

Exploring the Use of Performance Information in Municipal Governments —Modeling from the Two-Stage Heckman Selection Estimation

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Performance information is constructed by systematic-measuring designs toward productivity, effectiveness and responsiveness. In practice, performance information could be linked with the budgeting process, strategic planning and citizen information; whereas decision-makers can undertake cost reduction, long-term planning as well as citizen-government communication. Why do municipal governments use performance information? This paper attempts to answer this question by examining factors affecting the application of performance information in the U.S. municipal governments. Data are from International City/County Management Association (ICMA) “State of the Profession” survey in 2006. The two-stage Heckman probit selection models are employed to avoid sample selection bias. The first step is a selection procedure which takes into account the adoption factors to

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estimate performance measurement adoption. The second step uses a corrected probit model to estimate the factor effect on performance information. The statistical results show that operation of strategic planning and concerns for citizen accountability have a positive and significant effect on the application of performance information. Due to individual egoist and bounded rationality, participants in strategic planning negatively affect the application of performance information.

Keywords: Use of performance information, Heckman selection, budgeting process, strategic planning, citizen-government communication.

I. Introduction

Government effectiveness could be enhanced by the use of quantitative indicators to measure the performance results of public programs and projects (Broom et al., 1998; Hatry, 2000; Ho, 2003). Systemic measuring mechanisms could be utilized to evaluate outcomes, motivate employees, make budgeting decisions, and improve effectiveness (Behn, 2003). The application of performance information in public sectors not only reflects the achievement of goals but also facilitates citizen-government communication based on the evidence of program effectiveness (Wholey and Newcomer, 1997). Moynihan indicates that the adoption of performance management is related to “its symbolic value to elected officials and professional value to central agency actors” (Moynihan, 2008: 14). In the empirical world, the use of performance management may be involved with the concerns of political control. PART (Program Assessment Rating Tool) is an example of a political-control tool that George W. Bush utilized to monitor and evaluate public program outcomes, and adjust resource allocation and administrative arrangement (Dull, 2006). Due to the connection to budgeting decisions, PART extended the power of presidential control. In 2005, President Bush proudly announced the substantial reduction/elimination of over 150 government programs that did not fulfill essential goals or were not getting results (Bush, 2005). The purpose of performance budgeting is/was to save

taxpayers' money wisely and efficiently.

The inquiry of the use of performance information is under consideration. One issue is raised from exploring theoretical factors that may facilitate or expand the use of performance information. Pervious literature paid attention to managerial capacity and organizational behavior surrounded by performance management arenas. Ho (2003) examined the practice of performance reporting, and explained actors' perception of performance measurement mechanisms in small cities with populations of 10,000 to 100,000. GFOA (Government Finance Officers Association) researched in the range of performance measures answered by its municipal members (Tigue, 1994). However, they did not analyze what factors affect the application of performance information.

This study is concerned with the dynamics involved in the fields of performance information. In the lens of political and organizational embeddedness, performance information could be linked to budgeting process, strategic planning and citizen - government communication. The author then integrated the insights from a literature review to shape research hypotheses, and tried to explain why municipal governments use performance information to make decisions. Market-approach governance, types of public services, participants in strategic planning, concerns for citizen accountability and operation of strategic plans are hypothesized to associate with the use performance information.

II. Literature Review—The Purpose of Performance Measurement and Factors Affecting its Application

The adoption of performance measurement is inherently embedded into its political and organizational context. Concerning reelection and political pressure, local leaders support the adoption actions of performance measurement whereas they could claim credits from systematic management, and a positive image of effective government thus is established. On the other hand, performance measurement concerns managerial effectiveness and efficiency. Performance information would be an operative instrument that is powerful enough to enhance managerial control capacity as well as planning. Public managers could use information provided by performance reports to adjust future actions, local vision and planning. Empirically, performance information is usually linked with local budgeting (which is so-called performance budgeting). Performance measurement provides systematic information that constructs performance budgeting, and “money” can be allocated more effectively. In extent, performance budgeting reasons why some departments receive more funding opportunities but others do not. The following paragraphs address the purposes of performance measurement through the lens of organizational and political context.

To enhance managerial control capacity as well as planning

Performance measurement is inevitably embedded into organizational context regarding managerial control capacity and professional planning. Because of the belief values of reform in strategic planning, over time organizational culture has driven the institutionalization of performance measurement (Giddens, 1984). On one hand, organizational culture as well as the effect of strategic planning would act as the mediator to adopt, adjust or block performance measurement (Broadnax and Conway, 2000; Jennings and Haist, 2004; Moynihan, 2005). On the other hand, the measurement mechanism would provide information to facilitate strategic planning and enhance the reform values in organizational culture. The current organizational context would be characterized by the routines in result-orientation efforts and results-based reforms which are referred to as the concepts of performance management. The ongoing dynamic emphasizes the reform efforts of administrative operation, such as evaluation, control and planning. Thus, strategic planning could be one of the reasons for adopting performance measurement (Steiss, 1985). Performance information is needed for “setting goals and objectives, planning program activities to accomplish these goals, allocating resources to these programs, monitoring and evaluating the results to determine if they are making progress in achieving the established goals and objectives, and modifying program plans to enhance performance” (Hatry et al., 1990). In cities or counties with strategic

or long-range plans, the mechanism of performance measurement provides information for top management about what the agencies or programs do and what they need.

The purpose of strategic planning is to maintain a balance between the organizations and the environment. However, it is difficult to effectively implement strategic planning in municipal government settings (Swanstrom, 1987; Gargan, 1989; Streib, 1992; Backoff et al., 1993). Using performance information to track the implementation could be one way to enhance managerial control capacity and monitor the ongoing activities; whereas the CEOs (chief executive officials) could oversee subordinates' performance and adjust the strategic/long-range plans. Resource allocation could become more effective and appropriate (Vinzant and Vinzant, 1996). Poister and Streib (2005) indicate that 60% of the survey cities use performance information to track the accomplishment of strategic plans; and about 50% rely on performance data over time to tell whether the agencies/programs have better performance if compared to the previous ones. Reviewing performance reports, decision makers can integrate, communicate and coordinate the departments toward the organizational goals or missions.

To establish a positive image of the governments

Performance measurement is inevitably embedded into political environment. Performance information would be shaped by political context that actors may select, disseminate and interpret performance

information in the manner to establish a positive image of the government. The measurement indicators could be manipulated through various tactics, including creaming the results of goal accomplishment, adjusting objectives to match the current performance outcomes, making up data, limiting comparison across time, etc. (Coutry and Marschke, 2004; Van Thiel and Leeuw, 2002). Government agencies would have some degree of leverage to affect the performance data that they intend to display to citizens (Moynihan, 2008).

To extend Habermas' perspective, performance reports are the information with subtle (and sometimes not-so-subtle) mechanisms of control to communicate government to citizens. This is involved in the concept of "systematically distorted communication" (Habermas, 1975: xiii). Habermas emphasizes the idealization and mischaracterization of legitimations due to subtle language communication and socially constructed illusions (Habermas, 1975; Ingram, 1994). People cannot sense these illusions because communication consists of subtle language instruments. Performance information contributes to such a language instrument. Government uses it based on technical reasons to form evidence of governmental productivity. However, even if "numbers" represent the outcomes and the achievement, the ways to interpret "the truth behind numbers" is dependent on language instruments. Through elites-formulated norms, laws and institutions, government's cognitive-instrumental rationality would employ communicative distortions and blockages to idealize legitimations with

a subtle control mechanism. Empirically, performance reports may present the amount government spent on children's support, but they may not guarantee the quality of their services and policy outcomes. They may show that they have in-second responses to 911 calls, but they may never tell how many 911 calls they have missed. Therefore, performance reports create constructed illusions with subtle (and sometimes not-so-subtle) manipulation of numbers. These numbers contribute to the communication between the government and its citizens. It can be a learning process to operate societies with better language instruments regarding the roles of elites and government.

To construct performance budgeting

Linking performance information to the budgeting process (so-called performance budgeting) is an implication to reflect performance measurement's embeddedness in political and organizational environment. Influenced by political context, performance budgeting emerges as the tool of political control through the mechanisms of resource allocation. Affected by the organizational context, performance budgeting emerges as the approaches of managerial control over program effectiveness and productivity. Empirically, performance budgeting could be viewed as a diffusive innovation on both political and managerial control skills due to the practice of institutional isomorphism. The US Federal government's adoption of Program-Planning-Budgeting System (PPBS) influences the operation of performance budgeting in municipal governments (Ho,

2003; Axelrod, 1988, Grizzle, 1985; Havens, 1983). According to the Government Performance and Results Act of 1993, federal agencies were required to undertake strategic planning and linked them with budgeting and performance measurement (Melkers and Willoughby, 2005; Aristigueta, 1999; Jordan and Hackbart, 1999; Melkers and Willoughby, 1998; Boom, 1995). It is “institutional isomorphism” (DiMaggio and Powell, 1983) that makes performance budgeting prevail. The formal or informal rules from central agencies structure “coercive isomorphism” for local’s adoption of performance budgeting. The professionalization through education and networks construct “normative isomorphism” for local actors to adopt performance budgeting. For avoiding uncertainty, individual actors learn from others’ experience to achieve successful policy innovation which is what the concept of “mimetic isomorphism” refers to. The “coercive isomorphism”, “normative isomorphism” and “mimetic isomorphism” contribute to the effect of “institutional isomorphism” of performance budgeting. And the diffusion patterns would further the application of performance budgeting mechanism (Ho, 2003).

Because of the diffusion of PPBS, the application of performance budgeting becomes formalized and standardized in municipal governments (ICMA, 1979; Hatry, 1980). According to Poister and Streib’s survey (1999), over 60% of the survey cities have adjusted their budget allocation based on the results of performance measurement. Performance information could be utilized as a tool for the administrative systems to communicate with the budgeting

systems— in which political and managerial control competence are enhanced, and administrative arrangement could be more effective.

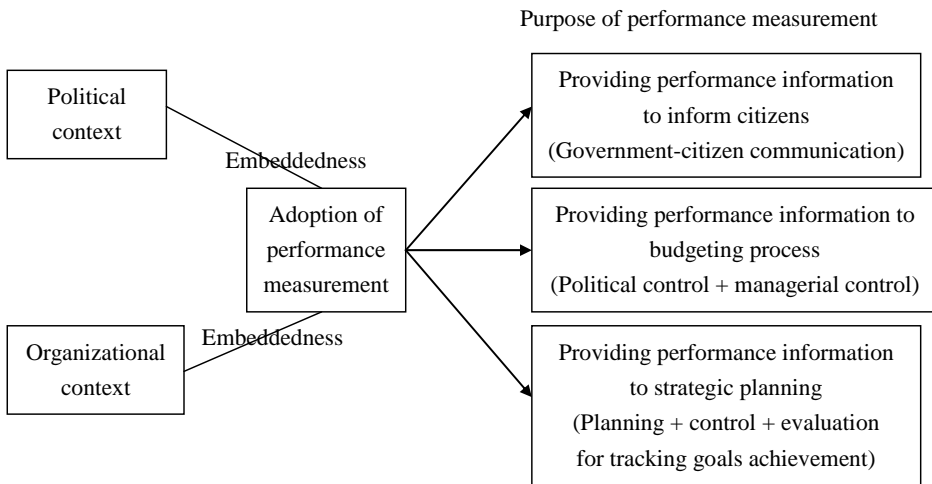


Figure 1 The purpose of performance measurement in the lens of political and organizational embeddedness

Performance measurement is embedded in political and organizational contexts (See figure 1). First, through the organizational lens, performance information is a tool to respond to the reform values in organizational culture. It could track the achievement of goals and objectives constructed by strategic planning. Second, through the political lens, performance information could enhance citizen trust in government, and contribute to the interaction channels between governments and citizens. Third, performance budgeting is influenced by both political and organizational contexts. It could help enhance political control over administrative arrangement and coordinate agencies or departments to the budget office. Therefore, the

main purpose of performance measurement could be stated as to provide information for strategic planning, for government-citizen communication and for budgeting process.

Factors hypothesized to affect the application of performance information

Previous literature of performance measurement focused on its effect on managerial capacity and organizational behavior. Ho (2003) paid attention to local actors' perception and reaction to performance information. Tigue (1994) investigated the range of performance measurement. Yang and Hsieh (2007) looked at the impact of performance measurement on managerial effectiveness. Wholey and Hatry (1992) and Wholey and Newcomer (1997) detected the function of performance measurement regarding organizational-goal clarification and performance monitoring. Steiss (1985), Swanstrom (1987) and Vinzant and Vinzant (1996) stood the angle of strategic plans to observe the dynamics of performance measurement. Most works contributed to professionalism of public service provision and took the embeddedness of organizational context into account. Generally missing from pervious research is the discussion of political context. This study, thus, intends to make up this lack and explores the application of performance information in the lens of both political context and organizational context.

There are five factors that are hypothesized to affect the application of performance information. First, market-approach

governance increases the needs of performance information to process the profit-maximizing decision making. Second, based on the concerns of control capacity, the increasing types of public services require systemic measures to control and monitor the service outcomes. Third, participants in strategic planning need performance information to ensure the achievement of their collective interests—complete implementation of strategic plans; otherwise the transaction costs of monitoring would be increased. Fourth, high-power-incentive elected officials need performance information to demonstrate the responsiveness to citizen accountability. They are the suppliers of performance information with the intention to exchange electoral support from the constituency. Fifth, the operation of strategic planning enhances the technical capacity to implement performance measurement. It breaks the abstract goals into units and makes concrete connections between performance goals and performance activities. The following addresses these factors and the hypothesized directions.

i. Market-approach Governance

Market-approach governance concerns market needs, profit-maximizing decisions and action priorities. Public sectors would be conceived by market terms in order to pursue maximum consumer satisfaction (Buchanan and Tollison, 1981). Under the operation of market-approach governance, municipal governments are necessary to systematically monitor and evaluate their performance outcomes and

make appropriate adjustments, in order to efficiently respond to the demand(s) of citizen-consumers. In addition, market-approach governance concerns the balance between benefits and costs (Warner, 2006). It can be reflected by the increasing types of fee-based services provided by municipal governments. By providing fee-based services, municipal governments raise their revenue and increase their responsibility for fiscal decentralization, apart from the federal government or state governments (Bennett, 1990). The purpose of providing fee-based services is for “fiscal equivalence”; that is, “you get what you pay for” (Warner, 2006: 613). It is a technical efficiency that is enhanced by revenue-raising, fiscal responsibility and inter-local competition (Musgrave, 1959; Oates, 1998). The provision of fee-based services is related to the considerations for productive efficiency, allocative efficiency and competitive competence raising (Prud’homme, 1995). This is a market-function approach of governance in the advanced industrialized world (Conlan, 1998). The waves of “market-oriented workplace reorganization” (Baines, 2006: 195) might lead to the operation that focuses on efficiency and performance-oriented management. Underlining market-based function, services delivery tends to be linked to a range of measures that quantified the activities and outputs in order to reflect market needs and priorities (Martin, 2002). Therefore, market-approach governance could be positively associated with the application of performance information. It might increase the range of performance information in the action arenas of budget process, strategic planning and citizen

information.

Hypothesis 1a: Market-approach governance has a positive association with the application of performance information to the budget process

Hypothesis 1b: Market-approach governance has a positive association with the application of performance information to strategic planning

Hypothesis 1c: Market-approach governance has a positive association with the application of performance information to inform citizens

ii. Types of Public Services

Control capacity and scientific management could be enhanced by the use of performance measurement (Behn, 2003). Kelly and Swindell (2002) indicate that performance measurement often evaluates certain service functions toward an organizational mission as well as service accomplishments. Thus, public services in communities are rightly the targets of the measurement systems. Performance measurement provides information to evaluate whether the service outputs or outcomes are good or appropriate (NAPA, 1994). With the increasing types of public services, the objects of performance measurement increase because decision makers have to ensure the coordination between actions and organizational goals/missions.

One of the performance measurement principles purposed by

Kravchuk and Schack (1996) is to make clear and coherent organizational missions and strategies. In the perspective of “control” capacity in public management (Behn, 2003), managers as well as organizational leaders are principals in the organizations, and demand the subordinates/agents to act according to their will. That is to say, performance information helps principals monitor agents’ performance, and “management control depends on measurement.” (Bruns, 1993: 1) Organizational leaders establish performance standards and measure performance to see whether their subordinates are doing the right things. Providing sufficient and qualified public services in communities, of course, is the mission of public organizations. As types of public services increase, there should be a systematic mechanism to monitor the performance outcomes. If the type of public services in communities is few, managers might be able to monitor the performance individually or directly. In contrast, if public services are too diverse to be directly monitored, the managers have to rely on performance reports to enhance control capacity. Performance information is one type of evidence to tell organizational outputs or outcomes. Therefore, with more types of public services in a community, policy makers might perceive the needs of performance information to evaluate and control over the agencies’ behavior. Types of public services are hypothesized to positively associate with the application of performance information. It might increase the application range of performance information to budget process, strategic planning and citizen information.

Hypothesis 2a: The more types of public services in communities the greater the probability to apply performance information to the budget process.

Hypothesis 2b: The more types of public services in communities the greater the probability to apply performance information to strategic planning.

Hypothesis 2c: The more types of public services in communities the greater the probability to apply performance information to inform citizens.

iii. Participants in Strategic Planning

Participants concerned with the development, update, or review of the strategic plans might play important roles on the application of performance information. The implementation of strategic planning could be viewed as the enforcement of the collective agreements among the participants. For ensuring complete enforcement of the strategic plan, individual participants need performance information to evaluate and monitor the action outcomes. They require transparent information systems to reduce the transaction costs of distrust. According to North (1990), transaction costs exist in the process of human interaction. Information asymmetries increases transaction costs during the process of monitoring and evaluation. For achieving the collective interests of the participants, performance information is necessary for ensuring the implementation of collective decisions on strategic plans. Therefore, institutionalizing performance measurement

is necessary especially when types of participants in strategic planning increase.

This study adopts the categories of participants defined by the ICMA State of the Profession 2006 survey. Types of participants in strategic planning include interest group participants (such as chamber of commerce, private economic development foundations, representatives from public schools, colleges, and universities and private business representatives), citizen group participants (such as citizen advisory board/commission, citizens and residents), administrative official participants (such as chief appointed officials/managers, local government staff) and elected official participants.

Executive official and city managers might be the major participants in strategic plans who are devoted to use performance information. Poister and Streib (1999) indicate that members in executives are primary intended audiences of performance reports. Their research found that 81% of managers/CAOs and 72% of department heads perceive performance measurement as to be “important” or “very important”. In addition, more than 90% of management decisions are made based on the results of performance measurement. Elected officials might support the application of performance information as well. According to Wang and Berman (2001), performance measurement included by strategic plans could enhance accountability and administrative response to citizens’ demands for public services. Thus, support from elected officials

might further the probabilities of the application of performance information (Aristigueta, 1997; Cope, 1997; Kettl, 1994). Other external stakeholders for public organizations and performance measurement (here, are referred to as interest groups and citizen groups) should not be excluded. As long as the individuals or groups submit effort to the development, update, or review of the strategic or long-range plans, they could be hypothesized to urge the needs for performance information. They would contribute to the pursuing actions toward the purpose of performance measurement — providing information to budget processes, strategic planning and inform citizen.

Hypothesis 3a: The more types of participants in strategic planning the greater the probability to use performance information to the budget process.

Hypothesis 3b: The more types of participants in strategic planning the greater the probability to use performance information for strategic planning.

Hypothesis 3c: The more types of participants in strategic planning the greater the probability to use performance information to inform citizens.

IV. Concerns for Citizen Accountability

Improving citizen accountability and facilitating communications between citizens and governments are purposes of performance

measurement according to Wholey and Hatry (1992). Performance measurement is viewed as “an administrative response to citizens’ demand for accountability” (Wang and Berman, 2001). In particular, elected officials consider the pressure of reelection and responsiveness for their constituencies. It might be the support from elected officials that furthers the application of performance information (Aristigueta, 1997; Cope, 1997; Kettl, 1994). Performance information provides evidence of the government’s achievements and, in some extent, helps the officials’ career. It demonstrates the responsiveness of citizen accountability then elected officials might gain citizen support and trust.

Concerns for citizen accountability would increase the application of performance information due to the demand from the political market. The perspective of political market theory explains the dynamic policy choice as the institutional choices between suppliers and demanders (Alston, 1996; Libecap, 1989). By definition, citizens are the demanders of performance information to know what governments are doing and how well they perform, and the government authorities are the suppliers to provide such information in response to citizen accountability. Under these market dynamics, high-power-incentive elected officials (Williamson, 1985) would urge the use of performance information in order to demonstrate their concerns for citizen accountability. Therefore, the concern for citizen accountability is hypothesized to be positively associated with the use of performance information, especially the application to the budget

process, strategic planning and informing citizens.

Hypothesis 4a: Concerns for citizen accountability have a positive association with the application of performance information to the budget process.

Hypothesis 4b: Concerns for citizen accountability have a positive association with the application of performance information to strategic planning.

Hypothesis 4c: Concerns for citizen accountability have a positive association with the application of performance information to inform citizens.

v. Operation of Strategic Plans

The operation of strategic plans is helpful to enhance the technical capacity of performance measurement. Technical capacity is referred to the “ability to develop performance goals and measures and to overcome such conceptual barriers as distinguishing outcomes from outputs” (Wang and Berman, 2001: 410). It happens that the connection between performance goals and performance effort/activities is not clear (Joyce, 1993; Mascarenhas, 1996; Salzer et al., 1997; Hakes, 1996). Consequently, performance measurement is difficult to be implemented or is measuring the wrong things. That is to say, the development of measures should be practical, valid and reliable (Hatry et al., 1992; Ammons, 1995). Otherwise, the data collected would be useless toward organizational goals or missions.

Ho (2006) points out that it is necessary to look at the issues related to the implementation of performance measurement. When a strategic/long-range plan has been linked to operations, it should translate the organizational direction into specific goals, objectives, and actions, and provide a “systematic process for gathering information” (Poister and Streib, 2005: 46). In other words, strategic plans do not implement themselves but are useful only if they are linked to operations. Strategic plans include evaluating goals and priorities to chart a future course of actions (Osborne and Gaebler, 1992). Operating strategic plans involves clarifying mission and values, assessing internal strengths and weaknesses, and developing or evaluating organizational performance (Bryson, 1995, Nutt and Backoff, 1992; Koteen, 1989). The technical capacity to implement performance measurement thus is enhanced. There is no doubt that the application of performance information is related to such assessment and evaluations. For achieving effective strategic plans and management, managerial decisions and actions should be made based on the actual performance information (Koteen, 1989). Toft (1989) describes effective strategic management as “an advanced and coherent form of strategic thinking, attempting to extend strategic vision throughout all units of the organization, encompassing every administrative system” (Toft, 1989: 6).

Indeed, with the operating-level strategic/long plans, there are more specific and detailed goals that have been set within every unit in the municipal governments. As a result, there are more needs for gathering performance information to extend strategic vision. In

addition, after setting specific goals, municipal governments have more detailed targets or performance items needed to be evaluated. Thus, the municipal governments with the operating-level strategic/long plans are more likely to extend the application of performance information, especially using them in budget process, strategic planning and informing citizens.

Hypothesis 5a: Operation of strategic plans has a positive association with the application of performance information to the budget process.

Hypothesis 5b: Operation of strategic plans has a positive association with the application of performance information to strategic planning.

Hypothesis 5c: Operation of strategic plans has a positive association with the application of performance information to inform citizens.

In short, the purpose of performance measurement is to provide information to the budget process, to strategic planning and to inform citizen. In the action arenas of performance measurement, there are five factors that are hypothesized to associate with the application of performance information. They are market-approach governance, types of public services, types of participants in strategic planning, concerns for citizen accountability, and operation of strategic plans. Figure 1 shows the conceptual framework in this study that tries to examine the theoretical factors associated with the use of performance information.

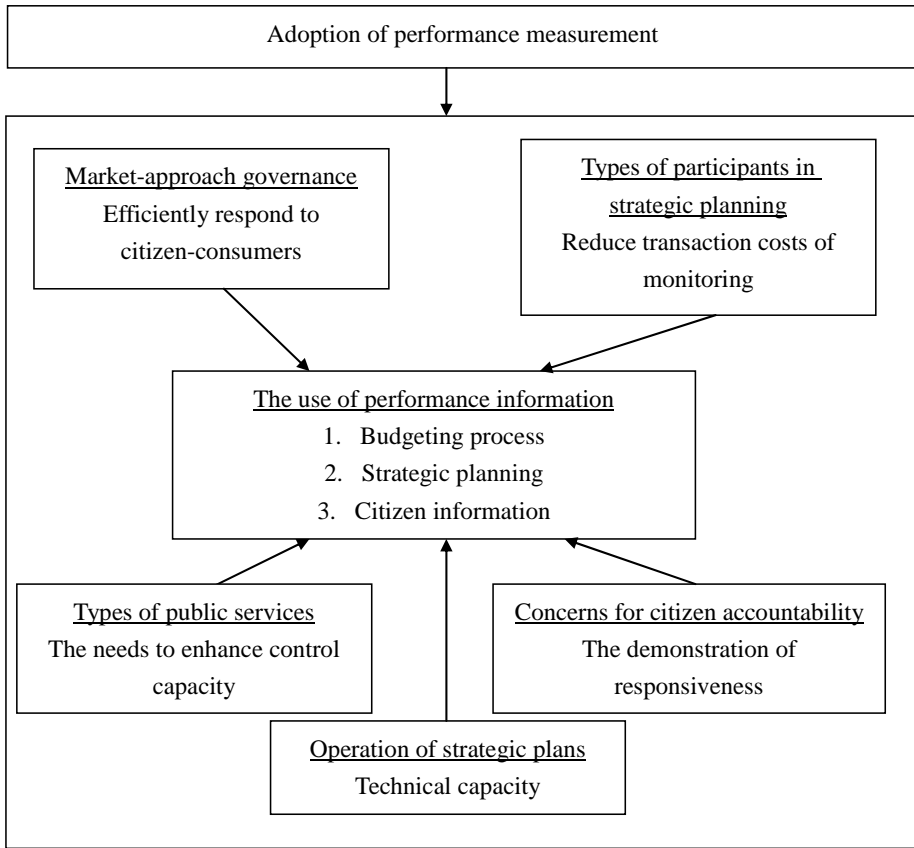


Figure 2 The hypothesized conceptual framework

III. Research Designs—Modeling, Estimation and Variable Operation

Stage 1

The application of performance information is estimated through a two-step process—Heckman probit selection models. The first step is

a sample selection equation to municipal governments with the adoption of performance measurement—that is, a Yes/No decision of the adoption of performance measurement estimated by the variables of 1) vision statements; 2) CEOs and 3) strategic plans in municipal governments.

At the local level, vision statements might increase the opportunities to adopt performance measurement. Because the symbolic values of performance measurement sort of stand for the capacity for reform, elected officials develop or improve the mechanisms of performance measurement in order to enhance the vision of accountability, responsiveness and services quality (Barzelay, 2001; Kettl, 2005; Moynihan, 2006). The technical capacity of performance measurement is referred to the ability of regional-wide measures and overcome conceptual barriers of measurement (Wang and Berman, 2001). Stakeholder capacity is viewed as the nature of political support for performance measurement (Jones and McCaffery, 1997; Cope, 1997). When municipal governments adopt performance measurement, it means that they satisfy the above capacities and are ready for the reform agenda. Vision statements in local governments need the adoption of performance measurement(s) to prove their capacity of reinvention reforms.

The role of CEOs could enhance top management commitment, especially in the arena of reinventing government (Wang and Berman, 2001). Adoption of performance measurement, as the mechanism to represent government reform, would be likely to emerge with the

commitment of CEOs. Managerial authority would coordinate the efforts from various organizational subsystems. It is the organizational support from CEOs that promotes managerial effectiveness and the adoption of performance measurement (Ho, 2006; Yang and Hsieh, 2007). Insisting on commitment, CEOs would overcome the obstacle to adopt performance measurement and allocate enough budget and resources to increase the feasibility of government reform (Fernandez and Rainey, 2006). CEOs would advocate the adoption of performance measurement due to the focus of managerial effectiveness and efforts on coordinating middle managers and staff (Ingraham, 1998; Rainey, 2003). It seems that CEOs are the potential policy entrepreneurs to adopt performance measurements and ensure the function of performance measurement in strategic planning.

Performance measurement is usually required to help functional strategic plans. According to Poister and Streib (1999), over 90% of survey cities adopt performance measurements because of the motivation of management decisions, and 64.6% of measurement is derived from the organizational mission, goals and objectives. Strategic plans, with the support from both elected and administrative officers, give the stages for performance measurement activities. "It provides a systematic process for gathering information about the big picture and using it to establish a long-term direction and then translate that direction into specific goals, objects, and actions." (Poister and Streib, 2005: 46). Strategic planning requires the mechanism of performance measurement to evaluate goals achievement

and to chart priorities. The adoption of strategic planning seems necessary to be associated with performance measurement to ensure the function of action-oriented management.

In short, municipal governments with vision statements, the leaderships of CEOs and the adoption of strategic plans tend to use the mechanism of performance measurement to function reinvention reforms. In the Heckman probit models, these three adoption factors are employed to estimate samples with the adoption of performance measurement. After the selection, the model then enters the second stage to estimate the application of performance information.

Stage 2

The second step is a corrected probit model to predict the application of performance information to 1) the budget process; 2) strategic planning; 3) informing citizens (three models with three dependent variables). The second equation obviously comes onto the stage only if the first decision is positive. Because performance information emerges after the adoption of performance measurement, the observation of municipal governments with the application of performance information is subject to a nonrandom selection procedure where a bias in the sample selection might affect the analyzing model. To make up the potential errors, the Heckman probit selection model (Heckman, 1976) is employed to analyze the two decisions. The Heckman probit selection model, excepting the response variable is binary, specifies both the selection and estimation equations. It is also

called the “bivariate probit model with selection”. Here, two separate probits are “nested” in the bivariate probit model. It is possible to test the hypothesis that the bivariate probit model fits the data better than the separate probits using a likelihood ratio test. A standard LR test is applied to compare the joint log-likelihood of the separate models to that for the bivariate probit model (Blanton, 2000; Heckman, 1976; Meernik et al., 1998). In other words, the equation to predict the decision to adopt performance measurement is employed with a LR test to ensure that the selection is necessary, and then the equation to predict the application of performance information are employed with three corrected probit models.

In the first model—the dependent variable is “performance information is applied to budget process”, Heckman model Chi-Square=11.35 and Chi-Square probability=0.0008. In the second model—the dependent variable is “performance information is applied to strategic planning”, Heckman model Chi-Square=4.92 and Chi-Square probability=0.0266. In the third model—the dependent variable is “performance information is applied to inform citizen”, Heckman model Chi-Square=5.84 and Chi-Square probability=0.0157. The results show that the selections are necessary to correct the probit estimation to the application of performance information. Following the sample selection procedure, probit models are conducted. In the first model, Wald Chi-Square=58.86 and Chi-Square probability=0.0000. In the second model, Wald Chi-Square=38.48 and Chi-Square probability=0.0001. In the third model, Wald Chi-Square=37.85 and

Chi-Square probability=0.0002. The results show that the probit models of estimation are necessary if compared to the intercept only models.

Variables in the Selection Model

Three variables are identified to predict the adoption of performance measurement which is utilized as the first-step sample selection in the modeling procedure. 1) The position of CEOs, 2) the announcement of vision statement and 3) the adoption of strategic planning are the factors to select the samples with the adoption of performance measurement. ICMA "State of the Profession 2006" survey question 20 asks "Does your local government have an appointed position for a chief administrator or city manager?" If the answer is "Yes", it is coded as "1" indicating the existence of CEOs. If the answer is "No", it is coded as "0" indicating the absence of CEOs position. Question 5 asks "Does your local government have a vision statement?" If the answer is "Yes", it is coded as "1" indicating the presence of vision statement. If the answer is "No", it is coded as "0" indicating the absence of vision statement. Question 6 asks "Does your local government have a strategic and/or long-range plan?" If the answer is "Yes", it is coded as "1" indicating the adoption of strategic plans. If the answer is "No", it is coded as "0" indicating the absence of strategic plans.

Dependent Variables

There are three models to analyze the application of performance information. In the first model, the dependent variable is “performance information is used to budget process”. In the second model, the dependent variable is “performance information is used to strategic planning”. In the third model, the dependent variable is “performance information is used to inform citizens”. Data is collected from the ICMA state of the profession 2006 survey. Question 12-A in the survey questionnaire asks “How is the performance management and measurement information used? 1. Budget process; 2. Strategic planning; 3. To inform citizens (e.g., annual report, newsletter)”. If the answer “1” is checked, it is coded that performance information is used to budget process. If the answer “2” is checked, it is coded that performance information is used to strategic planning. If the answer “3” is checked, it is coded that performance information is used to inform citizens.

Independent Variables

There are five independent variables to estimate the application of performance information. The first independent variable is market-approach governance. The measurement is the ratio of fee-based services on public services¹. Data is collected from the ICMA state of the profession 2006 survey. Question 1 asks

1. The measure unit in the questionnaire = types of services.

respondents to check types of public services provided by their local governments. Question 2 asks respondents to check types of fee-based services provided by their local governments. The ratio of fee-based services is the quotient of numbers of checks in fee-based services divided by numbers of checks in public services. The ICMA “State of the Profession” 2006 survey defined “fee-based” services as the services that are not funded through the municipal governments’ budget but through fees that are charged to resident users on a per usage basis (survey question #2). Among the 3429 observations of fee-based services, 174 (5.07%) are fire services, 1218 (35.52%) are ambulance/EMS services, 1772 (51.68%) are services of parks and recreation, and 265 (7.73%) are services from community health centers.

The second independent variable is types of public services. Data is collected from numbers of checks of ICMA state of the profession 2006 survey question 2. The third independent variable is types of participants in strategic planning. Data is from numbers of checks of ICMA state of the profession 2006 survey question 9, which asks respondents to check “Who participated in the development, update, or review of the strategic and/or long-range plan? (Please answer based on whether the most recent activity was development of the plan or review/update of the plan).” The fourth independent variable is concerned about citizen accountability, here, measured by numbers of opportunities for citizen engagement in community problem solving and decision making (ICMA 2006 survey question 13), numbers of

approaches to inform citizens the opportunities of engagement in community problem solving and decision making (ICMA 2006 survey question 14), and citizen survey conduction (ICMA 2006 survey question 18). The fifth independent variable is the operation of strategic plans. ICMA 2006 survey question 10 asks “If your local government has a strategic and/or long range plan, is it linked to operations?” If the answer is “Yes”, it is coded as the “1” indicating the operation of strategic plans. If the answer is “No”, it is coded as “0” indicating that the strategic plans are not linked to operation.

Control Variables

There are five control variables that are included in the statistical models to estimate the application of performance information in municipal governments— forms of government, population, metropolitan status, race and education. Physical as well as material conditions and attributes of communities construct the external environment of human interactions according to Ostrom (2007). The use of performance information, by definition, is an action taken by local political and administrative actors. The actions could be constrained by physical/material conditions—form of government and metropolitan status; and could be driven by attributes of communities—population, race and education. In mayor-council cities, mayor is an elected official who has responsiveness toward civic pressure. On the contrary, in council-manager cities, the chief administrative officer (CAO) is an appointed manager who focuses on

professional policy implementation and administration rather than responsiveness (Frederickson et al., 2004). The characteristics of different governmental structures may explain policy adoption and application in different perspectives. Metropolitan status affects the application of performance information as well. Cities having higher metropolitan status face more complicated public issues and require more monitoring mechanisms to ensure governmental responsiveness and accountability. Cities having lower metropolitan status would face relatively simpler public issues and have fewer demands for performance information assessment. City population and its race and education background contribute to the attribute of communities. They have the potential to affect the demand for performance information and, thus, these background variables are necessary to take into account by the statistical models.

The first control variable is form of government. Data is from the ICMA state of the profession 2006 survey coding as UFOG= form of government: 1. Mayor-Council; 2. Council Manager; 3. Commission; 4. Town Meeting; 5. Representative town meeting; 6. County commission; 7. Council manager-administrator; 8. Council elected executive. The code 2 and 7 are recoded as "1" indicating council manager form, and the code 1, 3, 4, 5, 6 and 8 are recoded as "0" indicating other forms of government. The second control variable is metropolitan status of the municipal governments. Data is from the ICMA state of the profession 2006 survey coding as UMETRO= metropolitan status: 1. Central; 2. Suburban; 3. Independent. They are recoded as 3=Central, 2=Suburban,

and 1=Independent. The third control variable is population. Data is from the ICMA state of the profession 2006 survey coding as U00POP= population from the 2000 US Census. It is recoded as log population. The reason to employ logarithm calculation is to change population's exponential curve into a linear shape. By doing so, the distribution of population data could be visualized more easily. The fourth control variable is race. Data is from the 2000 US Census: Race population, from the 2000 US Census website/ by place/ P7/Race (total population). It is recoded as the percentage of minorities, that is the population of non-whites divided by the population. The fifth control variable is education. Data is from the 2000 US Census: Educational attainment, from the 2000 US Census website/ by place/ P113/Imputation of educational attainment for the population 25+ years.

IV. Results

Descriptive Statistics

Table 1 shows the descriptive statistics of the measured variables. There are 646 (24.81%) observations of municipal governments that have used performance information in the budget process, 316 (12.6%) observations have used it in strategic planning, and 366 (14.55%) have used it to inform citizens. The mean ratio of fee-based services on public services is 14.41 with a standard deviation of 12.77. The mean types of public services in communities is 8.43 with a standard deviation of 2.52.

The mean types of participants in strategic planning is 3.52 with a standard deviation of 2.91. The mean numbers of opportunities for citizen engagement is 3.26 with standard deviation of 1.36. The mean numbers of approaches to inform citizens the opportunities for citizen engagement is 2.84 with a standard deviation of 1.41. Over half (1568; 55.96%) of municipal governments have had the conduction of a citizen survey. Almost half (1169; 42.29%) of municipal governments have linked strategic planning with operations. In the selection model, most observations of municipal governments (2524; 89.03%) have the position of CEOs in the government's formal structure. More than half of observations (1630; 58.59%) have the announcement of vision statements. Almost three-quarters of observations (2067; 74.95%) have adopted strategic plans.

Table 1 Descriptive statistics

		Number of observations	Percentage		
Performance information is used to budget process	Yes	646	24.81%		
	No	1958	75.19%		
Performance information is used in strategic planning	Yes	316	12.6%		
	No	2191	87.4%		
Performance information is used to inform citizens	Yes	366	14.55%		
	No	2150	85.45%		
Citizen accountability-Citizen survey conduction	Yes	1568	55.96%		
	No	1234	44.04%		
Operation of strategic plans	Yes	1169	42.29%		
	No	1595	57.71%		
		Number of observations	Mean	Standard deviation	Min. Max.
The ratio of fee-based services on public services		2864	14.41	12.77	0 200
Types of public services appearing in the ICMA questionnaire		2870	8.43	2.52	0 17

Types of participants in strategic plans	2870	3.52	2.91	0	12
Numbers of opportunities for citizen engagement in community problem solving and decision making	2870	3.26	1.36	0	17
Numbers of approaches to inform citizens the opportunities of engagement in community problem solving and decision making	2870	2.84	1.41	0	7
Selection model			Number of observations		Percentage
CEO	Yes	2524			89.03%
	No	311			10.97%
Vision statements	Yes	1630			58.59%
	No	2253			41.41%
Adoption of strategic plans	Yes	2067			74.95%
	No	691			25.05%

Correlation matrix

Table 2 shows the correlation matrix. Most (19 over 24) bivariate correlations are statistically significant at the $p < 0.001$ level. The mean magnitude of the correlation coefficients is 0.23956. Only two of the 24 bivariate correlations are statistically significant at the $p < 0.01$ level.

The magnitudes of the correlation coefficients are 0.0499 and 0.0556 with a mean=0.05275. Only one of the 24 bivariate correlations is statistically significant at the $p < 0.05$ level with the magnitude of the correlation coefficients=0.0403. There is one of 24 bivariate correlations is not statistically significant. Its magnitude of the correlation coefficients is 0.0302.

Table 2 Correlation matrix

	1	2	3	4	5	6	7
1 Percentage of fee-based services	1.0000						
2 Public services	-0.0608**	1.0000					
3 Participants in strategic planning	0.0302	0.1531***	1.0000				
4 Opportunities for citizen engagement	0.0556**	0.2273***	0.2455***	1.0000			
5 Approaches to inform citizens	0.0696***	0.1852***	0.2446***	0.6107***	1.0000		
6 Citizen survey	0.0499**	0.1037***	0.2099***	0.3010 ***	0.2974***	1.0000	
7 Operation of strategic plans	0.0403*	0.1484***	0.4024***	0.2288***	0.2437***	0.2140***	1.0000
Selection model	1	2	3				
1 CEO	1.0000						
2 Vision statements	0.1412 ***	1.0000					
3 Adoption of strategic plans	0.1194***	0.4056***	1.0000				

* $p < .05$ ** $p < .01$ *** $p < .001$

Two-stage Heckman probit selection model*i) Stage one: The adoption of performance measurement*

The analytic process is begun with assessing the decision in the adoption of performance measurement (see table 3). The results show that the adoption of strategic plans is positively and significantly associated with the adoption of performance measurement in the three models. However, in all models, the leaderships of CEOs and the announcement of vision statements do not have any significant result. Strategic plans provide the incentives to adopt performance measurement. Because of the needs for evaluating and goal pursuing, municipal governments having strategic planning tend to adopt the mechanism of performance measurement, and may use it in the budget process, strategic planning and informing citizens. The concrete units of goals specifying the target to be measured increase the probabilities to adopt performance measurement. The leaderships of CEOs are assumed to facilitate the integration and coordination among organizational subsystems, and reduce the resistance to performance measurement. In fact, the leaderships of CEOs may not be strong enough to convince middle managers and staffs to comply with the decisions for performance measurement. Weak leadership would not be able to maintain the insistence on organizational commitment. It might be the strength of leaderships rather than the existence of CEOs' positions that determines the adoption of performance measurement. Vision statements stand for the abstract goals of accountability, responsiveness and services quality. It is assumed to be related to the symbolic values of performance measurement. Nevertheless, the help

of vision statements for the adoption of performance measurement might only emerge from the belief values of elected officials. In empirical works, it might be a “slogan” of the reform vision rather than the actual effort which explains why the variable of vision statements does not have a significant association with the adoption of performance measurement.

Table 3 Heckman selection model — the application of performance information

Stage One: The adoption of performance measurement			
Probit coefficients with standard error in parenthesis			
Variables	Model 1	Model 2	Model 3
CEO	0.1931189 (0.1277446)	0.2151298 (0.1317831)	0.1974488 (0.1310802)
Vision statements	0.1260809 (0.0910206)	0.1363381 (0.0928401)	0.1279967 (0.0932503)
Adoption of strategic plans	0.8848673*** (0.0889173)	0.9122978*** (0.0904791)	0.9244548*** (0.0908315)
Log population	-0.0171773 (0.0573934)	-0.0135124 (0.0571643)	-0.0130454 (0.0565107)
Form of government	0.0216982 (0.092726)	0.0311819 (0.0942018)	0.0259639 (0.094191)
Metropolitan status	0.0529841 (0.0766875)	0.0574614 (0.078255)	0.0565158 (0.0779307)
Race	0.0012366 (0.0024292)	0.0012214 (0.0024641)	0.0009858 (0.0024566)
Education	2.56e-06 (3.04e-06)	2.80e-06 (3.06e-06)	2.68e-06 (2.92e-06)
Constant	0.6001492 (0.4915988)	0.4836487 (0.4863919)	0.5006545 (0.480255)
Heckman model Chi-Square	11.35	4.92	5.84
Chi-Square probability	0.0008	0.0266	0.0157
Stage two: The application of performance information			
Probit coefficients with standard error in parenthesis			

Variables	Model 1	Model 2	Model 3
Percentage of fee-based services	-0.0017804 (0.0023984)	-0.00015 (0.0028848)	-0.0026666 (0.0029252)
Public services	0.0079914 (0.0123872)	0.0074884 (0.0150228)	0.0130818 (0.0144253)
Participants in strategic planning	-0.0314389** (0.0114744)	-0.0250876 (0.0138564)	-0.012808 (0.0132374)
Opportunities for citizen engagement	0.0245049 (0.028717)	0.0223104 (0.034777)	-0.0263773 (0.0342742)
Approaches to inform citizens	0.0069769 (0.0272391)	-0.0006073 (0.0329925)	0.0657452* (0.0321355)
Citizen survey	0.141623* (0.0639584)	0.1608072* (0.0787678)	0.1492476* (0.0757191)
Operation of strategic plans	0.1522706* (0.0672841)	0.1076708 (0.0806572)	0.0357879 (0.0775451)
Form of government (reference group: non-reformed cities)	0.0747784 (0.0641795)	0.082656 (0.0783111)	-0.0190268 (0.0746731)
Metropolitan status	-0.0779384 (0.0563715)	-0.0311266 (0.0675389)	-0.0600695 (0.0657101)
Log population	0.0546176 (0.0374727)	0.0548967 (0.0412989)	0.0642115 (0.0425391)
Race	0.0035476* (0.0017941)	0.00599** (0.0020532)	0.0030795 (0.0020689)
Education	2.41e-06** (1.09e-06)	4.59e-07 (4.72e-07)	1.64e-06 (9.37e-07)
Constant	-1.469531 (0.3011097)	-2.037743 (0.3220689)	-1.956723 (0.3400759)
Wald Chi-Square	58.86	38.48	37.85
Chi-Square probability	0.0000	0.0001	0.0002

*p<.05 **p<.01 ***p<.001

Model 1: Dependent variable=Performance information is used in budget process

Model 2: Dependent variable=Performance information is used in strategic planning

Model 3: Dependent variable=Performance information is used to inform

citizens

*ii) Stage two: The application of performance information***The Hypothesis Assuming that “Concerns for Citizen Accountability Have Positive Association with the Application of Performance Information” is Confirmed by the Three Models.**

The second stage uses probit model (corrected by the Heckman selection method) to estimate the application of performance information. The hypothesis assuming that “concerns for citizen accountability” increases the application of performance information is confirmed by the three models. Citizen survey appears to have a positive and significant effect on the application of performance information to budget process, strategic planning and to inform citizens. Other indicators of the concerns for citizen accountability have various statistical results. The indicator—approaches to inform citizens the opportunities for citizen engagement, is only significant (positively) in the third model: performance information is used to inform citizens. The indicator—opportunities for citizen engagement, does not have any significant result in the three models. It is possible that citizen surveys convey citizens’ willingness and information of citizen satisfaction. It reflects the essence of the concerns for citizen accountability. In contrast, opportunities for citizen engagement and approaches to inform them of the opportunities seem to merely stand for the windows of government-citizen communication which does not guarantee to gain feedback from citizens. Citizen surveys collecting citizens’ feedback demonstrate the attempt on accountability. The

significant association citizen survey has on the application of performance information shows that the demands from the political market indeed increase the supply side's effort on the application of performance information.

The Hypothesis Assuming that “Operation of Strategic Plans has Positive Association with the Application of Performance Information” is Confirmed by the First Model.

The hypothesis assuming that “operation of strategic plans” increases the application of performance information is confirmed by the first corrected probit model. The variable “operation of strategic plans” has a positive and significant association with the application of performance information to budgeting process. Indeed, linking strategic/long-range plans to operation stands for the technical capacity and feasibility to measure the performance outcomes. Operation of strategic plans stimulates the integrated networks in the organizations and the linkage between performance information and budget process. Performance measurement consists of various quantitative indicators. When strategic/long-range plans are linked to operation, performance measurement provides quantitative information for decision makers to evaluate, control and monitor organizations' performance. Performance-based budgeting then is applied to governments' budgeting in a large extent.

The Hypothesis Assuming that “Market-Approach Governance has Positive Association with the Application of Performance Information” is not Confirmed by the Three Models.

The hypothesis assuming that “market-approach governance” increases the application of performance information is not confirmed by the corrected probit models. The statistical results in the three models do not show any significant association. Although public sectors are hypothesized as self-interested producers and are conceived by market terms, they might not heavily rely on market-approach governance due to weak competition among producers. In addition, the percentage of fee-based services is relatively small if compared to the public services as a whole. In fact, most fee-based services are not essential services but are recreative services. The data of the ICMA 2006 “State of the Profession” survey shows that more than half of fee-based services are services of parks and recreation. As these fee-based services do not play a crucial role in services provision, they could not help the application of performance information at a significant level.

The Hypothesis Assuming that “The More Types of Public Services the Greater the Probability to use Performance Information” is not Confirmed by the Three Models.

The hypothesis assuming that “the more types of public services the greater the probability to apply performance information” is not

confirmed by the three corrected probit models. Increasing types of public services is hypothesized to help the application of performance information because of the needs for control mechanisms. However, public sectors, different from private sectors, focus more on bureaucracy systems and law enforcement rather than scientific management. Under the constraints from laws and other formal regulations, public servants might not have much space to act based merely on professionalism.

The Hypothesis Assuming that “The More Types of Participants in Strategic Planning the Greater the Probability to Use Performance Information” is Rejected by the First Model.

The hypothesis assuming that “types of participants in strategic planning” is positively related to the application of performance information is rejected by the first corrected probit models. According to the statistical results, “types of participants in strategic planning” has a negative and significant association with the application of performance information to the budgeting process. Although participants in strategic planning are hypothesized with the needs for performance information in order to avoid information asymmetries, individuals might have bounded rationality with egoist assumptions (Ostrom, 1990) which might result in actors’ high-power incentives (Williamson, 1985) preferring selective interests rather than collective interests. For creating an advantaged situation, individuals may not want to open up the information system for others to monitor or

evaluate their effort. Leaving others worse off would be the consequence of self-interest incentives to construct a beneficial institutional arrangement and distributive advantages (Knight, 1992). Hence, types of participants in strategic planning might not be necessary to help the application of performance information. Individual limited rationality would result in the negative effects on collective actions.

Statistical Findings from The Control Variables

The control variable “race” has significant effects on the application of performance information in model 1 and model 2. That is, as the minority (the non-white) percentage of the population increases against the majority (the white), the wider the range of performance information used toward the budget process and strategic planning. It is possible that the minority is concerned with governmental performance, especially the performance on social-welfare and family-care programs. The minority groups are specific stakeholders and interest groups of social policies. They are customers of such types of public services and are sensitive to the policy outcomes. The other control variable “education” has a significant effect as well. The statistical results indicate that as citizens’ education background goes higher, the greater the probability to apply performance information to government budget processes. It makes sense that higher-educated citizens pay more attention to public issues. Linking performance information to the budget process

demonstrates governmental capacities toward effectiveness and efficiency. The application of performance information has symbolic value that can respond to higher-educated citizens' concerns. The research findings of control variables correspond to Ostrom's (2007) perspectives that physical conditions as well as attributes of communities affect action arenas of human interaction. Action choices are inevitably reactive to external-environment factors.

In short, having strategic plans facilitates the adoption of performance measurement in municipal governments. The concerns for citizen accountability and the operation of strategic plans significantly associate with the application of performance information, at least the application to the budgeting process. Market-approach governance and types of public services do not have any significant association with the application of performance information. Due to individual bounded rationality, types of participants in strategic planning have a negative and significant association with the application of performance information. Table 3 shows the analytic results of the two-stage models.

IV. Conclusion

The positive and significant effect that strategic plans has on either the adoption of performance measurement or the application of performance information is proved by the two-stage Heckman probit selection models. It is the technical capacity that facilitates the

implement of performance measurement. Breaking the abstract goals into concrete units makes performance information easy to be applied to monitor and evaluate performance outcomes. Concerns for citizen accountability represented by the indicator of citizen survey conduction significantly help the application of performance information to the budgeting process, strategic planning and in informing citizens. For enhancing citizen trust, the demands from the political market seem to require suppliers to make an effort on the application of performance information. However, one negative effect has emerged from the factor—types of participants in strategic planning. Due to individual bounded rationality, participants attempt to create distributive advantages, and might not be willing to be monitored or evaluated by the other sides. The assumptions of human egoist would explain why the increasing types of participants in strategic planning become the barrier to the application of performance information.

The research findings provide some implication to Taiwan local governments. The adoption of performance measurement typically represents administrative skills on systematic management as well as managerial control-capacity. For enhancing the involvement of performance-measure mechanisms, Taiwan local actors could undertake strategic plans to promote and enlarge the action arenas of evaluative measurement. Through the operation of strategic plans, the use of performance information becomes a policy instrument which helps monitor the implementation of strategic plans and long-range

planning. As there is increasing concern for Taiwanese localism, citizen accountability urges wide use of performance information in budget processes, strategic plans and citizen communication. Performance reports have symbolic values to demonstrate local governments' accountability and responsiveness. Linking performance information with administrative operation makes local residents believe that they have an effective and efficient local government.

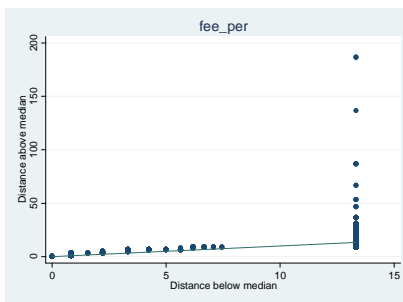
This research has limitations. The quality of performance information would be decisive toward the applied range of performance mechanisms. However, it is hard to measure the quality of information due to time constraints and limited research resources. The research data set is mainly from the International City/County Management Association (ICMA) "State of the Profession" survey in 2006. Using established data might have problems in fitting the pre-designed research purpose. Besides, the application of performance information is divided into dichotomous outcomes: Yes or No. Respondents cannot tell the difference between partial application, incomplete application, the intensity of the application and the quality of performance information. Some values between the Yes/No dichotomy might be missing. Despite these limitations, this article depicts and examines some theoretical factors affecting the application of performance information. It is the operation of strategic plans and concerns for citizen accountability that enhances the use of performance information. Empirically, local actors who intend to improve governmental effectiveness and efficiency would take effort

on strategic-plan implementation and make the use of performance information visible. Citizen surveys reflect citizen demands and concerns. To some extent, the display of performance information could be recognized as an approach to demonstrate responsiveness of local governments which may also facilitate citizen-government communication.

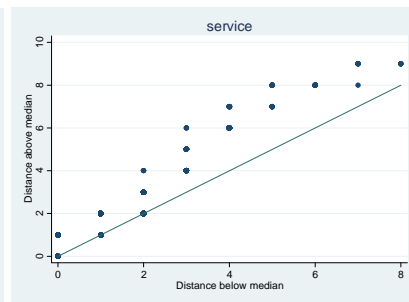
The limitation on applying the findings from the U.S. case to Taiwan is the variation of forms of government. Taiwan local governments have a mayor-council structure which emphasizes responsiveness and accountability toward citizens. The general missing of the CAO position would make the Taiwanese case very different from the U.S. case. In future research, it might be meaningful to extend this paper, further examine patterns specifically considering Taiwan, ask about other factors influencing the application of performance information, and look at multiple issues related to the leverage of other factors.

Appendix I

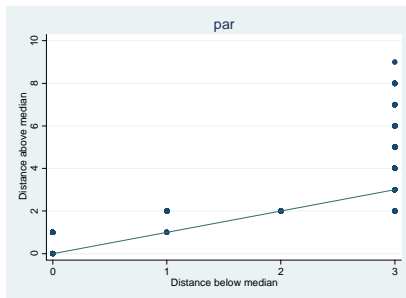
Normal Distribution Test of the Continuous Independent Variables and Control Variables



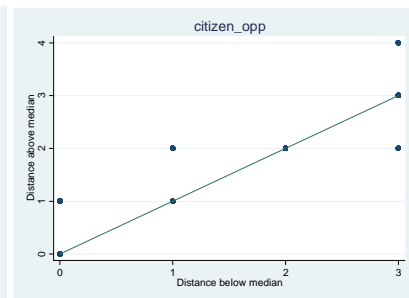
Fee-based services



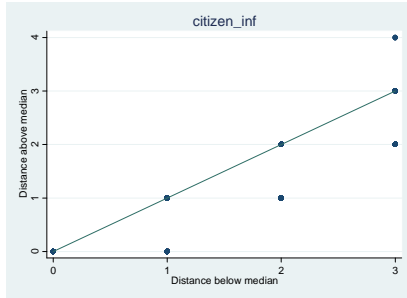
Public services



Participants in strategic plans



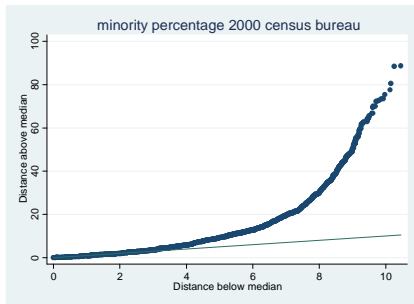
Opportunities for citizen engagement



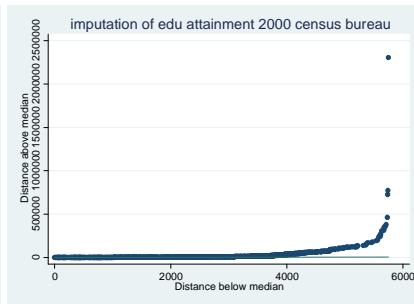
Approaches to inform citizens



Metropolitan status



Race



Education

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地方政府運用績效評估資訊之 探討— 使用二階段 Heckman 篩選模型進行分析

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績效資訊係由系統化的測量設計所建構，用以提升公共服務的產能、效率及回應性。在實務上，績效評估資訊常與預算、策略規劃以及政府資訊作連結，用以檢視公共服務的成本、調整長程的規劃，並促進政府與民眾的溝通。地方政府運用績效評估資訊之動機究竟為何？本研究探討影響績效資訊運用的相關變項，並試圖解釋績效資訊的影響因子。分析對象採用美國「State of the Profession」(2006) 調查資料庫，有效問卷樣本數為 2870，並運用二階段 Heckman probit 篩選模型以避免採樣誤差 (sample selection bias)。第一階段統計分析納入績效評估的背景變項，用以預測地方政府的政策採用行為；第二階段統計分析運用改良式的 probit 模型，用以檢驗各假設變項與績效資訊用途的關係。分析結果指出，「策略計劃的實際操作」以及「對公民負責」這兩個變項對績效資訊的運用有正面的影響；然而，基於個人利己主義及有限理性的關係，「策略規劃的參與者」對績效資訊的運用反而有負向的影響。

關鍵詞：績效資訊、Heckman 篩選模型、預算過程、策略規劃、

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