71
Willoughby, 2004	212 state administrators and budgeters	Performance Measurement	12% of budgeters reported PM effective in improving cross agency cooperation/coordination. 9% reported in effective in improving external government cooperation/coordination. 34% of administrators reported PM effective in improving agency coordination while 21% reported PM effective in improving external government coordination.

Expectations for Current Research Concerning Coordination Benefits:

Based on literature review findings, reported PM utilization will be positively correlated with perceived coordination benefits.

LONG TERM PM BENEFITS

Long-term PM benefits may include cost savings, reduced duplication, improved effectiveness, and more responsive customer services. Through use of PM, agency programs can be improved or eliminated if not successful. By using customer service measures and standards, responsiveness and the quality of the service can be improved.

Efficiency Benefits

PM often promises to improve efficiency and reduce costs. For instance, the National Performance Review plan was predicated on “creating a government that works better and costs less” (Gore, 1993). Frank and D’Souza (2003) argued although PM could be used to justify tax increases, analyze fee increases, and improve bond ratings, it ought to be used to evaluate funding alternatives as well.

Some researchers argue, though, that promised efficiencies do not always live up to expectations. Perrin (1998) believed that PM is useless for budgeting. He said PM provides no direct implication for actions. Perrin said it is dangerous to make decisions on PM alone as it might lead to inappropriate action. Frederickson (1996) warned the results of reinventing government are short-term efficiency at the cost of administrative capacity and social equity. Often savings comes from contracting out which may lead to lower pay and loss of benefits for workers doing the actual work. Indeed, Heinrich found trade off between equity and efficiency performance measures in the Job Training Partnership Act (JTPA) (Heinrich, 2002).

Evidence Pertaining to Efficiency Benefits

Individual case studies have found some savings that have been attributed to PM. Ammons, Coe, Lombardo (2001) pointed out that some agencies used benchmarking projects to produce cost savings and program improvements. Ammons (1999) reported that the city of Winston-Salem garnered \$400,000 annual savings from implementing changes in its solid waste collection system. This was attributed to participating in the IOG benchmarking project. The City of Winston Salem used comparative productivity statistics to convince city

workers to take on more work that was previously done by contracted workers. The City of Greensboro used data that showed the efficiency of its refuse collections operations as documentation for fee increases. They also used information pertaining to police services to hire more support staff instead of police officers, and to alter work schedules. The City of Wilmington also used benchmarking data to privatize its recycling program at a substantial savings. It also developed alternative methods of service delivery to improve police services (Ammons, 2000). Van Landingham, Wellman, and Andrews (2005), reported operating efficiency benefits from performance based program budgeting in Florida in the early years of implementation.

The surveys conducted by Wang (2000) and Berman and Wang (2000) were somewhat optimistic about the ability of PM to increase the ability to determine efficiency. However other survey studies have not found reported cost savings, budget allocations, restructuring, and restaffing, or eliminating ineffective programs to be a prevalent benefit of PM. Moreover, there has been a difference in expectations among different groups. Melkers and Willoughby (2001) reported that cost savings were more important to state executive budget officers than legislative budgeters. These researchers also found that cost savings was more important in states where performance budgeting was mandated. However, only 33% of executive budgeters and 43% of legislative budgeters agreed or strongly agreed that performance budgeting had been used to change appropriation levels. The Willoughby 2004 study shows that even state managers are pessimistic about the efficiency effects of PM utilization.

Wang (2002 a) found in a case study and a survey of 100 chief executives that it was

unclear whether performance measurement was being used to determine funding priorities and funding levels. Many reported that resource allocation decisions were essentially political and that departments did not use performance measurement as justification for increasing or defending budgets. Only 33% of the respondents reported that performance measurement was used in the resource allocation process (Wang, 2002 a.)

Klase and Dougherty (2004) used actual appropriations rather than perceptual data to try to link performance budgeting with state budget outcomes. They could not conclusively establish that there was a direct relationship between implementation of performance budgeting and per capita expenditures. They were able to show, though, that states that had adopted PBB showed a change in constant per capita expenditures in certain functional areas. Outcome budgeting showed a positive influence on expenditures in Education, Welfare, and Health and a negative influence on Highways (14).

As shown in Table 2.4, survey research shows that government officials believe that PM utilization increases the ability to determine service efficiency. However, fewer individuals believe that PM utilization affects budget allocations.

Table 2-4 Survey and Empirical Evidence Pertaining to Perceived Efficiency as a Benefit of Reported PM Utilization

Researcher	Respondents	Focus	Findings
Poister and Streib, 1999 a.	674 municipal managers	Performance Measurement	10.3% reported substantial impact of PM in budget allocations. 15% reported substantial impacts of reduced cost of city operations
Jordan and Hackbark, 1999	46 of 50 states	Performance Budgeting	29 said that PM affects the recommended executive budget. Only 13 said that PM affected funding. 56.1% agree or strongly agree that performance indicators are important for making budget allocation decisions. Only 25% agree that performance funding successful in their state.
Wang, 2000	205 county managers	Performance Measurement	70.6% agree with statements that PM has increased ability to determine efficiency
Berman and Wang, 2000	288 county managers	Performance Measurement	45% reported an increased ability to determine service efficiency
Willoughby and Melkers, 2000	104 state budgeters	Performance Budgeting	Out of a maximum score of 4, mean was 1.79 for reducing duplicative services, 1.75 for cost savings and 1.54 for changing appropriation levels
Ammons, Coe, and Lombardo, 2001	82 local government participants	Benchmarking projects	17% of IOG participants reported success in cost savings. ICMA and Innovations reported none
Melkers and Willoughby, 2001	63 State legislative and executive budget officials	Performance based budgets	39.1% agreed that some changes in appropriations are directly attributable to outcomes from the implementation of PBB.
Wang, 2002 a.	100 Chief Executive officers of cities	Performance Measurement	33.3% reported a PM impact on legislative funding, 34.7% on restructuring, and 36% on restaffing
Melkers and Willoughby, 2005	277 local administrators and budgeters	Performance Measurement	Out of a maximum score of 4 for effectiveness of PM in cost savings: 1.97, changing appropriation levels: 1.79, reducing duplicative services: 1.77
Willoughby, 2004	212 state administrators and budgeters	Performance Budgeting	18% of budgeters reported PM effective in reducing duplicative services. 9% in affecting cost savings. 9% in reducing/eliminating ineffective services or programs, and 6% in changing appropriation levels. 19% of administrators reported PM effective in reducing duplicative services. 19% in affecting cost savings, 25% in reducing/eliminating ineffective services or programs, and 19% in changing appropriation levels
Klase and Dougherty, 2004	50 States	Performance Budgeting	Per capita in time series before and after found no direct relationship could be inferred between implementation of PBB and overall per capita expenditures

Expectations for Current Research Concerning Efficiency Benefits:

Based on literature review findings, reported PM utilization will be positively correlated with perceived efficiency benefits.

Effectiveness Benefits

Use of performance measures promises to increase effectiveness. For instance, RBM systems encourage agency planning and proactivity, giving employees accountable autonomy. This leads to outcomes of greater creativity, speed, and results (Swiss, 2000). The primary objective of the IOG Project is service improvement (Rivenbark, 2000). One of the uses GASB proposed for SEA information was to encourage effectiveness improvement in government programs and policies (Epstein, 1992). Melkers and Willoughby (2001) report that 54.3% of the state budgeters they surveyed believed program improvements were a very important impact of performance budgeting reform.

Evidence Pertaining to Effectiveness Benefits

Most survey research has found a robust association between PM utilization and perceived effectiveness benefits. For instance, Berman and Wang (2000) and Wang (2000) found that county managers perceived that PM enabled them to have the capacity to determine effectiveness and service timeliness. Frazier (2004) also found a positive significant correlation between PM and the perceived effectiveness measures of taxpayer satisfaction and improved service delivery in the state revenue agencies he studied.

One of the primary purposes of NPM, which stresses market mechanisms to improve government management, is to improve customer responsiveness. Only three studies were found which addressed customer responsiveness or commitment to service excellence. This

does not provide overwhelming evidence that customer responsiveness is a benefit of PM.

Table 2.5 details additional research findings, which show an association of PM utilization and the perceived benefit of effectiveness. Most is survey evidence asking whether government officials perceive PM utilization as improving quality of programs and services. Some deals with the overall effectiveness of service delivery and other questions concern program evaluation.

Table 2-5 Survey and Empirical Evidence Pertaining to Perceived Effectiveness as a Benefit of Reported PM Utilization

Researcher	Respondents	Focus	Findings
Poister and Streib, 1999 a.	674 municipal managers	Performance Measurement	23.4 % reported improved service quality as a substantial benefit
Wang, 2000	205 county managers	Performance Measurement	65.1% agree with statements that PM has increased ability to determine effectiveness
Berman and Wang, 2000	288 county managers	Performance Measurement	31.5% reported increased commitment to excellence as a result of PM
Berman and Wang, 2000	288 county managers	Performance Measurement	43% reported an increased ability to determine service effectiveness, 40% in service timeliness
Ammons, Coe, and Lombardo, 2001	82 local government participants	Benchmarking projects	12% of IOG reported success in improved service delivery
Willoughby and Melkers, 2000	104 state budgeters	Performance Budgeting	Out of a maximum score of 4, mean was 2.17 for improving effectiveness of agency programs
Melkers and Willoughby, 2005	277 local administrators and budgeters	Performance Measurement	Out of a maximum score of 4 for effectiveness of PM in improving customer responsiveness: 2.30
Melkers and Willoughby, 2005	277 local administrators and budgeters	Performance Measurement	Out of a maximum score of 4 for effectiveness of PM improving programs/service quality: 2.31, improving effectiveness of department programs: 2.26, reducing ineffective programs: 1.78, improving responsiveness: 2.30
Willoughby, 2004	212 state administrators and budgeters	Performance Measurement	21% of budgeters reported PM effective in improving customer responsiveness while 34% of administrators reported PM effective in improving customer responsiveness.
Willoughby, 2004	212 state administrators and budgeters	Performance Measurement	30% of budgeters reported PM effective in improving program/service quality, 30% in improving effectiveness of agency programs, 45% of administrators reported PM effective in improving program/service quality and 50% effective in improving agency effectiveness.
Frazier, 2004	4,186 State Revenue Employees	Performance Measurement	There was a correlation of .585 with improved service delivery and .388 with taxpayer satisfaction

Expectations for Current Research Concerning Effectiveness Benefits:

Based on literature review findings, reported PM utilization will be positively correlated with perceived effectiveness benefits.

OTHER FACTORS THAT INFLUENCE PM UTILIZATION AND BENEFITS

Researchers have generally found the following external environment variables influential in determining the organization's utilization and benefits reported from PM and other reforms:

- Type of organization or department – whether policy, regulatory, service, or compliance
- Influence of unions
- Size of the organization
- Form of government
- Whether city or county

Type of organization or department, influence of unions, form of government, and size of organization will not be tested because the GASB dataset does not have questions pertaining to these variables. However, a literature review is presented for each of these variables.

Type Of Program Or Agency

In a study of state agencies, Berry (1994) found that state agencies that have close associations with the private sector were more likely to adopt strategic planning than other agencies. She found no relationship between agencies offering direct services to citizens and adoption of strategic planning. Other research shows that staff agencies are more likely to have implemented reinvention programs (including performance measurement) than regulatory agencies (Osborne and Plastrik, 1997; Brudney, Herbert, and Wright, 1999).

Influence Of Unions

De Lancer Julnes and Holzer (2001) found the percentage of the work force that was unionized affected the utilization or implementation of PM. Other researchers have found that the presence of a union dampened other reforms as well (Rivera, Streib and Willoughby, 2000; Moon and deLeon 2001; Poister and Harris, 2000; Kellough and Seldon, 2003).

Size Of The Jurisdiction

Larger municipalities with more than 250 employees that offer more services are more likely to have reinvention or reform activity (Rivera, Streib and Willoughby, 2000; Moon and deLeon, 2001; Brudney, Herbert, and Wright, 1999). Population size has also been determined to affect utilization of PM (Poister and Streib, 1999 a.). These same researchers found that in cities with populations below 50,000 only 30% used PM; in cities under 250,000 but greater than 50,000 about 50% used PM and in cities with populations above 250,000 about 75% used PM. Lee and Burns (2000) also found that larger states (in population) were less likely to discontinue their usage of performance measurements in budgeting.

Form Of Government

Osborne and Plastrik (1997) suggested that the following factors would promote reinvention strategies: whether a government was council-manager versus strong mayor, and whether the council or commission was partisan or non-partisan. Hendrick (2000) in her case study of Milwaukee, Wisconsin found an appointed chief executive and an at-large election reduced the influence of politics, thereby making PM utilization more likely.

Berman and Wang (2000) found that larger counties with appointed council-administrators

had a higher technical readiness for PM. Wang (2000) also found that such counties are more likely to use PM in performance based budgeting. Similarly, Poister and Streib (1999 a) found that council manager cities were more likely to use performance measurement systems, and Moon and deLeon (2001) found that large cities that had council-managers were more likely to promote reinvention activity.

City Versus County

Cities and counties alike have embraced PM utilization. The two are different in their political structure and in the services each provides. A few researchers who have specifically studied differences in PM utilization have pointed out some differences.

Evidence Pertaining to City Versus County PM Utilization

Mandell (1997) surveyed 67 larger cities and counties in North Carolina. He found that counties were more likely to use benchmarking than cities, while cities were more likely to use performance budgeting. Counties were more likely to rate PBB as an ineffective tool than cities.

Melkers and Willoughby (2005) found that county departments had a higher use of PM across departments. Sixty-two percent of the county respondents describe their experience as good or very good in using PM, compared to 48% of city respondents. Counties were more likely to be using quality or customer satisfaction measures. Counties placed more stock in executive leadership while cities felt that citizen involvement was a more important factor in promoting PM utilization. Counties stressed the availability of reliable cost data while city respondents pointed to regular review of PM. In contrast, De Lancer Julnes and Holzer (2001) found that cities were more likely to be a significant factor

in the implementation of PM in their multiple regression model.

Expectations for Current Research Concerning City/County Differences:

Based on literature review findings, there will be some differences in whether the respondents are from cities or counties in reported PM utilization, observed promoting factors, and perceived benefits.

Respondent Position In The Organization

De Lancer Julnes and Holzer (2001) found that the position of the respondent was not a significant factor in their multiple regression model used to predict implementation of PM. Other researchers, though, have found that respondent's position in the organization does make a difference whether they are more optimistic or pessimistic about the PM utilization and the benefits derived from PM.

Evidence Pertaining to Respondent Position in the Organization

Frazier (2004) found that the senior executive had the most favorable view of PM impact, followed by the front-line supervisor, mid-level manager, and then the non-supervisor. Wang and Gianakis (1999) reported there was a difference in respondent roles and the type of performance measures preferred. Agency managers favored subjective measures while finance officers and budgeting officers rated objective measures higher.

Melkers and Willoughby (2005) found that the local government official's length of experience in working with performance measures was not a significant factor in perceptions of PM communication, budget, or lasting impacts in their regression model. However, they found a significant negative effect of respondent tenure in their respective government with the perceived benefit of improved communication from utilization of PM. Willoughby

(2004) also found a difference in whether GASB state respondents were budgeters or agency staff in rating the effectiveness of the development and use of PM. She generally found that agency staff felt PM measurement was more effective than the budgeters.

Expectations for Current Research Concerning Respondent Position

Based on literature review findings, roles of respondents will make a difference in their perspectives concerning the organizations reported utilization, observed promoting factors, and perceived benefits of PM.

PERFORMANCE MEASUREMENT MODELS

In addition to case studies, descriptive statistics, and bivariate analysis, which explains PM utilization, this literature review sought to identify models that have been developed to explain PM utilization and PM benefits. This includes multiple regression, path analysis, and structural equation modeling. Studies which showed differences between PM utilization in management, budgeting, and reporting were of particular interest.

Evidence Pertaining to Models that Explain PM Utilization

There are several models that have used path analysis and multiple regression to study the factors that promote PM utilization (Table 2.6). However, none were identified which use structural equation modeling.

Table 2-6 Empirical Evidence Using Multivariate Analysis to Examine Promoting Factors of PM Utilization

Researcher	Number of Respondents	Type of Analysis	Exogenous or Independent Variables	Endogenous or Dependent Variables	Amount of Variance Explained in Endogenous or Dependent Variables	Which Independent Variables are significant?
Berman and West, 1995	433 city managers and chief administrative officers	Path Analysis	Organizational Policies; Internal Forces; External Forces	Transformational, Representational, and Transactional Strategies; HR Contributions to Employee Development; TQM Commitment	Adjusted R2 for TQM commitment was .68	All
Wang and Giankis (1999)	178 city officials in Florida	Multiple Regression	Assessment of goal relevance, Assessment of validity of PM, assessment of reliability, use of PM for management, use of PM for budgeting, respondent's status, size of jurisdiction, income, government structure, use of subjective PM by city	Public officials preferences for subjective measures	R2=. 313	Assessment of goal relevance, use of performance measures for management, use of subjective measures by city
Wang and Giankis (1999)	178 city officials in Florida	Multiple Regression	Assessment of goal relevance and validity of PM, assessment of reliability, use of PM for management, use of PM for budgeting, respondent's status, size of jurisdiction, income, structure, use of subjective PM	Public officials preferences for objective measures	R2=. 277 F Test Significant	Reliability, use of PM for budget, and population
Wang and Berman (2001)	174 top county officials	Multiple Regression	External Support, Central Management Support, Mission Orientation, Decentralization	Utilization of Output Measures	Adjusted R2=.208 F Test significant	Central Management Involvement
Wang and Berman (2001)	176 top county officials	Multiple Regression	External Support Central Management Support, Mission Orientation, Decentralization	Utilization of Outcome Measures	Adjusted R2=.338 F Test significant	External Support, Mission Orientation

Table 2-6 (Continued)

De Lancer Julnes and Holzer, 2001	363 state and local government officials	Multiple Regression	External requirements; internal requirement; internal interest groups; external interest groups; attitudes; risk taking, county; city; position of respondent; percent unionized; resources; goal orientation; information	Adoption of PM	Adjusted R2=.5587 F Test significant	External requirements; internal requirement; internal interest group; resources; goal orientation; information
De Lancer Julnes and Holzer, 2001	363 state and local government officials	Multiple Regression	External requirements; internal requirement; internal interest groups; external interest groups; attitudes; risk taking, county; municipality; position of respondent; % unionized; resources; goal orientation; information	Implementation or utilization of PM	Adjusted R2=.6636 F Test significant	External interest groups; municipality; resources; information
Kong, 1998	770 top Federal Agency Managers	Path Analysis	Measurement capacity; goal clarity; and organizational culture	Measurement quality; commitment; involvement; and training are intervening variables. Endogenous variable is PM utilization in management	Not given	Goal clarity, organizational culture, measurement quality and training were significant in management utilization
Kong, 1998	770 top Federal Agency Managers	Path Analysis	Measurement capacity; goal clarity; and organizational culture	Measurement quality; commitment; involvement; and training are intervening variables. Endogenous variable is PM utilization in budgeting	Not given	Goal clarity, organizational culture, involvement and training were significant in budget utilization

Berman and West (1995) used path analysis to explain TQM utilization in large U.S. cities. As a reform innovation, it is very similar to PM utilization. Their model used exogenous variables including organizational policies, internal forces, external forces, and human resource contributions to employee development as explanatory variables. The

intervening variables were transformational strategies, representational strategies, and transactional strategies. This model was deemed significant and explained 68 % of the variance.

Wang and Giankis (1999) used a multiple regression model to explain public officials' preferences for objective or subjective performance measures. They found use of PM for management was significantly associated with preferences for subjective measures and that use of PM for budgeting was significantly associated with preferences for objective measures. The significance of this study for this dissertation is that this supports the expectation that measurement factors such as data quality and measurement capacity will be less important for management than for budgeting or reporting. Both the subjective and objective testing were significant and explained 28 % and 21% of their respective models.

Wang and Berman (2001) developed a multiple regression model with external support, central involvement of management staff, mission orientation, decentralization, entrepreneurship, professional competencies, and resources as independent variables to measure the impact on the dependent variables of deployment of output performance measures and outcome performance measures. Central involvement of management staff was the strongest variable for deployment of output performance measures and external support and mission orientation were the strongest variables for deployment of outcome performance measures. Both models were significant and explained 21 % and 34% of their respective variances.

De Lancer Julnes and Holzer (2001) developed and compared two multiple regression models; one of which explained adoption of PM and one which explained

implementation or utilization of PM. They found that rational and technocratic factors such as external requirements, internal requirements, goal orientation, and internal leadership were more important for adoption. Political or cultural factors (political leadership, unionization, risk taking, and employee attitudes) were more important for utilization. Both of these models were significant and explained 56% and 66% of their respective variances.

Kong (1998) used path analysis in his dissertation to examine performance measurement utilization in budgeting and management improvement models. Kong's exogenous variables were organizational culture and goal clarity. The intervening variables were measurement capacity, data quality, leadership, involvement, and training. . Kong compared the differences between PM utilization in management and budgeting. His results showed that goal clarity, organizational culture, and training had a significant influence on utilization in both areas. Data quality was significant in management improvement but not in budgeting. Involvement was significant in budgeting but not in management. Leadership did not show significance in either of the areas.

Expectations for Current Research Concerning PM Utilization Models:

Based on Kong's findings, there will be differences in multivariate models explaining PM utilization. Organizational factors (organizational culture, goal clarity or rewards and sanctions), human factors (leadership, training, involvement of stakeholders), and measurement factors (measurement capacity, and data quality) will not be equally important for PM utilization in management, budgeting, and reporting.

Evidence Pertaining to Models that Explain PM Benefits

There are several multiple regression studies identified which explain PM utilization benefits. (Table 2.7). However, none of them are as well developed as Kong’s model to explain the factors that promote PM utilization. For example, Wang’s (2002 a.) actual testing only examines short-term impacts, even though he proposes a model to look at long-term benefits as well. The Poister and Streib (2005) model focuses mainly on strategic planning.

Table 2-7 Empirical Evidence Using Multivariate Analysis to Examine Benefits of PM Utilization

Researcher	Number of Respondents	Type of Analysis	Exogenous or Independent Variables	Endogenous or Dependent Variables	Amount of Variance Explained in Endogenous or Dependent Variables	Which Independent Variables are significant?
Poister and Streib, 2005	512 municipal managers	Stepwise Regression	Performance Measure Utilization	Beneficial impacts from Strategic Planning	Eight elements of PM explained 28% of beneficial impacts	Evaluation, Assessment, and Reporting
Wang, 2002 a.	100 chief executive officers of cities	Multiple Regression	Strategic Planning; Benchmarking; PM based appraisals, PM pilot programs, PM consultants, PM training Programs	PM impact as measured by enhanced communication, enhanced performance monitoring and resource allocation decision-making	Adjusted R ² = .336 F Test significant	Strategic Planning, Benchmarking, PM-based appraisals, and PM pilot programs

Poister and Streib (2005) studied the beneficial impacts of PM utilization in strategic planning. In their significant stepwise regression model, the eight measured elements, which linked performance measures to strategic plans, explained 28% of the variation in the perceived impacts.

Wang (2002 a) developed a multiple regression model to explain PM benefits. His independent variables were strategic planning, benchmarking, PM based employee appraisals, using PM in pilot programs, having PM consultants, and implementing training programs. The dependent variable was a PM impact index based on enhanced communication, performance monitoring, and resource allocation decision-making. His overall model was significant and explained 34 % of the variance. All of the independent variables were significant except for PM consultants and training programs.

In this same work, Wang (2002 a) also proposed but did not test three performance measurement impact models that emphasized the difference between immediate results from using PM and the long-term impacts. The three models he proposed were based on the usage of PM for reporting, management, and budgeting.

The reporting model theoretically would enhance communication with legislators and the public to improve accountability and public trust. However, this dissertation will not test this hypothesis because the GASB survey does not ask any questions that could be adopted to these variables.

The management model theoretically created intermediate impacts of improved decision-making in daily operations and monitoring in strategic planning. The long-term impacts Wang expected were managerial and operational efficiency, effectiveness, and service quality. The budgeting model theoretically had the short-term impact of facilitating resource allocation and other decision-making. The long-term impacts were managerial and operational efficiency, effectiveness, and service quality.

The models Wang proposed are important because they stressed that there are

differences in expected benefits from PM utilization for budgeting, management, and reporting to citizens. Wang theorized there are differences in the intermediate and long-term benefits of PM depending on who is using PM and how it is used. He suggested there is a substantial long-term benefit of PM in usage for internal management, but less of an impact in reporting and budgeting. He pointed out that PM has been used by government officials for a long-time to manage daily operations.

Wang (2002 a: 40) also discussed the difficulties of legislators and citizens in using PM that are reported to them. He stated that legislators do not use PM because (1) measures are not politically useful or are too technical, (2) short tenure does not enhance legislator's learning about PM, and (3) legislators cannot agree on the meanings of many measures. Wang also believed it is difficult to garner citizen support for PM. Most citizens are not directly involved in governmental activities. They are not interested in government performance measures that do not directly affect them. Also, as with the legislators, many measures are too technical for citizens to understand.

Wang also referred to the difficulty with using PM in budgeting. It is his belief that resource allocation is essentially political and that PM does not strongly influence resource allocation decision-making. He also pointed out it is very difficult to understand the link between resource allocation and performance.

Expectations for Current Research Concerning PM Utilization Benefits:

Based on Wang's theories, there will be differences in multivariate models explaining PM utilization. Immediate benefits (communication, coordination, decision-making) and lasting benefits (efficiency and effectiveness) will not be equally associated with PM

utilization in management, budgeting, and reporting.

Comprehensive Approach

Most governments only partially adopt performance measurement. Some will only use PM information in budget reports. With the caveat, “you only get out of something what you put in it,” it is expected that those organizations which develop a performance management system that incorporates PM in all facets of their organizations decision-making will experience greater perceived benefits.

In addition to PM utilization in management, budgeting, and reporting, many local officials have used PM utilization in strategic planning and benchmarking to set long-range targets and measure progress towards those goals. Benchmarking has been used to compare to other jurisdictions and to the private sector to determine if the goals and targets can be justified and to determine if as compared to others, improvement can be made.

Evidence Pertaining to Comprehensive Utilization of PM

Melkers and Willoughby (2005) developed three multivariate models (Table 2.8) using multiple regression. Measurement maturity or comprehensive utilization was one of the independent models to explain various benefits. Ammons and Rivenbark (2005) used a case study, which concluded that comprehensive PM utilization was a factor in why some jurisdictions saw service improvements and others did not.

Table 2-8 Evidence Using Comprehensive Utilization to Examine Benefits of PM Utilization

Researcher	Number of Respondents	Type of Analysis	Exogenous or Independent Variables	Endogenous or Dependent Variables	Amount of Variance Explained in Endogenous or Dependent Variables	Which Independent Variables are significant?
Melkers and Willoughby, 2005	194 local administrators and budgeters	Multiple Regression	Community Characteristics Respondent Characteristics Organizational Culture Performance Measurement Characteristics	Communication Effects	Adjusted R2=.44 F Test Significant	Community Type, Location in major metropolitan Area, Tenure in respondent's government, lack of leadership support, performance measurement density
Melkers and Willoughby, 2005	194 local administrators and budgeters	Multiple Regression	Community Characteristics Respondent Characteristics Organizational Culture Performance Measurement Characteristics	Budget Effects	Adjusted R2=.47 F Test Significant	Location in major metropolitan area, PM Transparency, Performance Measurement Density Measurement Maturity
Melkers and Willoughby, 2005	194 local administrators and budgeters	Multiple Regression	Community Characteristics Respondent Characteristics Organizational Culture PM Characteristics	Lasting Effects	Adjusted R2=.33 F Test Significant	Lack of Leadership Support, Organizational Inclusion, Measurement Maturity
Ammons and Rivenbark (2005)	15 jurisdictions that participate in the N.C. IOG project	Case Study	Data Quality and Participation in comprehensive PM management systems	Service Improvement	N/A	Service improvement higher when efficiency measures and comprehensive management utilized

Melkers and Willoughby (2005) used intermediate and long-term benefits of PM (communication, budgeting, and lasting effects) as dependent variables in a multiple regression model. Maturity of the PM utilization was only one of the independent variables studied along with community characteristics, respondent characteristics, and the organizational culture. The Melkers and Willoughby maturity construct uses a comprehensive performance measurement variable, created from survey questions asking

how much the jurisdiction used PM for strategic planning, budgeting, contract management, personnel decisions, and benchmarking. They found that comprehensive utilization or maturity was the strongest variable in explaining budgeting and lasting benefits but was not significant in explaining communication effects.

Ammons and Rivenbark (2005) found through inquiry of project officials in the 15 cities in the N.C. IOG project that some cities used PM for service improvement while others showed little benefit. The primary differentiating factor between cities that experienced performance improvement and those that did not was PM usage in key management systems including:

- Establishment of performance targets (strategic planning)
- Contracting and managed competition
- Program evaluation
- Budget proposals and reviews
- Benchmarking comparison with other governments or service providers

In addition they identified data quality as a promoting factor. Reliance on higher order measures rather than workload or outputs promoted service improvement. Reliance on efficiency measures was another factor that enabled some governments to use PM for service improvements while others just use PM for reporting purposes.

Expectations for Current Research Concerning Comprehensive PM Models

Based on the literature review, a comprehensive utilization model will show that jurisdictions that combine PM utilization in management, budgeting, reporting, strategic planning, and comparative benchmarking will show a greater relationship with the perceived benefits of service improvement than agencies that report using PM for reporting alone.

HYPOTHESES DERIVED FROM LITERATURE REVIEW

Following is a listing of all hypotheses that was derived from the literature review.

The expectations for hypotheses are also reiterated.

Independent Variables: Observed Factors that Promote PM Utilization

Organizational Factors

H1a: If there is an observed presence of a “managing for results” organizational culture, the likelihood of reported PM utilization in local governments will increase.

Expectation: A favorable observed organizational culture will be positively correlated with the local government's reported PM utilization.

H1b: As the reported presence of rewards and sanctions to guide clear organizational goals and objectives increase, the likelihood of reported PM utilization will increase in local governments.

Expectation: Reported rewards and sanctions will be positively correlated with reported PM utilization.

Human Factors

H1c: If the observed presence of PM training increases, the likelihood of perceived PM utilization in local governments will increase.

Expectation: Observed training will be positively correlated with the local government officials reported PM utilization.

H1d: If the observed presence of involvement of the stakeholders increases, the likelihood of perceived PM utilization in local governments will increase.

Expectation: Observed stakeholder involvement will be positively correlated with the reported utilization of PM.

H1e: If it is observed that leaders are committed to PM, the likelihood of perceived PM utilization in local governments will increase.

Expectation: Observed commitment of leadership will be positively correlated with the organization's reported utilization of PM.

Measurement Factors

H1f: As the observed presence of measurement capacity increases, the likelihood of perceived PM utilization will increase in local governments.

Expectation: Observed organization measurement capacity will be positively correlated with the reported utilization of PM.

H1g: As the observed presence of high quality data increases, the likelihood of perceived PM utilization will increase in local governments.

Expectation: Observed data quality will be positively correlated with reported PM utilization.

Table 2.9 shows the hypothesized effect of the dependent variables with the independent variables of PM utilization.

Table 2-9 Expected Relationships between Independent Variables and Reported PM Utilization

Hypothesis	Factor	Independent Variable	Direction
H1a	Organizational Factor	Observed Organizational Culture	Positive
H1b	Organizational Factor	Reported Rewards and Sanctions	Positive
H1c	Human Factor	Observed Training	Positive
H1d	Human Factor	Observed Stakeholder Involvement	Positive
H1e	Human Factor	Observed Leadership	Positive
H1f	Measurement Factor	Observed Measurement Capacity	Positive
H1g	Measurement Factor	Observed Data Quality	Positive

Dependent Variables: Perceived Benefits from PM Utilization

Immediate Impacts

H2a: If reported PM utilization increases, the likelihood of perceived communication benefits will increase.

Expectation: PM utilization will be positively associated with perceived communication benefits.

H2b: If reported PM utilization increases, the likelihood of perceived decision-making benefits will increase.

Expectation: Reported PM utilization will be positively correlated with perceived decision-making benefits.

H2c: If reported PM utilization increases, the likelihood of perceived coordination benefits will increase.

Expectation: Reported PM utilization will be positively correlated with perceived coordination benefits.

Long-term Impacts

H2d: If reported PM utilization increases, the likelihood of perceived efficiency benefits will increase.

Expectation: Reported PM utilization will be positively associated with perceived efficiency benefits.

H2e: If reported PM utilization increases, the likelihood of perceived effectiveness benefits will increase.

Expectation: Reported PM utilization will be positively associated with perceived effectiveness benefits.

Table 2.10 summarizes the hypothesized effect of the dependent variables with the dependent variable of PM utilization:

Table 2-10 Expected Relationships between Reported PM Utilization and Dependent Variables

Hypothesis	Type of Benefit	Dependent Variable	Direction
H2a	Immediate	Perceived Communication Improvements	Positive
H2b	Immediate	Perceived-Decision making Improvements	Positive
H2c	Immediate	Perceived Coordination Improvements	Positive
H2d	Long-Term	Perceived Efficiency Improvements	Positive
H2e	Long Term	Perceived Effectiveness Improvements	Positive

Control Hypotheses

H3a: County and city officials will have differing perspectives concerning reported PM, observed promoting factors, and perceived benefits.

Expectation: Whether a respondent works for a county or a city will make a difference in their perspectives concerning organization’s reported utilization, observed promoting factors and perceived benefits of PM. Melkers and Willoughby (2005) has previously found with this same dataset that county participants report more utilization and have a perception of greater benefits in some areas. County and city respondent views were also different concerning data quality and leadership influence.

H3b: Local government officials will have differing perspectives concerning reported PM utilization, observed promoting factors, and perceived benefits according to their place in the organization and personal demographics.

Expectation: Roles of the respondents will make a difference in their perspectives concerning the organization’s reported utilization, observed promoting factors, and perceived benefits of PM. Melkers and Willoughby (2005) have previously found with this same dataset that highly tenured individuals perceived less benefits from PM than individuals who had worked a shorter period of time for their jurisdictions.

Table 2.11 summarizes the hypothesized effect of control variables with reported PM utilization, factors that promote PM utilization and perceived benefits from PM utilization.

Table 2-11 Summary of Expected Differences in Control Variables

Hypothesis Number	Control Variable	Expectation
H3a	City or County	County participants would be associated with greater PM utilization, greater PM perceived benefits, and a more favorable view of executive leadership. Cities are more likely to be associated with the presence of citizen involvement.
H3b	Respondent Position	Agency employees will have a more favorable view of PM utilization, observed factors promoting PM, and perceived PM benefits.
H3b	Years working with respective government	Highly tenured individuals will have a lower perception of the benefits of PM.
H3b	Years working with PM	Years working with PM will be more highly associated with PM utilization, observed promoting factors, and perceived benefits.

Multivariate Models Hypotheses

H4a: There will be a difference in whether the local government reports internal management, budgeting, or reporting utilization in the relationship with the observed factors that promote PM utilization.

Expectation: there will be differences in multivariate models explaining PM utilization. Organizational factors (organizational culture, goal clarity or rewards and sanctions), human factors (leadership, training, involvement of stakeholders), and measurement factors (measurement capacity, and data quality) will not be equally important for PM utilization in management, budgeting, and reporting.

H4b: There will be a difference in whether the local government reports internal management, budgeting, or reporting utilization in the relationship with perceived benefits of PM.

Expectation: There will be differences in multivariate models explaining PM utilization. Immediate benefits (communication, coordination, decision-making) and lasting benefits (efficiency and effectiveness) will not be equally associated with PM utilization in management, budgeting, and reporting.

H4c: A comprehensive model that includes PM utilization in internal management, budgeting decision-making, strategic planning, and comparative benchmarking will produce greater observed service improvements than models which use reporting utilization by itself.

Expectation: A comprehensive utilization model should show that jurisdictions that combine PM utilization in management, budget decision-making, reporting, strategic planning, and comparative benchmarking would show a greater relationship with the perceived benefits of service improvement than agencies that report using performance measurement for reporting alone.

Table 2.12 reiterates the expected differences to be found in the seven models to be examined:

Table 2-12 Hypothesized Effects of Seven Models to be Examined

Hypotheses	Model	Independent Variables	Dependent Variables	Difference Expected
H3a	Kong's Management Utilization Model	Reported rewards and sanction, Observed Data Quality, Measurement Capacity, Organizational culture, Involvement, Leadership	PM utilization in management	Based on Kong's model, Management Model will be different from Budgeting and Reporting Model. Kong found organizational culture, goal clarity, training, and data quality significant influences. Leadership and involvement were not.
H3a	Kong's Budgeting Utilization Model	Reported rewards and sanctions, Observed Data Quality, Measurement Capacity, Organizational culture, Training, Involvement, Leadership	PM utilization in budgeting	Based on Kong's model, Budgeting Model will be different from Management and Reporting. Kong found organizational culture, goal clarity, training, and involvement significant influences. Leadership and data quality were not.
H3a	Kong's Reporting Utilization Model	Goal Clarity (reported rewards and sanctions,), Observed Data Quality, Measurement Capacity, Organizational culture, Training, Involvement, Leadership	PM utilization in reporting	Based on Kong's model, Reporting Model will be different from Management and Reporting. Kong did not test this model, but data quality is of utmost importance if data is distributed to the public.
H3b	Wang's Management Utilization Model	Reported PM utilization in management	Perceived communication, coordination, decision-making, efficiency, and effectiveness benefits	Based on Wang's proposal, management utilization model will show a stronger relationship with perceived effectiveness measures than other models.
H4b	Wang's Budgeting Utilization Model	Reported PM utilization in budgeting	Perceived communication, coordination, decision-making, efficiency, and effectiveness benefits	Based on Wang's proposal, budgeting model will show a stronger relationship with perceived efficiency measures than effectiveness
H3b	Wang's Reporting Utilization Model	Reported PM utilization in reporting	Perceived communication, coordination, decision-making, efficiency, and effectiveness benefits	Based on Wang's proposal, reporting model should show the strongest relationship with perceptions of improved accountability but GASB survey does not measure this.
H3c	Ammons-Rivenbark Comprehensive Utilization Model	Reported PM utilization in management, budgeting, reporting, strategic planning, and benchmarking	Perceived communication, coordination, decision-making, efficiency, and effectiveness benefits	Based on the Ammons-Rivenbark study, comprehensive model will show the strongest relationships with service improvements.

CHAPTER TWO SUMMARY

A literature review for this dissertation was conducted by reviewing previously published works in major public sector journals. This work has been primarily normative arguments explaining why PM should be adopted, implemented or used and case studies. More rarely, quantitative studies have been conducted using perceptual data. Many of these have simply reported descriptive statistical data. Fewer have attempted to develop models of factors that promote utilization of PM or explain the benefits provided.

The literature review reveals the observed measures that promote PM utilization can be categorized as organizational, human, and measurement factors. Organizational factors include organizational culture and goal clarity. Human factors include leadership commitment, involvement of stakeholders, and training. Measurement factors include measurement capacity and data quality. It is expected these variables will have a significant positive relationship with PM utilization.

The literature review shows that perceived benefits from PM utilization can be categorized into immediate and long-term impacts. Immediate impacts include perceived improvements in communication, decision-making, and coordination. Long-term impacts include improvements in efficiency and effectiveness. It is expected these variables will have a significant positive relationship with PM utilization.

The literature review found that type of organization or department, influence of unions, size of the organization, and form of government have all been identified as factors that could make a difference in PM studies. City and county differences, and respondent characteristics (position, tenure, and experience with PM will be tested by this research.

A literature search found more advanced models have been developed to try to explain reported PM utilization than PM benefits. Wang and Giankis, 1999; Wang and Berman, 2001; and De Lancer Julnes and Holzer, 2001 developed regression models to explain PM utilization in one manner or another. Kong's 1998 path analysis model will be tested in this dissertation. It is expected that the factors that explain PM utilization will not be equally strong in PM utilization models for management, budgeting, and reporting.

Wang (2002 a) proposed that reported PM utilization in managing, budgeting, and reporting produced different benefits. He believed there was a substantial benefit from using PM in internal management. However, there was less of a benefit for budgeting and reporting. Wang's model will be tested in this dissertation. It is expected that substantial differences will be observed between PM utilization in management, budgeting, and reporting models.

In addition to using performance measures in internal management, budgeting, and reporting, two other frequent uses are in strategic planning and comparative benchmarking. Many researchers recommend the comprehensive approach. Ammons and Rivenbark (2005) in their assessment of IOG benchmarking participants observed that a comprehensive model which used PM in strategic planning, comparative benchmarking, contracting and managed competition, program evaluation, and budget proposals and reviews was more likely to produce service improvements. These authors also felt that reliable cost measures also facilitated service improvements. This model will be tested by this research.

CHAPTER 3 METHODOLOGY

INTRODUCTION

This chapter contains a description of the research design. It uses a previously collected survey conducted by the GASB of local government officials. The chapter discusses the threats to internal and external validity. The lack of randomization in the choosing of survey participants is a flaw in the data survey design. Another concern is the use of perceptual data. However, research from the private sector shows that perceptual measures of organizational performance moderately or strongly correlate with objective measures.

The sampling size is adequate to conduct multivariate analysis using structural equation modeling. However, there is a fair amount of missing data. The impact of this will need to be studied further during the data analysis phase. The operationalization of variables is presented and tied back to the GASB survey questions at the end of the paper. The control is statistical rather than physical. SPSS 13 and Amos 5 will be used to conduct the data analysis. Finally, a summary of the hypotheses is presented.

RESEARCH DESIGN

The research design for this dissertation is quasi-experimental design. Controls are statistical rather than physical. The research uses the 2000 GASB survey entitled *Performance Measurement Survey: City and County Governments*. This survey contains variables pertaining to the utilization of PM, factors that promote PM, and the perceived benefits of utilization. The GASB Board as part of its SEA research designed and administered this survey in the summer of 2000. It was partially funded by the Alfred P.

Sloan Foundation. Surveys were sent to state budget and agency staff as well as city and county governments in the United States. There were 1,311 mail surveys sent out to a diverse list drawn from the National Association of State Budget Officers, International City/County Management Association lists of local government officials, and a GASB database of addresses. The response rate was 37% yielding 489 cases including 277 local government respondents (Melkers et al, 2002). The questionnaire was extensive and there are 351 variables available to be examined.

The database from this survey was provided through the generosity of Katherine Willoughby, Professor of Public Administration and Urban Studies at Andrew Young School of Public Studies at Georgia State University (GASB 2000 PM Survey). Melkers and Willoughby (2005) used this data set to examine in their regression model the factors that influence the perceived effects of performance measurement in the dependent variables of budget, communication, and lasting effects in local governments. It is important to note the differences in the operationalization of variables in their study and compare to the present study since the same database is used. The Melkers and Willoughby study included the following independent variables:

1. Community Characteristics
 - a. City versus County
 - b. Population size
 - c. Location in major metropolitan area
 - d. Form of government
2. Respondent Characteristics
 - a. Years employed in respondent's government
 - b. Reported number of years working with performance measures

3. Organizational Culture

- a. Lack of leadership support
- b. Managing for results process
- c. Organizational inclusion
- d. Citizen inclusion

4. Performance Measurement Characteristics

- a. Performance measurement transparency – (presence of PM in budgeting documentation)
- b. Performance measurement density – (use of PM in budgeting in various budgeting cycles)
- c. Measurement maturity- (use of PM in other areas such as strategic planning and benchmarking)

THREATS TO VALIDITY

Internal Validity

Validity generally means that the measure accurately reflects the concept the researcher intends to measure and that there are no flaws in the research design. A research project with internal validity would be one that is appropriately controlled and consequently can be repeated. Types of relevant internal validity for this dissertation include face, content, concurrent, discriminant, and criterion validity. Face validity can be defined as accurate measurement of the concept that the measure is supposed to represent. The participants in the pretest phase can assess this. Content validity measures the comprehensiveness of the measure. When measuring concepts, all variables that experts agree should be included in order to accurately assess that concept. The pretest population can also assess content validity. PM experts prepared the GASB survey. It also used state and local government administrators to pretest the survey instrument before it was mailed out. The GASB research team also followed best practices in the survey distribution and collection, using an intent

letter, a cover letter to explain, using both the GASB logo and the Georgia State University logo in correspondence. Postcards and follow up telephone calls were made to encourage completion of the survey (Melkers et al, 2002). A thorough literature review has also been conducted to identify previously studied variables. They generally correspond to the variables in the survey.

Concurrent validity means measures highly correlate positively with other known measures. Cronbach's alpha will be used by this research to ensure concurrent validity. Discriminant validity means that the indicator items should not be too highly correlated with each other or it could be concluded they are the same measure. To test for this an r of .85 can be used as a rule of thumb (Garson, n.d.). Predictive or criterion validity is based on the measure's ability to predict an occurrence in the real world.

There are several other threats to internal validity. Since the GASB study was done in 2000, there is the possibility that intervening events may make comparison irrelevant. Regression toward the mean might a threat as all of the surveyed jurisdictions may be considered high users of PM. Also some of the proposed variables have only three or four scales. Five is considered to be a minimum for most research.

External Validity

External validity deals with whether the survey can be generalized to a larger population. Since the sample is not based on a random sample, it technically cannot be generalized beyond the project's participants. However, because of the diversity and extensiveness of the mailing list database, it could be conjectured that this study would produce strong findings.

Use of Perceptual Data

This study is based on perceptual data. One of the particular problems noted with PM perceptual surveys is that usage of PM and reported benefits are overstated. De Julnes and Holzer (2001) said self reported data pertaining to PM is particularly subject to overstatements by respondents. Ammons (1995) ascertained that organizations might not be using PM as much as reported. In his study of libraries and leisure services, he found a lower amount of actual usage of performance measurements in budget documents than managers reported in surveys. He concluded that officials might exaggerate usage of performance measures in surveys. Other researchers who have examined documents have also found variation between actual examination of documents and survey evidence (Poister and Streib, 1999 a.). Frazier in his 2004 dissertation examined the relationship between the employees' perception of management practices and objective performance data. He concluded that analysis of the data could not offer definite proof that a positive relationship existed between the objective data and the perceived data. However, examination of Frazier's dissertation scatterplots provided evidence of a positive relationship between perceived performance and three objective performance measures for the state tax agencies in his dissertation.

However, on the other hand, there are many studies in the private sector to measure the impact of performance relating to human resource management, strategic planning, and TQM, which have relied on subjective measures of company performance. These studies have been validated by research that has shown that perceptual measures of organizational performance moderately or strongly correlate with objective measures (Brewer, 2005).

Bommer et al (1995) completed a meta-analysis of articles, which had appeared in

leading management magazines. They found 40 articles containing 50 independent samples. The overall correlation between objective and subjective performance measures was .389. There were three samples that tapped “precisely” the same performance measure. These were correlated at .706. Dess and Robinson (1984) studied 26 manufacturing United States firms and found a correlation of .611 between objective and subjective measures of return on assets and a correlation of .694 between objective and subjective measures of growth in sales. Pearce, Robins, and Robinson (1987) researched 609 United States manufacturing firms from an eastern state. They found correlations of .45 to .92 between objective financial performance measures and the CEO’s subjective evaluation of the firm’s performance. Powell (1992) evaluated 52 manufacturing firms (wood upholstered furniture and women’s dresses). He found a correlation of .60 for objective and subjective measures for sales growth and for profitability a correlation of .58. Wall et al (2004) examined the relationship between management practices of just in time, TQM, job enrichment, skills enhancement, productivity, and profit for 80 United Kingdom manufacturing companies. In all of the cases, the subjective measures correlated with the objective measures. These authors also examined construct validity for 44 relationships. They judged the subjective measures against the objective measures. Against this criterion, subjective performance measures showed a 95% success rate of matching with the corresponding objective measure.

Although researchers have questioned the validity of self-reported PM data, it has been common practice (Frank and D’Souza, 2003). It will most likely continue to be used because it is even more difficult in the public sector to have accurate, comparable data, particularly in cost accounting. As has been noted in the private sector, many smaller,

private companies rely on subjective measures. These have been correlated with known objective measures.

SAMPLING

To conduct SEM, the sample needs to be at least 200 cases to ensure stable parameter estimates and significant tests that have enough power (Tabachnick and Fidell, 2001: 659). Since there are 277 usable cases, this goal appears to have been met. However, there is a problem with missing data. This will be addressed during data analysis to determine if missing data has the potential to distort findings.

VARIABLE OPERATIONALIZATION

For the utilization model, the dependent variable is PM utilization (management, budgeting, reporting). For the benefits model, these become the independent variables. The utilization independent variables are observed organizational culture, rewards and sanctions, training, involvement, and commitment of top leadership, measurement capacity and data quality. For the benefits model, the dependent variables are benefits of improved communication, coordination, decision-making, efficiency, and effectiveness.

PM Utilization: Dependent and Independent Variables

The survey asks questions pertaining to whether output or outcome performance measures are being used for the following management functions. These variables are combined and used in an index as Reported PM Utilization for Management:

- Establishing contracts for services
- Managing daily operations
- Personnel decisions
- Evaluation to determine underlying reasons for results
- To hold local jurisdictions accountable for state-funded or state-regulated programs
- Specific performance improvement initiatives

- Determining which programs, jurisdictions, contractors to target for audits

For budgeting, the GASB survey asks whether output or outcome performance measures are being used for, or appeared in:

- Budgeting decisions, including resource allocation or discussion about resource allocation.
- Departmental budget requests
- Executive budget report or documents
- Annual operating budgets
- Quarterly budget reports
- Annual budget reports

These variables are combined and used in an index as Reported PM Utilization for Budgeting.

For reporting, the GASB survey asks about the extent outcome or output measures are used for:

- Reporting results to management and staff
- Reporting or accountability to elected officials
- Reporting or accountability to citizens, citizens groups, or media.

These variables are combined in an index and used as Reported PM Utilization in Reporting.

Independent Variables

Observed Organizational Culture is developed from a single question which asks if the organization uses managing for results as a comprehensive approach focusing an organization on its mission, goals, and objectives, requiring the establishment, use, and reporting of performance measures. This is used as a dichotomy (1=yes, 0=no).

The GASB survey has a series of questions about rewards and sanctions, which help guide managers to make organizational goals clear and attainable. Responses to the rewards

and sanctions questions are added together in an additive index. The variable will be named Reported Rewards and Sanctions.

The GASB survey has one question, which asks if lack of training of staff for collection and maintenance of performance data is a significant problem, somewhat of a problem, or not a problem. This will be used as the measure for training.

The measure of involvement used by this research includes questions that ask whether:

- Performance measures are developed with participation of budget office staff.
- Performance targets are developed by departments with the participation of the budget office staff
- Citizens actively participate in the selection of performance measures related to city/county activities
- The opinion of citizens is considered when selecting performance measures and/or benchmarks
- The opinion of elected officials is considered when selecting performance measures/and or benchmarks.

These questions will be added together and used as the measure for Observed Stakeholder Involvement.

The GASB survey has a question about the lack of leadership support. There is also another question pertaining to leadership, which asks about the routine use of PM by top management and elected officials. These two questions will be combined in an additive index for this research to create a variable called Observed Leadership.

The GASB survey questions the jurisdictions about the following measurement capacity areas:

- Developing accurate performance measures
- Collection of performance measures
- Maintenance of performance measures
- Availability of cost information

- Adequacy of technology
- Linking the PM database and accounting system
- Understanding how to use PM.

These variables will be added together into an additive index and called Observed Measurement Capacity.

There are a series of other questions in the GASB survey related to data quality, which will be used by this research as a measure of data quality. These deal with whether:

- Performance measures are focused on program results rather than workload indicators
- Outputs are linked to outcomes
- Benchmarks are developed to link to outcome measures
- Multiple measures are used
- Reliable cost data are available
- Crosscutting measures are used across departments
- Performance measures are reviewed regularly and changed as needed.

These indicator statements are added together into variable called Observed Data Quality.

Dependent Variables

The GASB survey has a series of indicator questions about the effectiveness of the development and use of PM regarding communications that will be combined in an index.

These are whether PM results in:

- Improving communication between departments and programs
- Improving communication with the executive budget office
- Improving communication with the legislature and legislative staff
- Changing the substance or tone of discussion among legislators about agency budgets
- Changing the substance or tone of discussion among legislators about oversight of agencies
- Changing the questions legislators or their staff ask government managers or executives

These variables are added together to provide the measure for Perceived Communication

Benefits.

The GASB survey has a series of questions pertaining to decision-making that are combined in an index. These questions concern the effectiveness of decision making in:

- Changing strategies to achieve desired results
- Increasing awareness of, and focus on results
- Increasing awareness of factors that affect performance results

These variables are added together to provide the measure for Perceived Decision-Making Benefits.

The GASB survey has a series of questions pertaining to effectiveness of development and use of PM regarding coordination that will be combined in an additive index. These include whether PM results in:

- Improving cross agency cooperation/coordination
- Improving external government cooperation/coordination

These two variables are added together to provide the measure for Perceived Coordination Benefits.

The GASB survey has a series of questions concerning the effectiveness of the development and use of performance measurements in efficiency that will be combined in an additive index. These include the following PM benefits:

- Generation of cost savings
- Reduction in duplicative services
- Changing of appropriation levels

These three variables are added together to produce Perceived Efficiency Benefits.

The GASB survey has a series of questions that are combined in an additive index concerning the development and use of PM in the following effectiveness areas:

- Improving effectiveness of agency programs
- Reducing/eliminating ineffective service/programs

- Improving responsiveness to customers
- Improving program/service quality

These variables will be combined to produce a variable to represent Perceived Effectiveness Benefits.

Control Variables

The GASB survey asked if the respondents were from cities or counties. These answers were made into “dummy” variables for an examination of their relationship with other variables. The survey respondents also were asked their position. These are divided into agency, central, and program staff. They are also made into “dummy” variables for an examination of their relationship with the other variables. Finally, the respondents were asked the length of their tenure at their particular organization, and how long they had been working with PM. These are interval variables and are continuous.

Table 3.1 gives the specifics of the operationalization of the variables and ties the variables back to the GASB survey that is found at the end of the dissertation (Appendix I).

Table 3-1 Operationalization of Variables

Variable	Type	Measure	Possible Values	Name of variables in GASB survey	Operationalization of GASB Data
Reported PM Utilization for Management	Dependent and Independent	7 indicator statements pertaining to reported utilization of PM for Management	1 = no departments are using 2= a few select departments are using 3= less than 50% of departments 4 = greater than 50% of departments 5= all dept using	1. estcont 2. manops 3. perslevs 4. evalundr 5. ljurall 6. sperimp 7. detauds	This variable will be an additive index from 7 indicator statements. The lowest would be 5, highest 35
Reported PM Utilization for Budgeting	Dependent and Independent	6 indicator statements pertaining to reported utilization of PM for Budgeting	1 = no depts are using 2= a few select depts are using 3= less than 50% of depts 4 = greater than 50% of depts. 5= all depts are using	One variable combined from the following variables: 1.budresal 2. abreq 3. pmxerq 4.appor 5.appqr 6. appar	This variable will be an additive index from 6 indicator statements. Lowest number in range would be 6 while highest would be 30.
Reported PM Utilization for Reporting	Dependent and Independent	3 indicator statements pertaining to reported utilization of PM for reporting	1 = no departments are using 2= a few select departments are using 3= less than 50% of departments 4 = greater than 50% of departments 5= all departments are using	1. repmans 2. repaco 3. repcitz	This variable will be an additive index from 3 indicator statements. The lowest would be 3, highest 15.
Reported rewards and sanctions	Independent	Variable constructed from questions about whether jurisdiction uses sanctions and various rewards	0-14 based on answers to questions about rewards and sanctions	One variable combined from the following variables: 1. sancppa 2. rewp 3. rflexa 4. rlumpa 5. rrulea 6. radda 7. rdisca 8. racca 9. rreca 10. rothra 11. raddb 12. rgainb 13. rindb 14. rotrecb 15. rotherb	This variable will be an additive index. The lowest number in the range will be 1 for which no rewards or sanctions are reported. The highest number was 13.

Table 3.1 (Continued)

Observed Organization Culture	Independent	Single variable which asks if city/county uses "Managing for Results" processes	0 =no 1= yes	Manres	None Required
Observed Training	Independent	Single variable which asks if there is a lack of training of staff responsible for collection and maintenance of PM	1= not a problem 2= somewhat of a problem 3 = a significant problem	Prblkstf	Variable was reversed 1 = significant problem 2=somewhat a problem 3= not a problem
Observed Stakeholder Involvement	Independent	4 indicator statements pertaining to observed stakeholder involvement	1-4 Strongly Disagree, Disagree, Agree, Strongly Agree	One variable combined from the following variables: 1. bospm 2. bostarg 3. citcons 4. electcon 5. citpart	This variable will be an additive index from 5 indicator statements. The lowest would be 5, and highest would be 20
Observed Leadership	Independent	2 indicator statements pertaining observed to leadership	1= not a problem 2= somewhat of a problem 3= a significant problem	One variable combined from the following variables: 1. prldrms 2. prbofus	This variable will be an additive index from 2 indicator statements. Lowest number in the range would be 2 while the highest would be 6. Variables were reversed before adding together 1=significant problem 2=somewhat of a problem 3= not a problem
Observed Organization Measurement Capacity	Independent	7 indicator statements pertaining to observed measurement capacity	1-3 based on whether considered, 1=not a problem, 2=somewhat of a problem 3= a significant problem	One variable combined from the following variables: 1. prbacms 2. prbcldt 3. prbmntc 4. prblcst 5. prbtchs 6. prbdbs 7. prblund	This variable will be an additive index from 7 indicator statements. The lowest number in the range would be 3 while the highest would be 21. Variables were reversed before adding together 1=significant problem 2=somewhat of a problem 3= not a problem

Table 3.1 (Continued)

Observed Data Quality	Independent	8 indicator statements pertaining to observed data quality	1-4 Strongly Disagree, Disagree, Agree, Strongly Agree	One variable combined from the following variables 1. progress 2. prinkmea 3. blnkcome 4. multilev 5. reldata 6. xpermeas 7. measreg 8. pmxed	This variable will be an additive index from 8 indicator statements The lowest would be 8, highest, 32
Perceived Communication Benefits	Dependent	7 indicator Statements pertaining to perceived communication benefits from reported PM utilization	1= not effective 2=somewhat effective 3=effective 4=very effective	1. impcomb 2. impcomex 3. impcomlg 4. xsubstonb 5. xquest 6. compub	This variable will be an additive index from 6 indicator statements The lowest would be six while highest would be 24
Perceived Decision-making Benefits	Dependent	3 indicator statements pertaining to perceived decision-making benefits from reported PM utilization	1= not effective 2=somewhat effective 3=effective 4=very effective	1. xstrat 2. incawr 3. incawf	This variable will be an additive index from 3 indicator statements. The lowest would be 3 while highest would be 12.
Perceived Coordination Benefits	Dependent	2 indicator statements pertaining to perceived coordination benefits from reported PM utilization	1= not effective 2=somewhat effective 3=effective 4=very effective	1. impxag 2. impext	This variable will be an additive index from 2 indicator statements. The lowest would be 2, highest would be 8.
Perceived Efficiency Benefits	Dependent	2 indicator statements pertaining to perceived efficiency benefits from reported PM utilization	1= not effective 2=somewhat effective 3=effective 4=very effective	1. reddup 2. xapplev 3. affcs	This variable will be an additive index from 3 indicator statements The lowest would be 3, highest would b 12.
Perceived Effectiveness Benefits	Dependent	4 indicator statements pertaining to perceived effectiveness benefits from reported PM utilization	1= not effective 2=somewhat effective 3=effective 4=very effective	1. impeff 2. redinef 3. impres 4. impqual	This variable will be an additive index from 4 indicator statements. The lowest would be 4, highest would be 16
Form of Government City or County	Control	Variable constructed from question about whether the local government is a city or county	Dummy variable 0=city 1=county	Cityocnty	None Required

Table 3.1 (Continued)

Position	Control	3 Variables constructed from position	Dummy Variable 0=position 1=other	postn	Central staff Program staff Budget staff
Years worked with government	Control	1 question	Interval data	yrstgv	None Required
Years worked with PM	Control	1 question	Interval data	yrspms	None required

CONTROL

As a quasi-experimental research project, the control will be statistical. The control variables will be the external environment and respondent characteristics. The external environment measures will be form of government – whether county or city. The respondent characteristics that will be used as control variables for individuals will include the length of tenure, and amount of time spent working with PM, and the role of the respondent, whether budget, management, or staff.

DATA ANALYSIS PROCEDURES

SPSS 13 and Amos 5 will be used for the data analysis portion of this paper. The following steps will be taken in the data analysis portion of this research:

- The initial analysis will be to clean the data, examine it for the effects of missing data and outliers. Bivariate analysis uses correlation and the multivariate analysis uses SEM. The assumptions of these statistical methods will have to be examined.
- The second step will be to conduct scale reliability analysis by using Cronbach’s alpha. This step is needed to confirm if indicator statements can be combined in indexes.
- Thirdly, univariate analysis such as cross-tabs and graphs will be presented using the GASB survey data.

- The fourth step will be to use correlation to examine the control variables to see if there is a relationship between the control variables and PM utilization, factors that promote PM utilization, and benefits that are perceived from PM utilization. Where appropriate, this will be accomplished by making each control variable a “dummy” variable and using Pearsonian correlation which is the same as point-serial correlation which is used when there is an interval variable and a dichotomous variable (Garson, n.d.)
- The fifth step will be to examine the relationships between the independent and dependent variables and to test the hypotheses by using Pearsonian correlation.
- The sixth step will be to test the Kong Internal Determinant Model, the Wang Benefit Model, and the Ammons-Rivenbark Model using SEM. During this analysis, indicator statements, not indexed variables will be used. This will allow the calculation of error variance.

Confirming Kong’s model, which was previously tested in the federal government, will provide more evidence that this particular model can predict PM utilization in other arenas. The Wang model has not been tested previously and the Ammons-Rivenbark Model was confirmed with a case study of the 15 cities participating in the IOG benchmarking study. Validating or disproving these models will provide more knowledge about expected performance measurement benefits.

SUMMARY OF HYPOTHESES

Tables 3.2 and 3.3 present the summaries of the hypotheses and a listing of the independent and dependent variables.

Table 3-2 Summary of Independent Variables

Hypothesis Number	Independent Variable	Hypothesis
H1a	Observed Organizational Culture	If there is an observed presence of a “managing for results” organizational culture, the reported use of perceived PM utilization in local governments will increase.
H1b	Reported Rewards and Sanctions	As the reported presence of incentives and sanctions to guide clear organizational goals and objectives increase, the likelihood of reported PM utilization will increase in local governments.
H1c	Observed Training	If the observed presence of PM training increases, the likelihood of reported PM utilization in local governments will increase.
H1d	Observed Involvement of Stakeholders	If the observed presence of involvement of the stakeholders increases, the likelihood of reported PM utilization in local governments will increase
H1e	Observed Commitment of Leadership	If it is observed that leaders are committed to PM, the likelihood of reported PM utilization in local governments will increase.
H1f	Observed Measurement Capacity	As the observed presence of measurement capacity increases, the likelihood of reported PM utilization will increase in local governments.
H1g	Observed Data Quality	As the observed presence of high quality increases, the likelihood of reported PM utilization will increase in local governments.
H3a	City or County	County and city officials will have differing perspectives concerning PM utilization and observed factors promoting PM utilization.
H3b	Respondent Position	Local government officials will have differing perspectives concerning PM utilization and observed factors promoting PM utilization according to their place in the organization and personal demographics.
H3b	Years working with respective government	Local government officials will have differing perspectives concerning PM utilization and observed factors promoting PM utilization according to their place in the organization and personal demographics.
H3b	Years working with PM	Local government officials will have differing perspectives concerning PM utilization and observed factors promoting PM utilization according to personal demographics

Table 3-3 Summary of Dependent Variables

Hypothesis Number	Dependent Variable	Hypothesis
H2a	Perceived Communication Benefits	If reported PM utilization increases, the likelihood of perceived communication benefits will increase.
H2b	Perceived Decision-making Benefits	If reported PM utilization increases, the likelihood of perceived decision making benefits will increase.
H2c	Perceived Coordination Benefits	If reported PM utilization increases, the likelihood of perceived coordination benefits will increase.
H2d	Perceived Efficiency Benefits	If reported PM utilization increases, the likelihood of perceived efficiency benefits will increase.
H2e	Perceived Effectiveness Benefits	If reported PM utilization increases, the likelihood of perceived effectiveness benefits will increase
H3a	City or County	County and city officials will have differing perspectives concerning reported PM utilization and perceived benefits from PM utilization.
H3b	Respondent Position	Local government officials will have differing perspectives concerning reported PM utilization and perceived benefits from PM utilization according to their place in the organization and personal demographics.
H3b	Years working with respective government	Local government officials will have differing perspectives concerning reported PM utilization and perceived benefits from PM utilization according to their place in the organization and personal demographics.
H3b	Years working with PM	Local government officials will have differing perspectives concerning reported PM utilization and perceived benefits from PM utilization according to their place in the organization and personal demographics

Table 3.4 summarizes the models to be tested in the multivariate section of the dissertation.

Table 3-4 Summary of Multivariate Models to be Tested

Hypothesis Number	Model	Hypothesis
H4a	Kong's Internal Determinant Model – Independent Variables: Rewards and Sanctions, Data Quality, Measurement Capacity, Organizational Culture, Training, Involvement and Commitment of Leadership Dependent Variables: PM utilization in Budgeting, Management, Reporting	There will be a difference in whether the local government reports internal management, budgeting, or reporting utilization in the relationship with the observed factors that promote PM utilization
H4b	Wang's PM Impact Model- Dependent Variables: Communication, Decision-making, Coordination, Efficiency, and Effectiveness Independent Variables: PM utilization in Budgeting, Management, and Reporting	There will be a difference in whether the local government reports internal management, budgeting, or reporting utilization in the relationship with the perceived benefits of PM
H4c	Ammons-Rivenbark Comprehensive Model – Independent Variables: Using PM in contracting, evaluation, strategic planning, comparative benchmarking and budget decision-making, data quality Dependent variable: Service Improvement	A comprehensive model that includes reported PM utilization in internal management; budgeting decision-making, strategic planning, and comparative benchmarking will produce greater perceived service improvements than models, which use reporting utilization by itself.

CHAPTER 4 UNIVARIATE STATISTICAL ANALYSIS

This chapter includes the descriptive statistics for indicator statements, reliability analysis for indicator statements, which are combined into additive index variables, univariate statistical analysis for dependent and independent variables included in the research, and univariate data screening processes performed. The purpose of this section is to understand the individual variables in the study better and to prepare the variables for the bivariate analysis in chapter 5, which will use additive index variables. The multivariate analysis will use the actual indicator statements as constructs and data will be analyzed using the AMOS package. This will be covered in chapters 6, 7, and 8.

UTILIZATION OF PM: DEPENDENT AND INDEPENDENT VARIABLES

Utilization variables are measured by the GASB survey with 1=no departments are using, 2=a few select departments are using, 3= less than 50% of departments are using, 4=greater than 50% of agencies are using, and 5= all agencies are using. Table 4.1 shows the indicator statements that deal with the variables created for Management, Budgeting, and Reporting. Figures 4.1, 4.2, and 4.3 show the means in order of strength.

Reported PM Utilization for Management

A single variable called Reported PM Utilization for Management will be created from seven indicator statements dealing with PM utilization in the management activities of daily management, evaluation of results, personnel decisions, contracting, reengineering, state program monitoring, and audit targeting. Creating an additive index will produce this variable. The lowest number in the range would be seven while the highest could be 35.

With the exception of using performance measures to determine which areas to target for auditing or technical assistance and holding local jurisdictions accountable for state requirements, the most frequent response of the local government official is that a few select departments are using. State program monitoring and audit targeting most frequent response is that no departments are using. Table 4.1 gives the percentage breakouts for the seven management uses of PM.

Figure 4.1 illustrates that reported management uses of PM as measured by the overall mean generally lag reporting and budgeting. The most frequently reported management use of PM is in daily management and the least frequent use being for determining which areas to target for audits or special studies.

Reported PM Utilization for Budgeting

The budgeting variable will be created from six statements about budgeting usage. Five of the six deal with budget reporting and one deals with budget decision-making. The created additive index will have a low range of six and a possible high of 30. With the exception of using PM in budget decisions and using PM in quarterly and annual reports, all of the other budget usages show government officials most frequently report that all departments are using PM in budgeting. These include for budget requests, in the annual budget document, and in annual operating budgets.

Table 4.1 shows that local government officials most frequently report that only a few select departments are using PM for communication about resource allocation or decision-making. Budget officials most frequently report that officials are not using budgeting performance measures on a frequent basis as 37.9% stated that none of their departments are

using PM in quarterly budget reports. As shown by Figure 4.2, PM in budget reporting in annual operating budgets, budget requests and the annual budget document are the three highest uses of PM budgeting uses reported by local government officials.

Reported PM Utilization for Reporting

A single variable called Reporting PM Utilization for Reporting will be created from three indicator statements dealing with PM utilization in reporting to management, elected officials, and citizens and the media. Creating an additive index will produce this variable. The lowest number in the range would be three while the highest could be 15. Surprisingly, Table 4.1 shows that local government officials most frequently report that all departments use PM in reporting to elected officials.

As measured by means shown in Figure 4.3, reporting to elected officials and management are among the highest PM uses. Reporting to citizens does not fair as well as the other reporting categories. Local government officials most frequently report that only a few select departments use PM to report to citizens or the media. Figure 4.3 shows that as measured by the mean, reporting to citizens is higher than all management functions.

Table 4-1 Reporting Utilization of PM Output or Outcome Performance Measures Number of Respondents=277

Extent to which PM used in:	Variable	No departments are using	A few select departments are using	Less than 50 % of departments are using	Greater than 50% of departments are using	All departments are using	Not Sure (System Missing)
Managing operations or daily decisions	Reported PM Utilization for Management	15.2%	26.4%	18.8%	16.2%	9.7%	13.7%
Personnel decisions including staffing levels and evaluation	Reported PM Utilization for Management	20.9%	26.4%	15.2%	12.3%	11.6%	13.7%
To hold local jurisdictions accountable for state requirements	Reported PM Utilization for Management	28.9%	17.7%	12.3%	9%	9%	23.1%
Establishing contracts for services	Reported PM Utilization for Management	18.4%	27.1%	11.6%	17.3%	5.8%	19.9%
Performance improvement initiatives	Reported PM Utilization for Management	19.9%	31.4%	14.4%	12.6%	8.3%	13.4%
Evaluations to determine underlying reasons for results	Reported PM Utilization for Management	18.1%	28.2%	13.4%	13.7%	9.7%	17%
To determine which areas to target for audits, special studies, technical assistance, or other initiatives	Reported PM Utilization for Management	35%	19.5%	10.8%	7.9%	5.1%	21.7%
Budgeting Decisions, including Resource Allocation or discussion about Resource Changes	Reported PM Utilization for Budgeting	15.9%	22.4%	13.7%	20.2%	19.9%	7.9%
Outcome/Output PM appearance in agency budget requests	Reported PM Utilization for Budgeting	14.8%	14.1%	9.4%	19.5%	34.3%	7.9%
Outcome/Output PM in the 1999-2000 Budget Document	Reported PM Utilization for Budgeting	19.9%	9.4%	6.5%	17.7%	36.5%	10.1%

Table 4-1 (Continued)

Outcome/Output PM in the Annual operating budgets	Reported PM Utilization for Budgeting	15.9%	9.7%	6.9%	18.8%	40.4%	8.3%
Outcome/Output PM in budgeting quarterly reports	Reported PM Utilization for Budgeting	37.9%	14.4%	4.3%	9.7%	13%	20.6%
Outcome/Output PM in annual budget reports	Reported PM utilization for Budgeting	23.5%	18.1%	7.2%	15.5%	22%	13.7%
Reporting to management and staff	Reported PM Utilization for Reporting	10.8%	24.2%	11.9%	20.6%	24.2%	8.3%
Reporting or accountability to elected officials	Reported PM Utilization for Reporting	13.0%	22.4%	9.4%	19.9%	27.4%	7.9%
Reporting or accountability to citizens, citizen groups, or media	Reported PM Utilization for Reporting	18.1%	26.7%	11.2%	14.1%	19.5%	10.5%

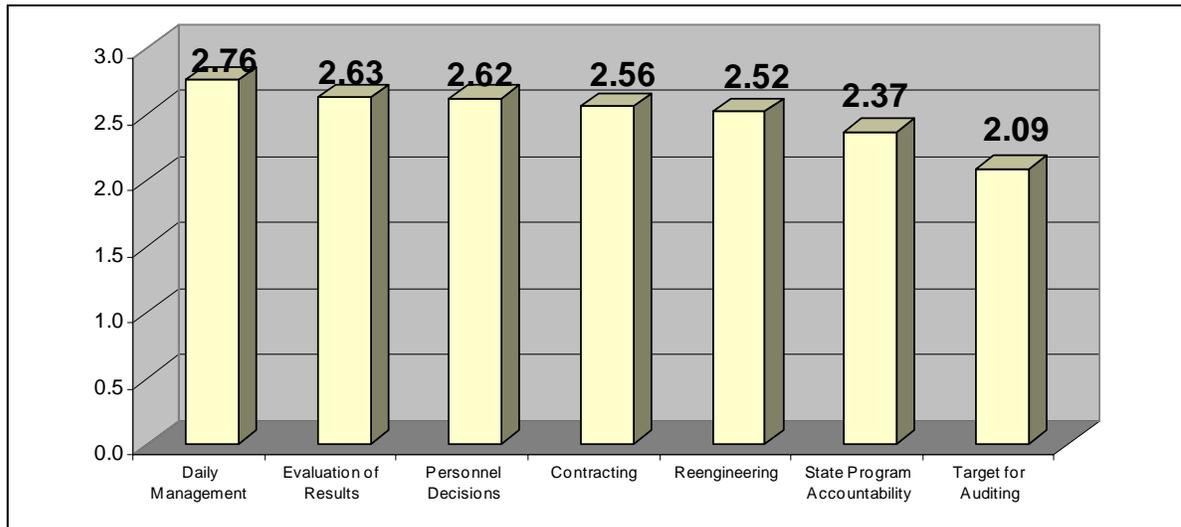


Figure 4-1 Mean Responses for Reported PM Utilization in Management

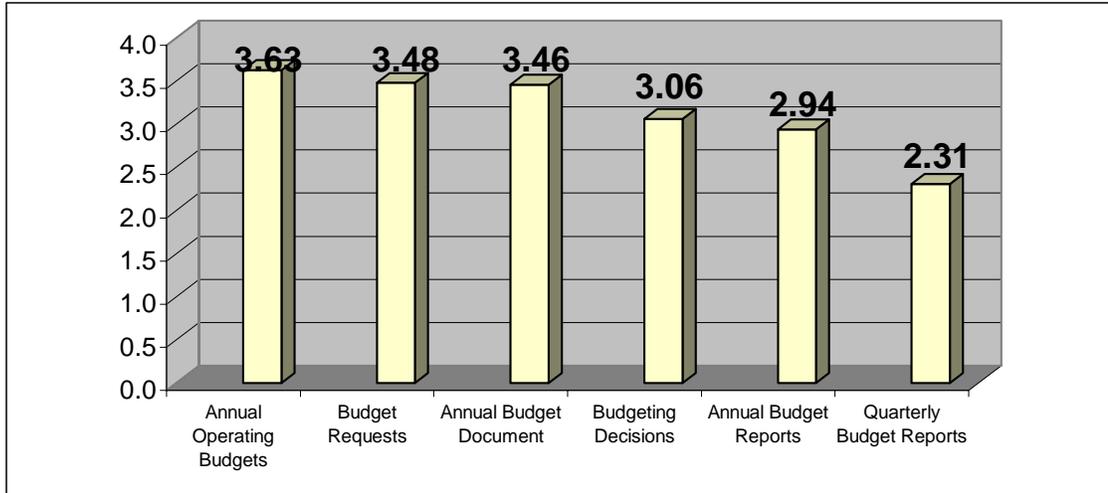


Figure 4-2 Mean Responses for Reported PM Utilization in Budgeting

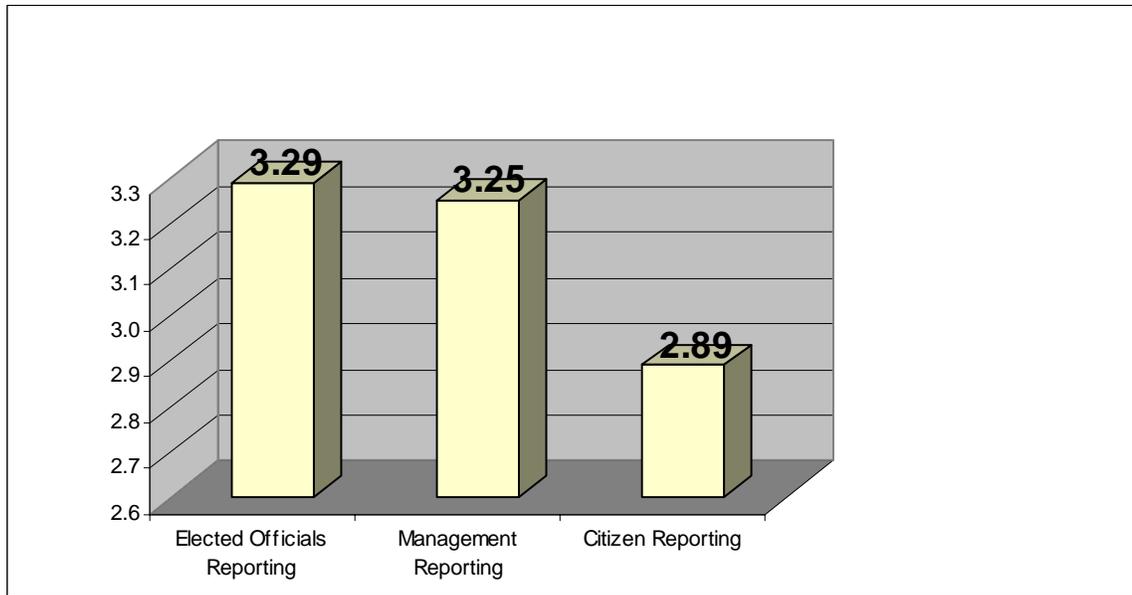


Figure 4-3 Mean Responses for Reported PM Utilization in Reporting

INDEPENDENT VARIABLES

Reported Rewards and Sanctions

The GASB survey does not have any questions pertaining to goal clarity. However, it does have questions dealing with sanctions and rewards. Table 4.2 shows the number of jurisdictions reporting rewards numbers is 16.6%. The number that reports sanctions is considerably lower at 9.4%. Table 4.3 shows that the most frequently reported departmental reward is recognition. Only 3.2% report lump sum budgeting as a reward that is given to departments. Table 4.3 points out that the most frequently reported individual reward is individual pay for performance. Only 5.4% report gainsharing. This provides an indication that PM usage for New Public Management is not that prevalent. Using the data in Table 4.3 will create a variable called Reported Rewards and Sanctions. Giving one point for each type of reward or sanction reported will create this variable. The lowest number in the range will be one for which no rewards or sanctions are reported. This is the most frequently reported option with 159 of 277 reporting no uses of rewards or sanctions. The highest number was 13 different rewards or sanctions reported. This was out of a possible score of 15.

Table 4-2 Reported Utilization of Rewards and Sanctions (Number of Respondents =277)

Reported Reward or Sanction	Purpose	Percentage who report rewards or sanctions	Percentage who say they don't use rewards or sanctions	Percentage who don't know (System Missing)
Offers Rewards for Performance Goal Attainment	General	16.6%	79.4%	4%
Imposes Sanctions for Poor Performance	General	9.4%	79.4%	11.2%

Table 4-3 Reported Utilization of Incentives or Rewards used by Agencies (Number of Respondents = 277)

Reported Reward or Sanction	Purpose	Number who report rewards	Percentage reporting this type of reward
Recognition	Departmental	67	24.2%
Discretionary Use of Surplus Resources	Departmental	30	10.8%
Additional/Supplemental Allocations	Departmental	25	9%
Relaxation of Budget Rules	Departmental	25	9%
Access to Special Pools of Funding	Departmental	15	5.4%
Flexibility	Departmental	12	4.3%
Lump Sum Budgeting	Departmental	9	3.2%
Other Rewards	Departmental	3	1.1%
Individual Pay for Performance	Individual	59	21.3%
Special Recognition	Individual	58	20.9%
Additional Pay	Individual	39	14.1%
Gainsharing	Individual	15	5.4%
Other Rewards	Individual	2	.7%

Observed Measurement Capacity

Table 4.4 presents the results of the survey pertaining to measurement capacity, training, and leadership. For most of the capacity questions, the most frequent response is that there is somewhat of a problem in that area. The only exception is technology. In this case, 42.6 % report that lack of adequate technology is not a problem. Technology and cost accounting appear to be the capacity areas with the least concern. Some 38.7% of the local officials surveyed felt that a lack of cost information about programs was not a problem. The capacity areas that had the most significant problems were in basic understanding of how to use PM and linkage between PM databases and accounting and or budget databases. Table

4.4 shows that 35.7% of the respondents felt that lack of understanding how to use PM was a significant problem and 36.6% said inadequate linkages between PM and accounting or budgeting databases was a significant problem. A single variable called Observed Measurement Capacity will be created from seven indicator statements dealing with measurement capacity. Creating an additive index will produce this variable. The lowest number in the range would be seven while the highest could be 21.

Observed Training

The majority (53%) of the respondents felt that lack of training was somewhat of a problem. The remaining was equally divided in their opinion of whether lack of training was significant problem or not a problem. A variable called Observed Training will be created from the question in Table 4.4 pertaining to training. If the respondent answered that training was not a problem, they were coded three, somewhat of a problem was coded two, or a significant problem was coded one.

Observed Leadership

Table 4.4 shows that the most frequent response (38.6%) to lack of interest of leadership was that it was not a problem. However, 34.3% felt it was somewhat of a problem and 27.1% felt it was a significant problem. The most frequent response (39.2 %) to whether regular use of PM by top management and elected officials was that it was somewhat of a problem. Only 23.2% felt it was not a problem while 37.6% felt it was a significant problem. A variable called Observed Leadership will be created from combining the two questions pertaining to leadership. The lowest number in the range will be two while the highest could be six.

Table 4-4 Observed Measurement Capacity, Training, and Leadership

Capacity Area Examined	Variable	Not A problem	Somewhat of a problem	A significant Problem
Lack of Understanding How to Use PM	Observed Measurement Capacity (n=252)	13.1%	51.2%	35.7%
Lack of Inadequate Link Between PM Dbase and Accounting/Budget Dbase	Observed Measurement Capacity (n=243)	20.6%	42.8%	36.6%
Development of PM that accurately reflect program activities	Observed Measurement Capacity (n=248)	17.7%	48%	34.3%
Collection of Performance Data	Observed Measurement Capacity (n=251)	15.1%	52.6%	32.3%
Maintenance of Performance Data	Observed Measurement Capacity (n=249)	20.9%	53.4%	25.7%
Lack of Cost Information about Programs	Observed Measurement Capacity (n=248)	38.7%	43.5%	17.7%
Lack of Adequate Technology to Support PM Effort	Observed Measurement Capacity (n=249)	42.6%	37.8%	19.7%
Lack of Training	Observed Training (n=251)	23.5%	53%	23.5%
Lack of Interest of Leadership	Observed Leadership (n=251)	38.6%	34.3%	27.1%
Lack of regular use by top management and elected officials	Observed Leadership (n=250)	23.2%	39.2%	37.6%

Observed Data Quality

Table 4.5 shows that for all of the data quality indicator statements except for crosscutting data, the most frequent response is agreement that the jurisdiction has data quality meeting the criterion. However, the most frequent response for crosscutting data that traverses departments is disagreement that it is available. The eight indicator statements for data quality are combined into an additive index to create the variable Observed Data Quality. The lowest number in the range would be eight while the highest would be 32.

Observed Stakeholder Involvement

Table 4.5 illustrates that respondents most frequently agree that the opinion of citizens and elected officials are considered when selecting performance measures or benchmarks. However, the most frequent response is disagreement that citizens actively participate in the selection of performance measures. They also most frequently report that performance measures are developed with the participation of the budget office but most frequently report disagreement that performance targets are developed with the aid of budget office staff. The four indicator statements for involvement are combined into an additive index to create the variable Observed Stakeholder Involvement. The lowest number in the range would be five while the highest would be 20.

Table 4-5 Observed Data Quality and Stakeholder Involvement Number of Respondents = 277

Statements about Quality of PM Data	Variable	Strongly Disagree	Disagree	Agree	Strongly Agree	Don't Know (System Missing)
PM can be changed when necessary	Observed Data Quality	2.5%	5.8%	56.7%	22.7%	12.3%
PM is reviewed on a regular basis	Observed Data Quality	6.1%	10.5%	51.3%	21.7%	10.5%
PM are focused more on Program Results, than Straight Workload Measures	Observed Data Quality	6.1%	30%	41.9%	12.3%	9.7%
Reliable Cost Data are Available for most Services and Programs	Observed Data Quality	6.1%	22.4%	49.1%	11.6%	10.8%
Multiple Levels of Measures, from outputs to outcomes, to societal benchmarks are developed	Observed Data Quality	11.6%	30%	35.4%	8.3%	14.8%
Organization has crosscutting PM that more than one department, jurisdiction, program, or sector contributes to accomplishment	Observed Data Quality	16.2%	36.5%	25.6%	7.6%	14.1%
Program Outputs are linked to Outcome Measures	Observed Data Quality	8.7%	31.4%	39.7%	5.8%	14.4%
Benchmarks are developed that link to outcome measures	Observed Data Quality	11.9%	31%	32.5%	5.4%	19.1%
Citizens actively participate in the selection of PM	Observed Involvement	32.1%	44.4%	9.7%	1.4%	12.3%
Opinion of citizens considered when selecting PM and/or benchmarks	Observed Involvement	16.6%	28.2%	36.1%	6.1%	13%
Opinion of elected officials considered when selecting PM and or/benchmarks	Observed Involvement	8.3%	15.9%	54.5%	10.5%	10.8%
Performance targets are developed with participation of Budget Office Staff	Observed Involvement	10.8%	39%	28.9%	9.7%	11.6%
Performance measures are developed with participation of Budget Office Staff	Observed Involvement	9.7%	22.4%	41.9%	15.5%	10.5%

Observed Organizational Culture

Figure 4.4 shows that 122 (44%) of the respondents said that they used managing for results, a “comprehensive approach to focusing an organization on its mission, goals, and objectives, requiring the establishment, use and reporting of performance measures.” (GASB, 2000) Slightly less than half (47%) of the 277 respondents said they did not have a “managing for results” process in place.

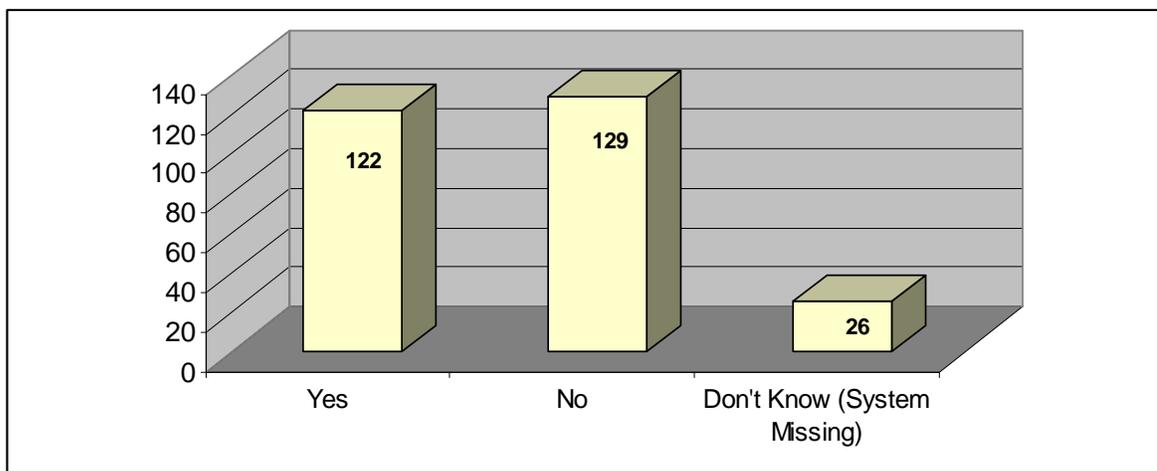


Figure 4-4 Observed Organizational Culture – “Managing for Results” Processes Used (Number of respondents = 277)

DEPENDENT VARIABLES: PERCEIVED BENEFITS OF PM

Benefits are rated by the respondents as 1=not effective, 2= somewhat effective, 3= effective and 4=very effective. Table 4.6 shows the indicator statements that deal with the variables created for the variables created for communication, decision-making, coordination, efficiency, and effectiveness.

Perceived Communication Improvement

A single variable called Perceived Communication Improvement will be created from

six indicator statements dealing with effectiveness of PM in improving communication within departments and programs, with the executive budget office, with the legislature and legislature staff, with the public, changing the substance or tone of discussion among legislators, and changing the questions legislators or their staffs ask government managers or executives. Creating an additive index will produce this variable. The lowest number in the range will be six while the highest will be 24. The most frequent response for the communication indicator statements is that PM is somewhat effective in producing communication benefits (Table 4.6).

Figure 4.5 shows that communication benefits as measured by the mean of the answers generally lag decision-making and effectiveness factors but rank ahead of coordination and efficiency factors.

Perceived Decision-Making Improvement

A single variable called Perceived Decision-Making Improvement will be created from three indicator statements dealing with the effectiveness of PM in creating decision-making benefits. Creating an additive index will produce this variable. The lowest number in the range will be three while the highest would be 12. Table 4.6 shows the most frequent response for the decision-making indicator statements is that PM is somewhat effective in producing decision-making benefits.

Figure 4.5 shows that decision-making benefits as measured by the mean of the answers are generally ranked at the top. Increasing awareness and focus on results is the highest mean followed by increased awareness of factors that effect response. Changing strategies to achieve results is the lowest of the three statements and generally falls below the

effectiveness indicator statements.

Perceived Coordination Improvement

A single variable called Perceived Coordination Improvement will be created from two indicator statements dealing with the effectiveness of PM in creating coordination benefits. Creating an additive index will produce this variable. The lowest number in the range will be two while the highest would be eight. The most frequent response for improving cross-agency cooperation is about evenly divided between somewhat effective and not effective. Table 4.6 indicates the most frequent response to improving external coordination is not effective. Figure 4.5 shows that coordination benefits as measured by the mean of the answers is generally at the bottom of the list along with the efficiency benefits.

Perceived Effectiveness Improvement

A single variable called Perceived Effectiveness Improvement will be created from four indicator statements dealing with the effectiveness of PM in creating effectiveness benefits. Creating an additive index will produce this variable. The lowest number in the range will be four while the highest would be 16. The most frequent response for the effectiveness indicator statements is that PM is somewhat effective in producing effectiveness benefits (Table 4.6).

Figure 4.5 shows that the effectiveness benefits as measured by the mean of the answers are generally at the top of the list following decision-making benefits. The one exception is reducing or eliminating ineffective programs, which falls at the bottom of the list.

Perceived Efficiency Improvement

A single variable called Perceived Efficiency Improvement will be created from three indicator statements dealing with the effectiveness of PM in creating efficiency benefits of affecting cost savings, reducing duplicative services, and in changing appropriation levels. Creating an additive index will produce this variable. The lowest number in the range would be three while the highest would be 12. Except for reducing duplicative services, the most frequent response for these efficiency statements is somewhat effective (Table 4.6). For reducing duplicative statements, 41.4% of the respondents feel that PM is not effective in this activity while 41.4% report that PM is somewhat effective.

Figure 4.5 shows that efficiency measures generally lag decision-making, effectiveness, and communication and are at the bottom of the list with improving external coordination.

Table 4-6 Perceived Benefits of PM Utilization

Statements about Effectiveness of PM	Purpose	Not Effective	Somewhat Effective	Effective	Very Effective
In Improving Communication Between Departments and Programs	Perceived Communication Improvement (n=238)	24.4%	45.4%	23.9%	6.3%
In Improving Communication with the Executive Budget Office	Perceived Communication Improvement (n=239)	20.1%	39.7%	30.5%	9.6%
In Improving Communication with the Legislature and Legislative Staff	Perceived Communication Improvement (n=241)	21.2%	45.2%	24.1%	9.5%
In Changing the Substance or Tone of Discussion Among Legislators About Agency Budgets	Perceived Communication Improvement (n=234)	33.3%	44.4%	16.2%	6%
In changing the questions legislators or their staff ask government managers or executives	Perceived Communication Improvement (n=237)	32.5%	40.5%	19.8%	7.2%
In communicating with the Public about Performance	Perceived Communication Improvement (n=242)	26.4%	40.1%	24%	9.5%
In increasing awareness of, focus on, results	Perceived Decision-making Improvement (n=239)	10.9%	45.2%	27.2%	16.7%
In increasing awareness of factors that affect performance results	Perceived Decision-making Improvement (n=239)	13%	46.4%	28.5%	12.1%
In changing strategies to achieve desired results	Perceived Decision-making Improvement (n=238)	16.8%	50%	26.5%	6.7%
In improving cross agency cooperation/coordination	Perceived Coordination Improvement (n=241)	38.6%	39%	18.7%	3.7%
In improving external government cooperation/coordination	Perceived Coordination Improvement (n=239)	46.4%	38.5%	13.0%	2.1%

Table 4-6 (Continued)

In improving effectiveness of agency programs	Perceived Effectiveness Improvement (n=242)	13.6%	53.3%	26.4%	6.6%
In reducing/eliminating ineffective services/programs	Perceived Effectiveness Improvement (n=241)	40.2%	44%	12.9%	2.9%
In improving responsiveness to customers	Perceived Effectiveness Improvement (n=244)	18.4%	42.6%	29.5%	9.4%
In improving programs/service quality	Perceived Effectiveness Improvement (n=242)	13.6%	50.4%	27.7%	8.3%
In affecting cost savings	Perceived Efficiency Improvement (n=240)	30.4%	48.8%	14.6%	6.3%
In reducing duplicative services	Perceived Efficiency Improvement (n=239)	41.4%	41.4%	15.5%	1.7%
In changing appropriation levels	Perceived Efficiency Improvement (n=236)	40.7%	42.4%	14.4%	2.5%

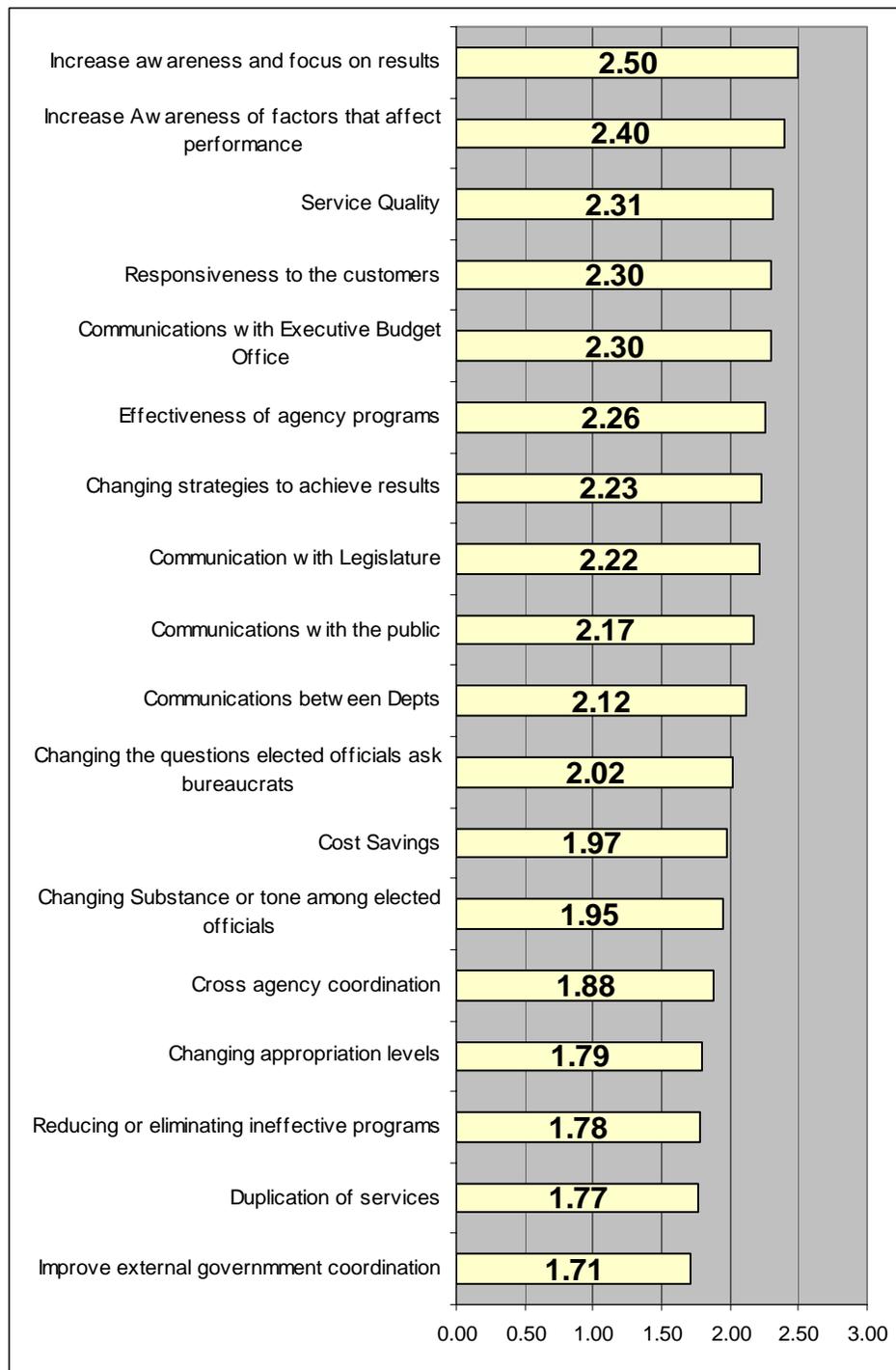


Figure 4-5 Effectiveness of PM in Producing Perceived Benefits

CONTROL VARIABLES

Form of Government

Figure 4.6 shows that the majority of the respondents are from cities. Some 214 or 77.3% are from cities. County respondents number 63 or 22.7%.

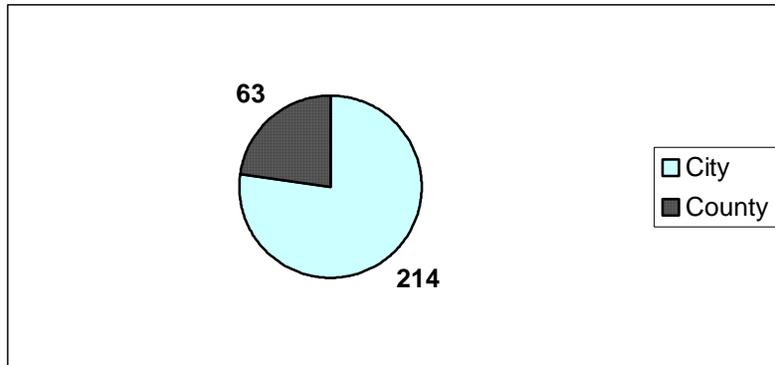


Figure 4-6 Form of Government (Number of Respondents = 277)

Respondent Position

Figure 4.7 shows that budget staff number 43 or 16.1%. Program staff number 70 or 26.2%. The most frequent reported position was central management such as County Manager, Finance Director, or Audit Director. These positions number 154 or 57.7%. There are ten respondents, which were missing data in this category. These are not included in the graph.

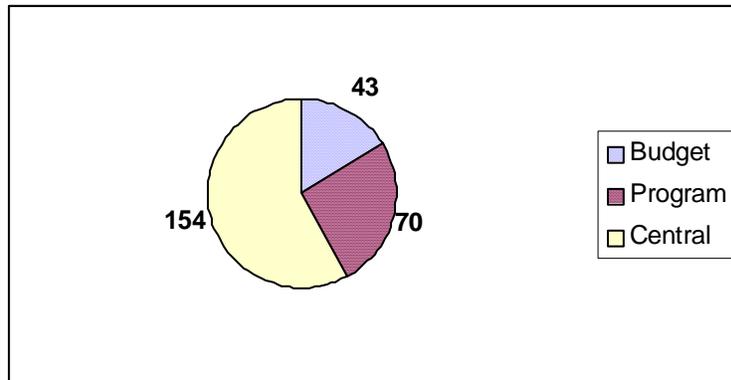


Figure 4-7 Respondent's Position (Number = 267)

Tenure and Performance Measurement Experience

Figure 4.8 shows that the most frequent response for years employed by the respondent government is one year. The mean is 11.41. The most frequent response for years working with PM is five years. Surprisingly, the mean is 7.91 indicating that most of these respondents have been working with PM since the early 1990s.

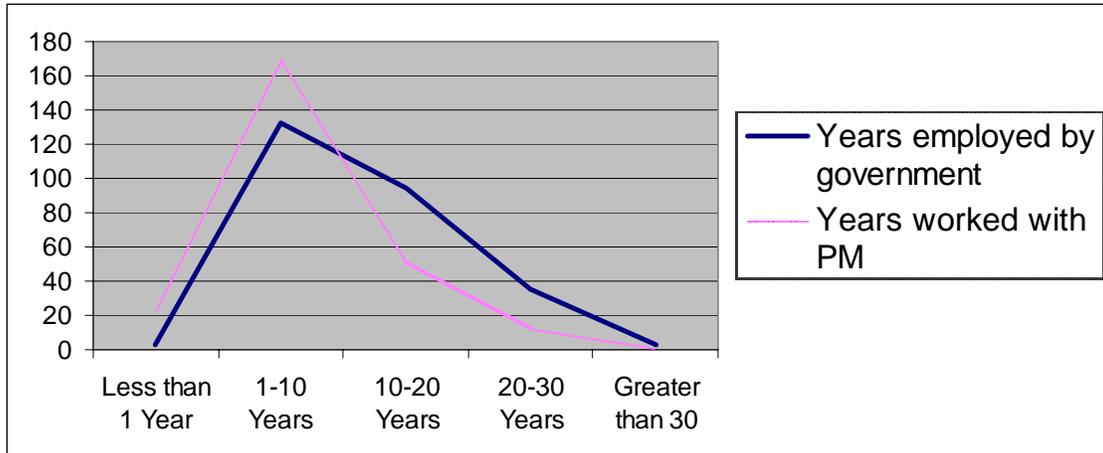


Figure 4-8 Respondent Tenure and Experience (Tenure = 267; Reporting Experience = 255 Reporting Tenure)

DATA ANALYSIS

Cronbach's Alpha

This research uses Cronbach's alpha to assess reliability. The usual test is that alpha should be .70 to be combined in an index. All of the indexed variables in this study meet this test as seen in Table 4.7. A scale reliability for Reported Rewards and Sanctions was not available since there were too many cases that did not report any use of rewards or sanctions.

Table 4-7 Cronbach's Alpha: Internal Reliability

Combined Variable	Number of Items	Cronbach's alpha
Reported Utilization of PM in Management	7 indicator statements	.956
Reported Utilization of PM in Reporting	3 indicator statements	.934
Reported Utilization of PM in Budgeting	6 indicator statements	.898
Observed Measurement Capacity	7 indicator statements	.769
Observed Data Quality	8 indicator statements	.834
Observed Leadership	2 indicator statements	.832
Observed Involvement of Stakeholders	5 indicator statements	.759
Perceived Communication Improvement	6 indicator statements	.888
Perceived Decision-Making Improvement	3 indicator statements	.857
Perceived Coordination Improvement	2 indicator statements	.839
Perceived Effectiveness Improvement	4 indicator statements	.879
Perceived Efficiency Improvement	3 indicator statements	.753

Assessment of Normality

The rule of thumb for skewness or the tilt of continuous variables is that they should be within the +2 and the -2 to meet normality standards. Kurtosis or peakedness should also be within the +2 and -2 (Garson, n.d.). Reported Rewards and Sanctions did not meet this standard, as the kurtosis was 2.243. A square root transform was performed on this variable. With this change, all of the variables meet these normality standards as shown in Table 4.8.

Table 4-8 Statistical Measurements for Continuous Variables

Continuous Variable	Mean	Median	Standard Deviation	Skewness	Kurtosis	Number	Minimum	Maximum
Years working with PM	7.91	6	6.862	1.201	1.142	255	0	34
Years employed by Respondent's government	11.41	10	7.953	.609	-.250	267	0	37
Reported PM Utilization in Reporting	9.42	9.50	4.075	-.065	-1.341	260	3	15
Reported PM Utilization in Management	17.8264	16	7.83447	.532	-.708	265	7	35
Reported PM Utilization in Budgeting	19.130	20	7.631	-.302	-1.131	268	6	30
Observed Involvement	12.0395	12	3.010	-.315	.256	253	5	20
Observed Data Quality	21.141	21	4.297	-.277	.186	255	8	32
Observed Leadership	3.972	4	1.454	-.022	-1.314	251	2	6
Observed Training	2	2	.687	0	-.866	251	1	3
Observed Measurement Capacity	13.654	14	3.219	.061	-.499	254	7	21
Perceived Communication Improvement	12.8443	12	4.326	.445	-.366	244	6	24
Perceived Decision-making Improvement	7.119	7	2.314	.191	-.548	243	3	12
Perceived Coordination Improvement	3.581	4	1.490	.157	-.172	241	2	8
Perceived Efficiency Improvement	5.556	5	1.973	.833	.576	243	3	12
Perceived Effectiveness Improvement	8.690	8	2.806	.499	.085	245	4	16
Reported Rewards and Sanctions	2.556	1	2.362	1.622	2.243	277	1	13
Transformed Reported Rewards and Sanctions	1.465	1	.6403	1.123	.083	277	1	3.61

Dichotomous variables are not normally distributed but according to experts, a breakout that is not larger than a 90:10 split is acceptable (Tabachnick and Fidell, 2001:67).

As indicated by Table 4.9, the dichotomous variables in this research meet this standard.

Table 4-9 Statistical Measurements for Dichotomous Variables

Dichotomous Variable	Yes	No	Number
City	77.3%	22.7%	277
County	22.7%	77.3%	277
Program Staff	26.2%	73.8%	267
Central Staff	57.7%	42.3%	267
Budget Staff	16.1%	83.9%	267
Observed Organizational culture	48.6%	51.4%	251

Missing Data

Tabachnick and Fidell (2001:59) say that if only a few data points (less than five percent) are missing at random, then the missing data problem is not as serious as if more data is missing. This data set has 277 respondents and most of the variables have more than five percent missing (See Table 4.10). Combining “don’t know “answers with system missing answers for some questions and not allowing respondents to answer don’t know in others probably causes this. There are 110 of the cases that have at least one variable missing. Using SPSS 13, all of the bivariate and multivariate relationships will be analyzed using the Missing Values Analysis option. In the items where the relationship between missing data values are significant or not random, expectation maximization can be used and compared to see if this makes a difference. Analysis will be presented with each relationship about whether the missing data has the potential to distort the findings.

Table 4-10 Missing Data

Variable	Type of Variable	Number Present	Number Missing	Percent Missing
Years working with Performance Measures	Control/Continuous	255	22	7.9%
Years working in government	Control/Continuous	267	10	3.6%
Position	Control/Categorical	267	10	3.6%
Type of Government/City or County	Control/Categorical	277	0	0
Reported PM Utilization in Management	Dependent/Independent/Continuous	265	12	4.3%
Reported PM Utilization in Budgeting	Dependent/Independent/Continuous	268	9	3.2%
Reported PM Utilization in Reporting	Dependent/Independent/Continuous	260	17	6.1%
Transformed Reported Rewards and Sanctions	Independent/Continuous	277	0	0
Observed Organizational culture	Independent/Dichotomous	251	26	9.4%
Observed Measurement Capacity	Independent/Continuous	254	23	8.3%
Observed Data Quality	Independent/Continuous	255	22	7.9%
Observed Involvement	Independent/Continuous	253	24	8.7%
Observed Training	Independent/Continuous	251	26	9.4%
Observed Leadership	Independent/Continuous	251	26	9.4%
Perceived Communication Improvement	Dependent/Continuous	244	33	11.9%
Perceived Decision-making Improvement	Dependent/Continuous	243	34	12.3%
Perceived Coordination Improvement	Dependent/Continuous	241	36	13%
Perceived Efficiency Improvement	Dependent/Continuous	243	34	12.3%
Perceived Effectiveness Improvement	Dependent/Continuous	245	32	11.6%

Outliers

There are four variables that had univariate outliers. There were four univariate outliers for years working with PM, one for years working with the respective government, two for efficiency benefits from PM, and two for the transformed variable, goal clarity. These nine cases will all be deleted before the bivariate analysis is run.

CONCLUSION

The primary focus of the dissertation will be on the three variables of Reported PM Utilization for Management, Reporting, and Budgeting. Reported PM utilization in management, generally lags behind usage in reporting and budgeting. Four control variables are created including form of government (whether a county or a city), respondent position, tenure, and PM experience. The independent variables that are created include reported rewards and sanctions, observed measurement capacity, training, leadership, data quality, stakeholder involvement, and organizational culture. The dependent variables created include perceived communication, decision-making, coordination, effectiveness, and efficiency improvements.

Cronbach's alpha shows that all of the indexed variables in this study meet the cut-off of at least .70 to be combined. After an assessment of normality, that showed, that Reported Rewards and Sanctions failed the test for of being over +2, this variable was transformed using square root. It then met the normality standards. There is a fair amount of missing data that will be analyzed in upcoming chapters.

CHAPTER 5 BIVARIATE STATISTICAL ANALYSIS

INTRODUCTION

This chapter explores bivariate correlations between seven environmental control variables, seven independent internal determinant variables promoting PM, and five dependent variables dealing with benefits of PM and their relationship with three PM utilization variables examining usage in management, budgeting and reporting. Correlation analysis will show whether the direction of the relationship between the dependent variable and the independent variable is as expected. It also shows the strength and significance of the relationship between the two variables. For this research, correlation relationships below .10 are very weak, .10 to .30 are weak, .30 to .50 are moderate, .50 to .70 are strong, and above .70 are very strong.

Bivariate analysis is conducted by Pearsonian correlation to measure the linear relationship. This includes relationships between two continuous variables or between a dichotomous and a continuous variable. A dichotomous and a continuous variable have a point-series correlation, which is the same as Pearson's r for a true dichotomy and a continuous variable (Garson, n.d.). In a few cases where there are two dichotomous variables, Phi is used. However, Phi is the same as Pearsonian correlation in SPSS correlation output (Garson, n.d.). Since this is not a random sample, significance is not appropriate for inferential analysis. However it is reported here because it is widely used in social science for exploratory analysis of non-random data (Garson, n.d.).

This chapter begins with a discussion of correlation relationships between the independent variables of the Kong Internal Determinants Model, the dependent variables of

the Wang Benefits model, and the association between control variables and PM utilization variables. The final portion of the chapter will reveal the limitations from the testing of the assumptions of correlation and missing data. Before the conclusion, a section of the chapter will discuss the theoretical relevance of the bivariate relationships.

INDEPENDENT VARIABLES – FACTORS THAT PROMOTE PM UTILIZATION

Table 5.1 presents the correlations between PM utilization in reporting, budgeting and management and the independent variables. Table 5.2 compares the actual findings to the expected findings.

Table 5-1 Correlation Between Reported PM Utilization for Reporting, Budgeting, and Management with Independent Variables

Dependent Variables	Independent Variables						
	Observed Organizational Culture	Reported Rewards and Sanctions	Observed Training	Observed Involvement of Stakeholders	Observed Leadership	Observed Measurement Capacity	Observed Data Quality
Reported PM utilization in Reporting	.61** n=234	.27** n=251	.33** n=235	.42** n=238	.51** n=235	.39** n=238	.63** n=238
Reported PM utilization in Budgeting	.58** n=239	.24** n=259	.26** n=242	.44** n=244	.44** n=242	.27** n=245	.57** n=245
Reported PM utilization in Management	.59** n=237	.37** n=256	.27** n=240	.47** n=242	.51** n=240	.31** n=243	.53** n=243

*p<=. 05, **p<=. 01, two tailed test

Table 5-2 Comparison of Expected Findings Versus Actual Findings for the Independent Variables

Hypothesis	Independent Variable	Expected Direction	Actual Direction	Actual Magnitude
H1a	Observed Organizational Culture	Positive	Positive	Strong
H1b	Reported Rewards and Sanctions (Transformed)	Positive	Positive	Weak for reporting and budgeting, moderate for management
H1c	Observed Training	Positive	Positive	Weak for budgeting and management, moderate for reporting
H1d	Observed Involvement	Positive	Positive	Moderate
H1e	Observed Commitment of Leadership	Positive	Positive	Moderate for budgeting, strong for reporting and management
H1f	Observed Measurement Capacity	Positive	Positive	Weak for budgeting, moderate for reporting and management
H1g	Observed Data Quality	Positive	Positive	Strong

Observed Organizational Culture and PM Utilization

H1a: If a “managing for results” organizational culture is observed, the likelihood of reported PM utilization in local governments will increase.

Table 5.1 shows that observed organizational culture is strongly and positively associated with PM utilization for reporting ($r=.61, p<=.01$), budgeting ($r=.58, p<=.01$), and management ($r=.59, p<=.01$). The expectation was that observed organizational culture would be positively associated with PM utilization in these three areas (Table 5.2). PM utilization in reporting has the strongest association with organizational culture, while budgeting is only slightly lower than management.

Reported Rewards and Sanctions and PM Utilization

H1b: As the presence of reported utilization of rewards and sanctions (transformed) to guide clear organizational goals and objectives increase, the likelihood of reported PM utilization will increase in local governments.

As shown in Table 5.1, reported rewards and sanctions are weakly and positively correlated with reported PM utilization for reporting ($r=.27, p<=.01$) and budgeting ($r=.24, p<=.01$). It is moderately related to management ($r=.37, p<=.01$). Reported rewards and

sanctions are more closely associated with reported PM utilization in management than with usage in reporting or budgeting. Table 5.2 shows the positive relationship was as expected.

Observed Training and PM Utilization

H1c: If observed PM training is provided, the likelihood of reported PM utilization in local governments will increase.

Table 5.1 shows that observed training is moderately and positively associated with reported PM utilization for reporting ($r = .33, p \leq .01$) and weakly associated with budgeting ($r = .26, p \leq .01$) and management ($r = .27, p \leq .01$). Table 5.2 shows this was as expected.

Observed training has a higher association with PM utilization in reporting than management and budgeting utilization.

Observed Involvement of Stakeholders and PM Utilization

H1d: If observed involvement of the stakeholders increases, the likelihood of reported PM utilization in local governments will increase.

As presented in Table 5.1, observed involvement has a moderate and positive correlation with PM utilization in reporting ($r = .42, p \leq .01$), budgeting ($r = .44, p \leq .01$), and management ($r = .47, p \leq .01$). Table 5.2 shows this is as expected. Observed involvement is a slightly more important factor in reported PM utilization for management.

Observed Leadership Commitment and PM Utilization

H1e: If leaders are observed to be committed to PM, the likelihood of reported PM utilization in local governments will increase.

As shown in Table 5.1, observed leadership has a positive and strong correlation with PM utilization in reporting ($r = .51, p \leq .01$) and management ($r = .51, p \leq .01$). Table 5.2 shows this was as expected. Unexpectedly, the relationship between leadership and PM in budgeting is weaker ($r = .44, p \leq .01$) and would be characterized as only moderate.

Observed Measurement Capacity and PM Utilization

H1f: As observed measurement capacity increases, the likelihood of reported PM utilization will increase in local governments.

Table 5.1 shows observed measurement capacity is moderately and positively associated with reported PM utilization for reporting ($r = .39$, $p < .01$) and management ($r = .31$, $p < .01$). It is positively and weakly associated with reported PM for budgeting ($r = .27$, $p < .01$). This was as expected as shown in Table 5.2. The correlation of measurement capacity with reported PM utilization in reporting was the highest of the three uses.

Curiously, management is higher than budgeting.

Observed Data Quality and PM Utilization

H1g: As the presence of observed high quality data increases, the likelihood of reported PM utilization will increase in local governments.

Table 5.1 presents that observed data quality is strongly and positively correlated with PM utilization for reporting ($r = .63$; $p < .01$), budgeting ($.57$; $p < .01$) and management ($r = .53$; $p < .01$). Observed data quality has a stronger association with PM utilization in reporting and budgeting. The weaker relationship is with PM utilization in management. Table 5.2 shows the relationship is positive as expected.

Findings and Discussion

In general, the relationships between utilization and the independent variables of organizational culture, reported rewards and sanctions, training, involvement, leadership measurement capacity and data quality, were positive and moderate to strong.

- Local government officials reported a strong relationship between observed organizational culture and reported PM utilization in management, budgeting, and reporting.

- Reported rewards and sanctions had a moderate relationship with PM utilization in management and a weak relationship with PM utilization in reporting and budgeting.
- Observed training had a moderate relationship with PM utilization in reporting and a weak relationship with PM utilization in budgeting and management.
- Observed involvement of stakeholders had a moderate relationship with PM utilization in management, budgeting, and reporting.
- Observed commitment of leadership had a strong relationship with reported PM utilization in management and reporting and a moderate relationship with budgeting.
- Local government officials reported a moderate positive relationship between observed measurement capacity and PM utilization in management and reporting. The relationship between observed measurement capacity and PM utilization and budgeting was weak.
- Observed data quality had a strong association with PM utilization management, budgeting, and reporting.
- Reported PM utilization in reporting had a stronger relationship than management and reporting for the observed variables of organizational culture, training, measurement capacity, and data quality. It fell behind reported PM utilization in management in its association with observed involvement of the stakeholders and reported use of rewards and sanctions. Observed leadership was equally strong in its relationship with reported PM utilization in reporting and management. Reported PM in budgeting was not the strongest factor in any of the relationships.

An unexpected finding was that the most important factor promoting reported PM utilization was observed data quality for reporting while it was observed organizational culture for reported PM utilization in budgeting and management. It was also surprising that the least important factor was reported rewards and sanctions for reported PM utilization in budgeting and reporting while it was training for PM utilization in management.

DEPENDENT VARIABLES – PERCEIVED BENEFITS FROM PM UTILIZATION

Table 5.3 presents the correlations between PM utilization in reporting, budgeting and management and the dependent variables. Table 5.4 compares the actual findings to the expected findings.

Table 5-3 Correlation Between Reported PM Utilization for Reporting, Budgeting, and Management with Dependent Variables

Independent Variables	Dependent Variables				
	Perceived Communication Improvement	Perceived Decision-Making Improvement	Perceived Coordination Improvement	Perceived Efficiency Improvement	Perceived Effectiveness Improvement
Reported PM Utilization in Reporting	.56** n=229	.62** n=228	.37** n=227	.43** n=228	.53** n=230
Reported PM Utilization in Budgeting	.46** n=235	.51** n=234	.25** n=233	.38** n=234	.43*** n=236
Reported PM Utilization in Management	.48** n=233	.55** n=232	.40** n=231	.59** n=232	.57** n=234

*p<=. 05, **p<=. 01, two tailed test

Table 5-4 Correlation Between Reported PM Utilization for Reporting, Budgeting, and Management with Dependent Variables

Hypothesis	Dependent Variable	Expected Direction	Actual Direction	Actual Magnitude
H2a	Perceived Communication Improvement	Positive	Positive	Strong for reporting, moderate for budgeting and management
H2b	Perceived Decision- making Improvement	Positive	Positive	Strong
H2c	Perceived Coordination Improvement	Positive	Positive	Weak for budgeting, moderate for reporting and management
H2d	Perceived Efficiency Improvement	Positive	Positive	Moderate for budgeting and reporting, strong for management
H2e	Perceived Effectiveness Improvement	Positive	Positive	Moderate for budgeting, strong for reporting and management.

Perceived Communication Improvement and PM Utilization

H2a: If reported PM utilization increases, the likelihood of perceived communication benefits will increase.

Table 5.3 shows that perceived communication has a positive and strong correlation with reported PM utilization in reporting ($r = .56, p < .01$), and a moderate association with budgeting ($r = .46, p < .01$), and management ($r = .48, p < .01$). This was as expected for reported PM utilization in reporting as shown in Table 5.4.

Perceived Decision-making Improvement and PM Utilization

H2b: If reported PM utilization increases, the likelihood of perceived decision-making benefits will increase.

Table 5.3 presents perceived decision-making with a positive and strong correlation with reported PM utilization in reporting ($r = .62, p < .01$), budgeting ($r = .51, p < .01$), and management ($r = .55, p < .01$). As shown by Table 5.4, the expectation was that decision-making would be positively associated with PM utilization in these three areas. PM utilization in reporting has the strongest relationship followed by PM usage in management.

Perceived Coordination Improvement and PM Utilization

H2c: If reported PM utilization increases, the likelihood of perceived coordination benefits will increase.

Table 5.3 shows perceived coordination has a positive and moderate association with reported PM utilization in reporting ($r = .37, p < .01$) and management ($r = .40, p < .01$). The relationship between coordination and budgeting is weak ($r = .25, p < .01$). As shown in Table 5.4, the expectation was that perceived coordination would be positively associated with PM utilization in these three areas. The relationship between the benefits perceived from coordination and the reported PM utilization in management are stronger than usage in

reporting or budgeting.

Perceived Efficiency Improvements and PM Utilization

H2d: If reported PM utilization increases, the likelihood of perceived efficiency benefits will increase.

As shown in Table 5.3, perceived efficiency is positively and moderately associated with PM utilization in reporting ($r=.43, p\leq .01$) and budgeting ($r=.38, p\leq .01$.)

Unexpectedly, Table 5.4 shows efficiency is strongly and positively associated with PM utilization in management ($r=.59, p\leq .01$). It was expected that all relationships would be positive as they turned out to be (Table 5.4).

Perceived Effectiveness Improvement and PM Utilization

H2e: If reported PM utilization increases, the likelihood of perceived effectiveness benefits will increase.

Table 5.3 shows perceived effectiveness is positively and moderately associated with reported PM utilization in budgeting ($r=.43, p\leq .01$). Perceived effectiveness is positively and strongly associated with reported PM utilization in reporting ($r=.53, p\leq .01$) and management ($r=.57, p\leq .01$). Table 5.4 shows the actual relationship was as expected.

Findings and Discussion

In general the relationships between utilization and the dependent variables of communication, decision-making, coordination, efficiency and effectiveness were positive and moderate to strong.

- Local government officials reported a strong relationship between perceived communication improvement and PM utilization in reporting. They reported a moderate relationship with PM utilization in budgeting and management.
- Perceived decision-making improvements had a strong relationship with PM utilization in reporting, budgeting, and management

- Perceived coordination improvement had a moderate relationship with PM utilization in reporting and management and a weak relationship with PM utilization in budgeting.
- Perceived efficiency improvement had a strong relationship with PM utilization in management and a moderate relationship with PM utilization in budgeting and reporting.
- Perceived effectiveness improvement had a strong relationship with PM utilization in reporting and management and a moderate relationship with PM utilization in budgeting.

Compared to PM utilization in reporting and management, PM utilization in budgeting had the weaker association with all five of the perceived benefit variables. The analysis shows that higher reported usage of PM in management is more likely to be associated with perceived efficiency and effectiveness benefits. Reported PM utilization in reporting and budgeting utilization shows a higher association with perceived communication and decision-making. The strongest relationships for reported PM in reporting and budgeting is perceived improved decision-making. For reported PM utilization in management, it is perceived improved efficiency. The weakest correlation for reported PM utilization in reporting, management, and budgeting is perceived improved coordination. Perceived efficiency and effectiveness are more important outcomes on the improvement value chain. If the purpose of using PM is to improve these outcomes in an organization, it appears consideration should be given to using PM in management.

CONTROL VARIABLES

This section examines the correlation relationships between seven control variables and the dependent and independent variables to see if there are differences in city and county governments, staffing positions, tenure, and PM experience of the respondents. Table 5.5

shows the correlations between seven control variables and PM utilization in reporting, budgeting and management. Table 5.6 shows the correlations between the seven control variables and the independent variables (factors that promote PM utilization). Table 5.7 shows the correlations between the seven control variables and the dependent variables (perceived benefits of PM utilization). Next will be a discussion of the hypotheses pertaining to the control variables.

Table 5-5 Control Variable Correlations with Reported PM Utilization Variables

Control Variable	Independent and Dependent Variables		
	Reported PM Utilization In Reporting	Reported PM Utilization In Budgeting	Reported PM Utilization In Management
City	-.08 n=251	-.08 n=259	-.04 n=256
County	.08 n=251	.08 n=259	.04 n=256
Program Staff	.22** n=243	.30** n=251	.23** n=248
Central Staff	-.19** n=243	-.29** n=251	-.19** n=248
Budget Staff	-.00 n=243	.03 n=251	-.02 n=248
Years with government	.04 n=242	.09 n=250	.15* n=247
Years working with PM	.20** n=232	.27** n=240	.33** n=237

*p<=.05, **p<=.01, two tailed test

Table 5-6 Control Variable Correlations with Independent Variables (Factors that Promote PM Utilization)

Control Variables	Independent Variables						
	Observed Organizational Culture	Reported Rewards and Sanctions (Transformed)	Observed Training	Observed Involvement of Stakeholders	Observed Leadership	Observed Measurement Capacity	Observed Data Quality
City	-.06 n=243	.02 n=268	-.11 n=242	-.00 n=245	-.02 n=242	-.14* n=245	-.18** n=247
County	.06 n=243	-.02 n=268	.11 n=242	.00 n=245	.02 n=242	.14* n=245	.18** n=247
Program Staff	.16* n=235	.10 n=259	.19** n=234	.17** n=237	.08 n=234	.12 n=237	.20** n=238
Central Staff	-.18** n=235	-.04 n=259	-.20** n=234	-.13* n=237	-.13 n=234	-.24** n=237	-.12 n=238
Budget Staff	.04 n=235	-.06 n=259	.04 n=234	-.03 n=237	.08 n=234	.18** n=237	-.08 n=238
Years with government	.07 n=235	.07 n=258	.06 n=235	.10 n=236	.09 n=235	.03 n=238	.08 n=238
Years working with PM	.32** n=224	.14* n=247	.08 n=226	.29** n=228	.17* n=226	.11 n=229	.17* n=229

* p<=.05, **p<=.01, two tailed test

Table 5-7 Control Variable Correlations with Dependent Variables (Perceived Benefits of PM)

Control Variables	Dependent Variables				
	Perceived Communication Improvement	Perceived Decision-Making Improvement	Perceived Coordination Improvement	Perceived Efficiency Improvement	Perceived Effectiveness Improvement
City	-.07 n=235	-.05 n=234	-.03 n=233	.07 n=234	-.06 n=236
County	.07 n=235	.05 n=234	.03 n=233	-.07 n=234	.06 n=236
Program Staff	.03 n=227	.15* n=226	.10 n=225	.07 n=226	.15* n=228
Central Staff	-.11 n=227	-.19** n=226	-.07 n=225	-.12 n=226	-.19** n=228
Budget Staff	.11 n=227	.08 n=226	-.02 n=225	.08 n=226	.06 n=228
Years with government	-.05 n=226	-.04 n=225	-.03 n=224	.05 n=225	.06 n=227
Years working with PM	.11 n=218	.15* n=218	.05 n=217	.24** n=218	.20** n=221

*p<=.05, **p<=.01, two tailed test

County and City Perspectives

H3a: County and city officials will have differing perspectives concerning PM utilization, factors that promote PM, and perceived benefits.

As shown in Table 5.5 and Table 5.7 there are no significant correlations between city and county officials and PM utilization and perceived benefits of PM. Table 5.6 details the significant negative correlation between city officials and observed measurement capacity ($r=-.14$, $p\leq.05$) and between city officials and observed data quality ($r=-.18$, $p\leq.01$). Conversely, there is a significant positive correlation between county officials and measurement capacity ($r=.14$, $p\leq.05$) and between county officials and observed data quality ($r=.18$, $p\leq.01$).

Table 5-8 City/County Mean Comparisons

Variable	City	County
Reported PM Utilization For Reporting	9.14	9.91
Reported PM Utilization For Budgeting	18.75	20.806
Reported PM Utilization for Management	17.35	17.97
Reported Rewards and Sanctions Transformed	1.44	1.42
Observed Training	1.95	2.12
Observed Leadership	3.93	4.00
Observed Measurement Capacity	13.27	14.28
Observed Organizational culture	.46	.53
Observed Data Quality	20.62	22.35
Observed Involvement of Stakeholders	11.97	12.00
Perceived Communication Improvement	12.50	13.13
Perceived Decision-Making Improvement	6.97	7.24
Perceived Coordination Improvement	3.49	3.57
Perceived Efficiency Improvement	5.50	5.19
Perceived Effectiveness Improvement	8.47	8.81

Although the differences are not significant, Table 5.8's comparison of means shows that counties are more likely to use PM utilization in reporting, budgeting, and management. Also, according to the means with the exception of transformed reported rewards and sanctions, county officials are more likely to report factors promoting PM utilization to be present in their organizations. County officials are more likely to report observed benefits from PM utilization except for efficiency. Efficiency is the only benefit that is reported to be higher by the cities.

Findings on City County Differences

In conclusion, the evidence only slightly supports the hypothesis. County officials generally have somewhat more optimistic views about PM utilization than cities except for efficiency. City officials are more likely to observe efficiency benefits. Perhaps, this is because many of the activities that cities perform lend themselves to productivity measurement such as water and sewer or road construction. County staff is significantly more likely to report measurement capacity and data quality in their jurisdictions. This could be the result of county services being primarily in the human service arena, which has a long history of program evaluations. It is surprising the only area where cities and counties are significantly different is in observed measurement capacity and data quality. There are no significant correlations with PM utilization or with perceived benefits.

Position of the Respondents

H3b: Local government officials will have differing perspectives concerning PM utilization and perceived benefits according to their place in the organization and personal demographics.

This research divides the local government respondents between program staff, central staff, and budget staff. Table 5.9 shows the differences in the means. As can be seen, program staff generally rate PM utilization, PM promoting factors and PM perceived benefits higher, while central staff rate these items lower. Budget staff is in the middle. The exceptions are observed leadership, measurement capacity, and perceived communication, and efficiency benefits where budget staff has the highest mean. In the next eight sections, correlations with PM utilization, promoting benefits, and perceived benefits are examined for each of these positions.

Table 5-9 Staff Mean Comparisons

Variable	Program Staff	Central Staff	Budget Staff
Reported PM Utilization For Reporting	10.79	8.63	9.29
Reported PM Utilization For Budgeting	22.65	16.99	19.40
Reported PM Utilization for Management	20.25	16.11	16.95
Reported Rewards and Sanctions	1.54	1.42	1.35
Observed Training	2.20	1.86	2.05
Observed Leadership	4.11	3.76	4.17
Observed Measurement Capacity	14.12	12.82	14.76
Observed Organizational culture	.61	.40	.53
Observed Data Quality	22.42	20.56	20.26
Observed Involvement of Stakeholders	12.82	11.66	11.81
Perceived Communication Improvement	12.77	12.19	13.59
Perceived Decision-Making Improvement	7.53	6.59	7.36
Perceived Coordination Improvement	3.72	3.42	3.45
Perceived Efficiency Improvement	5.62	5.24	5.74
Perceived Effectiveness Improvement	9.22	8.11	8.92

Position and PM Utilization

Correlations between position type and PM utilization are presented in Table 5.5. The correlation between program staff and reported PM utilization in reporting was positive and significant ($r=.22, p<=.01$). The correlation between program staff and reported PM utilization in budgeting was positive and significant ($r=.30, p<=.01$). The correlation between program staff and reported PM utilization in management was positive and significant ($r=.23, p<=.01$). The correlation between central staff and reported PM utilization in reporting was negative and significant ($r=-.19, p<=.01$). The correlation between central

staff and reported PM utilization in budgeting was negative and significant ($r=-.29, p\leq.01$). The correlation between central staff and reported PM utilization in management was negative and significant ($r=-.19, p\leq.01$). There were no significant correlations with budget staff and PM utilization.

Position and PM Utilization Promoting Factors

Correlations with the PM utilization promoting factors are presented in Table 5.6. In the area of these internal determinants, program staff rated their organizations significantly higher in organizational culture ($r=.16, p\leq.05$), observed training ($r=.19, p\leq.01$), involvement of stakeholders ($r=.17, p\leq.05$), and data quality ($r=.20, p\leq.01$). However, the differences in reported rewards and sanctions, leadership, and measurement capacity were not significant. Central staff were significantly less likely to report the organizational culture ($r=.18, p\leq.01$), availability of training ($r=-.20, p\leq.01$), and involvement of stakeholders in their organizations ($r=-.13, p\leq.05$), and measurement capacity ($r=-.24, p\leq.01$). However the differences with reported rewards and sanctions, leadership, and data quality were not significant. The only significant findings pertaining to budget staff was there was a positive relationship between budget staff and the observed measurement capacity of the organization ($r=.18, p\leq.01$).

Position and Perceived Benefits

Correlations with position and the perceived benefits of PM utilization are presented in Table 5.7. Program staff rated perceived decision-making ($r=.15, p\leq.05$) and effectiveness ($r=.15, p\leq.05$) significantly higher. There were no significant correlations with perceived communication, coordination, or efficiency improvements and program staff.

As opposed to program staff, central staff were less likely to see benefits from PM; significantly less so in decision-making ($r=-.19$, $p\leq.01$) and effectiveness ($r=-.19$, $p\leq.01$). There were no significant correlations with perceived communication, coordination, or efficiency improvements and program staff. There were no significant correlations between budget staff and perceived benefits.

Tenure with the Government

Tenure with the government is correlated with reported PM utilization in Table 5.5; with promoting PM utilization factors in Table 5.6; and with perceived benefits in Table 5.7. The only significant correlation was with reported PM utilization in management ($r=.15$, $p\leq.05$).

Experience working with PM and PM Utilization

Table 5.5 shows that as expected the years spent working with PM had a positive significant relationship with PM utilization in reporting ($r=.20$, $p\leq.01$), budgeting ($r=.27$, $p\leq.01$), and management ($r=.33$, $p\leq.01$).

Experience working with PM and Promoting Factors

Table 5.6 shows that length of time in working with PM was significantly and positively correlated with the independent variables of organizational culture ($r=.32$, $p\leq.01$), reported rewards and sanctions ($r=.14$, $p\leq.05$), involvement of stakeholders ($r=.29$, $p\leq.05$), leadership ($r=.17$, $p\leq.05$), and data quality ($r=.17$, $p\leq.01$). The correlation relationship with observed training and measurement capacity was not significant.

Experience working with PM and Perceived Benefits

Correlation between PM experience and perceived benefits of PM are shown in Table

5.7. Length of time in working with PM was significantly and positively correlated with the dependent variables of decision-making ($r=.15$, $p\leq .05$), efficiency ($r=.24$, $p<.01$), and effectiveness ($r=.20$, $p\leq .05$). There was no significant relationship with perceived communication and coordination improvement.

Findings on Respondent Perspectives

In conclusion, the analysis shows that the type of respondents has a significant association with most variables with weak to marginal statistical relationships. Using this same research database, Willoughby (2004) found that state agency staff felt PM measurement was more effective than the budgeters. Likewise, the optimistic nature of local government agency staff was confirmed in this research as well. Program staff are more likely to report PM utilization in reporting, budgeting, and management than other staff. Program staff are more optimistic in their assessment of the organization's readiness for PM utilization. Program staff are more likely to perceive decision-making and effectiveness benefits from use of performance utilization.

Central staff were less likely to report PM utilization in reporting, budgeting, and management. They were more pessimistic in their assessment of their organization's readiness for PM. Central staff were also less likely to perceive decision-making and effectiveness benefits from use of performance utilization.

Budget staff were in the middle between program staff and central staff for perceptions of PM utilization. They were more likely to report observed leadership and observed measurement capacity as a promoting factor than the other two positions. Measurement capacity was significantly correlated with budget staff. This could be a

reflection on their confidence in their own ability. Budget staff also reported on average a higher level of perceived communication and efficiency as a benefit of PM utilization.

The optimism of the agency staff may come from a familiarity with how PM is used in the day-to-day operations. Central staff may also have higher expectations of PM than the program staff. Program staff uses PM mainly in daily operations, not for policy making or accountability. Budget staff perceives higher PM benefits from communication and efficiency.

Individuals who have worked for their respective governments a long time are more likely to perceive that their organizations use PM in management. This may be a perception that is born of greater knowledge about how things really work in their organization.

Individuals who have longevity in working with PM are more likely to report PM utilization and have positive perceptions of the capacity of their government to perform PM and the benefits to be derived from utilization in reporting, management and budgeting. Familiarity in this case may breed optimism.

DATA LIMITATIONS

Testing the Assumptions of Correlation

Correlation assumes interval level data. Although Likert scale values are technically not interval data it is for the most part acceptable if it has at least five or more scale values (Garson, n.d). By using additive scale values, variables exceed the five-scale value recommendation. However, the variable used for training did not meet this requirement as it only had three scale values. Also, by using the scale values 1= no departments, 2=a few select departments, 3=less than 50%, and 4=greater than 50%, and 5= all departments, the

values are not equidistant on the face of it and this undermines the claim to interval data.

Correlation also assumes linearity. Linearity can be tested through examination of the residual plot z resid vs. z pred. Non-linearity is present when points form of a curve. In these data, some of the relationships show some curves but it does not appear to be pronounced. Non-normality is shown when points are not equally above and below the y -axis 0 line. In some of the variables the tendency is for the lower values to be over and the higher values to be under. Again, this does not appear to be marked.

Another assumption of correlation is homoscedasticity, which assumes the error variance, is the same at any point along the linear relationship (Garson, n.d). Non-homoscedasticity is shown by the presence of funnels or other shape in the examination of z resid by z pred. None were noticed.

Minimal measurement error is another assumption of correlation. Correlation measures systematic covariance of two variables. If measurement error is present, then it reduces the systematic covariance and lowers the correlation coefficient (Garson, n.d). These variables have more measurement error than would be desired and this would be a limitation in this research.

Correlation also assumes unrestricted variance that could be present if variables were truncated. No variables were reduced from a wider range to a narrower range. Many were combined to make the range wider in additive indexes. Unrestricted variance is most likely not a problem in this analysis.

Correlation also assumes similar underlying distributions of variables and that the common distribution would be normal. This was tested in Chapter 4 and all of the variables

are normally distributed with the exception of reported rewards and sanctions that was transformed to be in this category. Also all univariate outliers were deleted during data cleaning. There were no multivariate outliers identified. Error terms should also be normally distributed. This was tested by examination of the N-P plot which showed some curves but which were acceptable.

Effects of Missing Data

In this section, each correlation was tested to see if it was missing completely at random. If it was, data were imputed and the hypothesis was examined to see if it made a difference in the testing of the hypothesis. A great majority of the correlations were not missing at random; so no further testing could be completed. However, the ones that were tested, the data imputation would have made no difference in the acceptance of the hypothesis. A few had stronger relationships after the data imputation. Tables 5.10-5.16 shows the analysis for each correlation. Missing data is a limitation of this analysis.

Table 5-10 Effects of Missing Data for City/County Differences

Variable: City/County	Number	Percentage of Data Missing	Is Data Missing Completely at Random	Little's MCAR Test	Does Data Imputation make a difference in testing of hypothesis?
Reported PM utilization in management	256	4.5%	N/A	N/A	N/A
Reported PM utilization in reporting	251	6.3%	Yes	Chi-Square=. 000, DF=1, Sig.=. 998	No
Reported PM utilization in budgeting	259	3.4%	N/A	N/A	N/A
Reported rewards and sanctions transformed by square root	268	0	N/A	N/A	N/A
Observed Leadership	242	9.7%	Yes	Chi-Square=2.285, DF=1, Sig.=. 131	No
Observed Training	242	9.7%	Yes	Chi-Square=1.053, DF=1, Sig.=. 305	No
Measurement Capacity	245	8.6%	Yes	Chi-Square =1.526, DF=1, Sig.=. 217	No
Observed Organizational Culture	243	9.3%	Yes	Chi-Square=2.023, DF=1, Sig.=. 155	No
Data Quality	247	7.8%	Yes	Chi-Square=1.074, DF=1, Sig.=.300	No
Observed Involvement of Stakeholders	245	8.6%	Yes	Chi-Square=. 044, DF=1, Sig. = .835	No
Observed Communication benefit	235	12.3%	Yes	Chi-Square=1.456, DF=1, Sig.=. 228	No
Observed Decision-making benefit	234	12.7%	Yes	Chi-Square=1.671, DF=1, Sig.=. 196	No
Perceived Coordination benefit	233	13.1%	Yes	Chi-Square=. 904, DF=1, Sig.=. 342	No
Perceived Efficiency benefit	234	12.7%	Yes	Chi-Square=. 741, DF=1, Sig.=. 389	No
Perceived Effectiveness benefit	236	11.9%	Yes	Chi-Square=2.439, DF=1, Sig.=. 118	No

Table 5-11 Effects of Missing Data for Position

Variable: Position	Number	Percentage of Data Missing	Is Data Missing Completely at Random	Little's MCAR Test	Does Data Imputation make a difference in testing of hypothesis?
Reported PM utilization in management	256	4.5%	N/A	N/A	N/A
Reported PM utilization in reporting	251	6.3%	Yes	Chi-Square=. 580 DF=2, Sig.=. 748	No
Reported PM utilization in budgeting	259	3.4%	N/A	N/A	N/A
Reported rewards and sanctions transformed by square root	259	3.4%	N/A	N/A	N/A
Observed Leadership	242	9.7%	Yes	Chi-Square = 5.817, DF=2, Sig.=. 055	No
Observed Training	242	9.7%	Yes	Chi-Square=4.600, DF=2, Sig.=. 100	No
Observed Measurement Capacity	245	8.6%	Yes	Chi-Square=3.566, DF=2, Sig.=. 168	Yes, the relationship is significant
Observed Organizational Culture	243	9.3%	Yes	Chi-Square=. 367, DF=2, Sig. =. 832	Yes, the relationship becomes significant at the .01 level instead of the .05 level
Observed Data Quality	247	7.8%	Yes	Chi-Square=3.398, DF=2, Sig. =. 183	No
Observed Involvement of stakeholders	245	8.6%	Yes	Chi-Square=3.695, DF=2, Sig.=. 158	No
Perceived Communication benefit	235	12.3%	No	Chi-Square=6.812, DF=2, Sig.=. 033	Not tested
Perceived Decision-making benefit	234	12.7%	No	Chi-Square=8.542 DF=2, Sig.=. 014	Not Tested
Perceived Coordination benefit	233	13.1%	No	Chi-Square=8.179, DF=2, Sig. =. 017	Not tested
Perceived Efficiency benefit	234	12.7%	Yes	Chi-Square=3.784, DF=2, Sig.=151	No
Perceived Effectiveness benefit	236	11.9%	Yes	Chi-Square=4.827, DF=2, Sig.=. 089	Yes, the relationship becomes significant at the .01 level instead of the .05 level

Table 5-12 Effects of Missing Data for Years Working with the Government

Variable: Years working with the Government	Number	Percentage of Data Missing	Is Data Missing Completely at Random	Little's MCAR Test	Does Data Imputation make a difference in testing of hypothesis?
Reported PM utilization in management	256	4.5%	N/A	N/A	N/A
Reported PM utilization in reporting	251	6.3%	Yes	Chi-square=. 684, DF=2, Sig. =. 710	No
Reported PM utilization in budgeting	258	3.7%	N/A	N/A	N/A
Reported rewards and sanctions transformed by square root	258	3.7%	N/A	N/A	N/A
Observed Leadership	242	9.7%	Yes	Chi-Square =4.814, DF=2, Sig.= .090	Yes, the relationship becomes significant at the .01 level instead of the.05 level
Observed Training	242	9.7%	Yes	Chi-Square= 2.891, DF=2, Sig. -.236	No
Observed Measurement Capacity	245	8.6%	Yes	Chi-Square= 4.190, DF=2, Sig.=. 123	No
Observed Organizational Culture	243	9.3%	Yes	Chi-square = 4.309, DF=2, Sig. =. 116	No
Observed Data Quality	247	7.8%	Yes	Chi-square=4.722, DF=2, Sig.=. 094	No
Observed Involvement of Stakeholders	245	8.6%	Yes	Chi-Square= 2.895, DF=2, Sig. =. 235	No
Perceived Communication benefit	235	12.3%	No	Chi-square=18.454, DF=2, Sig. = 000	Not tested
Perceived Decision-making benefit	234	12.7%	No	Chi-Square=17.990, DF=2, Sig. = .000	Not tested
Perceived Coordination benefit	233	13.1%	No	Chi-Square=17.888, DF=2, Sig. =. 000	Not tested
Perceived Efficiency benefit	234	12.7%	No	Chi-Square=19.324, DF=2, Sig. =. 000	Not tested
Perceived Effectiveness benefit	236	11.9%	No	Chi-Square=19.188, DF=2, Sig. = .000	Not tested

Table 5-13 Effects of Missing Data for Years Working with Performance Measurement

Variable: Years Working with Performance Measurement	Number	Percentage of Data Missing	Is Data Missing Completely at Random	Little's MCAR Test	Does Data Imputation make a difference in testing of hypothesis?
Reported PM utilization in management	247	7.8%	No	Chi-square=7.200, DF=2, Sig. = .027	Not tested
Reported PM utilization in reporting	247	7.8%	Yes	Chi-square=4.623, DF=2, Sig. = .099	No
Reported PM utilization in budgeting	247	7.8%	Yes	Chi-square=4.661, DF=2, Sig. = .097	No
Reported rewards and sanctions transformed by square root	247	7.8%	Yes	Chi-Square=. 441, DF=1, Sig. = . 507	No
Observed Leadership	242	9.7%	No	Chi-square = 16.838, DF=2, Sig. = .000	Not tested
Observed Training	242	9.7%	No	Chi-Square= 15.769, DF=2, Sig. = .000	Not tested
Observed Measurement Capacity	245	8.6%	No	Chi-Square=16.066, DF=2, Sig.=. 000	Not tested
Observed Organizational Culture	243	9.3%	Yes	Chi-square=3.904, DF=2, Sig.=. 142	No
Observed Data Quality	247	7.8%	No	Chi-square=7.810, DF=2, Sig. = . 020	Not tested
Observed Involvement of stakeholders	245	8.6%	No	Chi-Square = 8.148, DF=2, Sig.=. 017	Not tested
Perceived Communication benefit	235	12.3%	No	Chi-square=18.454, DF=2, Sig. =000	Not tested
Perceived Decision-making benefit	234	12.7%	No	Chi-square = 17.990, DF=2, Sig. = 000	Not-tested
Perceived Coordination benefit	233	13.1%	No	Chi-Square=17.888, DF=2, Sig. =000	Not tested
Perceived Efficiency benefit	234	12.7%	No	Chi-square = 19.324, DF=2, Sig. =000	Not tested
Perceived Effectiveness benefit	236	11.9%	No	Chi-square=19.188, DF=2, Sig. = 000	Not tested

Table 5-14 Effects of Missing Data for Reported PM Utilization in Management

Variable: PM Utilization in Management	Number	Percentage of Data Missing	Is Data Missing Completely at Random	Little's MCAR Test	Does Data Imputation make a difference in testing of hypothesis?
Reported rewards and sanctions transformed by square root	256	4.5%	N/A	N/A	N/A
Observed Leadership	242	9.7%	No	Chi-Square=12.614, DF=2, Sig. =. 002	Not tested
Observed Training	242	9.7%	No	Chi-Square=16.066, DF=2, Sig. =000	Not tested
Observed Measurement Capacity	245	8.6%	No	Chi-Square=16.284, DF=2, Sig. =. 000	Not tested
Observed Organizational Culture	243	9.3%	Yes	Chi-Square=3.195, DF=2, Sig.=. 202	No
Observed Data Quality	247	7.8%	No	Chi-Square=13.139, DF=2, Sig. =. 001	Not tested
Observed Involvement of Stakeholders	245	8.6%	No	Chi-Square=19.162, DF=2, Sig. =. 000	Not tested
Perceived Communication benefit	235	12.3%	No	Chi-square=17.529, DF=2, Sig. =. 000	Not tested
Perceived Decision-making benefit	234	12.7%	No	Chi-Square=17.547, DF=2, Sig. =. 000	Not tested
Perceived Coordination benefit	233	13.1%	No	Chi-Square=18.314, DF=2, Sig. =. 000	Not tested
Perceived Efficiency benefit	234	12.7%	No	Chi-square=13.915, DF=2, Sig. =. 001	Not tested
Perceived Effectiveness benefit	236	11.9%	No	Chi-square=15.689, DF=2, Sig. =. 000	Not tested

Table 5-15 Effects of Missing Data for Reported PM Utilization in Budgeting

Variable: PM Utilization in Budgeting	Number	Percentage of Data Missing	Is Data Missing Completely at Random	Little's MCAR Test	Does Data Imputation make a difference in testing of hypothesis?
Reported rewards and sanctions transformed by square root	259	3.4%	N/A	N/A	N/A
Observed Leadership	242	9.7%	No	Chi-Square=25.346, DF=1, Sig. =. 000	Not tested
Observed Training	242	9.7%	No	Chi-Square=23.697, DF=1, Sig. =000	Not tested
Observed Measurement Capacity	245	8.6%	No	Chi-Square=26.060, DF=1, Sig. =. 000	Not tested
Observed Organizational Culture	243	9.3%	Yes	Chi-Square=3.923, DF=2, Sig.=. 141	No
Observed Data Quality	247	7.8%	No	Chi-Square=39.625, DF=2, Sig. =. 000	Not tested
Observed Involvement of Stakeholders	245	8.6%	No	Chi-Square=32.734, DF=2, Sig. =. 000	Not tested
Perceived Communication benefit	235	12.3%	No	Chi-square=38.678, DF=1, Sig. =. 000	Not tested
Perceived Decision-making benefit	234	12.7%	No	Chi-Square=35.962, DF=1, Sig. =. 000	Not tested
Perceived Coordination benefit	233	13.1%	No	Chi-Square=44.034, DF=1, Sig. =. 000	Not tested
Perceived Efficiency benefit	234	12.7%	No	Chi-square=29.272, DF=1, Sig. =. 000	Not tested
Perceived Effectiveness benefit	236	11.9%	No	Chi-square=35.529, DF=1, Sig. =. 000	Not tested

Table 5-16 Effects of Missing Data for Reported PM Utilization in Reporting

Variable: PM Utilization in Reporting	Number	Percentage of Data Missing	Is Data Missing Completely at Random	Little's MCAR Test	Does Data Imputation make a difference in testing of hypothesis?
Reported rewards and sanctions transformed by square root	251	6.3%	No	Chi-square=4.849, DF=1, Sig. =. 028	Not tested
Observed Leadership	242	9.7%	No	Chi-square=18.811, DF=2, Sig. =. 000	Not tested
Observed Training	242	9.7%	No	Chi-Square=19.559, DF=2, Sig. =. 000	Not tested
Observed Measurement Capacity	245	8.6%	No	Chi-Square =19.337 DF=2, Sig. =. 000	Not tested
Observed Organizational Culture	243	9.3%	Yes	Chi-Square=4.066, DF=2, Sig. =. 131	No
Observed Data Quality	247	7.8%	No	Chi-Square = 28.571, DF=2, Sig. =. 000	Not tested
Observed Involvement of Stakeholders	245	8.6%	No	Chi-square = 31.441, DF=2, Sig. =. 000	Not tested
Perceived Communication benefit	235	12.3%	No	Chi-Square = 29.634, DF=2, Sig. =. 000	Not tested
Perceived Decision-making benefit	234	12.7%	No	Chi-Square = 27.209, DF=2, Sig. =. 000	Not tested
Perceived Coordination benefit	233	13.1%	No	Chi-Square=29.771, DF=2, Sig. =. 000	Not tested
Perceived Efficiency benefit	234	12.7%	No	Chi-square=24.016, DF=2, Sig. =. 000	Not tested
Perceived Effectiveness benefit	236	11.9%	No	Chi-square=25.665, DF=2, Sig. =. 000	Not tested

THEORETICAL RELEVANCE OF BIVARIATE RELATIONSHIPS

This research is interested in the similarities and differences between PM utilization for management, budgeting and reporting. As noted below there are great similarities but there are also some differences. Knowing the differences in the promoting factors and in the observed benefits can help government officials as they implement performance measurement in their various jurisdictions. This will also be addressed in the next two chapters using SEM to test the Kong Internal Determinants Model, the Wang Benefit Model, and the Ammons-Rivenbark Comprehensive Utilization Model.

Similarities Between Reported PM Utilization in Management, Budgeting, and Reporting

City and county officials have a marginal association with PM utilization in reporting, budgeting, and management with no significant differences between the three uses. Program staff has a weak but significant positive correlation with PM utilization in reporting, budgeting, and management, while central staff has a significant negative association. The relationship between budget staff and PM utilization in reporting, budgeting and management is marginal. There are no significant differences between city versus county, staff position, and reported PM utilization for reporting, budgeting, and management.

Differences Between Reported PM Utilization in Reporting, Management, and Budgeting

There are certain differences in tenure and PM experience, promoting factors of PM, and perceived benefits of PM that occur if the type of PM utilization changes.

- Individuals who have worked for their respective governments for a longer period of time are more likely to report PM utilization for management than for reporting and budgeting.
- Reported PM utilization in reporting has the strongest association with the

- independent observed variables of organizational culture, training, leadership (tied with PM utilization in management), measurement capacity, and data quality.
- Reported PM utilization in reporting has the weakest association with the independent observed variable of involvement of stakeholders.
 - Reported PM utilization in reporting has the strongest associations with the dependent perceived variables of communication and decision-making improvement.
 - Reported PM utilization in management has the strongest association with the independent observed variables of reported rewards and sanctions and observed involvement of the stakeholders.
 - Reported PM utilization in management has the weakest association with observed data quality.
 - Reported PM utilization in management has the strongest association with the perceived dependent variables of coordination, effectiveness, and efficiency.
 - Reported PM utilization in budgeting has the weakest association with the independent observed variables of organizational culture, reported rewards and sanctions, training, leadership, and measurement capacity.
 - Reported PM utilization in budgeting has the weakest association with the dependent variables of observed communication, decision-making, coordination, effectiveness, and efficiency.

CONCLUSION

What evidence does this research offer as to which promoting factors are associated with performance measure utilization? Observed organizational culture and data quality have a strong correlations with reported performance measurement utilization in management, budgeting, and reporting. Observed leadership has a strong correlation with reported PM utilization in reporting and management. Observed involvement of stakeholders has a moderate correlation with reported performance measurement utilization in reporting, budgeting, and management. Reported utilization of rewards and sanctions, observed

training, and observed measurement capacity, have a moderate to weak relationship with reported performance utilization in reporting, management, and reporting.

What evidence does this research offer as to whether PM utilization produces benefits? There is a strong correlation between reported PM utilization and decision-making benefits for all three utilizations. There is a strong correlation between perceived effectiveness and reported PM utilization in reporting and management, while the relationship with PM utilization in budgeting is moderate. There is a strong correlation between perceived efficiency and reported PM utilization in management, while the relationship with PM utilization in reporting and budgeting is moderate. There is a strong correlation between reported PM utilization in reporting and perceived communication improvement and a moderate relationship between perceived communication improvement and reported PM utilization in budgeting and management. There is a moderate correlation between reported PM utilization in reporting, budgeting, and management with perceived benefits of coordination.

Is there evidence that promoting factors are different for the different uses of performance measurement? In designing a performance measurement system to use PM in management, important factors may be rewards and sanctions and involvement of the stakeholders. These items have stronger correlations with reported performance measurement utilization in management. In designing a PM system to use PM in reporting, it would require more of an investment in training, measurement capacity, organizational culture, and data quality. These items have stronger correlations with reported PM utilization in reporting. In designing a PM system for budgeting utilization, data quality and

organizational culture are important factors while use of rewards and sanctions are not as important.

Is there any evidence that either performance measurement utilization in management, reporting, or budgeting have a stronger association with benefits? Although, the differences in correlation are not marked, it appears that PM utilization in management may be better in that it has stronger correlations with perceived coordination, effectiveness, and efficiency improvements. PM utilization in reporting appears to offer more in benefits than budgeting, particularly in communication and decision-making for which it has a higher correlation than the other two uses. Surprisingly, reported PM utilization in budgeting is the weakest in all categories including efficiency.

CHAPTER 6 MULTIVARIATE ANALYSIS - TESTING KONG'S INTERNAL DETERMINANT MODEL OF FACTORS PROMOTING PERFORMANCE UTILIZATION IN MANAGEMENT, BUDGETING, AND REPORTING

INTRODUCTION

This chapter begins with a recap of the model proposed by Strom Z. Kong in his 1998 dissertation entitled *Explaining Federal Government Performance Information Utilization*. The recap will end with the questions to be answered by this chapter. Following that will be a discussion of the measures in Kong's model, data analysis including data screening, the measurement model, post hoc modifications, model fit, and testing the assumptions of the SEM model. Following that section, there will be a discussion of the findings. Finally, the chapter will have a section on the conclusions to be reached.

Kong's Model

Kong used path analysis in his dissertation to examine performance measurement utilization in budgeting and management improvement models. As shown in Figure 6.1, his basic model was that organizational factors (organizational culture and goal clarity) would affect the measurement factors (measurement capacity and data quality) and the human factors (leadership commitment, involvement, and training). Finally, measurement factors, human factors, and organizational factors would directly affect PM utilization.

An internal determinant model such as the one used by Kong to explain the impact of PM utilization is different from other research that has been done to explain innovation utilization in local governments. Most of this research has centered on external factors such as the size of the government, presence of unions, form of government, or location of jurisdiction.

Understanding the internal variables is important because these are the factors that the local government manager can control and perhaps influence as they begin to use PM to improve performance in their own locality.

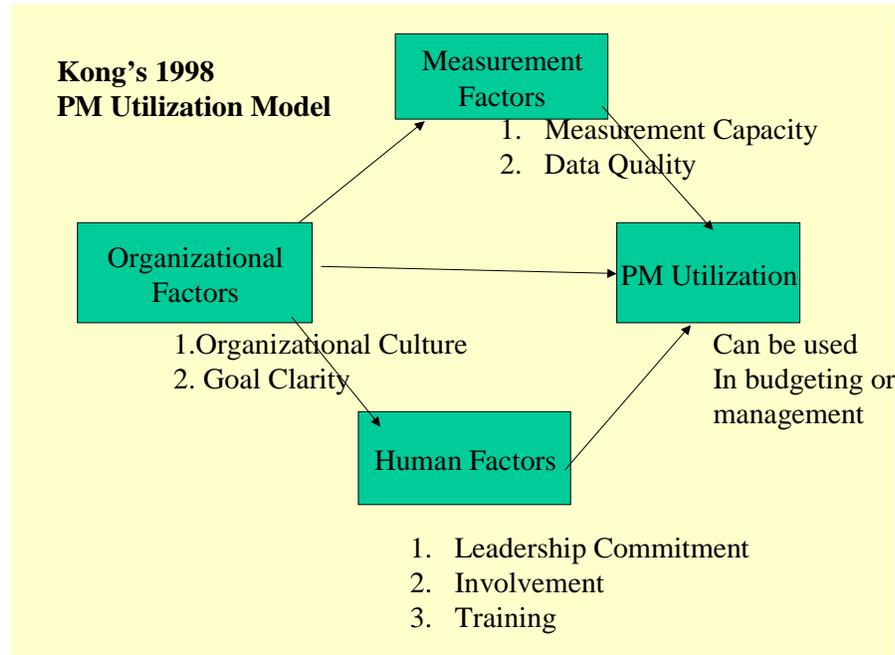


Figure 6-1 Kong's 1998 Performance Utilization Model

Kong also compared the differences between PM utilization in management and budgeting. His results showed that goal clarity, organizational culture, and training had a significant influence on utilization in both areas. Data quality was significant in management improvement but not in budgeting. Involvement was significant in budgeting but not in management. Leadership did not show significance in either of the areas. Although, other researcher's findings do not agree with Kong's results pertaining to the importance of leadership, his are important because it shows that influential factors promoting utilization are not the same for management as they are for budgeting.

Kong analyzed two models based on utilization of PM in management improvement and utilization of performance measurement in budgeting improvement in the federal government. He sought the answer to two questions:

1. "What are the factors that may influence the likelihood of utilization of performance information in federal government?"
2. How much impact do those factors have on utilization?" (Abstract, Kong, 1998)

The independent variables that Kong considered were based on factors previously considered in program evaluation literature and incorporated factors that had been identified in case studies as being important to performance utilization (Kong, 1998:5).

Kong's research was done with the federal government. The federal government has been actively pursuing PM utilization for a number of years. This paper will seek to replicate Kong's research in local government. It will also examine performance measurement utilization in reporting. Reporting is important for local governments since the Governmental Accounting Standards Board has called for Service, Efforts, and Accomplishment reports and may eventually mandate such reports. These reports emphasize efficiency and effectiveness measures to be used by the public and other third parties to provide more information on the bottom line of success or failure for local and state governments (Epstein, 1992). In summary, the questions to be answered by this chapter will be:

- Are Kong's findings pertaining to the federal government applicable at the local level? Will there be evidence to support Hypothesis 4a?

H4a: There will be a difference in whether the local government reports internal management, budgeting, or reporting utilization in the relationship with the observed factors that promote PM utilization.

- Is performance measurement utilization in reporting different from the management and budgeting utilization models examined by Kong?

MEASURES

Dependent Variables

Kong used a 1996 Government Accountability Office survey of civilian and general managers in 24 federal agencies. This survey had a series of questions that dealt with PM utilization in management and budgeting. The survey allowed respondents to report: to a very great extent, to a great extent, to a moderate extent, to a small extent, to no extent, or no basis to judge.

The 2000 GASB survey has a series of questions that pertain to PM utilization that will allow this dissertation to focus on variation and similarities from different models of usage. The survey allows respondents to report that no departments are using, a few select departments are using, less than 50% of the departments are using, greater than 50% of the departments are using, or all of the departments are using performance measurements.

Reported PM Utilization in Management

Kong's construct for PM utilization in management included questions, which asked about how performance measurement was used in:

- Setting program priorities
- Adopting new programs or work processes
- Coordinating program efforts
- Refining performance measures
- Setting new or revised performance goals
- Setting job expectations
- Rewarding government employees

The GASB survey asked questions pertaining to whether output or outcome

performance measures are being used for:

- Establishing contracts for services
- Managing daily operations
- Personnel decisions
- Evaluation to determine underlying reasons for results
- To hold local jurisdictions accountable for state-funded or state-regulated programs
- To initiate performance improvement initiatives
- To determine which programs, jurisdictions, contractors to target for audits

Reported PM Utilization in Budgeting

Kong's construct for budgeting combined three items in the survey:

- Availability of results or outcome-oriented performance information to help the agency develop its budget
- Basing funding decisions on results or outcome-oriented performance information
- Using information obtained from performance measurement when allocating resources.

The GASB survey asked whether

- Output or outcome performance measures are being used for budgeting decisions including resource allocation or discussion about resource allocation
- Output or outcome PM have appeared in department budget requests
- Output or outcome PM have appeared in the official budget document
- Output or outcome PM have appeared in annual operating budgets
- Output or outcome PM have appeared in quarterly budget reports
- Output or outcome PM have appeared in annual budget reports

Reported PM Utilization in Reporting

The GAO survey used by Kong did not address reporting and he did not use it as a variable in his dissertation. For reporting, the GASB survey asks about the extent outcome or output measures are used for:

- Reporting results to management and staff
- Reporting or accountability to elected officials
- Reporting or accountability to citizens, citizens groups, or media

Independent Variables

Observed Organizational Culture

Kong (1998: 65) used a construct of authority, accountability, recognition, and feedback to operationalize organizational culture. Kong employed “authority” to refer to whether agency managers or supervisors have the decision-making authority they need to help the agency accomplish its strategic goals. Accountability entails whether the agency managers or supervisors are held accountable for the programs, operations, or projects they are responsible for. Recognition refers to whether employees in those agencies receive positive recognition for helping the agency accomplish its goals. Communication is defined as whether the individual to whom the respondent reports periodically reviews the results or outcomes of the program, operations or projects that he or she is responsible for. Kong found that organizational culture as defined above was a significant factor in utilization of PM for management improvement and budgeting and resource allocation.

Melkers and Willoughby (2005) developed a comprehensive measure of organizational culture from the 2000 GASB survey. They used a managing for results process, organizational inclusion, and lack of leadership support to measure organizational culture. In this current research, organizational inclusion or involvement will be a separate factor as will leadership. The managing for results process question will be used to measure organizational culture. The survey asks the question of whether the organization uses managing for results as a comprehensive approach focusing an organization on its mission, goals, and objectives, requiring the establishment, use, and reporting of performance measures. The survey allows respondents to answer yes or no.

Observed Goal Clarity or Reported Rewards and Sanctions

Kong (1998: 65) used goal clarity as a composite exogenous variable in his dissertation. His variable is composed of “the extent to which the respondent’s agency has communicated its organizational mission to its managers in a clear and understandable way, defined its strategic goals, communicated to its managers how their everyday job responsibilities relate to the attainment of the agency’s strategic goals, and communicated the link between the achievement of agency strategic goals and the performance of agency programs, operations, and projects. Agency mission is defined as explaining why the government component where the manager works exists, telling what it does, and describing how it does it. Agency strategic goals are defined as long-term goals that explain the purposes of the agency’s programs and the results they are intended to achieve.” Kong found that goal clarity had a positive and significant relationship with both budget and management utilization of PM.

The 2000 GASB survey does not specifically ask questions about goal clarity. However, it does have a series of questions about sanctions and rewards, which help guide managers to make organizational goals clear and attainable. These include recognition, discretionary use of surplus resources, supplemental allocations, relaxation of budget rules, access to special pools of funding, flexibility, lump sum budgeting, individual pay for performance, special recognition, additional pay, and gain sharing. These answers will be summarized into an additive index and used as a proxy to measure goal clarity. This assumes that rewards and sanctions help to make the organizational goals and expected performance clear to individual employees, thereby strengthening utilization of performance measures.

Observed Training

Kong (1998) used the following to gauge the level of training. His survey asked what is the extent the agency provides respondents training to accomplish the following tasks: conducting strategic planning, setting performance goals, developing program performance measures, using performance measurement information to make decisions, and linking performance of programs to the achievement of agency strategic goals. Kong found a significant and positive relationship between training and PM utilization for both management and budgeting.

The GASB 2000 survey has one question, which asks if lack of training of staff for collection and maintenance of performance data is a significant problem, somewhat of a problem, or not a problem. Based on a confirmatory factor analysis, this variable was added to the construct for measurement capacity and was deleted as a stand alone variable as used in Kong's model.

Observed Involvement of Stakeholders

Kong (1998) used a construct that asked the respondent to what extent have managers been involved in establishing long-term strategic goals, developing ways to measure whether performance goals are being achieved, gathering and analyzing data to measure whether programs are meeting their specific performance goals, and using measures to determine if the agency's strategic goals are being met. Kong found a significant positive relationship between involvement and budget utilization of PM but not management utilization.

Melkers and Willoughby (2005) also used the GASB data to develop measurement of involvement or organizational inclusion as part of organizational culture to try to explain

budget, communication, and lasting benefits of performance measurement. They found that involvement was not a significant factor in explaining budget or communication effects. It was significant in explaining lasting effects. The measure of involvement used by this research includes questions that ask whether:

- Performance measures are developed with participation of budget staff.
- Performance targets are developed with participation of budget staff.
- Citizens actively participate in the selection of performance measures related to city/county activities
- The opinion of citizens is considered when selecting performance measures and/or benchmarks
- The opinion of elected officials is considered when selecting performance measures/and or benchmarks.

Observed Commitment of Leadership

Kong (1998:67) used a single item indicator for leadership commitment to achieving results. He asked managers to “rate the strength of perception that their agencies’ top leadership demonstrates a strong commitment to achieving results.” Surprisingly, the federal government manager’s responses were not statistically related to the utilization of PM in budgets or internal management. The author attributes this to the fact there was only one question on the survey pertaining to leadership. Perhaps another possibility could be the importance of commitment of leadership may be dampened in the federal government with a strong separation of powers.

Melkers and Willoughby (2003) used the GASB 2000 survey data questions to develop a measure of lack of leadership support, which was a significant negative factor in explaining communication and lasting benefits from performance measurement. This indicator variable was transposed to be positive in nature. There is also another question

pertaining to leadership, which asks about the routine use of PM by top management and elected officials. These are the two indicators this research is using to measure leadership.

Observed Measurement Capacity

Kong (1998:66) used a construct called organizational capacity for performance measurement. This independent variable combined five items in the survey of federal managers. Respondents were asked to what degree these factors hindered them in their job, “high cost of collecting data, existing information technology and/or systems not capable of providing needed data, lack of staff who are knowledgeable about gathering or analyzing performance information, difficulty in determining how to use performance information to improve the program, and difficulty in determining how to use performance information to set new or revise existing performance goals.” He used this variable as a direct influence on PM data quality and an indirect effect on PM utilization. Kong found a strong relationship of measurement capacity with data quality and an indirect effect on utilization of PM.

The GASB survey questions the jurisdictions about the following areas:

- Developing accurate performance measures
- Collection of performance measures
- Maintenance of performance measures
- Availability of cost information
- Adequacy of technology
- Linking the PM database and accounting system
- Understanding how to use PM.

Observed Data Quality

Kong (1998: 67) used a data quality construct which measured data quality by asking managers in the federal government if their agencies had trouble in: “determining meaningful measures, obtaining valid or reliable data, obtaining data in time to be useful, had difficulty resolving conflicting interest of stakeholders, and could distinguish between the results produced by the program and results caused by other factors, . . . if different parties used different definitions to measure performance, and whether results of their programs occurred too far in the future to be measured.” In his model of PM utilization, Kong found that his construct of data quality was a significant factor in utilization of PM for management but not for budgeting.

There are a series of questions in the GASB survey related to data quality, which will be used by this research as a measure of data quality. These deal with whether:

- Performance measures are focused on program results rather than workload indicators
- Outputs are linked to outcomes
- Benchmarks are developed to link to outcome measures
- Multiple measures are used
- Reliable cost data are available
- Crosscutting measures are used across departments
- Performance measures are reviewed regularly and changed as needed.

DATA ANALYSIS

Data Screening

The data were screened for normality, outliers, and missing data. Using the standard of two for skewness and kurtosis, only one variable was not normal. This was the variable used for reported rewards and sanctions. This variable was transformed taking the square root of the variable. After transformation, the variable met the standard for normality. By

examining the Z score for each variable, there were ten univariate outliers which were more than plus or minus three from the mean. Accordingly, these were deleted from further analysis (Tabachnick and Fidell, 2001:71). There was considerable missing data among the variables, ranging from eight percent missing to twenty percent missing in some cases. This missing data were examined using the Missing Value function in SPSS. Using the Little's MCAR test, the chi-square was not significant indicating the data were missing completely at random. Therefore, expected maximization in SPSS was used to impute the value of the data. This is an acceptable method when listwise deletion cannot be used (Tabachnick and Fidell: 63). In this case, deletion of cases would make the sample too small for SEM analysis.

Measurement Model

A confirmatory factor analysis was run for all of the latent variables in the research. This was done by drawing covariances between all of the constructs. Based on the chi-square difference test, several indicator variables were deleted. The confirmatory factor analysis revealed that the indicator questions for collection, technology, cost, and database capacity could be dropped from the construct for measurement capacity, thereby improving the model fit. Likewise the indicator question for reliable cost data and PM changed frequently was dropped from the construct for data quality. Also, the indicator variables for observed involvement showed that the construct should be split. As such, involvement of budget staff and involvement of executive budget staff became one construct while citizen participation, citizens opinion, and elected official participation became another.

The two variables of reported rewards and sanctions and observed organizational

culture were based on one indicator question. Therefore they will be modeled as an observed variable with an assumed error variance of zero. Two of the constructs (observed leadership and involvement of budget staff) will have only two indicators. This can be problematic and can result in unreliable error estimates (Garson, n.d.).

The conventional test for composite reliability .70 and for variance extracted is .50 for constructs (Garson, n.d.) As shown in Table 6.1, the variance extracted for observed measurement capacity and observed data quality does not quite meet the test for variance extracted.

Figure 6.2 presents the conceptual overview of the revised Kong-Rogers Model. This can be compared with Figure 6.1, which is the original Kong Model. Figures 6.3, 6.4 and 6.5 present the specific models for PM utilization in management, budgeting and reporting.

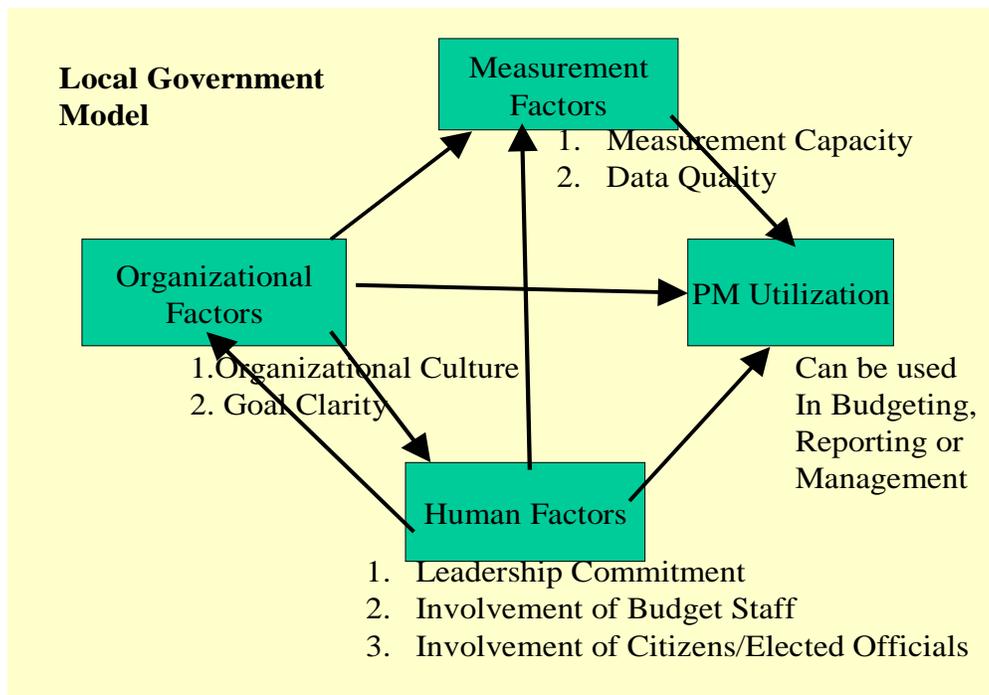


Figure 6-2 Local Government Performance Utilization Model (Revised Kong-Rogers)

Local Government Budgeting Model

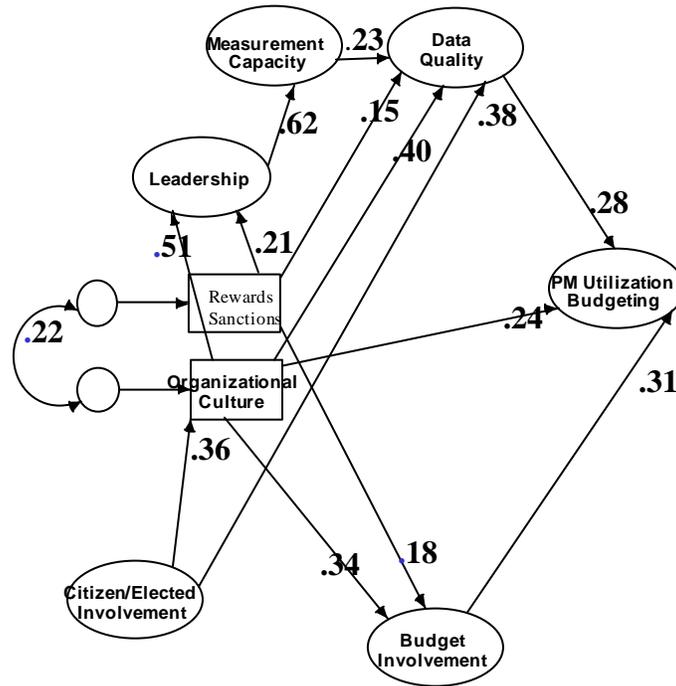


Figure 6-4 Revised Kong-Rogers Model: Local Government Budgeting Model

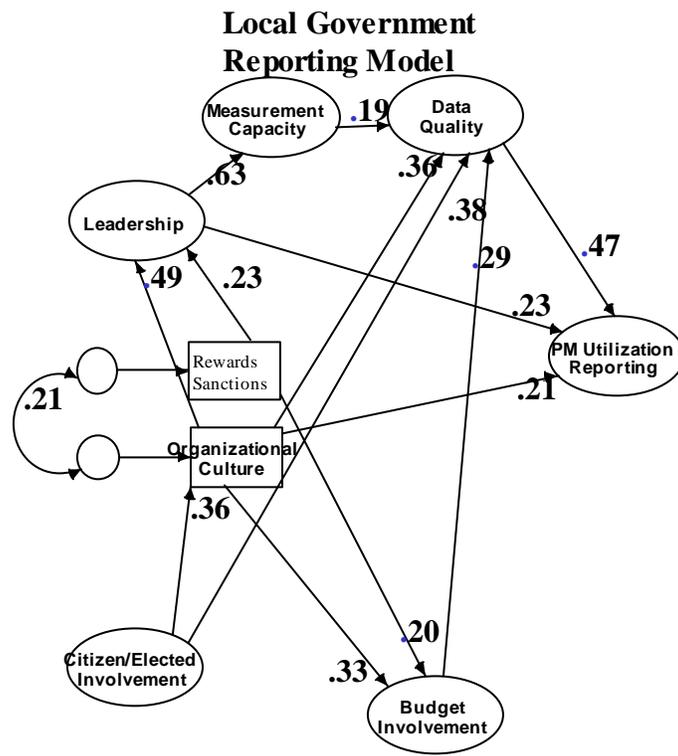


Figure 6-5 Measurement Model for Revised Kong-Rogers Model Reporting Model

Table 6-1 Measurement Model for Revised Kong-Rogers Model

Constructs and Indicators	Standardized Loading			Indicator Reliability			Error Variance			Composite Reliability			Variance Extracted		
	Bud	Rep	Man	Bud	Rep	Man	Bud	Rep	Man	Bud	Rep	Man	Bud	Rep	Man
Observed Measurement Capacity										.74	.74	.74	.42	.42	.42
Development Capacity	.57***	.57***	.58***	.33	.32	.33	.67	.68	.67						
Maintenance Capacity	.50***	.50***	.50***	.24	.25	.25	.76	.75	.75						
Training Capacity	.72***	.73***	.72***	.52	.53	.52	.48	.47	.48						
Understanding Capacity	.76***	.77***	.77***	.58	.59	.59	.42	.41	.41						
Observed Data Quality										.84	.84	.84	.47	.47	.47
PM focused on results	.69***	.69***	.70***	.47	.47	.49	.53	.53	.51						
Outputs linked to outcomes	.68***	.69***	.68***	.46	.47	.46	.54	.53	.54						
Benchmarks linked to outputs	.73***	.73***	.74***	.54	.54	.55	.46	.46	.45						
Multilevel PM	.77***	.75***	.75***	.59	.57	.56	.41	.43	.44						
Crosscutting PM	.68***	.68***	.67***	.46	.46	.45	.54	.54	.55						
PM reviewed Regularly	.56***	.58***	.54***	.31	.33	.29	.69	.67	.71						
Observed Leadership										.84	.83	.84	.73	.72	.73
Leadership Use	.91***	.89***	.91***	.83	.80	.82	.17	.20	.18						
Leadership Interest	.79***	.80***	.79***	.62	.64	.63	.38	.36	.37						
Observed Budget Involvement										.86	.86	.87	.74	.75	.77
Budget Participation in developing performance measures	.86***	.81***	.75***	.74	.65	.56	.26	.35	.44						
Budget participation in developing performance targets	.87***	.92***	.99***	.76	.84	.98	.24	.16	.02						

Table 6.1 (Continued)

Observed Other Involvement										.80	.79	.79	.57	.57	.57
Opinion of citizens sought	.87***	.87***	.87***	.76	.75	.76	.24	.25	.24						
Citizens participate in PM	.63***	.62***	.62***	.39	.39	.39	.61	.61	.61						
Elected officials participate in PM	.75***	.74***	.75***	.56	.54	.56	.44	.46	.44						
Reported PM utilization in Budgeting										.89			.59		
PM used in Budget requests	.89***			.79			.21								
PM used in budget documents	.87***			.75			.25								
PM used in annual operating budgets	.89***			.79			.21								
PM used in quarterly budget reports	.57***			.33			.67								
PM used in annual budget reports	.64***			.41			.59								
PM used in budget decisions	.67***			.45			.55								
Reported PM Utilization in Reporting										.93			.82		
PM used in reporting to management		.90***			.81			.19							
PM used in reporting to elected officials		.95***			.90			.10							
PM used in reporting to citizens		.87***			.75			.25							

Table 6.1 (Continued)

Reported PM Utilization in Management											.94			.68	
PM used in managing daily operations			.82***			.68			.32						
PM used in managing contracts			.75***			.56			.44						
PM used in staffing			.80***			.64			.36						
PM used in performance improvement			.90***			.81			.19						
PM used in evaluating results			.86***			.74			.26						
PM used in accountability to the state			.84***			.71			.39						
PM used in targeting area for audits			.84***			.71			.39						

*Significant at the .05 level, **significant at the .01 level, ***significant at the .001 level

Post Hoc Modifications

SEM allows confirmatory and exploratory procedures. In this procedure, Kong's model was tested and then modified through model-building and model-trimming. Model-building starts with Kong's model and then paths are added to the model as indicated by the modification indices. As paths are added to the model, chi-square decreases, indicating a better fit. Only paths were added that were consistent with general performance measurement theory. Model-trimming involved deleting arrows that were not significant. If the critical ratios for the regression weights were below 1.96, they are not significant at the .05 level and they were deleted (Garson, n.d.). Final models, which were developed using model-building, and model trimming for performance utilization in management, reporting and budgeting are presented in Tables 6.2, 6.3, and 6.4.

Table 6-2 Management Model Modifications for Kong Model

Model	Chi-Square	Diff in Chi-Square	DF	Diff in DF	Difference Significant	RMSEA
Kong's Theoretical Model of Performance Information Utilization for Management Improvement	1015.263		288	1		.097
Add line from Observed Organizational Culture to Data Quality	935.181	80.082	287	1	Yes	.092
Line between Observed Other Involvement to Data Quality	885.726	49.455	286	1	Yes	.089
Line between Observed Leadership to Measurement Capacity	805.703	80.023	285	1	Yes	.083
Add correlation between Managing Daily operations and Managing Contracts	767.828	37.875	284	1	Yes	.080

Table 6-3 Budgeting Model Modifications for Kong Model

	Chi-Square	Diff in Chi-Square	DF	Diff in DF	Difference Significant	RMSEA
Kong's Theoretical Model of Performance Information Utilization for Budgeting Improvement	934.099		263			.098
Add line from Observed Organizational Culture to Data Quality	848.800	85.299	262	1	Yes	.092
Add line from Observed Other Involvement to Data Quality	809.614	39.186	261	1	Yes	.089
Add line from Observed Leadership to Measurement Capacity	737.308	72.306	260	1	Yes	.083
Errors between PM used in Quarterly and PM used in Annual Budget Reports	689.595	47.713	259	1	Yes	.079
Delete Line from Observed Budget Involvement to Leadership	694.596	+5.001	260	+1	No	.079
Delete line from Observed Goal clarity or rewards and sanctions (transformed) to Utilization	696.765	+2.169	261	+1	No	.079
Delete Line from Goal clarity or rewards and sanctions to Measurement Capacity	696.851	+.086	262	1	No	.079

Table 6-4 Reporting Model Modifications for Kong Model

Model	Chi-Square	Diff in Chi-Square	DF	Diff in DF	Difference Significant	RMSEA
Proposed Theoretical Model of Performance Information Utilization for Reporting	688.415		198			.096
Line between Observed Organizational Culture and Data Quality	601.802	86.613	197	1	Yes	.088
Add line between Observed Other Involvement and Data Quality	556.735	45.042	196	1	Yes	.083
Add line from Observed Leadership to Measurement Capacity	475.368	81.367	195	1	Yes	.074
Delete Observed Goal clarity or rewards and sanctions (transformed) to reported PM Utilization in Reporting	476.769	+1.40	196	+1	No	.073
Change Observed Budget Involvement from Reported PM utilization in Reporting Observed Data Quality	456.586	20.183	196	1	Yes	.071
Delete Observed Goal clarity or rewards and sanctions (transformed) to Observed Data Quality	459.662	3.076	197	+1	No	.071

Model Fit

Goodness of fit measures, as shown in Table 6.5, determine if the model that is being tested should be accepted or rejected. These models have high correlation so SEM will have more power to detect an incorrect model. The fit measures reported here indicate that the examined models are marginal but as an exploratory model where SEM has not previously been applied, they are a starting point that future researchers can improve upon.

Model chi-square should be non-significant if there is a good model fit. In this case, all of the models are significant. This could be because of the larger sample size or because of the sensitivity to the violation of the assumption of multivariate normality. Another rule of thumb is that the chi-square/df ratio should be two or less. These measures range from 2.33 to 2.70 again indicating a marginal fit. Garson, (n.d.) indicates that there is an adequate fit if RMSEA is less than or equal to .08. RMSEA varies from .071 to .080 in these models. RFI close to one indicates a good fit. The tested models range from .791 to .840. CFI

measures should be above .90 and only the reporting model meets this standard. The GFI should be above .90 also. These models range from .823 to .865. This may be because the GFI is biased downward when the degrees of freedom is large relative to the sample size. The standard for NFI is .90 but some authors use .80 (Garson, n.d). The tested models range from .818 to .863. The lower AIC and ECVI measures indicate that the reporting model has the best fit of the three models.

Table 6-5 Goodness of Fit Measures for Kong Model

Goodness of Fit Measures	Reported PM Utilization in Management	Reported PM Utilization in Budgeting	Reported PM Utilization in Reporting
Degrees of Freedom (df)	284	262	197
Chi-Square	767.828	696.851	459.662
Chi-Square/df	2.70	2.65	2.33
Probability level	.000, Significant	.000, Significant	.000, Significant
RMSEA	.080	.079	.071
RFI	.808	.791	.840
CFI	.886	.877	.916
GFI	.828	.823	.865
NFI	.832	.818	.863
AIC	901.828	822.851	571.662
ECVI	3.390	3.093	2.149

Testing the Assumptions of SEM

Even though SEM uses path analysis, SEM relaxes some of the assumptions. However, Garson (n.d) recommends considering the following assumptions:

- **Multivariate normal distribution of the indicators:** With severe non-normality of data, the model may be biased toward a Type I error, rejecting a model that should not be rejected. Regression paths may also be statistically significant more often than they should be. Mardia's statistic is a method of measuring multivariate normality. It should be less than three to indicate that the multivariate model is normal. For the models considered, none meet this standard.
- **Linearity:** SEM assumes linear relationships between variables. This was tested during the bivariate analysis.

- Complete data or appropriate data imputation: Data were imputed using the Missing Value function of SPSS using Expected Maximization.
- Underidentified: A model should have positive degrees of freedom. All of the models presented here do.
- Recursive: All of the lines should flow one way, with no feedback looping and the residual errors for the endogenous variables should be uncorrelated. All of the models presented are recursive
- High Multicollinearity: High multicollinearity may result in the model not being solvable or may decrease the reliability of SEM estimates. The correlation tables were examined and these models appear acceptable. A copy of these tables can be obtained from the author.
- Interval Data: For reasonably large sample, when the number of Likert categories is four or higher and skew and kurtosis are within normal limits, use of maximum likelihood, which is the default in SEM, is acceptable. All of the variables in this sample use Likert scales of four or greater except for the ones dealing with leadership and measurement capacity. Weighted Least Squares can be used but it requires large samples. Some studies suggest that WLS typically leads to similar fit and provides no differences in interpretation. Organizational culture is also a dichotomy. The survey allows respondents to report, “no departments are using, a few select departments are using, less than 50% of the departments are using, greater than 50% of the departments are using, or all of the departments are using performance measurements.” These measures are not equidistant and this undermines the credibility of being interval data.
- Sample size should not be small. It is recommended that the sample size be at least 100, preferably 200. With 277 in the sample, this requirement is met.

FINDINGS AND DISCUSSIONS

Foremost, it should be considered that these models have a good fit by some goodness of fit measures but not by others, so the models are marginal. Nevertheless, Table 6.6 indicates the management model explains 57% of the data variation in management utilization of performance measurement, 42% of the data variation in budgeting utilization of performance measurement, and 59% of the data variation in reporting utilization of performance measurement. Also, the management model explains 64% of the variation in data quality. The budgeting model explains 62% of the variation in data quality and the reporting model explains 67% the variation in data quality.

Table 6-6 Squared Multiple Correlations for Kong Model

	Reported PM Utilization in Management	Reported PM Utilization in Budgeting	Reported PM Utilization in Reporting
Observed Organizational Culture	.113	.132	.127
Observed Measurement Capacity	.387	.389	.398
Observed Leadership	.327	.341	.341
Observed Budget Involvement	.148	.169	.169
Observed Data Quality	.639	.618	.672
Reported PM Utilization	.565	.423	.593

Table 6.7, shows the path coefficients and the significances.

Table 6-7 Path Coefficients for Kong Model

Paths	Reported PM Utilization in Management	Reported PM Utilization in Budgeting	Reported PM Utilization in Reporting
Observed Other Involvement to Organizational Culture	.337***	.364***	.356***
Observed Other Involvement to Data Quality	.420***	.380***	.381***
Observed Measurement Capacity to Data Quality	.248***	.233***	.188**
Observed Goal clarity or rewards and sanctions to Data Quality	.142**	.154**	N/A
Observed Goal clarity or rewards and sanctions to Budget Involvement	.161**	.180**	.195**
Observed Goal clarity or rewards and sanctions to Leadership	.203***	.208***	.227***
Observed Goal clarity or rewards and sanctions to Utilization	.124*	N/A	N/A
Observed Organizational Culture to Leadership	.494***	.505***	.495***
Observed Organizational Culture to Budget Involvement	.318***	.336***	.326***
Observed Organizational Culture to Data Quality	.386***	.402***	.360***
Observed Organizational Culture to Reported Utilization	.290***	.241***	.210**
Observed Data Quality to Reported Utilization	.269***	.283***	.468***
Observed Leadership to Reported Utilization	.204**	N/A	.227***
Observed Leadership to Measurement Capacity	.622***	.624***	.631***
Observed Budget Involvement to Data Quality	N/A	N/A	.290***
Budgeting Involvement to Reported Utilization	.139**	.307***	N/A
Correlation between errors from PM utilization in budget annual reports and quarterly reports	N/A	.420***	N/A
Correlation between errors from Goal clarity or rewards and sanctions and Organizational culture	.222***	.218***	.212***
Correlation between errors from PM Utilization in daily operations and contracting	.399***	N/A	N/A

*Significant at the .05 level, **significant at the .01 level, ***significant at the .001 level

As shown in Figure 6.1, Kong's conceptual model proposed that organizational factors (observed organizational culture and goal clarity) would affect the measurement factors (observed measurement capacity and data quality) and the human factors (observed leadership commitment, involvement, and training). Organizational, measurement, and human factors would all be necessary to promote PM utilization.

The model developed with the GASB data shows that human factors such as observed involvement of elected officials and citizens can affect the observed organizational factors and that human factors such as observed leadership can affect the measurement factors (Figure 6.2). The observed organizational culture variable shows a positive influence on reported PM utilization in management, budgeting, and reporting. Observed involvement of citizens and elected officials shows an influence on observed data quality and organizational culture in the management, budgeting, and reporting model. Observed leadership also shows a strong influence on observed measurement capacity in using performance measures for budgeting, management, and reporting.

CONCLUSION

There are some methodological concerns. The sample may not be representative of all local governments. The sample size is not very large for the number of variables considered. The measurement model could be more refined. Although the model fit is acceptable by some goodness of fit measures, by others it is not. This indicates marginal models. However, as an exploratory study using these constructs in SEM for the first time, the model provides a first step. The research scope could be expanded and should provide better measurements for some variables, particularly goal clarity, organizational culture, and

training. It should also be decided how to define involvement whether it is respondents, citizens, elected officials, or budget staff.

A considerable amount of time and money has been spent on performance measurement utilization in local governments. This research focuses on the three ways PM utilization promotes improved performance in government agencies (Wang, 2002 a). Table 6.8 shows the differences in the direct relationships.

Table 6-8 Comparing the Direct Relationships with PM Utilization in Management, Budgeting and Reporting

Variable	Direct Relationship with Reported PM Utilization in Management	Direct Relationship with Reported PM Utilization in Budgeting	Direct Relationship with Reported PM Utilization in Reporting
Reported Rewards and Sanctions	Weak ✓	None ✗	None ✗
Observed Organizational Culture	Moderate ✓✓	Moderate ✓✓	Moderate ✓✓
Observed Data Quality	Moderate ✓✓	Moderate ✓✓	Strong ✓✓✓
Observed Leadership	Moderate ✓✓	None ✗	Moderate ✓✓
Observed Budget Involvement	Weak ✓	Moderate ✓✓	None ✗

- Internal Management - Public managers and front line employees use performance measurement data to strategically plan and evaluate information pertaining to goals and expectations in their roles as managers and service providers for the public organization. Table 6.8 shows that the PM utilization in management requires a balance of organizational, human, and measurement factors. Rewards and sanctions are also more important for management than for using PM in budgeting and reporting. Organizational factors are very important in using PM in management.
- Budgeting - Policy makers use performance budgeting data to improve the quality of policy, resource allocation, and service prioritization decisions. Table 6.8 shows that a more important factor promoting reported PM utilization in budgeting is the observed budget office involvement, along with observed data quality and observed

organizational culture. Human or “people” factors such as the orientation of the budget office and reliance on high quality data are both important in using PM for budgeting. Leadership may not be as important since budgeting is often times mandated by the board. Organizational culture is also an important factor.

- Reporting - Citizens and others use service efforts and accomplishment reports prepared by public managers to actively participate in meaningful decision-making in their roles as “owners” of the public organization. The most important factor promoting PM utilization in reporting is observed data quality followed by observed leadership. Measurement factors are the most important factor in promoting reporting (Table 6.8). This knowledge should provide guidance to those considering SEA reporting. It is very importance to have performance measures that are focused on results, linked to outcomes, range from inputs to outcomes to societal benchmarks, and that can traverse across the breadth of the organization, from one department to another.

This research shows that Kong’s model based on path analysis shows less of a complex relationship than the one using GASB local government data. It also supports the hypothesis that there is a difference in the relationships with the PM promoting factors if one uses performance measures in management, budgeting or reporting. Reported PM utilization in management shows more influence from the organizational factors such as organizational culture or goal clarity or adoption of use of rewards and sanctions. Reported PM utilization in budgeting is equally influenced from organizational, measurement, and human factors. However, budget staff involvement is the most influential factor in promoting PM utilization in budget. Reported PM utilization in reporting is heavily influenced by the measurement factors. Data quality shows a strong influence. Observed leadership is also an important promoting factor for using performance measures in reporting.

Trying to explain the factors that influence the utilization of performance measurement in these three areas can help local governments understand the differences and similarities in the observed factors that promote utilization performance measurement in management,

budgeting, and reporting. This can be of great benefit as local governments are not consistent in the ways they use performance measurement.

CHAPTER 7 MULTIVARIATE ANALYSIS - TESTING THE BENEFITS PROVIDED BY PM UTILIZATION IN MANAGEMENT, BUDGETING, AND REPORTING: WANG'S "IMMEDIATE" AND "LONG-TERM" IMPACT MODEL & AMMONS-RIVENBARK COMPREHENSIVE UTILIZATION MODEL

INTRODUCTION

This first section of the chapter begins with a recap of the models proposed by XiaoHu Wang in his 2002 article entitled "Assessing Performance Measurement Impact: A Study of U.S. Local Governments." The recap will end with the questions to be answered by this section. The rest of the section will discuss the measures in Wang's model, data analysis including data screening, the measurement model, post hoc modifications, model fit, and testing the assumptions of the SEM model. Following that will be a discussion of the findings.

This second section of the chapter begins with a recap of a model proposed by David N. Ammons and William C. Rivenbark in "Using Benchmark Data to Improve Services: Local Impact of a Municipal Performance Comparison Project." This paper was presented at the SECoPA conference in October 2005 at Little Rock, Arkansas. The recap will end with the questions to be answered by this section. The rest of the section two will discuss the measures in the Ammons-Rivenbark model, data analysis including data screening, the measurement model, post hoc modifications, model fit, and testing the assumptions of the SEM model. Following that section, there will be a discussion of the findings. Finally, the chapter will have a section on the conclusions to be reached.

WANG'S MODEL

Wang (2002 a) proposed three performance management impact models that emphasized the difference between "immediate" results from using PM and the "long-term"

impacts. The three models he proposed were based on the usage of PM for reporting, management, and budgeting.

The reporting model created intermediate impacts of enhanced communication with legislators and the public. The desired long-term impact was accountability and public trust. Accountability and public trust will not be tested in this dissertation because the GASB survey does not ask any questions that could be adopted to these variables.

The management model created intermediate impacts of improved decision-making in daily operations and monitoring in strategic planning. The long-term impacts Wang expected were managerial and operational efficiency, effectiveness, and service quality. The budgeting model facilitated the short-term impact of facilitating resource allocation and other decision-making. The long-term impacts were managerial and operational efficiency, effectiveness, and service quality. The proposed model is shown below.

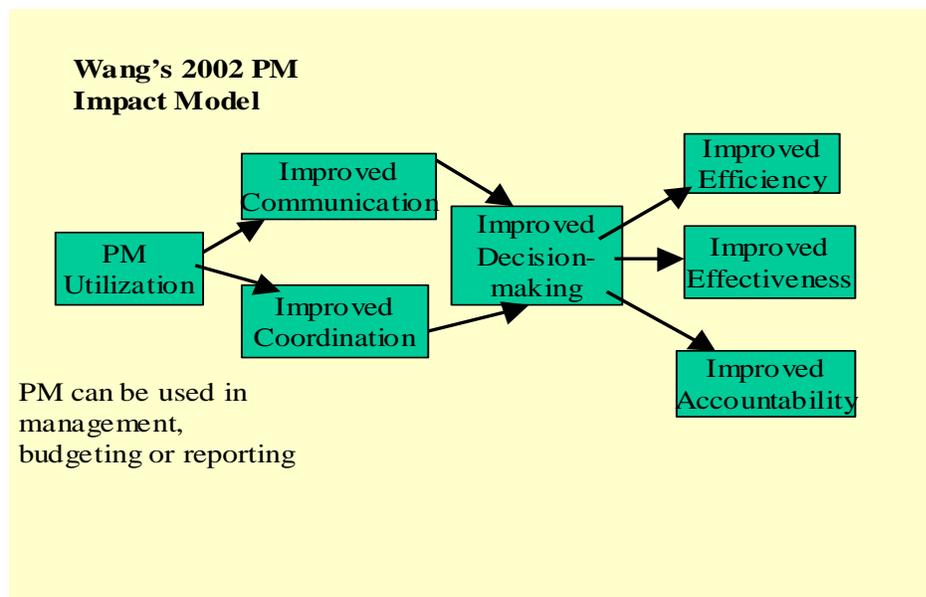


Figure 7-1 Wang's 2002 PM Impact Model

The Wang model is important because it stresses that there are differences in expected benefits from PM utilization for budgeting, management, and reporting to citizens. The author proposed that there are differences in the intermediate and long-term benefits of PM depending on who is using PM and how it is used. He believed there is a substantial benefit of PM in usage for internal management. Wang expected there is less of an impact in reporting and budgeting. He pointed out that PM has been used by government officials for a long-time to manage daily operations.

Wang also discussed the difficulties of legislators and citizens in using PM that are reported to them. He stated that legislators do not use PM because measures are not politically useful or are too technical, short tenure does not enhance legislator's learning about PM, and finally, it is difficult to obtain legislator's agreement on the meanings of many measures. Wang also believed it is difficult to garner citizen support for PM. Most citizens are not directly involved in governmental activities. They are not interested in government performance measures that do not directly affect them. Also, as with the legislators, many measures are too technical for citizens to understand.

Wang also referred to the difficulty with using PM in budgeting. It is his belief that resource allocation is essentially politically and that PM does not influence resource allocation decision-making. He also pointed out it is very difficult to understand the link between resource allocation and performance.

Confirming Wang's proposed model will be beneficial. Hopefully, it will confirm whether the management model is associated with stronger perceived benefits. The

questions to be answered by this chapter are:

- Can Wang's proposed models be operationalized using the GASB data set?
- Is there a difference in the observed benefits from using PM in management, budgeting, or reporting in local governments? Will there be evidence to support Hypothesis 4b?

H4b: There will be a difference in whether the local government reports internal management, budgeting, or reporting utilization in the relationship with perceived benefits of PM.

MEASURES

Independent Variables

As explained in previous chapters, the 2000 GASB survey has a series of questions that pertain to PM utilization that will allow this dissertation to focus on variation and similarities from different models of usage. The survey allows respondents to report that no departments are using, a few select departments are using, less than 50% of the departments are using, greater than 50% of the departments are using, or all of the departments are using performance measurements.

Reported PM Utilization in Management

The GASB survey asks questions pertaining to whether output or outcome performance measures are being used for:

- Establishing contracts for services
- Managing daily operations
- Personnel decisions
- Evaluation to determine underlying reasons for results
- To hold local jurisdictions accountable for state-funded or state-regulated programs
- To initiate performance improvement initiatives
- To determine which programs, jurisdictions, contractors to target for audits

Reported PM Utilization in Budgeting

The GASB survey asked whether:

- Output or outcome performance measures are being used for budgeting decisions including resource allocation or discussion about resource allocation
- Output or outcome PM have appeared in department budget requests
- Output or outcome PM have appeared in the official budget document
- Output or outcome PM have appeared in annual operating budgets
- Output or outcome PM have appeared in quarterly budget reports
- Output or outcome PM have appeared in annual budget reports

Reported PM Utilization in Reporting

The GASB survey asks about the extent outcome or output measures are used for:

- Reporting results to management and staff
- Reporting or accountability to elected officials
- Reporting or accountability to citizens, citizens groups, or the media

Dependent Variables

Perceived Communication Improvement

The GASB survey has a series of indicator questions about the effectiveness of the development and use of PM regarding communications. These are whether PM results in:

- Improving communication between departments and programs
- Improving communication with the executive budget office
- Improving communication with the legislature and legislative staff
- Changing the substance or tone of discussion among legislators about agency budgets
- Changing the substance or tone of discussion among legislators about oversight of agencies
- Changing the questions legislators or their staff ask government managers or executives.

Perceived Coordination Improvement

The GASB survey has a series of questions pertaining to the effectiveness of development and use of PM regarding coordination. These include whether PM results in:

- Improving cross agency cooperation/coordination
- Improving external government cooperation/coordination

Perceived Decision-making Improvement

The GASB survey has questions pertaining to decision-making. These questions concern the effectiveness of decision making in:

- Changing strategies to achieve desired results
- Increasing awareness of, and focus on results
- Increasing awareness of factors that affect performance results

Perceived Effectiveness Improvement

The GASB survey has a series of questions that will be combined as a construct concerning the development and use of PM in the following effectiveness areas:

- Improving effectiveness of agency programs
- Reducing/eliminating ineffective service/programs
- Improving responsiveness to customers
- Improving program/service quality

Perceived Efficiency Improvement

The GASB survey asks about the effectiveness of the development and use of performance measurements in efficiency. These include the following whether the following PM benefits have been observed in the following:

- Generation of cost savings
- Reduction in duplicative services
- Changing of appropriation levels

DATA ANALYSIS

Data Screening

By examining the Z score for each variable, there were sixteen univariate outliers

which were more than plus or minus three from the mean. Consequently, these were deleted from further analysis (Tabachnick and Fidell: 2001, 59). There was considerable missing data among the variables, ranging from eight percent missing to twenty percent missing in some cases. This missing data were examined using the Missing Value function in SPSS. Using the Little's MCAR test, the chi-square was not significant indicating the data were missing completely at random. Therefore, expected maximization in SPSS was used to impute the value of the data. This is an acceptable method when listwise deletion cannot be used (Tabachnick and Fidell, 2001:63). In this case, deletion of cases would make the sample too small for SEM analysis.

Measurement Model

A confirmatory factor analysis was run for all of the latent variables in the research. This was done by drawing covariances between all of the constructs. Based on the chi-square difference test, several variables were deleted. The confirmatory factor analysis revealed that the indicator questions for efficiency including questions relating to cost savings, duplicative services, and changing appropriation levels could be deleted, thereby improving the model fit. Also, because there was no discriminant validity, the two variables pertaining to coordination and the three variables pertaining to decision-making were combined with the four effectiveness variables as an overall measure of effectiveness. The conventional test for composite reliability .70 and for variance extracted is .50 for constructs (Garson, n.d.) As shown in Table 7.1, these constructs meet those tests.

Figure 7.2 presents the conceptual overview for the revised Wang Model. This can be compared with Figure 7.1, which was the original proposed model. Figures 7.3, 7.4, and

7.5 present the specific models for the perceived benefits from PM utilization in management, budgeting, and reporting.

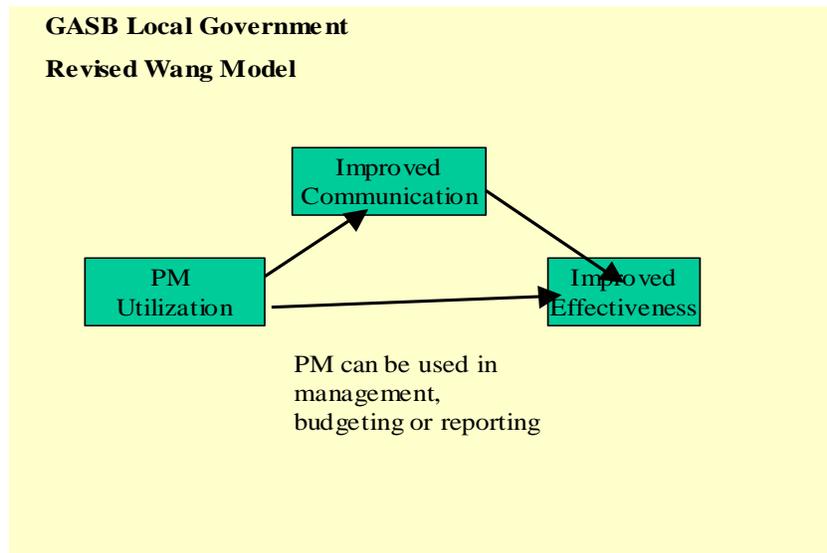


Figure 7-2 Revised Wang Local Government PM Utilization Benefits Model

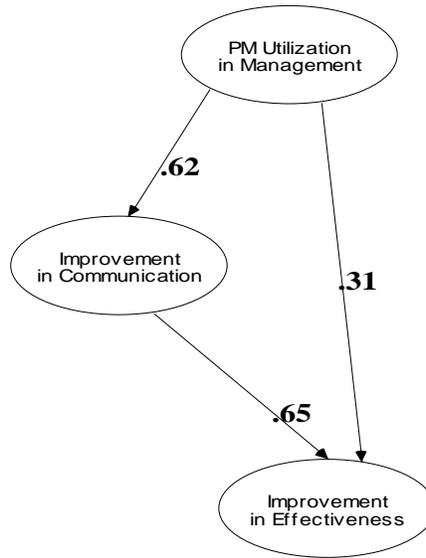


Figure 7-3 Revised Wang Model: Local Government Model of Perceived Benefits Provided by Reported PM Utilization in Management

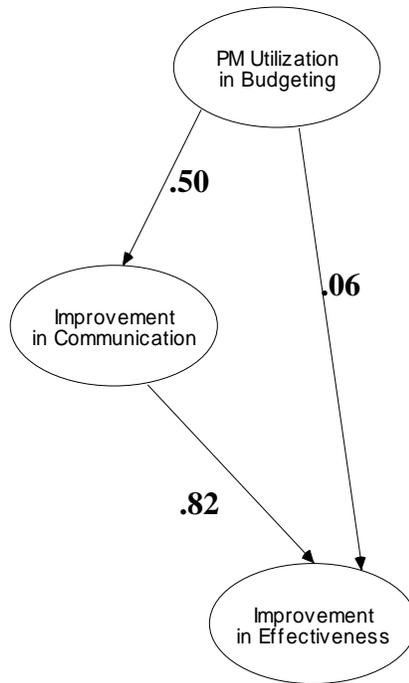


Figure 7-4 Revised Wang Model: Local Government Model of Perceived Benefits Provided by Reported PM Utilization in Budgeting

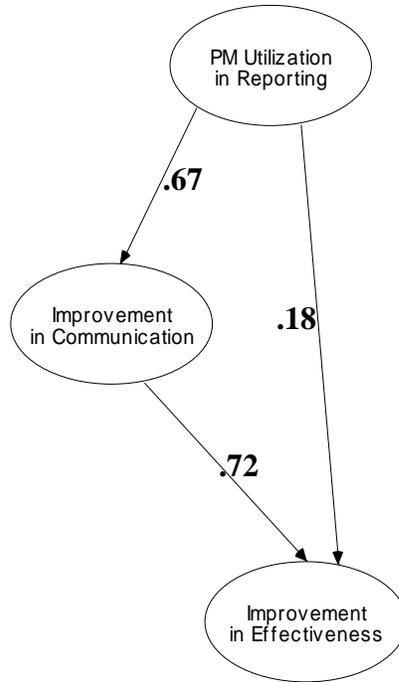


Figure 7-5 Revised Wang Model: Local Government Model of Perceived Benefits Provided by Reported PM Utilization in Reporting

Table 7-1 Wang Measurement Model

Construct and Indicators	Standardized Loading			Indicator Reliability			Error Variance			Composite Reliability			Variance Extracted Estimates		
	Bud	Rep	Man	Bud	Rep	Man	Bud	Rep	Man	Bud	Rep	Man	Bud	Rep	Man
Perceived Improved Communication										.88	.89	.89	.55	.57	.57
Between Departments and Programs	.68***	.72***	.72***	.46	.51	.52	.54	.49	.48						
With the Executive Budget Office	.69***	.74***	.74***	.47	.54	.54	.53	.46	.47						
With the Legislature and Legislative Staff	.85***	.87***	.87***	.73	.76	.75	.27	.24	.25						
With the Public about Performance	.70***	.69***	.69***	.50	.48	.48	.50	.52	.52						
Changing the substance or tone among legislatures about agency budgets	.76***	.74***	.74***	.57	.55	.55	.43	.45	.45						
Changing the questions legislators ask	.76***	.74***	.75***	.57	.55	.56	.43	.45	.44						
Perceived Effectiveness										.92	.92	.92	.55	.55	.55
In increasing awareness or focus on results	.74***	.75***	.75***	.55	.56	.56	.45	.44	.44						
In increasing awareness of factors that affect results	.77***	.77***	.77***	.59	.59	.59	.41	.41	.41						
In changing strategies to achieve desired results	.72***	.73***	.73***	.51	.53	.53	.49	.47	.47						
In improving external government cooperation/coordination	.64***	.64***	.64***	.41	.41	.41	.59	.59	.59						
In improving cross agency cooperation/coordination	.66***	.66***	.66***	.43	.43	.44	.57	.57	.56						
In improving effectiveness of agency programs	.79***	.80***	.80***	.63	.64	.64	.37	.36	.36						
In reducing/eliminating ineffective services/programs	.54***	.55***	.55***	.29	.30	.31	.71	.70	.69						
In improving responsiveness to customers	.84***	.84***	.84***	.70	.70	.70	.30	.30	.30						
In improving programs/service quality	.90***	.89***	.89***	.80	.80	.79	.20	.20	.21						
Reported PM Utilization in Budgeting										.89			.58		
PM used in budget requests	.91***			.83			.17								
PM used in budget documents	.88***			.77			.23								
PM used in annual operating budgets	.91***			.83			.17								
PM used in quarterly budget reports	.51***			.26			.74								
PM used in annual budget reports	.60***			.36			.64								
PM used in budget decisions	.64***			.41			.59								
Reported PM Utilization in Reporting											.94		.84		
PM used in reporting to management		.90***			.81		.19								
PM used in reporting to elected officials		.96***			.93		.07								
PM used in reporting to citizens		.88***			.77		.23								

Table 7-1 (Continued)

Reported PM utilization in Management												.94				.69	
PM used in managing daily operations			.82***			.67			.33								
PM used in managing contracts			.76***			.57			.43								
PM used in staffing			.79***			.62			.38								
PM used in performance Improvement			.90***			.81			.19								
PM used in evaluating results			.88***			.77			.23								
PM used in accountability to the state			.83***			.69			.31								
PM used in targeting areas for audits			.83***			.69			.31								

*Significant at the .05 level, **significant at the .01 level, ***significant at the .001 level

Post Hoc Modifications

SEM allows confirmatory and exploratory procedures. In this procedure, Wang’s revised model (CFA) was tested and then modified through model-building and model-trimming. Model-building started with Wang’s model and then paths are added to the model as indicated by the modification indices. As paths are added to the model, chi-square decreases, indicating a better fit. The paths that were added generally involved adding correlations between error variances. Model-trimming involves deleting arrows that were not significant. The path between PM utilization and improvement in effectiveness fits this category but it was not deleted to allow for better comparison of the final three models. Final models for performance utilization in management, reporting and budgeting are presented in Tables 7.2, 7.3, and 7.4.

Table 7-2 Management Modifications for Wang Model

Model	Chi-Square	Diff in Chi-Square	DF	Diff in DF	Difference Significant	RMSEA
Wang's theoretical model of benefits from using performance information in management	936.74		206			.117
Add covariance between error variance for changing tone or substance of legislator's questions and changing the questions they ask	819.661	117.079	205	1	Yes	.107
Add covariance between error variance for increasing awareness of results and increasing awareness of factors that affect results	723.912	95.749	204	1	Yes	.099
Add covariance between error variance for cross agency and external coordination	658.713	65.199	203	1	Yes	.093
Add covariance for error variance between managing daily operations and managing contracts	641.028	17.685	202	1	Yes	.091
Add covariance between error variance for managing operations and using PM for staffing	619.567	21.461	201	1	Yes	.089

Table 7-3 Budgeting Modifications for Wang Model

Model	Chi-Square	Diff in Chi-Square	DF	Diff in DF	Difference Significant	RMSEA
Wang's Theoretical Model of Benefits from using Performance Information in Budgeting	916.875		186			.123
Add covariance between error variance for changing tone or substance of legislators questions and changing the questions they ask	799.866	117.009	185	1	Yes	.113
Add covariance between error variance for increasing awareness of, focus on results and increasing awareness of factors that affect performance results	703.357	96.509	184	1	Yes	.104
Add covariance between error variance for improving cross agency coordination and external coordination	638.417	64.94	183	1	Yes	.098
Add covariance between error between PM used in Quarterly and PM used in Annual Budget Reports	594.587	43.83	182	1	Yes	.093
Add covariance between error variance improving communication with departments and with the executive budget office	573.143	21.444	181	1	Yes	.091
Add covariance between error variance from communication with error variance from using PM in budget decisions	536.859	36.284	180	1	Yes	.087
Add covariance between error variance from communication with error variance from using PM in annual reports	512.797	24.062	179	1	Yes	.085

Table 7-4 Reporting Modifications for Wang Model

Model	Chi-Square	Diff in Chi-Square	DF	Diff in DF	Difference Significant	RMSEA
Wang's Theoretical Model of Benefits from using Performance Information in Reporting	752.587		132			.134
Add covariance between error variance of changing tone or substance of legislators questions and changing the questions they ask	631.361	121.226	131	1	Yes	.121
Add covariance between error variance of increasing awareness of, focus on results and increasing awareness of factors that affect performance results	536.938	94.423	130	1	Yes	.110
Add covariance between error variance between improving cross agency coordination and external coordination	471.463	65.475	129	1	Yes	.101
Add covariance between error variance of reporting to elected officials and improving communication with the public	448.473	22.99	128	1	Yes	.098

Model Fit

Goodness of fit measures as shown in Table 7.5 determine if the model that is being tested should be accepted or rejected. These models have high correlation so SEM will have more power to detect an incorrect model. The fit measures reported here indicate that the examined models are marginal but as an exploratory model where SEM has not previously been applied, they are a starting point that future researchers can improve upon. Model chi-square should be non-significant if there is a good model fit. In this case, all of the models are significant. This could be because of the larger sample size or because of the sensitivity to the violation of the assumption of multivariate normality. Another rule of thumb is that the chi-square/df ratio should be two or less. These measures range from 2.86 to 3.50 again indicating a marginal fit. Garson, (n.d.) indicates that there is an adequate fit if RMSEA is less than or equal to .08. RMSEA varies from .085 to .098 in these models. RFI close to one indicates a good fit. The tested models range from .856 to .865. CFI measures should be

above .90 and all three models are. The GFI should be above .90 also. These models range from .832 to .848. The standard for NFI is .90 but some authors use .80 (Garson, n.d). The tested models range from .875 to .887. The lower AIC and ECVI measures indicate that the reporting model has the best fit of the three models.

Table 7-5 Goodness of Fit Measures for Wang Model

Goodness of Fit Measures	Reported PM Utilization in Management	Reported PM Utilization in Budgeting	Reported PM Utilization in Reporting
Degrees of Freedom (df)	201	179	128
Chi-Square	619.567	512.797	448.473
Chi-Square/df	3.08	2.86	3.50
Probability level	.000, Significant	.000, Significant	.000, Significant
RMSEA	.089	.085	.098
RFI	.856	.860	.865
CFI	.911	.918	.916
GFI	.832	.848	.847
NFI	.875	.881	.887
AIC	723.567	616.797	534.473
ECVI	2.783	2.372	2.056

FINDINGS AND DISCUSSIONS

Foremost, it should be considered that these models have a good fit by some goodness of fit measures but not by others, so the models are marginal. Nevertheless, as Table 7.6 indicates the management model explains 38% of the data variation in perceived communication benefits from reported PM utilization in management, 25% of the data variation in perceived communication benefits from reported PM utilization in budgeting, and 44% of the data variation in perceived communication benefits from reported PM utilization in reporting. Also, the management model explains 77% of the variation in

perceived effectiveness improvement. The budgeting model explains 72% of the variation in perceived effectiveness improvement, and the reporting model explains 72 % of the variation in perceived effectiveness improvement.

Table 7-6 Squared Multiple Correlations for Wang Model

	Reported PM Utilization in Management	Reported PM Utilization in Budgeting	Reported PM Utilization in Reporting
Perceived Communication Improvements	.382	.247	.443
Perceived Effectiveness Improvements	.770	.719	.719

As shown in Table 7.7, all of the path coefficients were positive and significant except for two. The path from PM utilization for budgeting to improved effectiveness was not significant. Also, there was a negative correlation between the errors from PM utilization for reporting to elected officials and improved communication to the public. Based on the revisions of the Wang model made during this analysis it would be a much simpler model as shown by Figure 7.2. Also, this model would not apply to the budgeting model, as it does not show a significant relationship between reported PM utilization and perceived improved effectiveness.

Table 7-7 Path Coefficients for Wang Model

Paths	Reported PM Utilization in Management	Reported PM Utilization in Budgeting	Reported PM Utilization in Reporting
Reported PM Utilization to Perceived Communication Improvement	.618***	.497***	.666***
Reported PM Utilization to Perceived Effectiveness Improvement	.313***	.061	.176**
Perceived Communication Improvement to Perceived Effectiveness Improvement	.649***	.816***	.720***
Correlation between errors from changing tone and substance and changing questions legislators ask	.658***	.637***	.663***
Correlation between errors from improved awareness of results to improved factors leading to results	.580***	.581***	.579***
Correlation between errors from improved cross agency and external coordination	.486***	.486***	.489***
Correlation between errors from reporting to elected officials and improved communication with the public	N/A	N/A	-.481***
Correlation between errors from PM utilization in budget annual reports and quarterly reports	N/A	.417***	N/A
Correlation between errors from PM usage in managing contracts and PM usage in managing daily operations	.265***	N/A	N/A
Correlation between errors from PM usage in managing daily operations and usage in staffing	.296***	N/A	N/A
Correlation between errors from PM utilization in decision-making and errors from the latent variable, Improved Communication	N/A	.358***	N/A
Correlation between errors from Improved Communication with departments and Budget Office	N/A	.323***	N/A
Correlation between errors from PM utilization in annual reports and errors from the latent variable, Improved Communication	N/A	.281***	N/A

*Significant at the .05 level, **significant at the .01 level, ***significant at the .001 level

AMMONS-RIVENBARK MODEL

In their paper, the authors proposed a model based on their case study of the cities and towns that participate in the North Carolina Benchmarking Project. In this study they found through inquiry of project officials in the 15 cities that some cities showed extensive participation in using the benchmarking performance data for service improvement while others showed little usage. The primary factor they identified as making a difference was usage in key management systems including:

- Establishment of performance targets (strategic planning)
- Contracting and managed competition
- Program evaluation
- Budget proposals and reviews
- Benchmarking comparison with other governments or service providers

In addition they identified data quality as a promoting factor. Specifically, they felt that reliance on higher order measures rather than workload or outputs promoted service improvement. Ammons and Rivenbark also identified reliance on efficiency measures as another factor that enabled some governments to use PM for service improvements while others just use PM for reporting purposes.

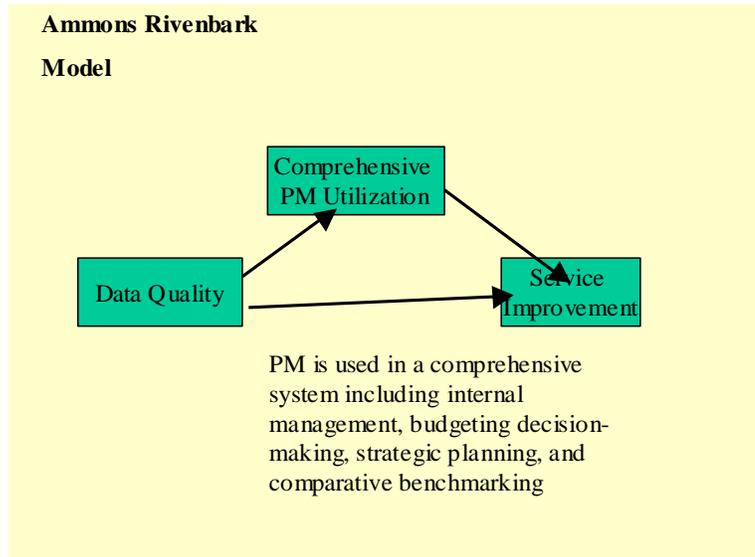


Figure 7-6 Ammons-Rivenbark Comprehensive PM Utilization Model

The questions to be answered by this section are:

- Is there a difference in the observed benefits from using PM in key management systems compared to reporting? Will there be evidence to support Hypothesis 4c?

H4c: A comprehensive model that includes PM utilization in internal management, budgeting decision-making, strategic planning, and comparative benchmarking will produce greater observed service improvements than models which use reporting utilization by itself.

- Does the presence of a high level of data quality promote service improvement?

MEASURES

Independent Variables

As explained in previous chapters, the 2000 GASB survey has a series of questions that pertain to PM utilization that will allow this dissertation to focus on variation and similarities from different models of usage. The survey allows respondents to report that no departments are using, a few select departments are using, less than 50% of the departments are using, greater than 50% of the departments are using, or all of the departments are using performance measurements.

Reported PM Utilization in a Comprehensive Management System

The GASB survey asks questions pertaining to whether output or outcome performance measures are being used for:

- Establishing contracts for services
- Evaluation to determine underlying reasons for results
- Strategic Planning (longer than 1 year)
- Benchmarking or comparison of programs to other entities or agencies
- Budgeting decisions including resource allocation or discussions about resource allocations

Reported PM Utilization in Budget Reporting

The GASB survey asks about the following budgeting reporting functions:

- Output or outcome PM have appeared in department budget requests
- Output or outcome PM have appeared in the official budget document
- Output or outcome PM have appeared in annual operating budgets
- Output or outcome PM have appeared in quarterly budget reports
- Output or outcome PM have appeared in annual budget reports

Reported PM Utilization in Reporting

The GASB survey asks about the extent outcome or output measures are used for:

- Reporting results to management and staff
- Reporting or accountability to elected officials
- Reporting or accountability to citizens, citizens groups, or media

Dependent Variable

Improved Service Improvement

The GASB survey has a series of indicator questions about service improvements. This include whether PM is effective in:

- Improving effectiveness of agency programs
- Improving responsiveness to customers
- Improving program/service quality
- Generation of cost savings

DATA ANALYSIS

Data Screening

By examining the Z score for each variable, there were no univariate outliers which were more than plus or minus three from the mean. There was considerable missing data among the variables, ranging from eight percent missing to twenty percent missing in some cases. This missing data were examined using the Missing Value function in SPSS. Using

the Little's MCAR test, the chi-square was not significant indicating the data were missing completely at random. Therefore, expected maximization in SPSS was used to impute the value of the data. This is an acceptable method when listwise deletion cannot be used (Tabachnick and Fidell, 2001:63). In this case, deletion of cases would make the sample too small for SEM analysis.

Measurement Model

Since the primary purpose of testing this model was to confirm the model, no factor analysis was performed. The conventional test for composite reliability .70 and for variance extracted is .50 for constructs (Garson, n.d.) As shown in Table 7.8, these constructs meet those tests, except for observed data quality, which is very close at .49.

Figure 7.7 shows a conceptual overview for PM utilization in the reporting model, which is the same as the proposed comprehensive model (Figure 7.6). Figures 7.8, 7.9 and 7.10 shows the detailed models. Both the comprehensive usage model and the PM utilization in reporting were confirmed. PM utilization in budgeting was not confirmed as the path between PM utilization and service improvement was not significant.

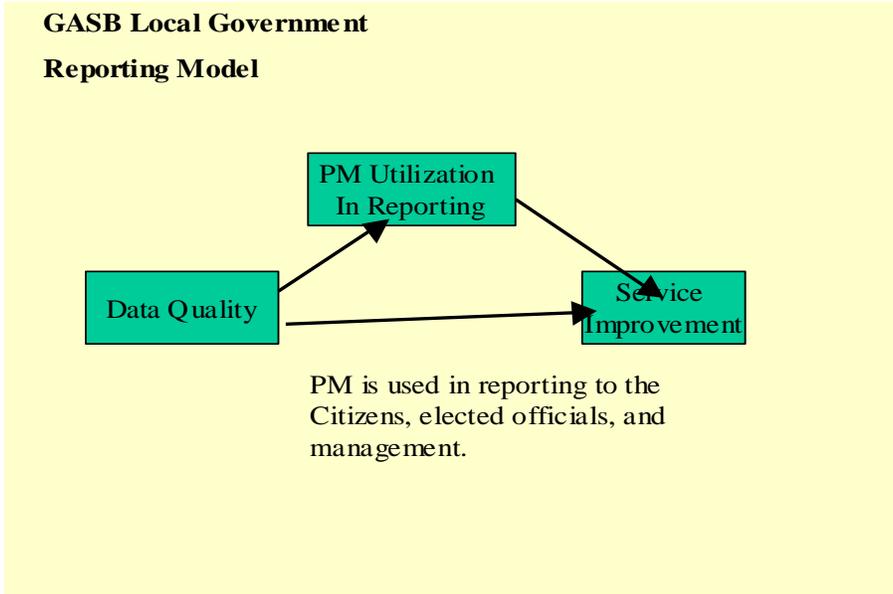


Figure 7-7 GASB Local Government Reporting Model

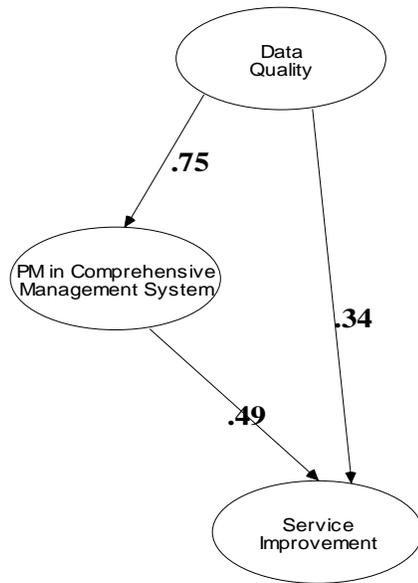


Figure 7-8 PM Utilization in Ammons-Rivenbark Comprehensive Management System

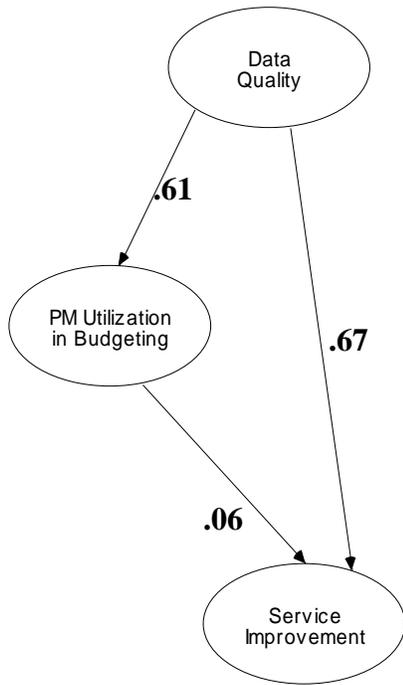


Figure 7-9 PM Utilization in Ammons-Rivenbark Budget Reporting Model

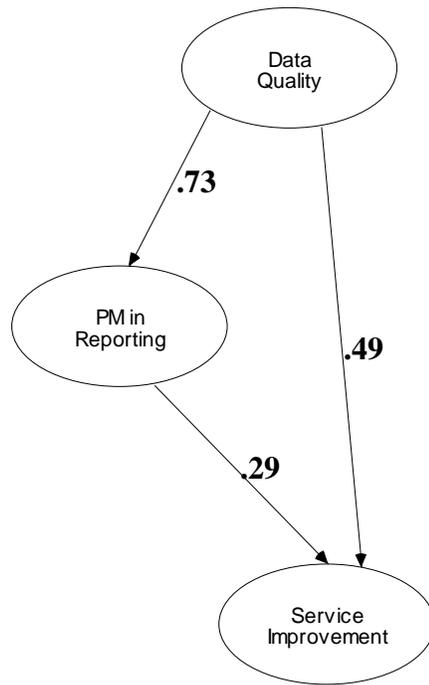


Figure 7-10 PM Utilization in Ammons-Rivenbark SEA Reporting Model

Table 7-8 Ammons-Rivenbark Measurement Model

Construct and Indicators	Standardized Loading			Indicator Reliability			Error Variance			Composite Reliability			Variance Extracted Estimates		
	Bud	Rep	Com Man	Bud	Rep	Com Man	Bud	Rep	Com Man	Bud	Rep	Com Man	Bud	Rep	Com Man
Perceived Improved Service Delivery										.90	.90	.90	.69	.69	.70
Effectiveness of agency programs	.79***	.79***	.80***	.62	.62	.63	.38	.38	.37						
Responsiveness to customers	.88***	.88***	.88***	.77	.78	.77	.23	.22	.23						
Program/Service Quality	.94***	.94***	.93***	.88	.87	.87	.12	.13	.13						
Cost Savings	.69***	.70***	.71***	.48	.49	.50	.52	.51	.50						
Observed Data Quality										.85	.85	.85	.49	.49	.49
Multiple levels of measures from outputs to outcomes to societal benchmarks are developed	.81***	.79***	.79***	.65	.63	.62	.35	.37	.38						
Crosscutting PM that more than one department, jurisdiction, program, or sector contributes to accomplishment	.71***	.71***	.71***	.50	.50	.51	.50	.50	.49						
Program outputs are linked to outcome measures	.74***	.74***	.74***	.54	.55	.54	.46	.45	.46						
Benchmarks are developed that link to outcome measures	.73***	.74***	.75***	.53	.54	.56	.47	.46	.44						
Reliable cost data are available for most services and programs	.38***	.39***	.38***	.14	.15	.14	.86	.85	.86						
PM are focused on results	.74***	.75***	.74***	.54	.56	.55	.46	.44	.45						

Table 7.8 (Continued)

Reported PM Utilization in Budget Reporting										.89			.62	
PM used in Budget requests	.90***			.81			.19							
PM used in budget documents	.89***			.79			.21							
PM used in annual operating budgets	.91***			.83			.17							
PM used in quarterly budget reports	.53***			.28			.72							
PM used in annual budget reports	.64***			.40			.60							
Reported PM Utilization in Reporting										.94			.84	
PM used in reporting to management		.92***			.84		.16							
PM used in reporting to elected officials		.95***			.91		.09							
PM used in reporting to citizens		.87***			.76		.24							
Comprehensive Management System												.90		.65
PM used in budget decisions			.78***			.61		.39						
PM used in managing contracts			.79***			.62		.38						
PM used in Strategic planning (longer than 1 year)			.79***			.62		.38						
PM used in benchmarking or comparison of program results with other entities			.77***			.59		.41						
PM used in evaluating results			.88***			.77		.23						

*Significant at the .05 level, **significant at the .01 level, ***significant at the .001 level

Post Hoc Modifications

SEM allows confirmatory and exploratory procedures. In this procedure, the Ammons-Rivenbark model was tested and then modified through model-building. Model-building starts with hypothesized model and then paths are added to the model as indicated by the modification indices. As paths are added to the model, chi-square decreases, indicating a better fit. Only minimal modification was performed on this model. The paths that were drawn involved adding correlations between error variances. Model-trimming involves deleting arrows that are not significant. If the critical ratios for the regression weights were below 1.96, they are not significant at the .05 level and they can be deleted in the interest of parsimony (Garson, n.d.). However, in this case, they are presented in order to make the final models more comparable. Final models, which were developed using model-building and model trimming for performance utilization in management, reporting and budgeting, are presented in Tables 7.9, 7.10, and 7.11.

Table 7-9 Comprehensive Management Modifications for Ammons-Rivenbark Model

Model	Chi-Square	Diff in Chi-Square	DF	Diff in DF	Difference Significant	RMSEA
Ammons-Rivenbark Theoretical Model of Benefits from using Performance Information in Comprehensive Management System	259.193		87			.085
Add covariance between error variance for improving effectiveness and reducing costs	226.072	33.121	86	1	Yes	.077

Table 7-10 Budget Reporting Modifications for Ammons-Rivenbark Model

Model	Chi-Square	Diff in Chi-Square	DF	Diff in DF	Difference Significant	RMSEA
Comparison model of Benefits from using Performance Information in Budgeting Reporting	334.404		87			.102
Add covariance between error variance for budget reporting in quarterly and annual reports	278.615	55.789	86	1	Yes	.090
Add covariance between error variance for improving effectiveness and reducing costs	240.218	38.397	85	1	Yes	.081

Table 7-11 Reporting Modifications

Model	Chi-Square	Diff in Chi-Square	DF	Diff in DF	Difference Significant	RMSEA
Comparison model of Benefits from using Performance Information in Budgeting, Reporting	196.093		62			.089
Add covariance between error variance for improving effectiveness and reducing costs	158.624	37.469	61	1	Yes	.076

Model Fit

Goodness of fit measures as shown in Table 7.12 determine if the model that is being tested should be accepted or rejected. These models have high correlation so SEM will have more power to detect an incorrect model. The fit measures reported here indicate that the examined models are marginal but as an exploratory model where SEM has not previously been applied, they are a starting point that future researchers can improve upon.

Model chi-square should be non-significant if there is a good model fit. In this case, all of the models are significant. This could be because of the larger sample size or because of the sensitivity to the violation of the assumption of multivariate normality. Another rule of thumb is that the chi-square/df ratio should be two or less. These measures range from 2.60 to 2.82 again indicating a marginal fit. Garson, (n.d.) indicates that there is an adequate fit if RMSEA is less than or equal to .08. RMSEA varies from .076 to .081 in these models.

RFI close to one indicates a good fit. The tested models range from .900 to .922. CFI measures should be above .90 and all three models fit this standard. The GFI should be above .90 also. These models range from .902 to .920. The standard for NFI is .90 but some authors use .80 (Garson, n.d). The tested models range from .914 to .939. The lower AIC and ECVI measures indicate that the reporting model has the best fit of the three models.

Table 7-12 Goodness of Fit Measures for Ammons-Rivenbark Model

Goodness of Fit Measures	Reported PM Utilization in Comprehensive Management System	Reported PM Utilization in Budgeting Reporting	Reported PM Utilization in Reporting
Degrees of Freedom (df)	86	85	61
Chi-Square	226.072	240.218	158.624
Chi-Square/df	2.62	2.82	2.60
Probability level	.000,significant	.000,significant	.000, significant
RMSEA	.077	.081	.076
RFI	.900	.894	.922
CFI	.947	.942	.961
GFI	.904	.902	.920
NFI	.918	.914	.939
AIC	294.072	310.218	218.624
ECVI	1.065	1.124	.792

Testing the Assumptions of SEM

Even though SEM uses path analysis, SEM relaxes some of the assumptions.

However, Garson (n.d) recommends considering the following assumptions:

- **Multivariate normal distribution of the indicators:** With severe non-normality of data, the model may be biased toward a Type I error, rejecting a model that should not be rejected. Regression paths may also be statistically significant more often than they should be. Mardia's statistic is a method of measuring multivariate normality. It should be less than three to indicate that the multivariate model is normal. For the models considered, none meet this standard.
- **Linearity:** SEM assumes linear relationships between variables. This was tested during the bivariate analysis.
- **Complete data or appropriate data imputation:** Data were imputed using the Missing Value function of SPSS using Expected Maximization.
- **Underidentified:** A model should have positive degrees of freedom. All of the models presented here do.
- **Recursive:** All of the lines should flow one way, with no feedback looping and the residual errors for the endogenous variables should be uncorrelated. All of the models presented are recursive.
- **High Multicollinearity:** High multicollinearity may result in the model not being solvable or may decrease the reliability of SEM estimates. The correlation tables were examined and these models do not have that problem. The correlation tables can be obtained from the author.

- Interval Data: For reasonably large sample, when the number of Likert categories is four or higher and skew and kurtosis are within normal limits, use of maximum likelihood, which is the default in SEM, is acceptable. All of the variables in this sample use Likert scales of four or greater. The survey allows respondents to report, “no departments are using, a few select departments are using, less than 50% of the departments are using, greater than 50% of the departments are using, or all of the departments are using performance measurements.” These measures are not equidistant and this undermines the credibility of being interval data.
- Sample size should not be small. It is recommended that the sample size be at least 100, preferably 200. With 277 in the sample, this requirement is met.

FINDINGS AND DISCUSSIONS

Foremost, it should be considered that these models have a good fit by some goodness of fit measures but not by others so the models are marginal. Nevertheless, Table 7.13 indicates the model explains 56% of the data variation in the comprehensive management utilization of performance measurement, 37% of the data variation in reported budget reporting utilization of performance measurement, and 54% of the data variation in reported PM utilization in reporting. Also, the comprehensive management model explains 60% of the variation in observed service improvement. The budget reporting explains 50% of the variation in observed service improvement and the reporting model explains 54% of the variation in service improvement.

Table 7-13 Squared Multiple Correlations for Ammons-Rivenbark Model

	Reported PM Utilization in Comprehensive Management	Reported PM Utilization in Budgeting Reporting	Reported PM Utilization in Reporting
PM Utilization	.562	.371	.539
Service Improvement	.606	.502	.540

As shown in Table 7.14, all of the path coefficients were positive and in the expected direction. However, the path from PM utilization in budgeting to service improvement is not significant.

Table 7-14 Path Coefficients for Ammons-Rivenbark Model

Paths	Reported PM Utilization in Comprehensive Management System	Reported PM Utilization in Budgeting Reporting	PM Utilization in Reporting
Observed Data Quality to Reported Utilization	.750***	.609***	.734***
Observed Data Quality to Service Improvement	.337***	.669***	.493***
Reported Utilization to Observed Service Improvement	.493***	.062	.292***
Correlation between the error variance of improving effectiveness and reducing cost	.378***	.400***	.395***
Correlation between budgeting quarterly reports and annual reports	N/A	.439***	N/A

*Significant at the .05 level, **significant at the .01 level, ***significant at the .001 level

CONCLUSION

There are some methodological concerns. The sample may not be representative of all local governments. The sample size is not very large for the number of variables considered. The measurement model could be more refined. Accountability is a variable that could not be operationalized because there were no questions about accountability in the

GASB survey. Although the model fit is acceptable by some goodness of fit measures, by others it is not.

Moreover, during the confirmatory factor analysis phase for the Wang model, because of discriminant validity and high correlations, the three indicator statements pertaining to efficiency had to be eliminated and the latent variables representing decision-making, coordination, and effectiveness were collapsed into one construct. This may be because respondents do not differentiate between the types of improvement. In their minds, efficiency and effectiveness are the same. Also, there are ten covariances that were drawn to make the matrix fit. This shows a lot of correlation between the errors of the various indicator variables.

However, the analysis does show that local officials perceive that PM utilization in management, budgeting, and reporting results in improvement in communication. The strongest factor seems to be improvement in communication with legislators and the weakest is with the public about performance (Table 7.1). In fact, the reporting model shows a moderate negative correlation between errors from reporting to elected officials and improved communication with the public. Perhaps, organizations that stress communication with elected officials do not practice citizen involvement practices.

The analysis also shows local officials perceive PM utilization in management and reporting directly results in improved effectiveness for the organizations. The strongest factor was in improving quality of programs and the weakest was in reducing or eliminating ineffective services or programs (Table 7.1). Also, confirming Wang's theory, and Hypothesis H4B, reported PM utilization in management shows a stronger direct relationship

with perceived improvement in effectiveness when compared to reporting and budgeting utilization of PM. PM utilization in budgeting does not show a significant direct relationship with improved effectiveness. In the budgeting model there is also a significant correlation between the errors from using PM in budget decisions and annual reports with the errors from the latent variable, communication. Perhaps, this indicates that there is some other political factor (as postulated by Wang), which has not been considered in this research that could be affecting improved communications. Perhaps, the political atmosphere is more open.

The Ammons-Rivenbark model was operationalized with few modifications. Using SEM with the GASB data set confirms the Ammons-Rivenbark hypothesis (H4C) that a comprehensive model including strategic planning and comparative benchmarking is stronger in producing service improvements than reporting through the budget or SEA type reports. Comparative benchmarking loads with a respectable .77 and has an indicator reliability of .59, which confirms the authors' observations of the 15 N.C. municipalities, which use this tool (Table 7.8). However, the strongest link in the construct is using PM in evaluating results, a traditional management function. It loads at .88 and has an indicator reliability of .77 (Table 7.8). Using PM for budget reporting does not provide a significant relationship to service improvement (Table 7.14).

The current analysis also confirms the Ammons-Rivenbark theory that data quality will promote service improvement. However, contrary to their observations, reliable cost data is the weakest link in the construct, loading at .38 with a low indicator reliability of .14 (Table 7.8). The strongest link in the data quality construct is using multilevel PM ranging

from outputs to outcomes, to societal benchmarks, loading at .79 with an indicator reliability of .62. Also as shown in Table 7.14, the reporting model and budget-reporting model shows that observed data quality has a stronger influence on service improvement than in the comprehensive management system. Figure 7.7 shows the Reporting Model is confirmed as well as the Comprehensive Management Model. However, using performance measures in budgeting by only including it in budget reports does not have a significant relationship with service improvement.

CHAPTER 8 COMPARING THE MODELS

INTRODUCTION

This chapter will examine the similarities and differences in the assumptions and findings of the various models. The first section will compare the assumptions of the Kong model and the Revised Kong-Rogers model. The original Kong model was modified during the confirmatory factor analysis stage by eliminating the training as a separate model and combining it with the measurement capacity construct. Also involvement was separated into citizen and budget office involvement. By comparing the goodness of fit and the explained variance of the two different models, a judgment will be made about which is the best model.

The second section will examine the similarities and differences in the assumptions and findings of the Wang and the Ammons-Rivenbark model. The differences in these two models are mainly in the way the constructs are developed. One emphasizes communication improvement as an intervening variable and the other stresses data quality. The Ammons-Rivenbark model also places an emphasis upon a comprehensive model of usage that uses PM in strategic planning and comparative benchmarking. By comparing the goodness of fit and the explained variance of the two models, a judgment will be made about which is the best model.

SIMILARITIES AND DIFFERENCES IN ASSUMPTIONS BETWEEN KONG AND REVISED KONG-ROGERS MODEL

Kong assumed that organizational factors (organizational culture and goal clarity) would affect human factors (leadership, involvement, and training) and measurement factors (measurement capacity, and data quality). Organizational, human, and measurement factors would directly influence PM utilization. The Kong-Rogers model assumes that human

factors (citizen and elected official's participation) will affect the organizational factors (organizational climate). Human factors will also affect measurement factors. Leadership will influence measurement capacity. Citizen and elected official's participation will influence data quality. In addition, there is an additional assumption that organizational culture will affect data quality.

There are several differences in the individual variables. Although training is a separate model in the Kong model, it is part of the construct for measurement capacity in the Kong-Rogers model. Involvement in the Kong model refers to the respondent's involvement. In the Kong-Rogers model, the GASB questionnaire guides the involvement construct to refer to budget and citizen involvement. Reported rewards and sanctions in the Kong-Rogers model becomes the proxy for goal clarity in the Kong Model. All other variables are essentially the same.

Figures 8.1 and 8.2 shows a visual comparison of the two models. Training (pink block) is used in the Kong model but not Kong-Rogers. The green blocks (rewards and sanctions, citizen participation, and budget involvement) are new or significantly revised variables in the Kong-Rogers model. The red lines in the Kong-Rogers model are new assumed relationships.

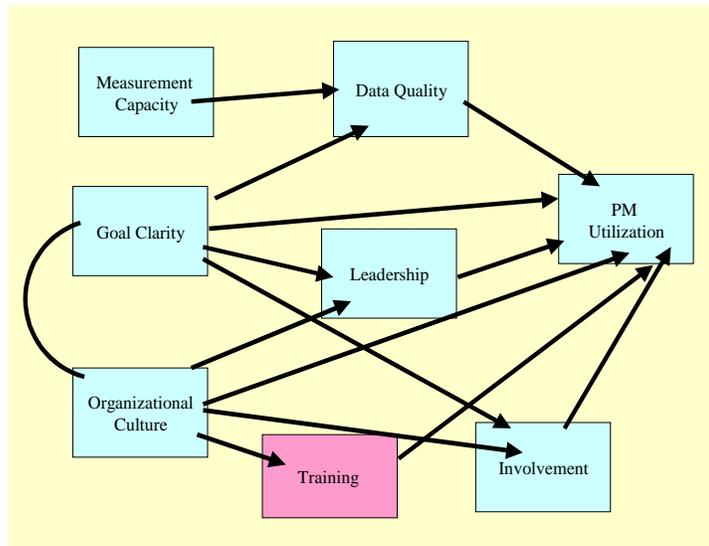


Figure 8-1 Kong Model Assumptions

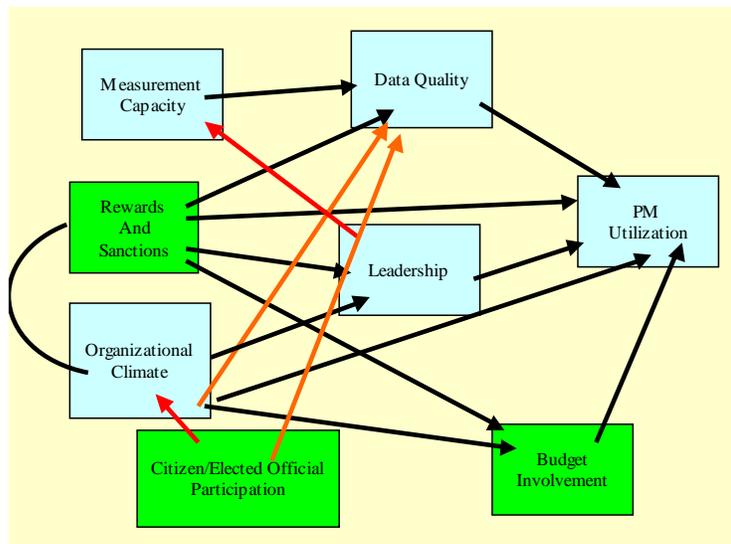


Figure 8-2 Kong-Rogers Model Assumptions

Organizational Factors

The Kong model proposes that organization culture influences leadership, involvement, and training, and PM utilization. Goal clarity influences leadership, data quality, and involvement. In addition, the Kong-Rogers model adds a relationship between organizational culture and data quality.

The Kong model also assumes a relationship between goal clarity and data quality, leadership, and involvement. In addition goal clarity directly influences PM utilization. The Kong-Rogers model proposes the same relationships for rewards and sanctions (a proxy for goal clarity).

Human Factors

The Kong model assumes that training influences PM utilization. The Kong-Rogers model does not use the variable training. Both models assume that involvement influences PM utilization. The Kong model assumes that leadership assumes a direct influence on PM utilization only. In the Kong-Rogers model, leadership directly affects measurement capacity as well.

Measurement Factors

Both the Kong and the Kong-Rogers model assume that measurement capacity influences data quality and data quality directly affects PM utilization.

SIMILARITIES AND DIFFERENCES IN KONG AND REVISED KONG-ROGERS MODEL FINDINGS

Organizational Factors

As shown in Tables 8.1 and 8.2, both models show similarities in the influence of organizational factors. The main difference is that reported rewards and sanctions has no

statistical relationship with reported utilization in budgeting. By contrast, Kong’s goal clarity variable had a significant positive effect.

Table 8-1 Kong Findings Pertaining to Organizational Factors

Kong’s Organizational Factors	Human Factors	Measurement Factors	PM Utilization in Management	PM Utilization in Budgeting
Observed Organizational Climate	✓Significant positive effect on Involvement, Leadership, and Training	Not Tested	✓Significant positive effect	✓Significant positive effect
Goal clarity or rewards and sanctions	✓Significant positive effect on Leadership	✓Significant positive effect on Data Quality	✓Significant positive effect	✓Significant positive effect

Table 8-2 Kong-Rogers Findings Pertaining to Organizational Factors

Kong- Rogers Organizational Factors	Human Factors	Measurement Factors	PM Utilization in Management	PM Utilization in Budgeting
Observed Organizational Climate	✓Significant positive effect on Observed Budget Involvement, and Leadership	✓Significant positive effect on Data Quality	✓Significant positive effect	✓Significant positive effect
Reported Rewards and Sanctions	✓Significant positive effect on Observed Budget Involvement, and Leadership	✓Significant positive effect on Data Quality	✓Significant positive effect	✗No effect

Human Factors

There was a major departure between the two models on the role of leadership in the models. In Kong’s model (Table 8.3), leadership did not have a relationship with either PM utilization in management or budgeting. It was also not assumed that leadership would have a relationship with measurement capacity. In the Kong-Rogers model shown in Table 8.4, not only did leadership have a strong influence on measurement capacity, it was also statistically significant in its relationship with PM utilization in management and budgeting.

Table 8-3 Kong’s Findings Pertaining to Human Factors

Kong’s Human Factors	Organizational Factors	Measurement Factors	PM Utilization in Management	PM Utilization in Budgeting
Leadership	Not tested	Not tested	✗ No effect	✗ No effect
Involvement	Not tested	Not tested	✗ No effect	✓ Significant positive effect
Training	Not tested	Not Tested	✓ Significant positive effect	✓ Significant positive effect

Table 8-4 Kong-Rogers Findings Pertaining to Human Factors

Kong-Rogers Human Factors	Organizational Factors	Measurement Factors	PM Utilization in Management	PM Utilization in Budgeting
Leadership	Not tested	✓ Significant positive effect on Measurement Capacity	✓ Significant positive effect	✓ Significant positive effect
Involvement of Budget Staff	Not tested	✗ No effect	✓ Significant positive effect	✓ Significant positive effect
Citizen Participation	✓ Significant positive effect on Organization Culture	✓ Significant positive effect on Data Quality	✗ No effect	✗ No effect

Measurement Factors

Both models (Table 8.5) show a significant effect of observed data quality on PM in management. However, Kong’s model did not show a significant effect of observed data quality on reported PM utilization in budgeting. The revised Kong-Rogers model had a significant influence between observed data quality and reported PM in budgeting.

Table 8-5 Both Model’s Findings Pertaining to Measurement Factors

Effect of Data Quality	PM Utilization in Management	PM Utilization in Budgeting
Kong’s Model	✓ Significant positive effect	✗ No effect
Revised Kong-Rogers	✓ Significant positive effect	✓ Significant positive effect

Comparing the Goodness of Fit and Explained Variance of the Kong and Kong-Rogers Model

As can be seen from the goodness of fit tests shown in Table 8.6, the more complicated Kong-Rogers model has the best fit. The chi-square divided by the degrees of freedom is greater than three for all of the Kong models. Also the RMSEA test for the Kong models is over .10 while the Kong-Rogers is .08 or less. When examining the variance explained, the differences are negligible for most of the variables (Table 8.7). However, the training variable is not that valuable. The model explains only eight percent of the variance in that model. The Kong-Rogers model illustrates the effect of leadership on measurement capacity explaining 38-39% of the variance in that variable. Also citizen participation explains 11-13% of the variance on observed organizational culture. These effects are not shown in the Kong model.

Table 8-6 Comparing Goodness of Fit between Kong and Kong-Rogers Model

Goodness of Fit Measures	Kong Reported PM Utilization in Management	Kong-Rogers Reported PM Utilization in Management	Kong Reported Pm Utilization in Budgeting	Kong-Rogers Reported PM Utilization in Budgeting	Kong Reported PM Utilization in Reporting	Kong-Rogers Reported PM Utilization in Reporting
Degrees of Freedom (df)	217	284	197	262	139	197
Chi-Square	862.117	767.828	857.312	696.851	555.601	459.662
Chi-Square/df	3.972	2.70	4.35	2.65	3.99	2.33
Probability level	.000 Significant	.000, Significant	.000 Significant	.000, Significant	.000 Significant	.000, Significant
RMSEA	.106	.080	.112	.079	.106	.071
RFI	.755	.808	.702	.791	.766	.840
CFI	.832	.886	.790	.877	.849	.916
GFI	.786	.828	.777	.823	.816	.865
NFI	.790	.832	.746	.818	.810	.863
AIC	980.117	901.828	969.312	822.851	657.601	571.662
ECVI	3.685	3.390	3.644	3.093	2.472	2.149

Table 8-7 Comparing Squared Multiple Correlations for Kong and Kong-Rogers

	Kong Reported PM Utilization in Management	Kong-Rogers Reported PM Utilization in Management	Kong Reported PM Utilization in Budgeting	Kong- Rogers Reported PM Utilization in Budgeting	Kong Reported PM Utilization in Reporting	Kong- Rogers Reported PM Utilization in Reporting
Observed Organizational Culture	0	.113	0	.132	0	.127
Observed Measurement Capacity	0	.387	.033	.389	0	.398
Training	.083	Not Included	.087	Not Included	.08	Not Included
Observed Leadership	.349	.327	.388	.341	.366	.341
Observed Budget Involvement	.159	.148	.185	.169	.174	.169
Observed Data Quality	.668	.639	.342	.618	.718	.672
Reported PM Utilization	.571	.565	.400	.423	.603	.593

SIMILARITIES AND DIFFERENCES IN ASSUMPTIONS BETWEEN WANG AND AMMONS-RIVENBARK MODELS

Wang (2002 a) assumed that PM utilization would bring “immediate” benefits (communication, decision-making, and coordination). Through these “immediate” benefits would come “long-term” impacts of efficiency, effectiveness, and accountability. Wang stated there would be differences in the impacts according to whether PM was utilized primarily for management, budgeting, or reporting.

Ammons and Rivenbark (2005) proposed that PM utilization for comprehensive management including strategic planning, contracting, program evaluation, budget decisions, and benchmarking would bring greater service improvement than if PM utilization was used for just reporting. Ammons and Rivenbark also stated that those organizations that had high

data quality and relied on efficiency measures would experience greater service improvement than those that did not.

During the factor analysis phase of the data analysis, it was discovered that Wang's model could not be operationalized as conceived. The variables of decision-making, coordination, and efficiency were dropped from the analysis. The model then became that PM utilization improved communication and through improved communication, effectiveness was impacted.

Differences and Similarities Between the Two Models in PM Utilization

The Wang model's measure for PM utilization in management includes all of the variables used in day-to-day operations of an organization (Table 8.8). It does not include strategic planning, benchmarking other entities, or use in budgeting decisions. The Ammons-Rivenbark comprehensive model combines the management functions of contracting and evaluation use of PM use in contracting with strategic planning, comparative benchmarking, and using PM in budget decisions. The Ammons-Rivenbark model makes the distinction that using PM in budget decisions is part of a comprehensive usage. However, these authors believe the predominate usage of PM in budgeting is just for reporting and the measure reflects that. PM utilization in reporting is the same for both models.

Table 8-8 Comparing Benefits Constructs for PM Utilization

Output or outcome PM are used in	Wang's Reported PM utilization in management	Ammons-Rivenbark's Comprehensive PM utilization	Wang's Reported PM utilization in budgeting	Ammons-Rivenbark's PM utilization in budget reporting	Wang's Reported PM utilization in reporting	Ammons-Rivenbark's PM utilization in reporting
Establishing Contract for services	✓	✓				
Managing Daily operations	✓					
Personnel Decisions	✓					
Evaluation to understand results	✓	✓				
Accountability for state	✓					
Performance improvement initiatives	✓					
Target for Audits	✓					
Budgeting Decisions		✓	✓			
Budget Requests			✓	✓		
Official Budget Document			✓	✓		
Annual operating budgets			✓	✓		
Quarterly budget Reports			✓	✓		
Annual budget reports			✓	✓		
Reporting to management and staff					✓	✓
Reporting to elected officials					✓	✓
Reporting to citizens or media					✓	✓
Strategic Planning (longer than 1 year)		✓				
Benchmarking or comparison to other entities or agencies		✓				

Differences and Similarities Between the Two Models in Testing Perceived Benefits

The Wang model includes a more comprehensive definition of effectiveness, combining improvements in decision-making, coordination and effectiveness (Table 8.9).

The Ammons-Rivenbark model is narrower and deals with service improvements in programs, customer service, and efficiency.

Table 8-9 Comparing Constructs for Perceived Benefits from PM

Perceptions of benefits from PM	Wang’s Effectiveness Measure	Ammons-Rivenbark Service Improvement Measure
In increasing awareness or focus on results	✓	
In increasing awareness of factors that affect results	✓	
In changing strategies to achieve desired results	✓	
Improvements in external coordination	✓	
Improvements in cross agency coordination	✓	
Improvements in effectiveness of programs	✓	✓
Elimination of ineffective programs	✓	
Improves responsiveness to customers	✓	✓
Improve quality	✓	✓
Generates cost savings		✓

Communication or Data Quality – which is important in bringing improvements in the long-term effects of PM?

The Wang model assumes that communication is an “immediate” effect of PM utilization, which will help promote effectiveness including decision-making, coordination, effectiveness, and customer service. Ammons-Rivenbark stress the importance of data quality, especially cost accounting which will bring about service improvements in programs, customer service, and efficiency.

SIMILARITIES AND DIFFERENCES IN WANG AND AMMONS-RIVENBARK MODEL FINDINGS

Table 8.10 shows that both reported PM utilization in management and reporting shows positive effects from communication, effectiveness, data quality and service improvement. However, reported PM in budgeting does not show a statistical relationship with effectiveness in the Wang model or with service improvement in the Ammons-Rivenbark model.

Table 8-10 Comparing Benefit Findings from Wang and Ammons-Rivenbark model

Wang	Communication	Effectiveness
PM utilization in Management	✓ significant positive effect	✓ significant positive effect
PM utilization in Budgeting	✓ significant positive effect	✗ No effect
PM utilization in Reporting	✓ significant positive effect	✓ significant positive effect
Ammons-Rivenbark	Data Quality	Service Improvement
PM utilization in Comprehensive Management	✓ significant positive effect	✓ significant positive effect
PM utilization in Budget Reporting	✓ significant positive effect	✗ No effect
PM utilization in Reporting	✓ significant positive effect	✓ significant positive effect

Comparing the Goodness of Fit and Explained Variance of the Wang and Ammons-Rivenbark Models

Comparing Wang and Ammons-Rivenbark models, the best model for goodness of fit appears to be the Ammons-Rivenbark Comprehensive Model or the Ammons-Rivenbark Reported Utilization in Reporting. The chi-square divided by the degrees of freedom for these two models is close to 2.6 and the RMSEA is .077 and .076 respectively (Table 8-11). The Wang model appears to explain more variance in effectiveness improvements (Table 8-12). This may be the difference between using perceived communication improvements as an antecedent benefit rather than observed data quality.

Table 8-11 Comparing Goodness of Fit for Wang and Ammons-Rivenbark Models

Goodness of Fit Measures	Wang's Reported PM Utilization in Management	Ammons-Rivenbark Comprehensive Model	Wang's Reported PM Utilization in Budgeting	Ammons-Rivenbark PM utilization in Budget Reporting	Wang's Reported PM Utilization in Reporting	Ammons-Rivenbark Reported PM Utilization in Reporting
Degrees of Freedom (df)	201	86	179	85	128	61
Chi-Square	619.567	226.072	512.797	240.218	448.473	158.624
Chi-Square/df	3.08	2.62	2.86	2.82	3.50	2.60
Probability level	000, Significant	000, Significant	000, Significant	000, Significant	000, Significant	000, Significant
RMSEA	.089	.077	.085	.081	.098	.076
RFI	.856	.900	.860	.894	.865	.922
CFI	.911	.947	.918	.942	.916	.961
GFI	.832	.904	.848	.902	.847	.920
NFI	.875	.918	.881	.914	.887	.939
AIC	723.567	294.072	616.797	310.218	534.473	218.624
ECVI	2.783	1.065	2.372	1.124	2.056	.792

Table 8-12 Comparing the Squared Multiple Correlations for Wang and Ammons-Rivenbark

Wang Model	Reported PM Utilization in Management	Reported PM Utilization in Budgeting	Reported PM Utilization in Reporting
Perceived Communication Improvements	.382	.247	.443
Perceived Effectiveness Improvements	.770	.719	.719
Ammons-Rivenbark Model	Reported PM Utilization in Comprehensive Management	Reported PM Utilization in Budgeting Reporting	Reported PM Utilization in Reporting
PM Utilization	.562	.371	.539
Service Improvement	.606	.502	.540

CONCLUSION

The Kong and Kong-Rogers model start off with different assumptions regarding the importance of human factors. The Kong-Rogers assumes that human factors will affect organizational and measurement factors while the Kong model does not.

Both the Kong and the Kong-Rogers model showed the same positive effect from observed organizational culture. There was a difference in goal clarity or reported rewards and sanctions. The Kong-Rogers model showed no statistical relationship between reported rewards and sanctions and PM utilization in budgeting. Kong found no statistical relationship between PM utilization in management and budgeting and observed leadership while the Kong-Rogers model showed a relationship with both. Kong showed no statistical relationship between involvement and management but did show a positive relationship with PM utilization in budgeting. The Kong-Rogers model showed a significant positive effect between both kinds of utilization with involvement of the budget staff. The Kong model

showed a significant positive effect between data quality and PM utilization in management only while by contrast; the Kong-Rogers showed a significant positive effect between these variables in both models. The more complicated Kong-Rogers model was shown to be the better model by an examination of the goodness of fit standards and the variance explained.

The Wang model stresses the importance of perceived communication benefits while Ammons-Rivenbark emphasizes the importance of data quality and comprehensive usage of PM to include strategic planning and comparative benchmarking. PM in budgeting is the weaker utilization in both the Wang and Ammons-Rivenbark models. Reported PM utilization in budgeting is not statistically related to either perceived effectiveness in the Wang model or perceived service improvement in the Ammons-Rivenbark model.

CHAPTER 9 CONCLUSION

INTRODUCTION

This chapter will lead off with a summary of findings. For ease of understanding, they will be presented in graphical form. The first findings will deal with the factors that promote performance measurement utilization including the testing of Kong's Internal Determinant Model. The second set of findings discussed pertains to the perceived benefits from PM utilization. This includes testing of Wang's Benefit Model. The third group of findings discussed pertained to the Ammons-Rivenbark Comprehensive Utilization Model. After that, the practical applications and implications of the dissertation will be discussed. Finally future directions in research and a conclusion will be presented.

SUMMARY OF FINDINGS

Factors that Promote Performance Measurement Utilization

A literature review revealed that much research has focused on the environmental factors that are associated with higher utilization of PM. These include the type of program or agency, influence of unions, size of jurisdiction, and form of government. Because the GASB survey provided distinction between county and city respondents, this was analyzed and there was little substantial difference. Because the data are perceptual in nature, there has been a vein of research that has found that position of the respondent affects the perception toward utilization and benefits. This research confirmed that there are certain differences in perception according to position, tenure, and exposure to PM utilization.

The main focus was on identifying internal factors (organizational, measurement, and human) that influence PM utilization and to determine if there were differences if the PM

utilization was in management, budgeting, or reporting. The internal factors identified by Kong (1998) and confirmed by other authors were goal clarity, data quality, measurement capacity, organizational culture, training, involvement of stakeholders, and leadership.

The correlations between these factors that promote performance measurement utilization and reported performance utilization were all positive as expected. Observed organization goal clarity or use of rewards and sanctions as defined by the GASB had a weak to moderate relationship with PM utilization. It was the weakest factor in promoting PM utilization in budgeting and reporting. However, it was stronger for promoting PM utilization in management. The correlation between observed data quality and reported PM utilization was strong. It was the strongest factor in promoting PM utilization in reporting and it was the second strongest in promoting PM utilization in budgeting and management. The strongest factor for promoting PM utilization in management and budgeting was observed organizational culture. Figures 9.1, 9.2, and 9.3 shows the differences between reported PM utilization in management, budgeting, and reporting using bivariate analysis. All are significant at $p \leq .01$, two tailed test.

In Chapter 6, Kong's Internal Determinant Model was tested using local government data instead of federal information. Structural equation modeling was also used instead of path analysis. The analysis showed a more complex model than Kong found. He found that organizational factors affected measurement factors and human factors. All affected PM utilization. In the Kong-Rogers developed with the GASB data, the human factors also affected the organizational and measurement factors. There was evidence to support the hypothesis that there are differences in whether the local government reports internal

management, budgeting, or reporting utilization in the relationship with the observed factors that promote PM utilization.

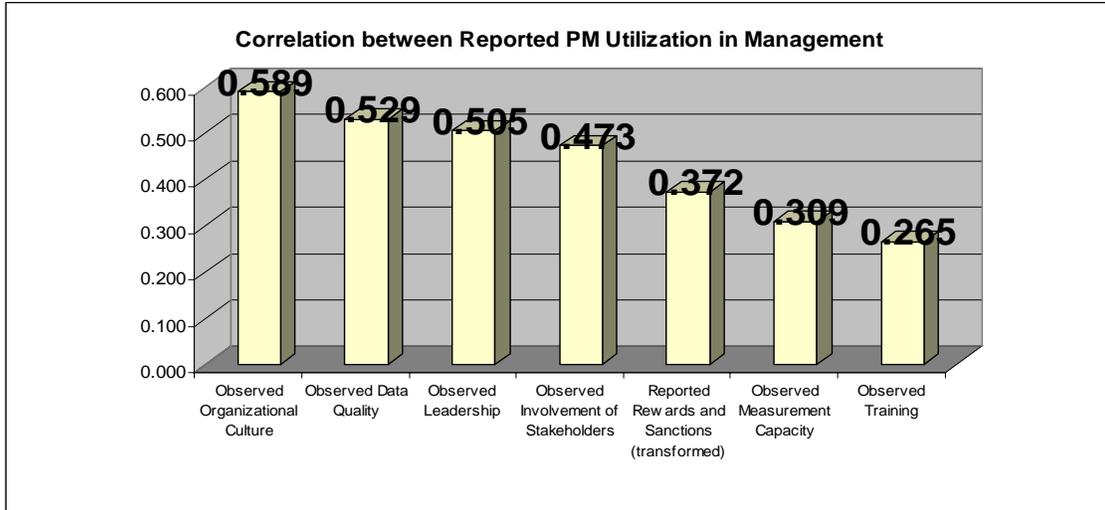


Figure 9-1 Correlation Between Reported PM Utilization in Management and Promoting Factors of PM Utilization

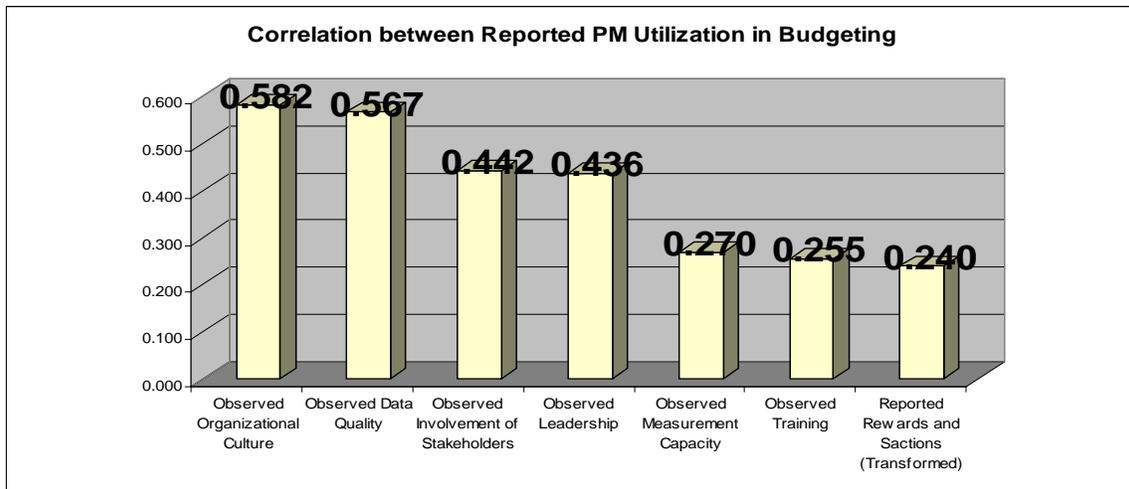


Figure 9-2 Correlation Between Reported PM Utilization in Budgeting and Promoting Factors of PM Utilization

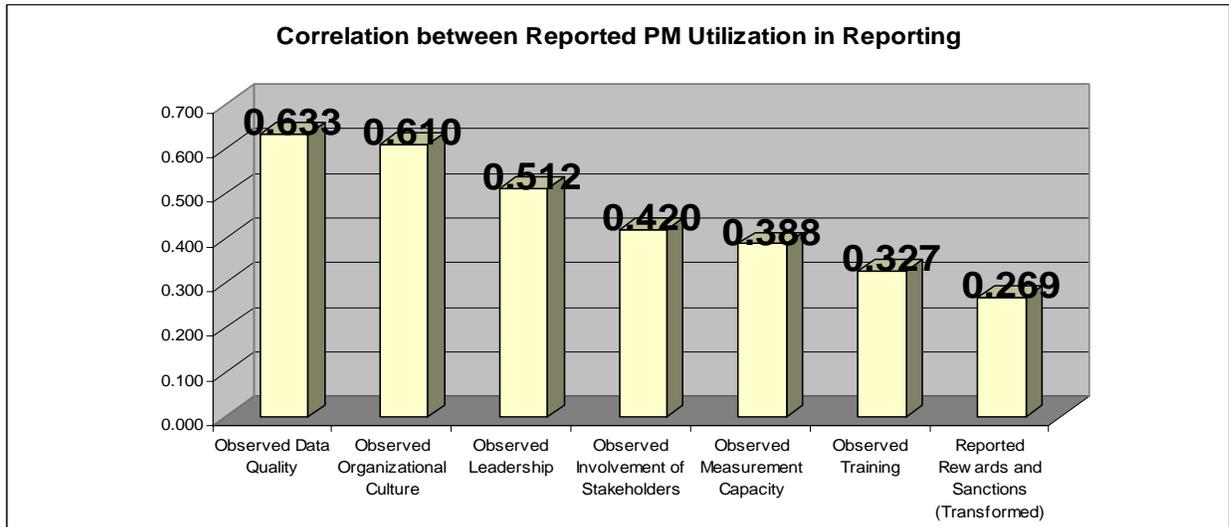


Figure 9-3 Correlation between PM Utilization in Reporting and Promoting Factors of PM Utilization

Figures 9.4, 9.5, and 9.6 presents the path coefficients for the three models. All three uses of performance measurement utilization show that a combination of organizational, human, and measurement factors are required to promote performance utilization. All relationships are significant at least at the $p \leq .05$ level, two tailed test. However, there are differences in the three models. Reported PM utilization in management shows a combination of organizational, human, and measurement promoting factors. It also shows a direct significant relationship with reported rewards and sanctions (transformed) that is not shown to be significant in the other two models. Goal clarity in this research was replaced by the use of rewards and sanctions. This research would suggest that use of rewards and sanctions in performance based budgeting or SEA reporting is not as beneficial as in management. Swiss (2005) provided reasonable explanations as to why rewards and

sanctions are not successful in results based budgeting:

- Program results cannot be tied to the annual budget cycle. Therefore, incentives cannot be matched.
- Responsibility cannot be assigned for unclear technologies resulting in dysfunctional behavior in the budget cycle.
- Positive or negative budget incentives affect clients as well as bureaucrats whose behavior incentives are trying to change.
- Political pressures during the budgeting cycle will circumvent the incentive process.

Reported PM utilization in budgeting shows the strongest requirement is for the budget analysts to be involved in the promotion of PM utilization. The strongest factor associated with PM utilization in reporting is observed data quality.

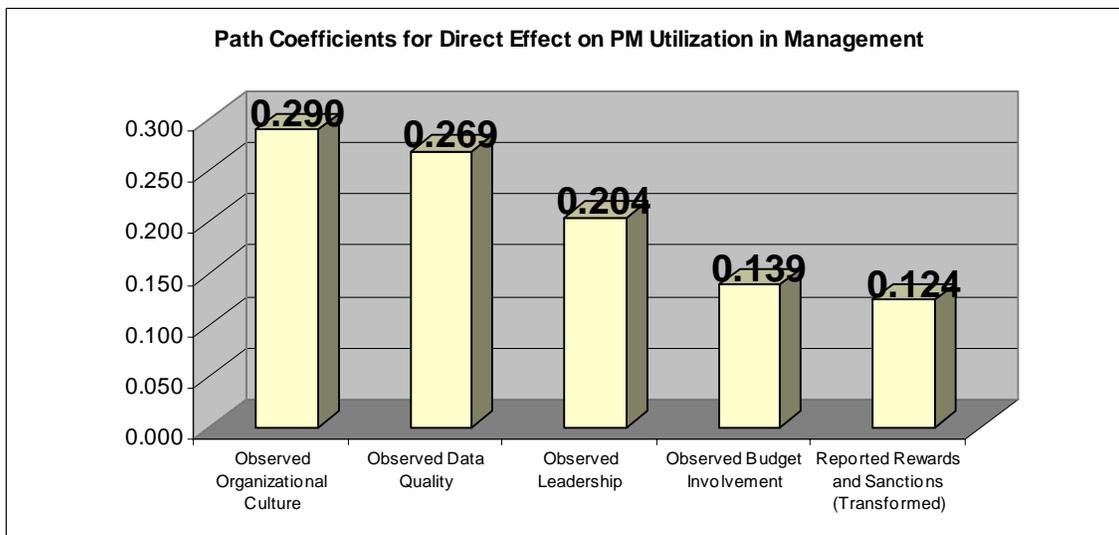


Figure 9-4 Path Coefficients for Kong's Internal Determinant Model: PM Utilization in Management

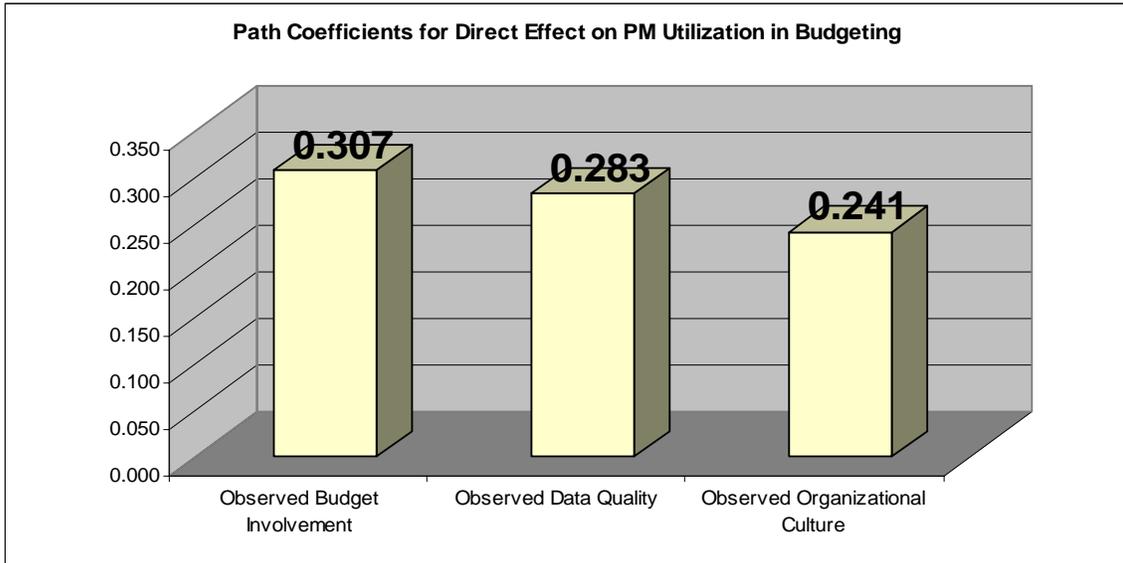


Figure 9-5 Path Coefficients for Kong’s Internal Determinant Model: PM Utilization in Budgeting

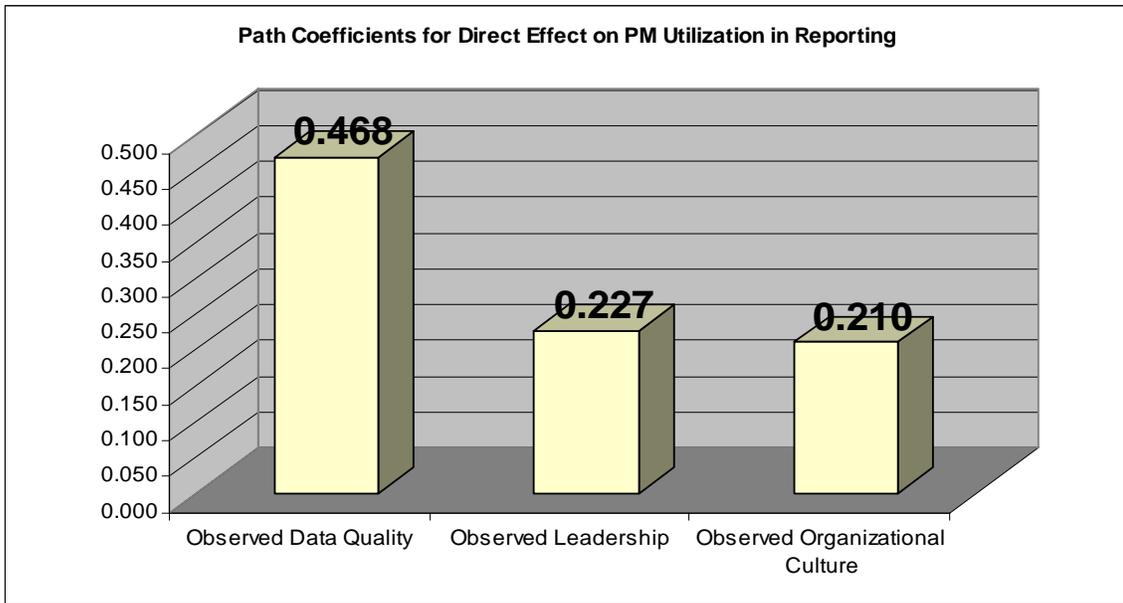


Figure 9-6 Path Coefficients for Kong’s Internal Determinant Model: PM Utilization in Reporting

An examination of the control variables showed that the position of the respondent made the most difference in the observed promoting factors of PM. Program staff was weakly and significantly correlated with observed organizational culture, observed training, observed involvement of the stakeholders, and observed data quality. Central staff was weakly and negatively associated with these same variables. In addition, there was a weak and significant association with observed measurement capacity. Budget staff was weakly and positively associated with observed measurement capacity. Individuals who had worked with PM had more positive views about observed organizational culture, reported rewards and sanctions, involvement, leadership, and data quality. City officials were less likely to report observed measurement capacity and data quality while county officials were more likely to report these two variables.

Perceived Benefits of Performance Measurement Utilization

The literature review showed the perceived benefits of performance measurement utilization to be improved communication, decision-making, coordination, efficiency, and effectiveness. Wang (2002 a) proposed a model that used communication, decision-making, coordination as intermediate effects. The long-term impacts were efficiency, effectiveness and accountability. Accountability was not tested in this research because the GASB survey did not address it.

The correlation between the perceived benefits and PM utilization in management were generally strong with the exception of communication and coordination, which were moderate. The correlations between perceived benefits and reporting were strong except for efficiency and coordination, which were moderate. With PM utilization in budgeting, the

relationships were generally moderate with perceived decision-making being high and perceived coordination improvements being weak. Figures 9.7, 9.8, and 9.9 shows the differences between reported PM utilization in management, budgeting, and reporting and perceived benefits using bivariate analysis. All are significant at the $p \leq .01$ level, two tailed test. Reported PM utilization in management is different than the other two in that the strongest relationships are with efficiency and effectiveness while reported PM utilization in reporting and budgeting offer the strongest relationships with improved decision-making and communication.

The variables did not load as postulated by Wang during the confirmatory factor analysis. Therefore, only perceived improvements in communication and effectiveness were examined in this model. The goodness of fit tests are marginal by some measures. However, as shown in Figure 9.10, there are differences in the path coefficients between the management, budgeting and reporting model. The path coefficient from observed PM utilization in reporting to improved communication is stronger than the other two models. The path coefficient from observed PM utilization in management to improved effectiveness is much stronger than the other two models. Also, observed PM utilization in budgeting lags behind the other two models in producing benefits. The path coefficient between PM utilization in budgeting and improved effectiveness is not significant.

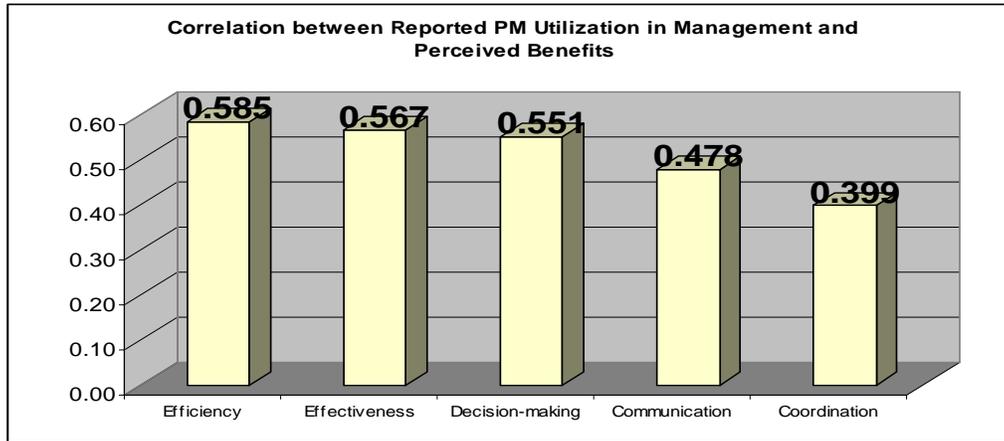


Figure 9-7 Correlation Between Reported PM Utilization in Management and Perceived Benefits

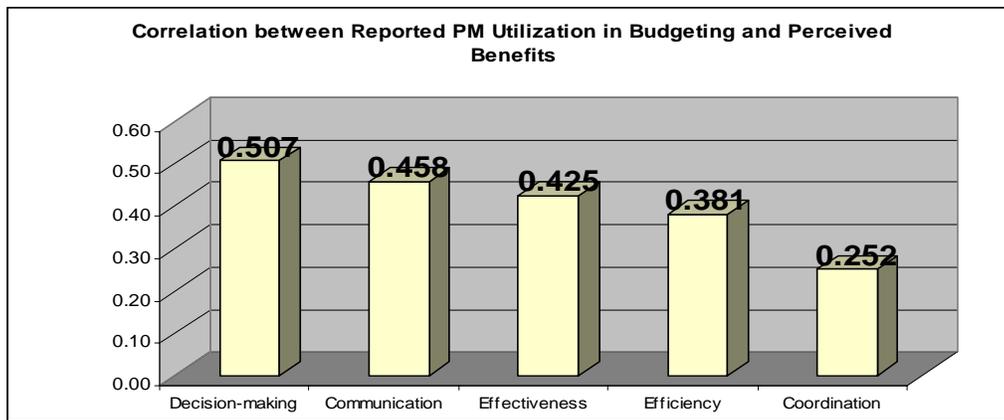


Figure 9-8 Correlation Between Reported PM Utilization in Budgeting and Perceived Benefits

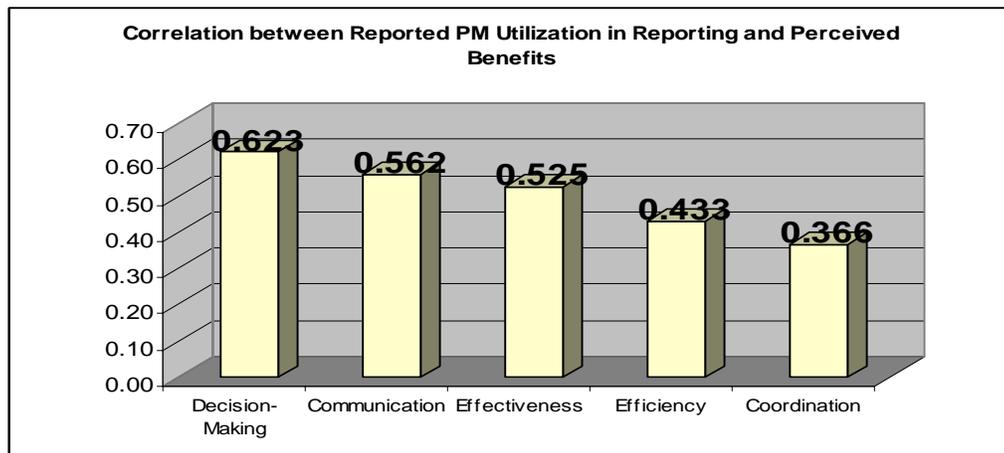


Figure 9-9 Correlation Between Reported PM Utilization in Reporting and Perceived Benefits

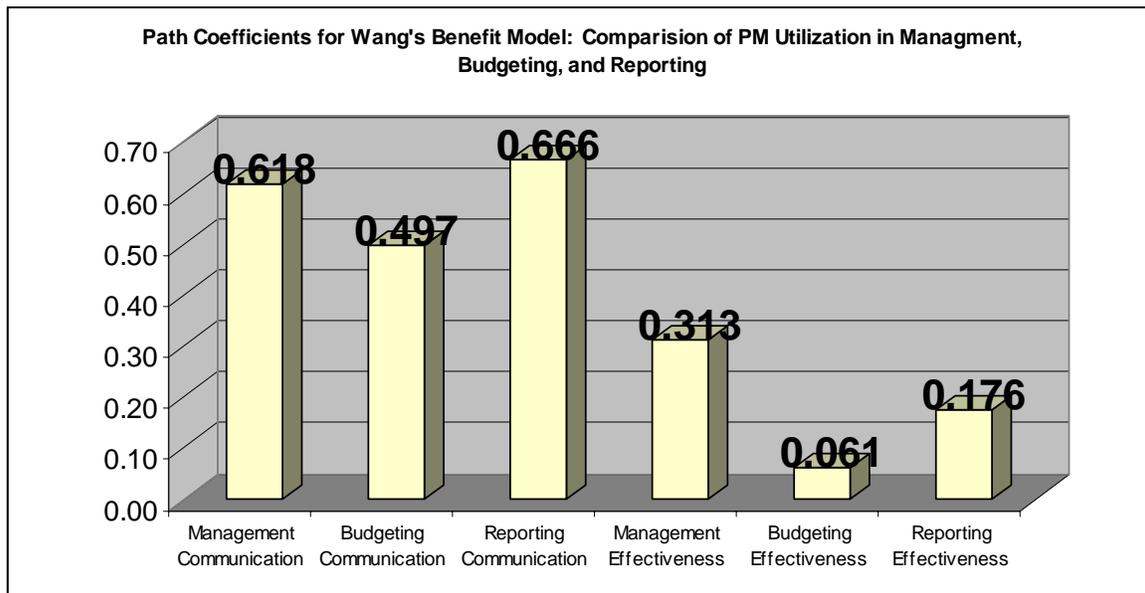


Figure 9-10 Path Coefficients for Wang's Benefit Model

Individuals who have worked longer with PM were more likely to report benefits in decision-making, efficiency, and effectiveness. Program staff were more likely to report perceived decision-making and effectiveness improvement while central staff were less likely to report these two benefits.

Comprehensive Approach to PM Utilization

Many researchers have expressed a normative opinion that a comprehensive approach to PM utilization produces greater benefits. However, there has not been a systematic adoption of using PM in internal management, budget-decision-making, strategic planning, and comparative benchmarking. Ammons and Rivenbark (2005) proposed a model based on their case study of 15 cities that participated in the N.C. benchmarking project. This model was operationalized as proposed using SEM. However, some of the goodness of fit measures

were marginal. Nevertheless, an analysis of this model showed that a comprehensive approach has a higher path coefficient to service improvement as shown in Figure 9.11. However, other parts of their research were not confirmed such as the importance of cost accounting or efficiency measures for service improvement. Observed data quality has a higher path coefficient to SEA type reporting and in presentation in budgets. This may be because budgets and SEA reporting rely on objective performance measures while managers can use more subjective data with less reliability, validity, and comparability. The higher quality of data also improves rational decision-making that in many cases leads to better quality of decisions and thus service improvement. Reliance on efficiency measures for service improvement was not proven. Again, budget reporting proves to be a laggard as the path coefficient to observed service improvements is not significant.

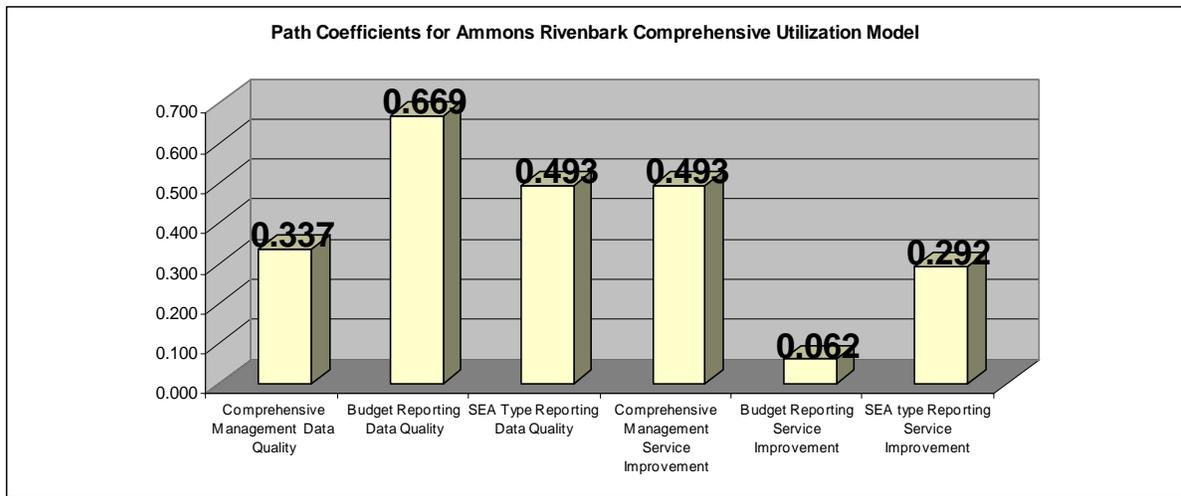


Figure 9-11 Path Coefficients for Ammons-Rivenbark Comprehensive Utilization Model

PRACTICAL APPLICATIONS AND IMPLICATIONS OF THE FINDINGS

It is important to understand the differences in observed promoting factors and the perceived benefits between PM utilization in management, budgeting, and reporting. By understanding the factors that promote PM utilization, local government officials can ensure that PM utilization is successful. By studying the perceived benefits provided by PM utilization in its different formats, these officials could decide on the particular type of PM system they want to have in their organization.

PM Utilization in Management

Mullins and Pagano (2005, 33) stated, "The greatest utility of performance measurement appears to be for internal oversight." PM in management appears to be more successful than either PM in budgeting or PM in reporting. The reasons may be that it does not require as much investment in measurement capacity or require the higher quality of data as does PM in budgeting or reporting. Rewards and sanctions appear to be more important for management than the counterparts of budgeting and reporting. Wang (2002 a) acknowledges that PM has been used for internal management much longer than for budgeting. This could explain why PM in management appears to have more association with service improvements than either PM in budgeting or reporting. In its use for budgeting, legislators and citizens are supposed to use PM utilization to make decisions about resource allocations. Because it is a newer function, it is possible that it simply has not developed to the extent that PM in management has.

PM Utilization in Budgeting

PM in budgeting is not as successful as management. It requires a commitment and

passion from those in the central budget office that is not often found because the majority of elected officials and other staff members still believe in the traditional line item budgeting. Local government officials perceive a lower level of efficiency benefits accruing from PM in budgeting than from management. Kelly and Rivenbark (2002) try to resolve the difference between PM being used in budget reporting but not in budget decision-making. Through a survey of 53 southern municipalities, they found that PM was not used in budget decision-making because the most important factors to elected and staff officials were prior year department expenditures. This provides one reason why PM utilization in budgeting is not as successful as PM in management and reporting. Incrementalism is still a very important factor in budgetary theory.

PM Utilization in Reporting

Although PM utilization in reporting is particularly successful in improving communications between government internal staff, elected officials, and citizens, it is hampered by its need for high quality data. Although many feel that presentation of operational data such as SEA reports are as important as financial reports, few think it will meet the same data quality criteria for comparability and reliability.

Rivenbark (2003) tried to resolve the feasibility of mandating SEA reporting by comparing SEA reporting to the six data quality characteristics that GASB says pertain to external financial reporting:

- Relevance – SEA will most likely be successful with this category as it is devoting time and money to expanding use of PM based on validity, reliability, and accuracy.
- Understanding – GASB is working on this but standardization is difficult, as many jurisdictions do not report performance measures in the same way. GASB has been successful in development of methods to communicate performance measures
- Comparability – SEA cannot reconcile to this financial reporting requirement. Performance measures are more closely related to operational not financial

- accountability and must respond to responsiveness, evaluation, and monitoring needs.
- Reliability – PM used for financial reporting has to be “verifiable and free from bias and should faithfully represent what it purports to represent.” (500) Benchmarking projects such as the IOG provide reliability through data cleaning. However, even that does not produce reliability. It is doubtful that many SEA reports could survive the rigors of an external review.
 - Consistency – Adjustments have to be made to make performance data more accurate and reliable. This results in sometimes losing trend data but this can be compared to financial reporting. Sometimes financial reporting is changed and is no longer consistent from one year to another.
 - Timeliness – SEA can reconcile to this requirement. However, SEA reports will have to be completed after the financial documents, which may make the process longer.

FUTURE DIRECTIONS IN RESEARCH

Future research should concentrate on making the link between perceived benefits and objective performance measures. This has been linked in private sector research. However, financial and operational measures in the private sector are very well defined and agreed upon. Also, the fit of the models developed is marginal. Developing clear constructs that do not have as much error associated with them would be helpful. In addition, constructing a survey that does not have methodological concerns such as missing data or concern over scales would be an improvement. A questionnaire has been developed by the author and may be obtained by request if any one interested in further research. Also, randomization of the sample would also ensure that data could be generalized.

CONCLUSION

The approaches to the use of PM are different. Proponents of PM utilization in management, budgeting, and reporting use different languages and have different values. Sometimes proponents of one type of performance measurement will be an antagonist of another (van Dooren, W., 2005).

Many researchers have fretted that even though their governments are using PM in

budgeting, they are not seeing benefits or changes that affect resource allocation (Andrews, and Hill, 2005). Perhaps, these are not changes that we should expect from budgetary utilization of PM. Maybe Joyce was correct when he suggested that performance measures could only rationalize the budget process so far (Kearney and Berman, 1999:264). While performance measures can be used to “inform the political decision-making process, they are unlikely to drive it.” If an agency truly desires to improve communication and informed decision making in the budget process, then using PM for budgeting might be the desired approach. Getting the budget staff involved in promoting PM in budgets would be the best course of action. However, the GASB dataset provides weaker evidence that PM utilization in budgeting improves efficiency and resource allocation.

Financial resources are scarce. If an organization truly seeks service improvement, then using PM in management should be the chosen strategy. Investment in rewards and sanctions and a results based organizational culture should be in the management toolbox. Spending time on massaging data quality and comparative benchmarking might waste scarce resources.

If a jurisdiction wishes to improve accountability and transparency, using PM in reporting may be the best option. This would require a substantial investment in high quality trustworthy data. However, Dubnick (2005) warns there is a tension whereby accountability slows down service improvements.

Finally, a comprehensive system of using PM rather than just using PM for budget reporting or SEA reporting appears to be associated with a higher perception of service improvement. However, the presence of high quality data, particularly efficiency measures,

does not provide as much evidence of support as simply using PM in a combination of management, strategic planning, and budgeting decision-making.

Other questions still remain to be answered about the variables studied in this research:

- Rewards and sanctions are more important to PM utilization in management than PM in budgeting. – Does this mean that budgetary incentives and sanctions are not useful?
- The role of leadership is strong in promoting measurement capacity – How does the role of leadership compare to such external factors such as fiscal capacity to pay for accounting and information technology? Can strong leadership overcome such deficiencies?
- This research assumes that citizen and elected official's participation influences the performance measurement utilization through its influence on organizational culture. – Does the involvement of citizens and elected officials influence organizational culture or does organizational culture influence citizen and the local government elected official's involvement? How does this variable improve data quality?
- Data quality is more important to PM utilization in reporting. Will reporting of non-financial data ever meet the stringent requirements of verifiability and comparability of financial data so third parties can place complete reliance on information provided?
- Involvement of the budget office is a more important factor in promoting PM utilization in budgeting. What are the factors that encourage involvement of the budget office? Is it influence of the organization, professionalism of the staff, or staff's own particular philosophical bent?
- PM utilization in management shows more of an association with perceived benefits of effectiveness and efficiency. Is this because it has been around longer? Is it because budgeting is strongly affected by political factors that hamper rational budgeting choices and PM in reporting is constrained by the costs of high quality data and lack of citizen interest?
- Program staff, as opposed to central staff has a more optimistic view about PM utilization, promoting factors, and perceived benefits. If the survey included elected officials and citizens, would their perceptions be different than local government officials?
- PM in budgeting does not show a significant association with perceived benefits of effectiveness or service improvement in either the Wang or Ammons-Rivenbark model. Does this show that rational budgeting choices do not provide benefits? Should we search elsewhere for a theory of budgeting?
- Ammons and Rivenbark believe that an emphasis on cost accounting or efficiency measures help bring about service improvement. The amount of explained variance this indicator measure provides tends to show otherwise. Is this because governments have not figured out how to implement cost accounting systems that factor out volume fluctuation? Private industry has the luxury of deciding how much capacity it wants to serve. The government cannot deploy resources quickly to adjust to demands or request for services. Does this make cost accounting in government a

- weak tool?
- Ammons and Rivenbark's comprehensive model of PM utilization that includes comparative benchmarking, strategic planning, budget decision-making as well as for more traditional management functions appears to be a stronger model than using PM for reporting alone. Can this comprehensive model be used in all governments or will smaller localities or agencies not have the resources to do this? If not, can a simple model of PM utilization in management provide the benefits in improved performance these jurisdictions desire?

The performance measurement revolution may have waned somewhat but it is a tool that will have staying power in local governments. Continued research into the factors that promote PM utilization and the benefits it provides should be conducted well into the 21st century.

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APPENDIX

Performance Measurement Survey

City and County Governments

The purpose of this survey is to determine the ways that performance information is used and reported in state and local governments throughout the country and to understand the effects that may be attributed to the use and reporting of this information. Your perspective at the local government level is extremely valuable to our understanding of the performance measurement process. All responses will be kept confidential.

Important Definitions

Please refer to the following definitions for types of performance measures when responding to this survey:

Inputs – Measures of financial and nonfinancial resources that are applied when providing services. (For example, the amount spent on road maintenance or the amount spent for serious crime investigations);

Process/Activity – Measures of regular activities conducted within the organization. (For example, the number of applications processed.)

Outputs – Measures of the quantity of services provided or the quantity of service that meets a certain quality requirement. (For example, the number of lane miles of road repaired or the number of serious crimes reported.)

Outcomes – Measures of the results that occur, at least in part, because of services provided. This may include initial, intermediate, or long-term outcomes. (For example, the percentage of lane miles of road maintained in excellent, good, or fair condition or the clearance rate for serious crimes, or the percentage of residents rating their neighborhood as safe or very safe.);

Cost/Efficiency – Measures of the resources used, such as the cost per unit of output or outcome. (For example, the cost per lane mile of road repaired or the cost per serious crime investigated or per arrest for a serious crime);

Quality/Customer Satisfaction -- Measures of the quality of the outputs/outcomes and/or assessment of the quality of the service/ program by stakeholders. (For example, the extent to which customers are satisfied with an aspect of service delivery);

Explanatory – Relating to factors other than the services being provided that may have affected the reported performance. (For example, the percentage of trucks in vehicle traffic or the unemployment rate in the community;) and

Benchmarks – The comparison of performance data to other similar entities or timeframes. (For example, comparing a particular performance measure in your organization with that same measure in a similar organization);

Performance Measurement in Your City or County

1. To what extent are performance measures being used by departments in your city/county??

- (Please check (✓) one) **extent**
- All departments in our city/county are using performance measures. **5**
 - >50% of departments are using performance measures. **4**
 - <50% of departments are using performance measures. **3**
 - Only a few, select departments are using performance measures. **2**
 - No departments in our city/county are using performance measures. **1**
 - Not sure **sysmis**

2. From what you have observed, what types of performance measures are being used by departments in your city/county?

Overall how many departments are using:	All departments	>50% of departments	<50% of departments	A few, select departments	No departments	Not sure
<i>Input measures</i> <i>inmeas</i>	5	4	3	2	1	sysmis
<i>Activity/Process measures</i> <i>actmeas</i>						
<i>Output measures</i> <i>outmeas</i>						
<i>Outcome measures</i> <i>ocommeas</i>						
<i>Cost/Efficiency measures</i> <i>costmeas</i>						
<i>Quality/Customer Satisfaction measures</i> <i>qualmeas</i>						
<i>Explanatory measures</i> <i>expmeas</i>						
<i>Benchmarks</i> <i>bencmeas</i>						

3. If only a few agencies, or no agencies, presently are using performance measures, do you think they will begin using them in: **futmeas**

- 1-2 years **1**
- 3-4 years **2**
- Longer than 4 years **3**
- No plan to begin using **0**

4. **Have program evaluations been used in your city/county to determine why programs or departments are performing at the level that they are?**
evalwhy

- Yes **1**
- No **0**
- Don't know **sysmis**

5. **In your city/county, who verifies performance measures or performance data for accuracy, reliability, relevance and validity?** *(Check all that are appropriate.)*

- Department staff **agstaff** **1 = Yes**
- External government auditor **exgovaud**
- Internal city/county auditor **stataud**
- Evaluation unit **evalunit**
- Budget office staff **bdgof**
- Government oversight department or division **govover**
- External board, auditor, or oversight organization from outside of government **extnogov**
- Other (please specify) _____
extotr **extotra(\$)** _____
- Don't know **dknow**
- To my knowledge, performance measures and data are not verified
noverify

6. Please indicate by using a check (✓) the extent to which you agree or disagree with the following statements:

	Strongly Agree	Agree 3	Disagree 2	Strongly Disagree 1	Don't Know sysmis
Generally, performance measures in our city/county are focused more on program results, than straight workload measures. progress					
In our city/county departments, program outputs are linked to outcome measures. prlnkmea					
In our city/county departments, benchmarks are developed that link to outcome measures. Blnkcome					

Question 6 Continued

Departments in our city/county have developed multiple levels of measures from output, to outcome, to societal benchmarks. multilev					
Reliable cost data are available for most of the services and programs conducted by our city/county departments. reldata					
Our city/county has crosscutting performance measures that relate to goals or outcomes that more than one department, program, jurisdiction, or sector contribute to accomplishing xpermeas					
Performance measures are developed by departments with participation of the budget office staff. bospm					
Performance targets are developed with participation of our budget office staff. Bostarg					
Executive leadership decides which performance measures are adopted by departments. Exedec					
Citizens actively participate in the selection of performance measures related to city/county activities. citpart					
The opinion of citizens is considered when selecting performance measures and/or benchmarks. citcons					

Question 6 Continued

The opinion of elected officials is considered when selecting performance measures and/or benchmarks. Electcon					
Performance measures are reviewed on a regular basis (i.e. each fiscal year). measreg					
Performance measures in our city/county can be changed as deemed necessary. pmxed					

Using Performance Measures for Making Decisions

The following questions ask you about how performance measures and performance data are used in your city/county.

7. “Managing for Results” is a comprehensive approach to focusing an organization on its mission, goals, and objectives, requiring the establishment, use and reporting of performance measures. Does your city/county use “Managing for Results” processes?

- Yes **1** **manres**
- No **0**
- Don’t know **sysmis**

8. Please place a check (✓) to indicate the extent to which *output or outcome* performance measures have appeared in the budget process in your city/county:

To what extent have performance measures....	All Departments	>50% of departments	<50% of departments	A few, select departments	No departments	Not sure
Appeared in department budget requests? Abreq	5	4	3	2	1	sysmis
Appeared in the 1999-2000 executive budget report or documents? pmxerq						
Appeared in annual operating budgets? appor						
Appeared in quarterly reports? appqr						
Appeared in annual reports? appar						

9. In your opinion, how important have *output or outcome* performance measures been in the following steps in the budget process in your city/county?

(Please indicate your opinion with a check (✓) for each item)

		Very Important	Important	Somewhat Important	Not Important
Department	Department budget development agbuddev	4	3	2	1
	Department budget appropriations agapp				
	Department budget execution Agbex				
	Department audit/assessment of results agaudr				
City/countywide	City/countywide budget development stbuddev				
	City/countywide budget appropriations lexbud				
	Council/commission deliberations legappd				
	Executive deliberations fappdt				
	City/countywide budget execution stbudexe				
	City/countywide audit/assessment of results staudres				

10. In your city/county, are department performance data used for comparisons or benchmarking:

	Always	Sometimes	Never	Don't Know
With prior periods? Apdpp	3	2	1	Sysmis
With other programs/agencies within your government? Apdopg				
With programs/agencies of other governments? Apdpg				
With private sector organizations? apdpso				
With established targets? apddet				
With national standards or guidelines from federal agencies, accreditation and/or professional groups? apdnsg				

11. Based on what you have observed, please place a check (✓) to indicate the extent to which *output* or *outcome* performance measures are *actively used* by departments in your city/county for the following types of activities or decisions.

To what extent are performance measures used in:	All departments	>50% of departments	<50% of departments	A few, select departments	No departments	Not sure
<i>Strategic planning (more than one-year time horizon) strplan</i>	5	4	3	2	1	Sysmi s
<i>Establishing or changing of policies estpol</i>						
<i>Program planning, annual business planning, or oversight activities, including programmatic changes paochx</i>						
<i>In establishing contracts for services estcont</i>						
<i>Budgeting, including resource allocation or discussion about resources changes budresal</i>						
<i>Assessment of program results asspres</i>						
<i>Managing operations (e.g., managing services or contractors) or daily decisions (e.g., scheduling activities) manops</i>						
<i>Personnel decisions including staffing levels and evaluations perslevs</i>						
<i>Evaluation to determine underlying reasons for results evalundr</i>						
<i>Benchmarking, or comparison of program results with other entities bnchcomp</i>						
<i>To hold local jurisdictions accountable for state-funded or state-regulated programs ljurall</i>						
<i>Specific performance improvement initiatives (e.g., investments, technical assistance, training, operations improvements) sperfimp</i>						
<i>Determining which programs, local jurisdictions, or contractors to target for audits, special studies, technical assistance, or other initiatives detauds</i>						
<i>Reporting results to management and staff repmans</i>						
<i>Reporting or accountability to elected officials repaeo</i>						
<i>Reporting or accountability to citizens, citizen groups, or media repcitz</i>						

12. Based on what you have observed, what types of performance measures have typically been used for the following activities or decisions of the departments in your city/county?

(Please check (✓) all that apply to each activity)

Type of measure: What types of performance measures are used in:	Input Measure	Output measures	Outcome measures	Cost/ Efficiency measures	Effectiveness/ Quality measures	Explanatory measures
Strategic planning (more than one-year time horizon)	Strplana	strplanb	strplanc	strpland	strplane	strplanf
Establishing or changing of policies	estpola	estpolb	estpolc	estpold	estpole	estpolf
Program planning, annual business planning, or oversight activities, including programmatic changes	paochxa	paochxb	paochxc	paochxd	paochxe	paochxf
In establishing contracts for services	estconta	estcontb	estcontc	estcontd	estconte	estcontf
Budgeting, including resource allocation or discussion about resources changes	budresa	budresb	budresc	budresd	budrese	budresf
Assessment of program results	asspresa	asspresb	asspresc	asspresd	assprese	asspresf
Managing operations (e.g., managing services or contractors) or daily decisions (e.g., scheduling activities)	manopsa	manopsb	manopsc	manopsd	manopse	manopsf
Personnel decisions including staffing levels and evaluations	persleva	perslevb	perslevc	perslevd	persleve	perslevf
Evaluation to determine underlying reasons for results	evalunda	evalundb	evalundc	evalundd	evalunde	evalundf
Benchmarking, or comparison of program results with other entities	bnchcoma	bnchcomb	bnchcomc	bnchcomd	bnchcome	bnchcomf
Hold local jurisdictions accountable for City/county-funded or City/county-regulated programs	ljuralla	ljurallb	ljurallc	ljuralld	ljuralle	ljurallf
Specific performance improvement initiatives (e.g., investments, technical assistance, training, operations improvements)	sperfima	sperfimb	sperfimc	sperfimd	sperfime	sperfimf
Determining which programs, local jurisdictions, or contractors to target for audits, special studies, technical assistance, or other initiatives.	detaudsa	detaudsb	detaudsc	detaudsd	detaudse	detaudsf
Reporting or accountability to elected officials	repmansa	repmansb	repmansc	repmansd	repmanse	repmansf

Question 12 Continued

Reporting or accountability to citizens or citizen groups	repcitza	repcitzb	repcitzc	repcitzd	repcitze	repcitzf
Reporting to media	rpmdiaa	rpmdiab	rpmdiac	rpmdiad	rpmdiae	Rpmdiaf

13. Has your city/county imposed sanctions on departments for poor performance?

- No **0 sancpp**
- If no, is your city/county considering imposing sanctions in the future?*
 - Yes **1 sancppa**
 - No **0**
 - Don't know **sysmis**
- Yes (please describe these sanctions) **1**

- sancppb** _____

14. Has your city/county offered rewards for (department or program) performance goal attainment in your government?

- No **0 rewp**
- If no, is your city/county considering offering rewards in the future?*
 - Yes **1 rewpa**
 - No **0**
 - Don't know **sysmis**
- If no, skip to question #16.
- Yes **1**

If yes, which office(s) and/or administrator(s) is chiefly responsible for issuing rewards to departments when performance targets are met?

rewpb(\$) _____

- Don't know **sysmis**

15. In what ways, if at all, is your city/county budget office able to reward departments and individuals if performance targets are met? Please indicate whether any of the following incentives or rewards have been used in your city/county and then indicate if the reward is administered by your budget office:

	Has been used	Check (3) if administered by city/county budget office
Department		
Flexibility (<i>please specify</i>): flxstr	rflexa	rflexa1
Lump sum budgets	rlumpa	rlumpa1
Relaxation of budget rules (e.g., transfers between programs, position controls)	rrulea	rrulea1
Additional/supplemental allocations	radda	radda1
Discretionary use of surplus resources	rdisca	rdisca1
Access to special pools of funding	racca	racca1
Recognition	rreca	recca1
Other _____ rothra2 (\$)	rothra	rothra1
Individuals		
Additional pay	raddb	raddb1
Gain sharing	rgainb	rgain1
Individual pay for performance	rindb	rindb1
Other special recognition (award ceremonies, etc.)	rotrecb	rotrecb1
Other _____		

16. In your opinion, how effective has the development and use of performance measures been in departments in your city/county regarding: *(Please indicate your opinion with a check (✓) for each item)*

	Very Effective	Effective	Somewhat Effective	Not Effective
Affecting cost savings? affcs	4	3	2	1
Improving effectiveness of agency programs? impeff				
Reducing duplicative services? reddup				
Reducing/eliminating ineffective services/programs? Redinef				
Changing strategies to achieve desired results? xstrat				
Improving communication between departments and programs? impcomb				
Improving communication with the executive budget office? Impcomex				
Improving communication with the legislature and legislative staff? impcomlg				
Changing the substance or tone of discussion among legislators about agency budgets? xsubtonb				
Changing the substance or tone of discussion among legislators about oversight of agencies? xsubtono				
Changing the questions legislators or their staff ask government managers or executives? xquest				
Changing appropriation levels? xapplev				
Communicating with the public about performance? Compub				
Improving responsiveness to customers? impres				
Improving programs/service quality? impqual				
Improving cross agency cooperation/coordination? Impxag				
Improving external government cooperation/coordination? Impext				
Increasing awareness of, and focus on, results? incawr				
Increasing awareness of factors that affect performance results? incawf				

17. Please give one or two examples of effective performance measurement use in budgetary decision making in your city/county. **examps**

18. In your opinion and based on your experience, what are the most important characteristics of a *useful* performance measure? **opuse**

19. Please indicate the extent to which you agree with the following statements:

	Strongly Agree	Agree	Disagree	Strongly Disagree	Do Not Know
Communication between department personnel and our budget office has improved with the implementation of performance measures. comabimp					
Communication between department personnel and council/commission members has improved with the implementation of performance measures. comalimp					
The substance or tone of budget discussions among council/commission members has changed to focus more on results with the implementation of performance measures. discxper					
Some changes in appropriations are directly attributable to outcomes from the development and use of performance measures. appxperf					
Overall, program staff is aware of the desired program/service results. ovawres					
There is a great deal of interest in measuring the <i>efficiency</i> of programs/services. inteff					
There is a great deal of interest in measuring the <i>effectiveness</i> of programs/services. intefct					
Overall, using performance measures has enhanced <i>program efficiency</i> in this city/county. enheff					
Overall, using performance measures has enhanced <i>program effectiveness</i> in this city/county. enhefct					
Using performance measures has enhanced the management of the programs in our city/county departments. Enhmgt					
Performance measures are a vital decision aid regarding budget issues in this city/county. pmvital					
Measuring performance is an important component of our city/county activities and programs. pmimpl					
Overall, our city/county is better off since we began using performance measures. ovstbt					
In the future, our city/county is likely to increase the use of performance measures for decision-making. futslinc					

23. Please indicate the way or ways that departments within your city/county communicate performance information: (Please check (✓) all that apply.)

- Department Annual Reports **agarpt**
- Budget documents **agbrqt**
- Press releases **prsrels**
- Report to citizens, stakeholders, or clients/customers **rptclst**
- Reports to elected officials **rptelof**
- Reports to chief executive **rptchex**
- Government Newsletters **gvtnsltr**
- City/countywide performance report **agwdpfr**
- Government's Comprehensive Annual Financial Report (CAFR) **gcafr**
- Other financial reports (please specify):* _____*othfncl_* _____*othfnc2*
(\$) _____
- Departmental Web Pages (please provide the web address where performance data are presented):* _____*agwbpgs* _____*agwpg2*
(\$) _____
- Other (please specify):* _____*otagrpt* _____*otagr2(\$)* _____

Implementing Performance Measurement

24. Based on your experience, have any of the following posed problems for the effective use of performance measurement in your city/county?

	A significant problem	Somewhat of a problem	Not a problem
Development of performance measures that accurately reflect program activities prbacms	3	2	1
Collection of performance data prbcldt			
Maintenance of performance data prbmntc			
Too many outside factors affect the results trying to be achieved. prbfctr			
Performance measures are not reflective of what programs are trying to accomplish prbnrfl			
Lack of cost information about programs prblest			
Lack of adequate technology to support performance measurement effort prbtchs			
Inadequate link between performance measurement database and accounting/budgeting database systems prbdbse			
Lack of apparent link of performance measures to higher level benchmarks prbhhbc			
Lack of training of staff responsible for collection and maintenance of performance data prblkstf			
Lack of understanding of how to use performance measures prblund			
Lack of regular use of performance measures by top management and elected officials prbofus			
Lack of interest of leadership in using performance measures prldrms			
Performance measures do not carry enough weight in management decisions prbwtdc			
Performance measures do not carry enough weight in budget decisions prbwtdb			
Effectively reporting performance data to executive leadership prbrpld			
Effectively reporting performance data to the legislature prbrplg			
Effectively reporting performance data to citizens prbrpct			
Effectively reporting performance data to the media prbrpmd			

25. In your opinion and based on your experience, how important are the following to the successful implementation of a performance measurement system?

	Very Important	Important	Somewhat Important	Not Important
Adequate technology for collecting, analyzing, and reporting performance measures imadtch	4	3	2	1
<i>Citizen, client/customer, or stakeholder interest in government program performance</i> <i>impcznt</i>				
<i>Communication of the purpose for using performance measurement to employees</i> <i>impcmpr</i>				
<i>A link of performance measures to budget decisions</i> <i>implnbg</i>				
<i>A link of performance measures to the strategic plan</i> <i>implnst</i>				
<i>Performance measures that help staff monitor progress toward intended program/service results</i> <i>impprgs</i>				
<i>Staff participation in the process of developing performance measures</i> <i>impstfp</i>				
<i>Additional or changed staffing for collecting, analyzing, and reporting the performance measures</i> <i>impadx</i>				
<i>Training for management and staff about performance measurement development and selection</i> <i>imptrns</i>				
<i>Regular use of performance measures by elected officials</i> <i>impregu</i>				
Regular use of performance measures by executive leadership imprgex				

26. What do you plan to do, if anything, to help prepare elected officials and citizens to use performance measures in the future?

Demographic Data

27. To better understand the perspective of individuals completing this survey, we would like to know a little about you. Which of the following best describes your position in your government: (Please check only one.) **postn**

- City/county manager **1**
- Department director or deputy director **2**
- Unit or division director **3**
- Program manager **4**
- Program staff (non-management) **5**
- Budget staff **6**
- Other (please specify) **7** _____

28. Is your local government a: **ctyocnty**

- city
- county

29. How many years have you been employed in your present position? _____yrspst_

30. How many years have you been employed by your city/county government?
_____yrstgv____

31. How many years have you worked with performance measures? _____yrspms__

32. Would you like to receive the results of this study? yes no **rrslts**

Please indicate the following for our records (or attach a business card):

Name: _____

Position: _____

Agency or
Department: _____

Government: _____

Address: _____

City: _____ State: _____

Zip Code: _____

Telephone:_(____)_____ Fax:_(____)_____

Email: _____

*We appreciate your participation in this survey.
Thank you!*

**Please return this completed survey in the enclosed
preaddressed envelope
by July 31, 2000**

to:

GASB

P.O. Box 5116

401 Merritt 7

Norwalk, CT 06856-5116

Attn: Wilson Campbell