

Information Use and Budget Allocation: How Information Plays a Role in Spending Efficiency and Effectiveness Among Thailand's Municipalities*

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Abstract

Information is of high value because it can assist in economic, political, and administrative decision makings. Recent public sector reforms concentrating on public finance and budgeting have applied performance information to transform an incremental budget process into a more rational one. It also expects such budget outcomes as spending efficiency and effectiveness. As a result of this reform wave, municipalities in Thailand implemented the performance-based budgeting despite limited financial and administrative resources. This study quantitatively such reform endeavor with the survey research with a questionnaire inquiring the heads of department about their perceptions on budgetary incrementalism, organizational culture, performance information use and budget outcomes. The ordinal logistic regression analyses shows that performance information use is positively associated with enhanced budget outcome high levels

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of spending efficiency and effectiveness. Budgetary incrementalism based on the performance-based budgeting is also proved to have the same effect on budget outcome but with lower impact. As policy recommendations to maintain and enhance such desirable budget outcomes, policymakers especially municipal executives should set the quality service and policy objectives at the program level, motivate budget actors to regularly use performance-based information for planning, monitoring, and evaluating programmatic spending, and lessen the conflict between the local government executives and the heads of departments. Meanwhile, as recommendations for future research directions, they should take into consideration levels of budget allocations and other types of local governments adopting the performance-based budgeting in order to strengthen the internal and external validity of how information use matters in the local budgeting realm.

Keywords: Performance Information, Budgetary Incrementalism, Spending Effectiveness and Efficiency, Local Budgeting

การใช้ข้อมูลและการจัดสรรงบประมาณ : บทบาทของข้อมูลที่มีต่อประสิทธิภาพและประสิทธิผล ของรายจ่ายของเทศบาลในประเทศไทย*

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บทคัดย่อ

ข้อมูลเป็นสินทรัพย์ที่มีค่าเนื่องจากสามารถเพิ่มคุณภาพในการตัดสินใจทั้งด้านเศรษฐกิจ การเมือง และการบริหาร การปฏิรูประบบราชการในปัจจุบันจึงใช้ข้อมูลประเภทผลการดำเนินงานเพื่อผลักดันให้กระบวนการงบประมาณมีเหตุมีผลมากขึ้นและเพื่อให้การจัดสรรงบประมาณมีประสิทธิภาพและประสิทธิผลอย่างแท้จริง ด้วยเหตุนี้ เทศบาลในประเทศไทยจึงประยุกต์ใช้งบประมาณแบบมุ่งผลงาน แม้ว่าจะมีข้อจำกัดด้านทรัพยากรทางการบริหารและการเงิน เพื่อเป็นการประเมิณผล การวิจัยเชิงปริมาณนี้จึงเก็บข้อมูลวัฒนธรรมองค์การ การยึดติดกับงบประมาณแบบค่อยเป็นค่อยไป การใช้ข้อมูลผลการดำเนินงาน และประสิทธิภาพและประสิทธิผลของรายจ่ายในเทศบาลต่าง ๆ และผลการวิจัยข้อมูลด้วยเทคนิคสหสัมพันธ์ถดถอยสำหรับตัวแปรลำดับขั้นมาตราชี้ให้เห็นว่าการใช้ข้อมูลผลการดำเนินงานมีความสัมพันธ์ทางบวกกับประสิทธิภาพและประสิทธิผลของรายจ่าย ทั้งนี้ ระบบงบประมาณแบบค่อยเป็นค่อยไปที่ยึดการปฏิรูประบบงบประมาณแบบมุ่งเน้นผลงานก็ส่งผลดีเช่นเดียวกัน แต่ในระดับที่น้อยกว่าการใช้ข้อมูล สำหรับข้อเสนอแนะทางนโยบาย

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ผู้บริหารเทศบาลควรส่งเสริมและรักษาผลที่พึงประสงค์นี้ด้วยการจูงใจและร่วมกับเจ้าหน้าที่ผลักดันระบบงบประมาณแบบ มุ่งเน้นผลงานผ่านข้อมูลที่สะท้อนค่าของเงินและผลสำเร็จต่าง ๆ ในระดับแผนงาน ทั้งนี้ ในระหว่างการวางแผน การเบิกจ่าย การติดตาม และการประเมินผล และสำหรับข้อเสนอแนะทางการวิจัย การวิเคราะห์ระดับรายจ่ายจริง และการใช้กรณีศึกษาอื่นนอกจากเทศบาล จะช่วยเพิ่มความตรงภายในและภายนอกของความสัมพันธ์ระหว่างการใช้ข้อมูลกับประสิทธิภาพและประสิทธิผลการใช้จ่ายงบประมาณได้มากขึ้น

คำสำคัญ: ข้อมูลผลการดำเนินงาน งบประมาณแบบค่อยเป็นค่อยไป ประสิทธิภาพและประสิทธิผลของใช้จ่ายงบประมาณ งบประมาณท้องถิ่น

Introduction

Any kind of quality information is always valuable, economically and administratively. They can assist in and enhance decision making process buffering uncertainty, lowering risk, and suggesting trustworthy ways forward. Either personal or public finances, information is widely utilized or even traded because it provides a competitive advantage. Nonetheless, under the public finance's realm, information does not always change the course of policy decisions due to the prevalence of budgetary incrementalism expenditures of given years are simply equal to those of the previous year narrow range of increase or decreases (Booth, 1988; Davis et al., 1966). Mostly a result of political behaviors and institutions, budgets are almost never actively and holistically reviewed in the sense of weighing at once the costs and benefits of all existing programs as compared to all relevant alternatives (Davis et al., 1966; Downs, 1957).

Nonetheless, occasionally, budget literature under the Western countries' context in particular witnesses the attenuated influence of incrementalism when information is used religiously and appropriately. For example, with coherent policy narrative, performance information (public service's outputs and outcomes) encourages learning and deliberation among different departments, leading to changes in local governments' spending levels in the U.S. and Chile in terms of both efficiency and effectiveness (Ho, 2011; Melkers & Willoughby, 2005; Moynihan, 2015; Zaltsman, 2009). Nevertheless, such research topic has not been adequately explored under the East's developing countries' public expenditures. Consequently, this study fills this research gap by asking: How information use is associated with local spending? It selected Thailand as a typical case study (Gerring, 2007; Miles & Huberman, 1994) because it represents a developing country which, like several other global-south countries, promulgated decentralization policy relatively late and mostly possess limited administrative and financial capacities (R. White & Smoke, 2005).

Through survey methods and quantitative analysis, the answers to this research question aims to promote both internal and external validity (Onwuegbuzie, 2003). For internal validity, it explains the possible linkage between information use and enhanced budget allocation (efficiency and effectiveness). Regarding external validity, it explains how

context bound factors mediate such possible linkage between information use and spending efficiency and effectiveness. Meanwhile, advancing pragmatism of budget theories to present days problems (Gerring, 2012), this study offers at least two contributions to the local budgeting practice. First, it informs the policy makers whether and how information can improve their budget processes and allocations. Second, the study's results identify political and organizational components that potentially obstruct efficient and effective budget allocations given the context of developing countries. Truthfully, both can serve as a springboard for a local budget reform in the foreseeable future in Thailand since it has been more than two decades of its current local budget practices.

Literature Review

To fully understand the possible linkage between information use and spending efficiency and effectiveness, this study thoroughly reviewed the theories of information economics, performance budgeting, budget outcomes, and budgetary incrementalism. Previous studies were also discussed to explain the relationship of interest, to operationalize the concepts of information use, spending outcomes (efficiency and effectiveness), as well as to establish or replicate a statistical model testing the study's hypotheses later.

Information economics in public organizations. Information economics underscores the roles of information in resolving financial as well as fiscal uncertainties and related problems caused by information asymmetry technically termed adverse selection and moral hazard (Akerlof, 1970). According to Principal-Agent Theory, at the organization level, relevant and reliable information is distributed asymmetrically throughout a bureaucracy (Moe, 1984; Ross, 1973). Bureaucrats have and enjoy monopolistic information power over the management because of their technical knowledge and specialization (Frederickson et al., 2012; Niskanen, 1971) and how they can handpick and highlight only information reflect favorably upon themselves as well as repressing other that does not (Downs, 1967; Tullock, 1965).

To avoid such information problems, the management can apply two following strategies information intermediary and performance contract design. Information intermediary is an organizational unit or member gathering information and championing information use (Corburn, 2007) in order to bridge the informational gap between bureaucrats with policy

specialization and management as end users who directly involves in policy design and formulation (Faibisoff & Ely, 1974). Furthermore, since the management cannot closely monitor the bureaucrats' informational behaviors without prohibitive costs, they instead can invest in contract design which centers around performance information (Hölmstrom, 1979; Moe, 1984; Wood, 2010).

Performance information and performance budgeting. As a form of measurement, performance information in public management refers to actionable and quantifiable production process and products or services including outputs (e.g., public goods or services delivered), efficiency (data from cost-benefit analysis), effectiveness (evaluation of missed or achieved policy targets in terms of both quantity, quality, and standards), and policy impacts (economic and social implications) (Ammons & Roenigk, 2015; Talbot, 2007). Performance budgeting is a budgeting practice seeking to directly link the findings based on performance information to budget allocation (Gilmour & Lewis, 2006; Melkers & Willoughby, 1998) in order to help public agencies effectively and efficiently manage their resources, to strengthen organization's transparency and accountability of how such resources are utilized (Zhao & Fan, 2019). Accordingly, it has been part and parcel of the public management reform from the late 1990s until present especially in Asian countries (Srithongrungrung, 2018).

Budget outcomes. At the program level and for small and medium size programs, performance budgeting has often brought favorable outcomes to the reforming government agencies. This is because budget actors can think more logically and strategically about how resources can be used and about what outcomes might be accomplished so that they influence policymakers to restructure activity planning and eventually reallocate an organization's financial resources (Gilmour & Lewis, 2006; Joyce, 2008; Melkers & Willoughby, 2005). In terms of performance outcomes, performance budget leads to spending efficiency and effectiveness. Changing appropriation levels, saving costs of public goods and services, eliminating ineffective programs, and reducing duplicative services are the case in point (Melkers & Willoughby, 2005).

Budgetary incrementalism. Given the advantages of performance budget, not all adopting government agencies accomplished such spending efficiency and effectiveness (Ho, 2011). Budgetary incrementalism still exists prevalently and robustly.

According to the theory of incrementalism, additional information will not transform the previous pattern of budget decision makings (Wildavsky, 1964). The reasons explaining how budget actors almost base their budgetary decisions on those of the previous year involve bounded rationality, the politics of budgeting process, and structural inertia. Only under very special circumstances do budget actors and policymakers rely on comprehensive calculations and not on simple consideration and heuristic rules in order to find satisfactory solutions for policy problems they are facing (Davis et al., 1966; True et al., 2007). As a rational agent or a budget maximizer, a given public organization are not willing to abandon their bureaucratic power especially in terms of manpower and financial resources to others (Niskanen, 1971). To avoid conflicts among different organizations, a government almost always adheres to incremental budgets. Finally, inertial pressures from both internal and external environment (for example, sunk costs invested in personnel and equipment, the dynamics of political coalitions, legal and administrative barriers to entry and exit from the budgeting realm, and the loss of institutional support) refrains a government from making radical or proportional adjustments as a response to pressing demands and urgency.

In sum, theoretically speaking, even though performance budget which is based mainly on performance information possibly brings about spending efficiency and effectiveness, budget incrementalism can mediate such association and vice versa.

Previous studies. In order to promote and push forward the budget reform necessary for complementing decentralization policy as stated earlier, the relationship of performance information use and budget allocation is this study's focus. Empirical examinations many in the U.S. and a few in Chile confirmed the existence of this linkage. For overall spending levels, indept evaluation assessment of the national government (information and findings on performance indicator assessment) was statistically associated with Chile's interannual budget changes between 2002 - 2005, holding previous-year spending levels constant and type of evaluation (Zaltsman, 2009). Meanwhile, for more specific budget process and output to restructure activity planning and reallocate resources the case study of Indianapolis cities demonstrated that performance measurement influenced budgetary decisions at the program, holding number of performance measures, number of outcome related measures, amount of departmental budget, and percentage of budget

change, and the type of department constant (Ho, 2011). For budget outcomes, there existed the effects of performance measurement information on budgetary decisionmaking of 300 U.S. local governments on such budget outcome as change in appropriation levels, cost saving, reduction of ineffective programs and duplicative services, holding community characteristics, organizational culture, and performance measurement characteristics constant (Melkers & Willoughby, 2005).

Conceptual framework. Based on both theoretical foundation and previous empirical studies, it can be said that performance information use is positively associated with budget outcomes, holding constant budget incrementalism, community characteristics, organization culture, and performance measurement characteristics. The interrelationships of interest are summarized in Figure 1 below.

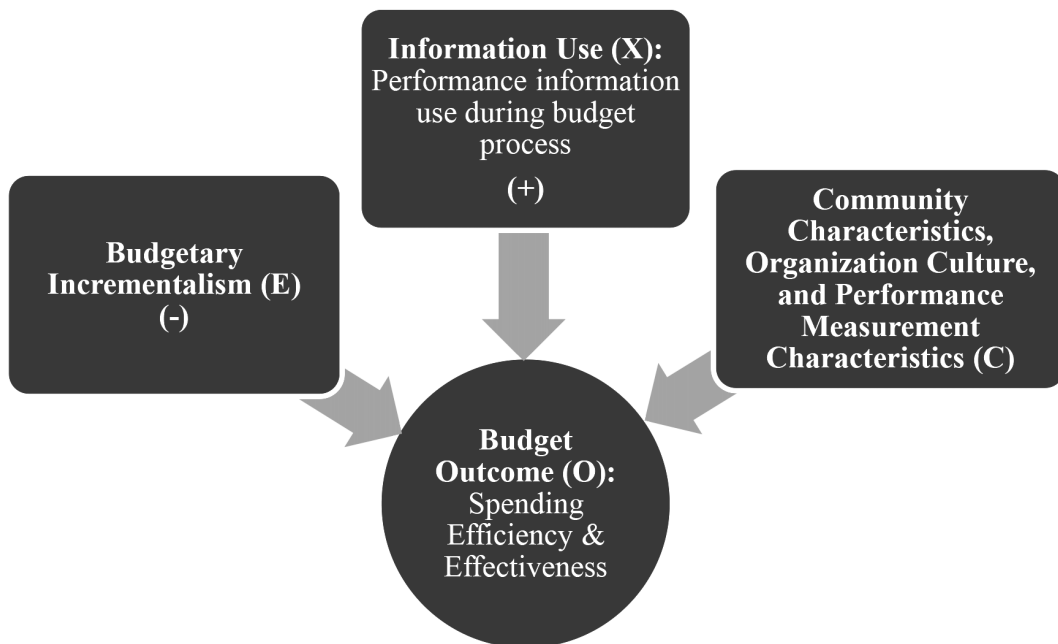


Figure 1: Conceptual Framework of Information Use and Budget Outcome

- Note:* 1. X = Independent variable, E= Extraneous variable (Rival Hypothesis), C= Control variable, and Y= Dependent variable
2. (-) and (+) suggests the negative and positive association with budget outcome, respectively

Hypothesis. Responding to the question of how information use is associated with local spending and subsequently providing results through empirical examination, this study formulated the following hypothesis.

H: Local governments with higher levels of performance information use are more likely to achieve higher levels of budget outcome (spending efficiency and effectiveness) than others with lower levels of performance information use.

Methodology

This study quantitatively examined the possible linkage between performance information use and budget allocation. Survey research was conducted through the questionnaire sent out to management level officials to inquire their information behaviors and perceived budget outcomes. Then, an ordinal regression analysis was applied to analyze these quantitative data to verify whether and how information use is associated with local spending. The following are methodological components of this study.

Background and case justification. This study selected Thailand's municipality as a case study to represent the least likely case (George & Bennet, 2004; Gerring, 2007). This is because the country demonstrated slow process on fiscal decentralization (White & Smoke, 2005) and its local governments usually lacked budget actors with high administrative capacity (Kittipanyasiri, 2015; Nagai et al., 2008). Due to these limitations, an attempt to adopt performance based budget reform by the Department of Local Administration (DOLA) during the early 2010s (Sutheewasinnon et al., 2016) was unlikely to be successful. And the study may not be able to prove and confirm linkage between performance information use and budget outcome (spending efficiency and effectiveness).

Population, unit of analysis, and unit of observation. Local budgeting and spending are a product of local government. As a result, local government is an organization of interest. In other words, organization is a unit of analysis. Local governments in Thailand as this study's research population are categorized into three main types provincial administrative organizations (PAOs), municipalities, and subdistrict (also known as Tambon) administrative organizations (TAOs). However, the first is the upper tier local governments responsible for only interjurisdictional missions such as inter-region highways, regional stadiums,

and provincial tourism policy. Meanwhile, TAOs are considered small ones with limited financial resources and manpower. As a results, they can offer only a few numbers of local public goods and services and largely depend on municipalities for, for instance, sewage management, primary and middle schools, and environmental and cultural conservation. As the type of local government responsible for many indispensable local public goods and services, municipalities are of this study's focus.

In terms of unit of observation, this study concentrates on budget actors who serve as information intermediary and information users who take part in and throughout local budgeting process. Specifically, heads of department involving in information collection, analysis, and utilization throughout the local budgeting process are the data source from whom this study collects data regarding information use and budget outcomes. Note that every municipality has a department of education providing academic services in nursery, primary, or secondary schools. This service aim to make children and students literate (linguistically, mathematically, and scientifically) and eventually able to pass the standardized national examinations. Possibly, using and implementing performance information as key performance indicators can leads to successful education services and, eventually, other desirable outcomes.

In sum, it can be said that the heads of department of education services in Thailand's mu-nicipalities represent an intensity case a information rich unit that manifest the phenomenon of interest intensely (the use of performance information potentially bringing about budget outcomes) (Miles & Huberman, 1994).

Sample Size. Given that the unknown percentage of the municipal budget actors in Thailand deliberate and actually utilize relevant and reliable information for their budget proposals and dis-cussion as well as the unknown standard deviation of such information utilization, this study applied the Cochran formula to calculating the sample size. Specifically, it set the confidence level at 95% (1.96 for its Z values) with the level of precision at least at 5 percent. Additionally, it assumed that half of these budget actors use performance information during the budget process. As a result, after adjusting for the target population of 2,441 municipalities, the calculation suggested that the sample size of 333 municipalities be adequate to give the confidence levels the study was required for the data collection. In order to maximize a response rate, a voluntary response sample is applied.

Data Collection. This study conducted a survey with the Likert scale questionnaire inquiring the use of performance information among the heads of departments of education services as well as budgetary incrementalism, organizational cultures, and budget outcomes (spending effectiveness and efficiency). Regarding the last concept as the dependent variable, the Likert type questionnaire asked how effective was the use of performance information on (1) affecting cost savings, (2) changing appropriation levels, (3) reducing duplicative services or programs, (4) eliminating ineffective services or programs, and (5) improving service quality (Melkers & Willoughby, 2005). These five items were proved to be statistically consistent and reliable with Cronbach alpha of 73.44%.

Meanwhile, for the independent variable (performance information use), the Likert scale questionnaire asked how frequent the heads of department used performance based budgeting information such as value of money and service quality in order to (1) influence their budget decisions especially in terms of program prioritization; (2) combine with other data to reach budget decisions; (3) prompt further budgetary questions or enquires during budget discussion or debate; (4) use those information to support a budget decision reached by other means (e.g., professional experience); and (5) argue that a certain budget choice may not be desirable (Moynihan et al., 2012; Taylor, 2007). These five items were proved to be statistically consistent and reliable with Cronbach alpha of 76.88%.

For control variables, budgetary incrementalism was derived from the Likert scale item asking how the municipality's budget process has dramatically changed over the last four years. Community characteristics were contained from the items asking the community types (merchandising, residential, agricultural, or periurban), population, and whether such community was located in the capital city of the province. Meanwhile, organizational culture including staff's commitment to information based decision making and perceptions on how their responsibilities were of motivational tasks as well as the organization's political factors (conflicts between the executives and the legislatives and that between the executives and the heads of departments). For performance information characteristics, the Likert scale items asked the intensity of the central government's coercive and normative pressure on local governments to adopt information-based decision making.

Data Analysis. This study replicated Melkers and Willoughby (2005)'s model predicting the budget effects based on the use of performance measurements. The following model estimates the perceptions on spending efficiency and effectiveness among department heads.

$$\begin{aligned} \text{Budget Outcome} = & \beta_0 + \beta_1 \text{Information Use} + \beta_2 \text{Budgetary Incrementalism} + \\ & \beta_3 \text{Community's Characteristics} + \beta_4 \text{Organizational Culture} + \\ & \beta_5 \text{Performance Information Characteristics} + \text{errors} \end{aligned}$$

Since the dependent variable is an ordinal scale, this study applied the ordinal logistic regression especially probit models as well as their odd ratios to analyze the quantitative data collected from the questionnaires (Gujarati, 2003).

Results

The research results here are several quantitative results including the participating local governments, the sociodemographics of budget actors or the heads of the department of education services, the descriptive statistics of the related variables listed and operationalized in the previous section, the Pearson's correlation, and the results from ordinal regression analysis.

Participating municipalities. The selfadministered questionnaires were sent to every municipality in Thailand asking their heads of the department of education services to provide their community's characteristics and their perceptions on the local governments' cultural and budgetary characteristics. During September 1st to October 31st, 2018, there were 682 budget actors participating in the survey, which is more than the sample size estimated earlier. And the response rate is equal to 27.94%. Based on the responses, most of the participating municipalities are of a subdistrict level and with approximately 12,000 residents living in the area of 60 KM². Table 1 shows the details of community's characteristics of these municipalities.

Table 1: Communities' Characteristics of Municipalities Participating in the Survey

Variable	Characteristic	Frequency		Accumulated	
Municipality type	Metropolitan	9 (1.32%)		9 (0.44%)	
	City	41 (6.16%)		50 (6.48%)	
	Subdistrict	635 (92.52%)		682 (100.00%)	
	Obs.	Mean	Std. Dev.	Min	Max
Area (KM ²)	563	60.61	169.61	0.064	2,943
Population	518	12,027.65	21,524.36	943	300,000

Responders' socio demographics. Considering the survey respondents' socio demographics, budget actors of interest were a diverse group. Most of them were female, 45 years old, holding a master's degree, and had been living in their respective jurisdiction for almost 11 years on average. Table 2 summarizes the socio demographics of these budget actors or the heads of the department of education services.

Table 2: The Respondents' Socio Demographics

Characteristics	Sub-group	Frequency		Accumulated	
Gender	Female	420 (62.59%)		420 (62.59%)	
	Male	251 (37.41%)		671 (100.00%)	
Education Profile	Undergrad	66 (11.36%)		66 (11.36%)	
	Postgrad	515 (86.24%)		581 (100%)	
	Obs.	Mean	Std. Dev.	Min	Max
Age (Years)	657	45.11	6.91	26	60
Living in the area (Years)	601	10.89	11.53	0	59

Descriptive statistics. Table 3 shows the descriptive statistics of all the variables included in the model for ordinal logistic analysis. Note that most of the participating municipality were of agricultural and peri-urban areas outside the provincial capitals. Note that the head of department of education services perceived that there was a relatively high level of budget incrementalism (2.62) which is slightly higher than the level of performance information use (2.40). Furthermore, the municipalities appeared to actively institutionalize

the culture of information based decision making because of relatively high levels of staff's commitment and motivation to this practice. Finally, there was a low level of internal conflicts both between the municipal executives and the municipal legislators and between the municipal executives and the heads of department of educational services.

Table 3: The Descriptive Statistics

Characteristics	Sub-group	Frequency	Accumulated		
Community Type	Merchandising	55 (8.90%)	55 (8.90%)		
	Residential	33 (5.34%)	88 (14.24%)		
	Agricultural	251 (40.61%)	339 (54.85%)		
	Peri-urban	275 (44.50%)	614 (99.35%)		
	Other	4 (0.65%)	618 (100.00%)		
Provincial Capital	Yes	44 (6.45%)	44 (6.45%)		
	No	638 (93.55%)	638 (100.00%)		
	Obs.	Mean	Std. Dev.	Min	Max
Budget Outcome	651	2.14	1.15	1	4
Population (1,000)	518	12.00	21.50	0.94	300
Staff's Commitment	667	3.14	0.81	1	4
Motivational Tasks	666	2.93	0.78	1	4
Executive/Legislative Conflict	672	1.67	0.86	1	4
Executive/Dept. Head Conflict	670	1.46	0.71	1	4
Normative Pressure	664	3.16	0.78	1	4
Coercive Pressure	661	2.78	0.96	1	4
Budgetary Incrementalism	660	2.62	0.85	1	4
Performance Information Use	656	2.40	1.11	1	4

Pearson's Correlation. Based on Table 4, the correlation coefficients between variables are lowly and moderately associated, ranging from <0.01 to 0.31. The highest is 0.31 which is the correlation between collectors' budget outcomes and performance information use. However, since all correlation coefficients in Table 4 do not show the high association between a given pair of variables, it can be said that there is no evidence of substantial multicollinearity (Halcoussis, 2004).

Table 4: Pearson's Correlation

Variable	1	2	3	4	5	6	7	8	9	10
1 Budget Outcome	1.00									
2 Population (1,000)	0.04	1.00								
3 Staff's Commitment	0.00	-0.06	1.00							
4 Motivational Tasks	0.16	-0.04	-0.02	1.00						
5 Executive/Legislative Conflict	-0.01	-0.08	-0.04	-0.08	1.00					
6 Executive/Dept. Head Conflict	-0.14	0.02	0.01	-0.05	0.21	1.00				
7 Normative Pressure	0.08	0.05	0.00	0.13	-0.08	-0.13	1.00			
8 Coercive Pressure	0.00	0.04	0.01	0.13	-0.14	-0.15	0.13	1.00		
9 Budgetary Incrementalism	0.15	0.07	-0.01	0.14	0.06	-0.01	0.10	-0.11	1.00	
10 Performance Information Use	0.31	0.08	0.04	0.08	-0.03	-0.13	0.15	0.07	0.05	1.00

Table 5: Ordinal Logistic Regression Analyses Predicting Budget Outcome

Budget Outcome	(1) Baseline	(2) Incrementalism	(3) Information Use	(4) Odd Ratio
Residential Community (D)	0.0488 (0.317)	-0.0225 (0.318)	-0.122 (0.325)	-0.219 (0.521)
Peri Urban Community (D)	0.0562 (0.232)	0.0240 (0.233)	0.0222 (0.242)	-0.000915 (0.400)
Argicultural Community (D)	-0.0369 (0.237)	-0.0597 (0.238)	-0.0883 (0.246)	-0.172 (0.407)
Other Type of Community (D)	0.187 (0.761)	0.391 (0.767)	0.450 (0.771)	0.705 (1.210)
Provincial Capital (D)	-0.258 (0.227)	-0.309 (0.232)	-0.192 (0.245)	-0.312 (0.402)
Population (1,000)	0.00338 (0.00284)	0.00257 (0.00286)	0.000746 (0.00306)	0.00148 (0.00483)
Staff's Commitment	0.103 (0.0666)	0.0827 (0.0669)	0.0337 (0.0679)	0.0764 (0.113)
Motivating Tasks	0.206** (0.0720)	0.169* (0.0738)	0.151* (0.0745)	0.250* (0.127)

Table 5: Ordinal Logistic Regression Analyses Predicting Budget Outcome

Budget Outcome	(1) Baseline	(2) Incrementalism	(3) Information Use	(4) Odd Ratio
Executive/Legislative Conflict	0.0118 (0.0631)	-0.00141 (0.0636)	0.00448 (0.0641)	0.0223 (0.106)
Executive/Dept. Head Conflict	-0.298*** (0.0863)	-0.312*** (0.0873)	-0.263** (0.0888)	-0.442** (0.151)
Normative Pressure	0.00183 (0.0719)	-0.00504 (0.0722)	-0.0520 (0.0738)	-0.0647 (0.126)
Coercive Pressure	-0.113 (0.0589)	-0.0908 (0.0599)	-0.131* (0.0608)	-0.230* (0.103)
Budgetary Incrementalism		0.187** (0.0668)	0.167* (0.0679)	0.286* (0.115)
Performance Information Use			0.285*** (0.0525)	0.474*** (0.0889)
cut1	-0.0129 (0.475)	0.256 (0.494)	0.470 (0.508)	0.894 (0.859)
cut2	0.705 (0.475)	0.991* (0.495)	1.234* (0.510)	2.150* (0.864)
cut3	1.119* (0.477)	1.409** (0.497)	1.679** (0.512)	2.910*** (0.870)
<i>LR Chi²</i>	28.51**	37.38***	67.16***	67.69***
<i>Pseudo R²</i>	0.0246	0.0326	0.0593	0.0598
<i>N</i>	444	440	434	434

Note: (1) Standard errors in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

(2)(D) = dummy variable

Ordinal Logistic Regression. Overall, the models verifying the association between budget outcomes and information use were statically significant. The pseudo R-squared is equal to 0.0593, meaning that 5.93% of the variability observed in the budget outcomes is explained by the model.

The use of performance information is statistically significant and positively associated with budget outcomes. In other words, answering the research question of how information use is associated with local spending, the ordinal logistic regression's results demonstrated a municipality with one level increase in performance information use is 0.474 time more likely than its counterparts to gain one level increase in budget outcomes (spending efficiency and effectiveness), holding constant community's characteristics, organizational culture, and performance-information characteristics.

For the work environment that promoted spending efficiency and effectiveness, the ordinal logistic regression suggested that making tasks and responsibility motivational among local employees was also the key to enhance budget outcomes. However, note that the use of performance information use became a vain attempt if there existed an evident conflict between the municipal executives and the heads of department of education services as well as the central government's high coercive pressure for municipalities to adopt performance budgeting and management.

Regarding another relationship of interest, unlike theoretically hypothesized, budgetary incrementalism is positively associated with spending efficiency and effectiveness but at a lower level of association compared to the use of performance information. In other words, a municipality with one level increase in budgetary incrementalism is 0.286 time more likely than others to achieve one level increase in spending efficiency and effectiveness, holding other variables constant.

Postestimation Statistics. Overall, the model predicting a degree of spending efficiency and effectiveness was statistically reliable, considering the common problems for regression analyses omitted variable bias, multicollinearity, and heteroskedasticity. Applying the Ramsey RE-SET test, this study found that there were no omitted variables [$F(3, 416) = 2.37$ and $\text{Prob} > F = 0.0698$]. Meanwhile, the average VIF (Variance Inflation Factor) for all coefficients in the models was equal to 1.75 which was far lower than 10, suggesting that there did not exist the problem of multicollinearity for the model estimating the budget outcomes (Wooldridge, 2016). Meanwhile, running the White's general test for unrestricted heteroskedasticity, the study accepted the homoskedasticity hypotheses [$\text{Chi}^2(99) = 104.66$ and $\text{Prob} > \text{Chi}^2 = 0.3292$] because the distribution of error terms was statistically homogenous (White, 1980).

Discussion and Findings

Based on the results from Table 5, information use among municipalities in Thailand is positively associated with satisfactory budget outcomes such as spending efficiency and effectiveness. Although with slower pace than information use, incrementalism and the perception that related programs are motivational are also the key factors push forward those budget outcomes. Nonetheless, with high levels of conflicts on a certain program between the municipal executives and the heads of the department of education services and high degrees of the central government's coercive pressure on local government to adopt the performance management, municipalities are less likely to achieve budget outcomes. These results suggest five key findings as follows.

Budgeting is multifaceted and a product of complexity. Budget is a product of politics, organizational cultures, and institutional inertia (incrementalism), and as much as a result of public management especially through reform attempts to leverage performance information and performance contract design. Making a budget system political-free is not practical but making it more rational is certainly attainable. It can be said that, if implemented properly with great consideration of political and organizational circumstances, budget reform attempts at the local level are promising because the use of performance information evidently leads to spending efficiency and effectiveness.

The coexistence between budgetary incrementalism and information use. Unlike what is usually hypothesized, budget incrementalism can actually enhance local governments' budget allocation patterns, if such incrementalism based on the performance based budgeting reform focusing on service quality and policy results as the background of Thailand's case stated earlier (Sutheewasinnon et al., 2016). On this ground, budgetary incrementalism is not always negatively associated with spending efficiency and effectiveness.

Internal and external validity of the association between information use and budget outcome. Considering the local context such as community types and organizational cultures, the study witnesses the positive impact of performance information use among Thai municipalities. This empirical finding promotes the internal validity of how information matters in the budgeting process (Onwuegbuzie, 2003). Furthermore, this result based on a developing country confirms the positive impact of the performance based budgeting reform originally and widely adopted in the US local governments (Gilmour & Lewis, 2006; Ho, 2011). On this ground, it can be said that despite different political, administrative, and organizational structures, performance information use, to some extent, can eventually lead local governments to achieve better service quality and policy results.

Recommendations for effective performance-based budgeting reform. Even though there exists clear empirical evidence on the linkage between performance information use and spending efficiency and effectiveness, some operational measures must be in place to accommodate the new budget systems. First, policymakers especially at the top of an organization must motivate budget actors to adopt the new budget system. Budget actors should have chances to collect, analyze, and discuss performance information throughout budgeting process planning, execution, monitoring, and evaluation. Second, the focus should be primarily on the program level. This is because budget actors can think logically and strategically about how resources can be used and saved and about what outcomes might be accomplished. Third, policymakers (local executives) and budget actors (heads of departments) should first find the common ground of residents' urgent problems or service preferences and later formulate program plans, objectives, and results. This can lower the level of conflict and, if possible, increase the degree of collaboration and deliberation.

Caveats on applying and generalizing these findings. There are three cautions based on the case selection and the post estimation statistics. Regarding the case selection, this study aims at explaining the program level budget outcomes among municipalities. To avoid overgeneralization, note that these findings above cannot explain the budget outcome of other types of local governments and at policy or organizational level. Meanwhile, the pseudo R^2 reported in Table 5 was relatively low potentially due to the omitted variable bias based on the result of the Ramsey RESET test. This suggests that,

in order to leverage the performance based budgeting, other measures than the four mechanisms discussed earlier should be taken into consideration. Third, the preliminary models linking information use to spending efficiency and effectiveness in this paper are from budget actors' perception but not from the numerical or financial data such as local economic conditions, unconditional grants from the central government, and spending levels. Interpretation should proceed with caution.

Summary

Through performance information, the public sector reform movement based on performance based budgeting aimed at reducing budget incrementalism and enhancing rational decision making in order to achieve spending efficiency and effectiveness. This study examined this possible association by conducting survey research with a questionnaire collecting a wide range of quantitative data. Like prior empirical research in the US, the results of this study confirm the causal linkage between performance information use and budget outcomes under the context of the education service program among municipalities in Thailand. Note that budget incrementalism from the implementation of performance management reform does not negatively affect budget allocation but actually brings about spending efficiency and effectiveness.

Some policy recommendations for municipalities about to adopt performance based budgeting include to concentrates on the quality service and policy objectives at the program level, to motivate budget actors, and to lessen the conflict between the local government executives and the heads of departments. Meanwhile, there are two suggestions in terms of future research directions. First, for increasing internal validity, researchers should take into account other variables particularly budget capacity and intergovernmental characteristics when verifying the linkage between information use and budget outcome. Second, regarding the external validity, future research should investigate the use of information during a budget process among other types of local governments than municipalities. Third, regarding reliability, budget outcomes in terms of spending levels for each program should be examined and then compared with the perceptual ones pre-sented in this study to assure the robust results of whether and how information use can enhance spending efficiency and effectiveness.

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