The adoption of performance measures and management accounting system in enhancing managerial performance in Malaysian local government

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Abstract

In many organizations, different performance measures were employed to assess different aspects of managers’ performance. Some of the measures were yet to be developed, some developed but only in a very selective way, and some already presented but not adopted or only partly used. At the same time, management accounting systems might have the potential and capability of providing necessary information for planning, decision making and motivating managers’ performance. Hence, this study examined the effect of the adoption of performance measures and management accounting system on enhancing the managers’ performance in Malaysian local government. The data were collected through a questionnaire survey of 131 heads of departments in Malaysian local government. A structural equation modelling technique was utilised to examine the mediating effects of performance measures and management accounting system on the relationship between budgetary participation and managerial performance through a path analysis. The findings showed that the adoption of performance measures and management accounting system had strengthened the relationship between budget participation and managerial performance. The findings pointed to the practical relevance of the performance measures and management accounting system to the current management setting of government organizations.

Keywords: budget participation, Malaysian local government, managers, management accounting system, managerial performance, structural equation modelling

Introduction

In many organizations, different performance measures are employed to assess the different aspects of managers’ performance. In this regard, many indicators have been used to measure performance which requires a measure of public programme from four main aspects: inputs (cost), output (quantity and quality of goods and services produced), efficiency (unit cost to produce outputs), service quality (measure of service such as timeliness, accessibility, courtesy, accuracy, and satisfaction), and outcomes (progress in achieving programme objectives) (McGill, 2001). In other words, the outcomes or service quality associated with a government programme cannot be inferred just by reporting its outputs. Accordingly, one must monitor the entire impact based chain in order to understand and effectively manage government programmes. Therefore, in the Malaysian public organization context, the present study stressed on the usefulness of performance measures used for setting programme priorities and allocating budget resources, adopting new programme approaches or changing work processes, coordinating programme efforts with other internal or external organizations, refining programme performance measures, setting new or revising existing performance goals, setting individual job expectations for subordinates and rewarding subordinate managers (Cavalluzzo & Ittner, 2004).
The problems related to the use (adoption) of performance measures in public organizations can be associated to the following causes. Some of the measures have not been developed and some of them have been developed in a very selective way and some presented but not used or only partly used (Sole & Schiuma, 2010). These show that the concept of the use of performance measures has not to be considered as based on a single event, but rather on a process. Therefore, if the goal is to encourage and promote the development of performance measurement systems in public organizations, it is necessary to understand how to manage the process of using performance measures. Providing detailed information on development and programme implementation, will assist organizations to enhance their performance. Without detailed information, there is little to guide organizations to implement government programmes. Increased in-depth understanding of government organization performance measurement systems and use of performance measures could provide guidance for government to plan and develop new government programmes in the future (Epstein, 1988).

On the other hand, the adoption of management accounting systems also play an important role to enhance the managers’ performance in public organizations. According to Sprinkle (2003), a fundamental purpose of management accounting systems is to enhance organization performance by ensuring the effective and efficient use of scarce resources. The use (adoption) of management accounting systems has the potential and capability to provide information necessary for planning and decision-making and to motivate individuals’ performance. It has produced managerial accounting information to make better decisions. Management accounting also serves an informational function whereby subordinates can gather, exchange, and disseminate information to facilitate their decision-making process (Kren, 1988). Many studies have been carried out on the informational role, for example, study by (Chenhall & Morris, 1986; Abernethy & Guthrie, 1994; Chong & Chong, 1997; Gul & Chia, 1994; Mia & Chenhall, 1994; Moores & Yuen, 2001; Soobaroyen & Poorundersing, 2008).

Tsui (2001) argued that the budget participation also influences the extent of performance measures information used in organizations. Scott and Tiessen (1999), suggested that to make performance measures information to be useful, the manager must understand the way to measure the tasks and how the measures information relate to the task at hand. This understanding can be developed at an initial stage when the manager is actively involved in budget setting. Managers who are active in preparing budgets would understand how the budget targets are derived and be more willing to accept a management evaluation style that emphasis on meeting the budget. This would lead to more acceptance of financial information in decision-making (Taylor et al., 2008). To date, no research has examined the combination of performance measures and management accounting systems on the relationship between budget participation and managerial performance. In this light, this study explicitly examine the adoption of performance measures and management accounting systems simultaneously through structural equation modeling technique.

The remainder of the paper is structured as follows. In next section, the research objective and the hypothesized structural model underlying the study is developed, which linked the interaction between the informational and performance roles of budget participation on managerial performance. Subsequent section presents path analysis, research method, results, hypotheses testing and conclusions.

**Literature review**

The budget participation and managerial performance relationship will be explained through path model analysis. Path model analysis captures both the direct and indirect effects of budget participation on performance by including budget participation as the exogenous variable, managerial performance as the endogenous variable, and the use of performance measures information and the use of management accounting systems as mediators.

Path A denoted a direct relationship between budget participation and the use of performance measures information. Taylor et al. (2008) revealed that a high level of budget participation by managers
increases their use of performance measures information. Based on the path E, the following hypothesis is put forward:

H1. Budget participation positively influences use of performance measures information.

Path B embodied a direct relationship between the use of performance measures information and managerial performance. Lapsley and Wright (2004) examined the dissemination and adoption of accounting management practice and found that the most successful accounting technique is key performance indicator (KPI). KPI provided feedback to management and stakeholders about the meeting of expectations and also facilitated decision making process (Hendri, 2006). In respect to this point, result from performance measures was considered in the planning process to help improve future managerial performance (Mellor, 2001). The study by Taylor et al. (2008) indicated that the hypothesized model was positive effect of the use of performance measures information on managerial performance is accepted. Based on the path B, the following hypothesis is implied:


Path C specified a direct relationship between budget participation and the use of management accounting system. Eker (2009) and Etemadi (2009) revealed that budget participation and the use of management accounting system have the positive interaction effect. Burney and Matherly (2007) have studied on managerial performance from integrated perspective. Their study tested the relationship between participative budget and employees’ performance through mediating effect of management accounting and information system. The result of their study indicates that the direct link between participative budget and management accounting and information system are positive and significant. Based on path C, the following hypothesis is recommended:


Path D represented a direct relationship between the use of management accounting system and managerial performance. According to Chong (1996), managerial performance was high when a broad scope of management accounting system information was used by managers. Soobaroyen and Poorendersing (2008) revealed a significant positive relationship between management accounting system and managerial performance. They concluded, that all management accounting system dimensions are conclusively related to managerial performance. The management accounting system quality and sophistication beyond the mere scope is critical, in term of timeliness, aggregation and integration. Based on path D, the following hypothesis is advocated:


Path E corresponds to a direct relationship between budget participation and managerial performance. Derfuss (2009) found that budget participation and managerial performance are positive and significant linked. Murwaningsari (2008) indicates that budget participation is positively influence managerial performance. Path E represents the regression between the budget participation and managerial performance with regard to mediating effects. It represents the residual direct effect that flow through organizational commitment, the use of management accounting system and the use of performance measures information. In Leach-lo’pez (2008) study, found that budget participation and job performance have a direct relationship. Based on the review of literature for path E, the following hypothesis is recommended:


The paths below involved intervening variables: Taylor et al. (2008) found the indirect effect between the budget participation and managerial performance relationship after controlling for the mediating variable, the use of performance measures information. The finding from Taylor et al. (2008) study, indicated that the use of performance measures information has a significant mediating effect on public servants. This finding revealed that, those having higher experience in budget setting process will make
greater use of performance measures information in their work place. In turn, an increase of use of performance measures information bring about higher self-rated manager performance across the range of managerial functions. Based on the review of literature on Path A and B, the following hypothesis is advocated:

H6. The greater the budget participation, the higher is their use of performance measures information which, in turn, leads to higher managerial performance.

Eker (2009), indicates that the higher interaction score between budget participation and management accounting system information leads to higher managerial performance. Etemadi (2009) found the interaction effect of management accounting system, budget participation on managerial performance, and significantly positive in Western culture. Tsui (2001) revealed that both management accounting system and budget participation are positively correlated to managerial performance. This finding concluded that at low levels of budget participation, there was a negative relationship between management accounting system and managerial performance but progressively higher level of budgetary participation were associated with a positive relationship between management accounting system and managerial performance. Based on both path C and path D, the following hypothesis is suggested:

H7. The greater the budget participation, the higher is their use of management accounting system which, in turn, leads to higher managerial performance.

![Figure 1](image-url)  
**Figure 1.** Path Model Analysis links the use of performance measures and management accounting system on the relationship between budget participation and managerial performance

**Research methodology**

**Research design**

There are 149 local authorities in Malaysia which include 12 city councils, 38 municipal councils, and 99 district councils having a total of 1192 head of departments. A proportionate stratified random sample consisting of 291 head of departments were chosen (Krejcie & Morgan, 1970). The number of elements chosen from each strata is proportionate to the size of a particular strata relative to the overall sample size. The data were collected through a questionnaire survey with a total of 131 head of departments in Malaysian local authorities, fully participated in the survey which accounted for 45% of the selected sample. A structural equation modeling technique was utilised to examine the direct, and indirect effects of budgetary participation on managerial performance through a path analysis. The mediating effects of the use of performance measures information and the use of management accounting system also estimate by structural equation modeling technique.
Measurement of variables

A survey technique was employed to collect the data for this study. The data for this study were collected through a survey technique, using an adapted instrument from the previous study to measure variables or constructs specified within the suggested framework: budget participation, the use of management accounting system, the use of performance measures information, and managerial performance. The survey instrument includes, budget participation by Milani’s (1975), the use of performance measures information by Cavalluzzo and Ittner (2004), the use of management accounting system by Chenhall and Morris (1986) and managerial performance by Mahoney et al. (1965).

Results

Respondent profile

After data screening, one outlier was eliminated, leaving the final data set of 130 respondents (N=130). The respondents in the present study comprises of 53% (n=69) male and 47% (n=61) female. In term of age, there were more than 60% (n=80) of respondents were between 30 to 49 years old. About 25% (n=33) of respondents age between 20 to 29, and only 13% (n=17) age 50 and above. It is also observed that most of the respondents have been employed at the local authorities for more than 5 years are 64.7% (n=87). Therefore, they can be considered to be familiar with the goals of their organization. This study includes all of head departments which involved in budget setting process. Out of 130 respondents, there were about 35% of respondents that have less than 5 years in budget experience, 29% have 6 to ten years in budget experience and 36% of respondents have more than 10 years experience in budgeting. Majority of respondents, 42% had a degree, only 10% with post graduate, 32% with diploma and 17% with certificate. Majority of the respondents in this study covered 62% (n=80) from district councils, 11% (n=14) from city councils, 28% (n=36) from municipal councils.

Hypotheses testing

To test our hypothesized theoretical model, we used a software Analysis of Moment Structures AMOS version 16.0 and we rely on standardised parameter estimates for our theoretical model (refer Figure 1). The results for testing direct effects of hypotheses H1 to H5 and the results for H6 to H7 for testing indirect effects are summarized in Table 1 and 2 respectively.

Direct effect

The first hypothesis, H1 proposed that budget participation has a positive influence on the use of performance measures information. The standardised parameter estimate between budget participation and the use of performance measures information was positive and statistically significant (path coefficient = 0.437, p<0.05) indicating that hypothesis 1 was supported. This finding consistent with Taylor, et al. (2008) which indicates that a high level of budget participation by managers increases their use of performance measures information. Consistent with our theoretical expectations, the standardised parameter estimate between the use of performance measures information and managerial performance was positive and statistically significant (path coefficient = 0.602, p<0.05). Thus, H2 suggested that the use of performance measures information is positively influencing the managerial performance is asserted. This finding aligned with Scott and Tiessen (1999) which reveals that performance measures information can form important part of the information required to support decision, and help subordinates to structure staff as well as assess progress. Furthermore, this performance measures
information is intended to improve government performance through the improvement of performance-based decision making (Cavalluzzo and Ittner, 2004).

The third hypothesis, H3 proposed that budget participation positively influence the use of management accounting system. The standardised parameter estimate between budget participation and the use of management accounting system was positive and statistically significant (path coefficient = 0.519, p<0.05). The finding in the present study also asserted the third hypothesis. This finding was consistent with Eker (2009) and Etemadi (2009) studies which indicate that budget participation and the use of management accounting system have the positive interaction effect.

The fourth hypothesis, H4 expected that the use of management accounting system is positively influencing the managerial performance. The standardised parameter estimate between the use of management accounting system and managerial performance was positive and statistically significant (path coefficient = 0.134, p<0.1). Thus, hypothesis 4 supported. This finding is in line with Burney and Matherly (2007), which indicates that the direct link between management accounting and information system and employee performance are positive and significant.

Our final hypothesis H5, expected that budget participation has a positive influence on the managerial performance. After the relationship between budget participation and managerial performance was controlled by mediator, finding indicates that budget participation has insignificantly influence the managerial performance (Table 1), thus, hypothesis 5 is rejected. This insignificant result shows that the fully mediating effects of the use of performance measures information and the use of management accounting system occurs in the budget participation and managerial performance relationship. This finding was consistent with several previous studies (for examples; Milani, 1975; Kenis, 1979; Chenhall and Brownell, 1988; and Wentzel 2002).

Table 1. Standardized regression weight

<table>
<thead>
<tr>
<th>Path Coefficient</th>
<th>S.E.</th>
<th>C.R.</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAS &lt;--- BP</td>
<td>.519</td>
<td>.102</td>
<td>5.090***</td>
</tr>
<tr>
<td>PMs &lt;--- BP</td>
<td>.437</td>
<td>.084</td>
<td>5.215***</td>
</tr>
<tr>
<td>MP &lt;--- MAS</td>
<td>.134</td>
<td>.078</td>
<td>1.718 .086</td>
</tr>
<tr>
<td>MP &lt;--- BP</td>
<td>-.179</td>
<td>.112</td>
<td>-1.603 .109</td>
</tr>
<tr>
<td>MP &lt;--- PMs</td>
<td>.602</td>
<td>.165</td>
<td>3.641***</td>
</tr>
</tbody>
</table>

Notes: *** significant at the 0.01 level

Table 2. Direct effect of variables interaction

<table>
<thead>
<tr>
<th>Exogenous</th>
<th>Endogenous</th>
<th>Path</th>
<th>Factor Loading</th>
<th>Hypothesis Testing</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP</td>
<td>MAS</td>
<td>C</td>
<td>0.520</td>
<td>Asserted</td>
</tr>
<tr>
<td>MAS</td>
<td>MP</td>
<td>D</td>
<td>0.162</td>
<td>Asserted</td>
</tr>
<tr>
<td>BP</td>
<td>PMs</td>
<td>E</td>
<td>0.652</td>
<td>Asserted</td>
</tr>
<tr>
<td>PMs</td>
<td>MP</td>
<td>F</td>
<td>0.486</td>
<td>Asserted</td>
</tr>
<tr>
<td>BP</td>
<td>MP</td>
<td>G</td>
<td>0.216</td>
<td>Rejected</td>
</tr>
</tbody>
</table>

Indirect effect of budget participation on managerial performance

The present study also investigates and measures the linkage of budget participation and managerial performance relationship through two mediating variables, includes the use of performance measures information and management accounting system to enhance managerial performance in the Malaysian local authorities. The results of this study, indicates that budget participation has indirectly positive influence on managerial performance. To test for hypotheses H6 and H7, a path analysis technique (Alwin & Hauser, 1975) was used. The indirect effects of budget participation on managerial performance...
were calculated by two combination paths (Table 3). The first combination is the combination of path A and B, and secondly, combination of path C and D.  

The sixth hypothesis, H6 suggests, the greater the budget participation, the higher is their use of performance measures information which, in turn, leads to higher managerial performance. The standardised parameter estimate between budget participation and the use of performance measures information was positive and statistically significant (path coefficient = 0.437, p<0.05) and the standardised parameter estimate between the use of performance measures information and managerial performance was positive and statistically significant (path coefficient = 0.602, p<0.05). Thus, H6 is supported. This finding is aligned with Taylor, et al. (2008) study, which indicates that use of performance measures information has a significant intervening effect on public servants. This finding revealed that those who have higher experience in budget setting process will make greater use of performance measures information in their work place. The increased of use of performance measures information bring about higher self-rated manager performance across the range of managerial functions.

Finally, the seventh hypothesis, H7 suggests that the greater the budget participation, the higher is their use of management accounting system which, in turn, leads to higher managerial performance. The standardised parameter estimate between budget participation and the use of management accounting system was positive and statistically significant (path coefficient = 0.519, p<0.05) and the standardised parameter estimate between the use of management accounting system and managerial performance was positive and statistically significant (path coefficient = 0.134, p<0.1). Thus, H7 is supported. This finding indicates that the mediating effect occur in the use of management accounting system between budget participation and managerial performance relationship. This finding is consistent with Emmanuel, et al. (1990) which suggested that both budgetary participation and the usage of management accounting system also represent as managerial control tools in organizations. Budget participation is more meaningful in organizations that have sophisticated management accounting system, so that managers can use the information for participative decisions making, which in turn lead to enhance the performance.

<table>
<thead>
<tr>
<th>Exogenous</th>
<th>Mediated</th>
<th>Endogenous</th>
<th>Path</th>
<th>Factor Loading</th>
<th>Mediating Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP</td>
<td>MAS</td>
<td>MP</td>
<td>BP MAS MP 0.216+0.084</td>
<td>0.300</td>
<td>Fully Mediating Effect</td>
</tr>
<tr>
<td>BP</td>
<td>PMs</td>
<td>MP</td>
<td>BP PMs MP 0.216+0.317</td>
<td>0.533</td>
<td>Fully Mediating Effect</td>
</tr>
</tbody>
</table>

The finding of this study revealed the informational and performance roles of performance measures and management accounting system in enhancing the managerial performance. Eventually, the result of this empirical study was consistent with the previous studies (e.g., informational role by Chenhall & Morris, 1986; Chong & Chong, 1997; Gul & Chia, 1994; Mia & Chenhall, 1994; Moores & Yuen, 2001; Soobaroyen & Poorundersing, 2008; performance role by Taylor et al., 2008, Sprinkle, 2003; Tsui, 2001; Scott & Tiessen, 1999).

Conclusion

This paper measured the multiple roles of budget participation on managerial performance in Malaysian local authorities. Path analysis provides an empirical evidence to explain the direct and indirect effect of budget participation on managerial performance. The use of performance measures information and management accounting system was significantly interacted as the intervening between budget participation and managerial performance relationship. The theoretical contribution of this study is to extent the earlier literature by addressing effect in which, budget participation, the use of the performance measures information and the use of management accounting system can be inter-related in providing
explanations of managerial performance efficiently. In the methodological perspective, the validated instruments can be used in future research. The practical contribution for this study is that its finding can have practical relevance in the current management setting in Malaysian government organization.

References


