

The Relationship between Utilization of Financial Statements by Local Governments and Their Fiscal Behavior^{*}

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Abstract

Local public accounting reform has been promoting for the purpose of reforming assets and liabilities, among other purposes, but studies in Japan that have quantitatively analyzed the effects of this reform has focused only on whether financial statements are prepared or not. This study conducts a quantitative analysis on the effects of local public accounting reform initiated in 2006 by the Ministry of Internal Affairs and Communications (MIC), focusing not only on whether financial statements are prepared, but also on how the financial statements are utilized and the status of preparation for fixed asset ledgers. The results of the analysis using panel data of municipalities from FY2010 to FY2014 or from FY2011 to FY2015, revealed that the use of financial statements by local governments to set fiscal management targets is effective in controlling the increase in primary expenditures in such local governments, and that the preparation of fixed asset ledgers by local governments as a part of the process of preparing financial statements is effective in controlling the rise in expenditures on ordinary construction works.

Keywords: local public accounting reform, local expenditures, asset management, use of financial statements

JEL Classification: H72, H83

I. Introduction

The outstanding long-term debt of the national and local governments has continued to increase cumulatively and is expected to remain at 1,200 trillion yen at the end of FY2022, as in the previous fiscal year. About 30 years ago, at the end of FY1990, this is six times the

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level. In December 1997, the Fiscal Structure Reform Law was enacted, marking the first year of structural fiscal reform. The Koizumi Cabinet, which came into power in 2001, has been working on structural reforms. In July 2006, the “Basic Policy for Future Economic and Fiscal Management and Structural Reform of the Economy and Society 2006” clearly stated that the government would reduce expenditures for fiscal reconstruction. However, the Lehman Shock in the fall of 2008 and the subsequent global recession led the Aso Cabinet to implement large-scale economic measures. Thus, fiscal consolidation has been frustrated despite the constant recognition of the necessity. This is precisely “the failure of government” under democracy and bureaucracy. Public choice theory emphasizes the importance of setting fiscal rules and legal systems in advance in order to control government bloat. With public choice theory as its theoretical background, New Public Management (NPM) attempts to introduce private-sector business management methods to manage the government sector objectively and effectively. NPM was introduced in the United Kingdom and New Zealand in the 1980s and then spread to many other countries. Mie Prefecture was the first local government in Japan to introduce NPM-based business management methods. Under the leadership of then Governor Kitagawa, an office work evaluation system was introduced in 1995, utilizing outcomes rather than direct outputs as evaluation indicators. Subsequently, many local governments followed Mie Prefecture’s lead and introduced the evaluation into their administrative operations. Another notable initiative was the introduction of accrual accounting, which led to the publication of the balance sheet and income and expenditure statement in March 1998, which in 2000 led to the Ministry of Internal Affairs and Communications (MIC) presenting a balance sheet preparation method called the “MIC model” (later the “Old model”).

By the way, as fiscal consolidation has failed many times in Japan, even if fiscal rules and legal systems are established in advance, the rules and systems are meaningless if they are frozen or changed later. The same is true if the evaluation methods introduced based on the rules and systems are subjective. As Tamamura (1998) points out, for politicians and bureaucrats, “there is a risk in having an administrative evaluation system in place that does not necessarily produce only good results for the policies they have provided,” and therefore, “the system tends to be one that allows subjective and arbitrary evaluation”. Naturally, they choose “not to conduct the evaluation itself.” In fact, we cannot deny the possibility that many local governments have introduced administrative evaluation following the example of Mie Prefecture, but it has truly become a system that allows subjective and arbitrary evaluation. From the results of a Survey of MIC (2017)¹, 61.4% of local governments introduced the evaluation system (on 1st October 2016). The percentage of respondents who answered that “the efficiency of individual administrative operations has improved” was 50.7%, while only 6.3% answered that “budget allocation has changed significantly”. Let us look at the administrative evaluation of individual municipalities. For example, in the FY2018 evalua-

¹ According to the same document, administrative evaluation is “to judge the appropriateness, achievement, and results of policies, measures, and administrative operations based on certain standards and indicators, whether ex-ante, in-advance, or ex-post”.

tion of Kawasaki City, 96.4% of all projects were either “Achieved more than the target” or “Almost achieved the target²”. This could not suggest that some kind of improvement based on the results of the evaluation could be expected.

On the other hand, what about the introduction of accrual accounting? In May 2006, MIC published the “Report of the Study Group on the New Local Public Accounting System” and required all local governments to prepare their financial statements based on the accounting standards presented in the report. In other words, each municipality cannot choose to have a system that allows subjective and arbitrary evaluation or not to conduct the evaluation itself. In view of this, the contribution to fiscal soundness may be higher than that of administrative evaluation³. The local public accounting reforms promoted by MIC have resulted in the status of preparation of “general accounting and other financial statements (four financial tables) for the settlement of accounts,” 86.1% of municipalities have “already prepared” them⁴. International organizations such as the OECD have established a public accounting system for their member countries to improve the efficiency of public finances (OECD and IFAC 2017). The EU has proposed that all member states switch the accrual basis of accounting and adopt the European Public Sector Accounting Standards (EPSAS) (European Commission 2013), and most EU member states have switched to the accrual basis of public accounting (European Commission 2019).

Given that all efforts to restore fiscal soundness have failed, local public accounting reform may be one of the remaining trump cards for local government finances. However, the impact of public accounting reform on public finances is not well known in Japan. The evaluation is not settled, not only in Japan but also in other countries (Lampe et al. 2015, Christofzik 2019, Dorn et al. 2021).

Therefore, this paper quantitatively clarifies the impact of local public accounting reforms on public finances for local governments in Japan. The structure of this paper is as follows. First, the purpose and history of local public accounting reforms are summarized in the next section. Section III presents the previous studies that are relevant to this paper. Section IV explains the analytical method and results after presenting the hypothesis to be verified. Section V presents a discussion based on the analysis results.

II. Overview of Local Public Accounting Reform

II-1. Purpose and Background of Local Public Accounting Reform

The OECD and other international organizations have recommended switching the pub-

² From the Kawasaki City website, “Kawasaki City Comprehensive Plan’ Second Phase Implementation Plan, FY2008 Office Work Evaluation Results”.

³ Naturally, this is not the case once window dressing occurs. In the reform of local public accounting, it may be an issue that accounting audits by auditing firms are not mandatory. The fact that an audit by an auditing firm is not mandatory in local public accounting reforms may be an issue.

⁴ From Ministry of Internal Affairs and Communications (2021), “Survey on the Status of Preparation of Financial Statements Based on Unified Standards”.

lic accounting system to the accrual basis for the purpose of improving transparency, efficiency, and accountability of public finances. This is also true for local public accounting reform in Japan: the “Key Policy for Administrative Reform” (Cabinet Office) approved by the Cabinet in December 2005 calls for the realization of “simple and efficient government” through local public accounting reform. In general, non-cash financial changes such as depreciation and changes in retirement allowance reserves can be captured by accrual basis balance sheets and income statements, but not by cash basis financial statements⁵. Here is a concrete example. This is the issue of the allowance for retirement benefits, which is called “2007 problem in Japan⁶”. Under the accrual basis of accounting, expenditures to be incurred in the future are also recorded as liabilities. This leads to a provision for severance pay being built up in advance. The cash basis on the other hand, because it is not recorded if there is no cash outlay, a significant number of municipalities did not accumulate a reserve for retirement allowances, and in FY2007 alone, 530 billion yen in retirement allowance bonds were issued.

Next, we review the history of local public accounting reform. MIC released the “Report of the Study Group on the New Local Public Accounting System” in May 2006, requesting local governments to prepare balance sheets and other documents, which can be said to have marked the beginning of local public accounting reform in earnest. In 1987, under the leadership of then Governor Hosokawa, Kumamoto Prefecture prepared and published a “balance sheet” and “income and expenditure statement”. Later, in 1996, Mie Prefecture prepared and published a balance sheet and income and expenditure statement. In the national government, the “Strategy for the Revitalization of the Japanese Economy,” a report of the Economic Strategy Council submitted by the Obuchi Cabinet in February 1999, states that in promoting efficiency and streamlining in the public sector, the introduction of financial statements based on the basic elements of business accounting principles should be carried out and that it is necessary for both the central government (including special corporations) and local governments (including affiliated organizations) to promote fundamental reform of their accounting systems and develop an accounting and financial information infrastructure. The report recommends that “financial statements should be introduced while taking into account the basic elements of corporate accounting principles”. In response, the former MIC established the “Study Group on Comprehensive Fiscal Analysis of Local Governments” in March 2000 and 2001 and announced the model of preparing the “balance sheet” of the general account, the “statement of administrative costs,” and the “balance sheet of each local public entity as a whole,” including the general account and the public enterprise account. The model of preparation was presented so that even non-advanced local governments could prepare and publish financial statements on an accrual basis. However, since the report remained only a reference material, the preparation of financial statements lacked breadth.

⁵ However, in some aspects, the cash basis is more suitable for the budget-oriented government sector. See Konishi (2012) for details.

⁶ This refers to a temporary surge in retirement benefits due to the large number of retirements of the “baby boomers,” who peaked in 1947. For details, see Saito (2020).

The Koizumi Cabinet's "Key Policy for Administrative Reform" approved by the Cabinet in December 2005 strongly emphasized "government asset and debt reform" and clarified the need for "asset and debt reform" in local governments. This led to the establishment of the "Study Group on New Local Public Accounting System". In May 2006, the "Report of the Study Group on the New Local Public Accounting System," a report of the study group, was published, presenting two accounting standards, the "Revised model" and the "Basic model". Subsequently, in October 2007, MIC issued a "Notice on the Promotion of Public Accounting Improvement," in which the MIC stated that prefectures, and cities with populations more than 30,000 would be required to take action by three years, and towns, villages or cities with populations less than 30,000 are strongly urged to work on the preparation of a balance sheet, statement of administrative costs, statement of fund balance, and statement of changes in net assets by the end of the next five years. Since then, far more municipalities than in the past have been involved in the preparation of accrual-based financial statements.

Furthermore, in January 2015, the "Manual for Local Public Accounting under Unified Standard" was published, requiring unification with the new accounting standard, "Unified standard," and that all local governments prepare financial statements within three years through FY2017, which they have done to date.

II-2. Accounting Standards and Preparation Status in Local Public Accounting Reform

The purpose of the "Unified Standards" presented in January 2015 was to unify accounting standards as well as to move away from the "Revised model", which is a more simplified method of preparation. The "Revised model" was adopted, but full-fledged double-entry bookkeeping has not been introduced and fixed asset ledgers have not been maintained which was considered problematic.

Here, we briefly summarize the differences in accounting standards. The differences between the "Revised model" and the "Basic model" can be summarized as (1) double-entry bookkeeping and (2) fixed asset ledgers. Simply put, the "Basic model" is more accrual-based. Therefore, extra time and cost are required not only before but also after the introduction of the "Basic model". In the "Basic model", individual transactions are journalized using double-entry bookkeeping, and financial statements are prepared from this journal data. On the other hand, the "Revised model" recombines existing financial statistics to prepare financial statements. The "Basic model" requires that all fixed assets be recorded in the fixed asset ledger at fair value, while the "Revised model" allows for the cumulative recording of ordinary construction project expenses. In addition, the "Basic model" requires that a fixed asset ledger must be maintained prior to the preparation of financial statements, while the revised MIC model only requires that the ledger be maintained step by step. The reason MIC proposed the two accounting standards is to determine how much cost and manpower each municipality can devote to the preparation of financial statements.

However, as pointed out by MIC, many local governments not only chose the “Revised model”, but also did not prepare fixed asset ledgers even in stages⁷. The “Revised model” is a revision of the “Old model”. The difference from the “Old model” is that it requires the establishment of a fixed asset ledger. In addition, the “Unified standard” is more accrual-based than the “Revised model”, and except for the difference in the valuation method of fixed assets, there are many parts in common with the “Basic model”. Let us summarize the accounting standards presented by MIC: the “Old model” in 2000 and 2001, the “Basic model” and the “Revised model” which is a revision of the “Old model” in 2006, and the “Unified standard” in 2015. Table 1 summarizes the differences in accounting standards.

Since 2001, MIC has conducted a survey at the end of March every year on the status of preparation of financial statements for the previous year. The data used in this paper are the results of this survey. Table 2 shows the trends in the preparation of financial statements. The survey asked respondents whether they had prepared, were in the process of preparing, or had not yet prepared their financial statements, and if they had prepared or were in the process of preparing their financial statements, which accounting standards were used. According to the results, we can see that the percentage of the “Old model” is high at the beginning, but the number of the “Revised model” and the “Basic model” gradually increases; more local governments choose the “Revised model” than the “Basic model”; and almost all

Table 1. Differences in the Preparation of Financial Statements

	Old model	Revised model	Basic model	Unified standard
Year introduced	2000-2001	2006	2006	2015
Double-entry bookkeeping	no	no	each transaction	each transaction
Preparation of financial documents	recombine existing financial statements	recombine existing financial statements	based on journal data	based on journal data
Maintenance of fixed asset ledgers	no	phased maintenance is acceptable	Required at the start of the preparation of financial documents	Required at the start of the preparation of financial documents

Source: Prepared by the author based on the “New Local Public Accounting System Study Group Report” and the “Local Public Accounting Manual Based on Unified Standards” by the Ministry of Internal Affairs and Communications.

Note: The basic and the unified standard differ in the valuation method of fixed assets.

⁷ However, Japan is not the only country where the maintenance of fixed asset ledgers has become a bottleneck in switching the public accounting system from a cash basis to an accrual basis (Dorn et al. 2021).

Table 2. Preparation Status of Financial Statements

		2006 Edition Survey as of March 31 2008		2010 Edition Survey as of March 31 2012		2015 Edition Survey as of March 31 2017		2018 Edition Survey as of March 31 2020	
Prepared	Basic model	2	0.1%	165	9.5%	140	8.0%		
	Revised model	45	2.5%	1057	60.7%	796	45.7%		
	Old model	995	54.8%	35	2.0%	8	0.5%		
	Others	22	1.2%	11	0.6%	13	0.7%		
	Unified standard					168		1359	78.1%
In progress	Basic model	3	0.2%	47	2.7%				
	Revised model	143	7.9%	320	18.4%				
	Old model	83	4.6%	3	0.2%				
	Others	3	0.2%	6	0.3%	207	11.9%	335	19.2%
	Unified standard					121		47	2.7%
Not yet		520	28.6%	98	5.6%	288	16.5%		
Total		1816	100.0%	1742	100.0%	1741	100.0%	1741	100.0%

Source: Prepared by the author based on the Ministry of Internal Affairs and Communications, “the Situation on Preparation of Financial Statements of Local Governments.”

local governments choose the “Unified standard” after that is presented.

II-3. Use of Financial Statements

Morita (2008), regarding the use of financial statements, divides the effects of local public accounting reform into three categories: (1) effects from disclosure to residents, (2) effects from the use in administrative management, and (3) effects from the development process. The effect of the utilization in administrative management is “the effect that can be utilized in the review of facilities, etc. that involve the burden on the beneficiaries”. The effects obtained in the maintenance process include “effective management of assets through the understanding of idle assets. They include “improving the effectiveness and efficiency of public property management through the development of asset ledgers”. Konishi (2012) states that the use of financial statements should include (1) what infrastructure assets and public facilities have constructed, (2) the age of such infrastructure assets and public facilities, (3) what financial resources have been allocated for construction, and (4) what is the state of intergenerational equity? Osumi (1999) mentioned that performance evaluation is conducted based on information obtained from financial statements and used for budgeting in the next fiscal year. MIC has established a study group on the use of local public accounting (from April 28, 2016; from October 27, 2017; from June 22, 2018; starting on June 27, 2019). Therefore, let us look at the utilization methods discussed in these study groups. In recent years, segment analysis by business and facility and asset management using fixed

asset ledgers have become the main methods of utilization. Specifically, balance sheets and administrative cost statements are prepared for each project and facility to visualize the costs and benefits of each project and facility (Hamamatsu City, Shizuoka Prefecture; Itoigawa City, Niigata Prefecture; Sumoto City, Hyogo Prefecture, etc.). Some implement administrative evaluation using administrative cost statements by project and link it to budgeting (e.g., Hamamatsu City, Shizuoka Prefecture), and some promote the sale of salable assets using fixed asset ledgers (e.g., Osaki City, Miyagi Prefecture; Maniwa City, Okayama Prefecture; Ashikita Town, Kumamoto Prefecture; Taketa City, Oita Prefecture)⁸.

Considering the above, in order to understand the impact of the local public accounting reform on local government finances, it may be necessary to focus not only on financial statements but also on the status of fixed asset ledgers and the utilization of financial statements. In particular, it would be important to know whether financial statements are being used for asset management or not. In addition, since there are efforts to link budgeting to the use of financial statements in administrative evaluation, we would like to focus on whether financial statements are used in administrative evaluation or not. MIC also surveys whether or not the prepared financial statements are published, how they are published and used, and how fixed asset ledgers are maintained. Although the survey items vary from year to year, the following questions are generally included. The method of publication is as follows. Dummy variables in parentheses are the names of the dummy variables used in the empirical analysis in this study.

- Public Relations Magazine (PR)
- Website (Web)
- Booklet (Booklet)
- Informational Meeting for Residents (Meeting)
- Newspaper (Newspaper)
- Other

The utilization methods are as follows. The figures in parentheses are the same as above.

- Explanation for residents (Residents)
- Explanation for assembly (Assembly)
- Analysis of financial situation (including comparison with other municipalities) (Analysis)
- Fiscal management targets (Targets)
- Linkage with Administrative Evaluation (Evaluation)
- Reconsideration of policy (Policy)
- Reference material for budgeting (Budget)
- Utilization for asset management (Asset)
- Raise awareness of public officials (Awareness)

⁸ For details, please refer to the Ministry of Internal Affairs and Communications' website "Examples of Efforts Concerning Local Public Accounts".

- Other

In addition to the above, MIC asks whether the fixed asset ledger (FAL) is not yet prepared, is being prepared, or has been prepared.

III. Related Literature

There are some studies about the impact of introducing accrual-based accounting; Lampe et al. (2015), Christofzik (2019), Dorn et al. (2021). Both studies analyzed German local governments and quantitatively analyzed the effect of switching the public accounting system to the accrual basis on their public finances. Lampe et al. (2015) used a stochastic frontier model to measure the cost efficiency of local governments and analyzed the impact of the introduction of accruals on efficiency, showing that the efficiency of local governments is enhanced. Christofzik (2019) uses panel data analysis to capture the effects of introducing accruals in terms of fiscal balance, revenue from debt reduction, and investment expenditures. The analysis finds no impact on the fiscal balance, but shows a change in the composition of revenue, i.e., an increase in revenues from the sale of nonfinancial assets. Dorn et al. (2021) calculated the efficiency of local governments by DEA (Data Envelopment Analysis) and showed no effect of the introduction of accruals by DID (Difference in Differences).

On the other hand, Kondoh and Ogawa (2020a), Kondoh and Ogawa (2020b), Ogawa (2020), Bessho and Hirota (2023), and Tran and Noguchi (2022) are among the studies that quantitatively analyze the effects of local public accounting reforms in Japan. Kondoh and Ogawa (2020a), Kondoh and Ogawa (2020b), Ogawa (2020), and Bessho and Hirota (2023) all analyze the effects of local public accounting reforms between 2006 and 2015, when unified standards are presented. Kondoh and Ogawa (2020a), using panel data for municipalities, find that the preparation of financial statements has a negative effect on the rate of change in primary expenditures per capita⁹, the rate of change in non-personnel expenses per capita, and ordinary construction expenditures per capita. Kondoh and Ogawa (2020b) find that the preparation of financial statements has a negative effect on the rate of change in general administration, civil engineering, and civil service expenses per capita.

Those results of these studies seem to indicate that local public accounting reforms are contributing to the realization of the objective of “simple and efficient government”. On the other hand, Bessho and Hirota (2023) looked at the relationship between financial documentation and local government expenditures using the DID methodology while taking the endogenous nature of financial documentation into account. According to them, a negative effect is found for aid and personnel costs, while a positive effect is found for “other expenditures,” such as investment expenditures and transfers to other accounts. The positive

⁹ Primary expenditure is defined here as total expenditure excluding public debt. The information provided by local public accounts (e.g., statements of administrative costs by project) can lead to the control of non-investment expenditures such as personnel and property costs as well as investment expenditures.

effect on investment expenses can be attributed to the fact that the actual status of fixed assets became clearer in the process of preparing financial statements. Tran and Noguchi (2022) calculated the efficiency of municipalities in Tokyo by DEA and showed that the efficiency of many individual municipalities declined after accrual accounting was introduced. On the other hand, since the asset utilization, which can be brought about by accrual accounting, has improved efficiency. Although the form in which the effects of local public accounting are manifested differs depending on the analysis method, at least the Japanese studies indicate that some effects are found to contribute to fiscal soundness. These domestic studies partly share the same objective as this study in that they attempt to evaluate the effects of local public accounting reforms. However, these studies focus only on whether or not financial statements are prepared, and do not take into account the status of the use of financial statements, the maintenance of fixed asset ledgers, or the relationship with administrative evaluation, which is the focus of this study.

IV. Empirical Analysis

IV-1. Hypothesis

The purpose of this study is to clarify whether the differences in utilization of local government accounting systems or preparation of a fixed asset ledger relates to local government's fiscal behavior. We consider the following two hypotheses.

Hypothesis 1: The rate of change in per capita primary expenditure will be smaller for municipalities that responded that they use financial statements for (1) setting of fiscal management targets (Targets) and (2) linkage with administrative evaluation (Evaluation)

Hypothesis 2: The rate of change in ordinary construction expenditure will be smaller, but the rate of change in expenditure for maintenance and repair will be larger (or at least, not smaller) for municipalities that responded that public accounting is used (1) for asset management (Asset) and that (2) preparation of fixed asset ledger has been completed or been in progress (FAL)

Among these, hypothesis 1 relates to the effects of the differences in the ways of utilization of financial statements introduced in local public accounting reform on expenditure size of local governments. If a municipality answered, 'yes,' to 'Setting fiscal management targets' (Targets) and 'Linkage with administrative evaluation (Evaluation)' as the way of utilizing public accounting systems in Japanese government survey, 'the Situation on Preparation of Financial Statements of Local Governments' published by MIC may suppress primary expenditure¹⁰. Then, according to hypothesis 1, these variables (Targets and Evaluation) are expected to have negatively significant coefficients.

On the other hand, hypothesis 2 relates to an examination of the effects of introducing

public accounting systems primarily on infrastructure investment (ordinary construction expenditure). Regarding this issue, ‘Utilization for asset management (Asset)’ and ‘Preparation for fixed asset ledger (FAL)’ should be important among questions in the MIC survey. In other words, municipalities that answered, ‘yes,’ to the question of ‘Does your municipality utilize financial statements for asset management?’ or the question of ‘Does your municipality prepare fixed asset ledgers?’ they were likely to save new infrastructure projects, while maintaining or increasing expenditure for maintenance and repair from the viewpoint of life cycle assessment of public facilities. Therefore, according to hypothesis 2, these variables (Asset and FAL) are expected to be negatively significant for the rate of change in per capita ordinary construction expenditure, and positively significant (or insignificant) for the rate of change in per capita expenditure for maintenance and repair.

IV-2. Empirical Strategy

To investigate hypotheses raised in IV-1, we conduct empirical analysis using panel data of Japanese municipality levels for the period of FY2010 to FY2015¹¹. As dependent variables, we use primary expenditure and expenditure for public debt service for hypothesis 1, ordinary construction expenditure and expenditure for maintenance and repair for hypothesis 2, respectively. In any case, we use the rate of change of per capita expenditure compared to the previous fiscal year.

Because expenditure items are correlated with each other, we simultaneously estimate equations for primary expenditure and expenditure for debt service (in case of hypothesis 1) and for ordinary construction expenditure and expenditure for maintenance and repair (in case of hypothesis 2) by the panel SUR (Seemingly Unrelated Regression) method. Error terms in each equation are possibly correlated based on budgetary practice, in which total expenditure are allocated to each project. In this situation, simultaneous estimations using the panel SUR can yield more efficient estimators than estimating them separately by Ordinary Least Squares (OLS) by taking the correlation among equations into account¹². The system of equations are as follows:

Hypothesis 1: The ways of utilizing public accounting and size of local public expenditure

$$\begin{cases} \Delta G_{pex,it} = \alpha \cdot FS_{it-1} + \sum_k \beta_k \cdot UT_{k,it-1} + \sum_l \delta_l \cdot X_{l,it} + \eta_t + \varepsilon_{pex,it} \\ \Delta G_{kou,it} = \alpha \cdot FS_{it-1} + \sum_k \beta_k \cdot UT_{k,it-1} + \sum_l \delta_l \cdot X_{l,it} + \eta_t + \varepsilon_{kou,it} \end{cases}$$

¹⁰ As mentioned earlier, primary expenditure is total expenditure excluding public debt service. Therefore, primary expenditure corresponds to expenditure size which a municipality can spend for policies implemented in the fiscal year.

¹¹ As mentioned later, due to data availability, estimation period differs between hypothesis 1 and 2. Sample periods are FY2010 to FY2014 for hypothesis 1, and FY2011 to FY2015 for hypothesis 2.

¹² See for example, Matsuura and McKenzie (2012) and so on. SUR is originally proposed by Zellner (1962). See chapter 6 in Baltagi (2008) for statistical properties of panel SUR which includes error components.

Hypothesis 2: The ways of utilizing public accounting, preparation of fixed asset ledgers and infrastructure investment

$$\begin{cases} \Delta G_{ken,it} = \alpha \cdot FS_{it-1} + \sum_k \beta_k \cdot UT_{k,it-1} + \gamma \cdot FAL_{it-1} + \sum_l \delta_l \cdot X_{l,it} + \eta_t + \varepsilon_{ken,it} \\ \Delta G_{iji,it} = \alpha \cdot FS_{it-1} + \sum_k \beta_k \cdot UT_{k,it-1} + \gamma \cdot FAL_{it-1} + \sum_l \delta_l \cdot X_{l,it} + \eta_t + \varepsilon_{iji,it} \end{cases}$$

where i denotes municipality, η_t is year fixed effect, $\Delta G_{pex,it}$, $\Delta G_{kou,it}$, $\Delta G_{ken,it}$, $\Delta G_{iji,it}$ are the rate of change in (per capita) primary expenditure, expenditure for debt service, ordinary construction expenditure, expenditure for maintenance and repair compared to the previous year, respectively. FS_{it-1} is a dummy variable which shows situations of preparation for financial statements based on fiscal year $t-2$ settlements at the end of fiscal year $t-1$. $UT_{k,it-1}$ is a dummy variable relating to the ways of utilizing and publishing financial statements based on fiscal year $t-2$ settlements at the end of fiscal year $t-1$. FAL_{it-1} is a dummy variable relating to the status of preparation of financial statements at the end of fiscal year $t-1$. $X_{l,it}$, $\varepsilon_{\bullet,it}$ denotes other control variables and error terms in each equation, respectively¹³.

Among these explanatory variables, FS_{it-1} , $UT_{k,it-1}$, FAL_{it-1} are created based on data from ‘the Situation on Preparation of Financial Statements of Local Governments’ published by MIC, which conducts surveys targeted at all municipalities in Japan. FS_{it-1} is a dummy variable and takes 1, if a municipality prefers financial statements in any format in each survey year. $UT_{k,it-1}$ are dummy variables relating to the ways of utilizing and publishing financial statements in each survey year. We pick up 9 items for ways of utilization; 1. Explanation for residents (Residents), 2. Explanation for assembly (Assembly), 3. Analysis of financial situation (Analysis), 4. Setting fiscal management targets (Targets), 5. Linkage with administrative evaluation (Evaluation), 6. Reconsideration of policy (Policy), 7. Reference material for budgeting (Budget), 8. Utilization for asset management (Asset), 9. Raise awareness of public officials (Awareness), and 5 items for ways of publication; 1. Public relation magazine (PR), 2. Website (Web), 3. Booklet (Booklet), 4. Informational meeting for residents (Meeting), 5. Newspaper (Newspaper). These variables are dummy variables which take 1 if a municipality answered, ‘yes,’ to each question. FAL_{it-1} is a dummy variable which indicates situations for preparation of fixed asset ledgers and takes 1 if a municipality has completed or been progressing the preparation of financial statements. However, data availability varies depending on variables. Among these variables, Assembly, Targets, Evaluation, Budget, Asset, PR, Web, Booklet and Meeting are available in every year for the period of FY2010 to FY2015, however, we cannot obtain FY2015 data for Residents, Analysis, Policy, Awareness and Newspaper. FAL_{it-1} is available only for FY2011 to FY2015.

Among these variables, setting fiscal management targets dummy (Targets) and linkage with administrative evaluation dummy (Evaluation) are important variables for hypothesis 1, utilization for asset management dummy (Asset) and fixed asset ledger dummy (FAL) are important ones for hypothesis 2. However, beside an estimation which includes dummy

¹³ Error terms include unobservable municipality-specific effects.

variables directly relating to the hypothesis (we call this case 1), we also show estimation results including dummy variables for other ways of utilization (we call this case 2) and those for ways of publication as well (we call this case 3). Due to data availability, in estimation for hypothesis 1, we include all dummy variables relating to utilization for the period of FY2010-2014, and in estimation for hypothesis 2, we include 4 variables; ‘Assembly’, ‘Targets’, ‘Evaluation’ and ‘Budget’ which relate to ways of utilization for the period of FY2011-FY2015, respectively, in order to estimate using panel data for at least 5 years.

The timing of dependent and independent variables based on ‘the Situation on Preparation of Financial Statements of Local Governments’ by MIC are as follows. In this survey, the situation on preparation for financial statements (including ways of utilizing and publishing financial statements, and preparation for fixed asset ledgers) based on fiscal year t-2 settlements is open to the public at the end of fiscal year t-1 (in other words, at the beginning of fiscal year t). Considering time lag since preparation of financial statements based on fiscal year t-2 to budget formation in later years, status on preparation of financial statements is reflected in the budget of fiscal year t at the earliest. Thus, we treat the status on preparation of financial statements based on fiscal year t-2 as one that can affect the budget in fiscal year t and use the rate of change in fiscal expenditure compared to the previous year as dependent variables.

As other control variables, we include the rate of change in population (DPOP), the difference in the ratio of those aged 15 or younger (DYOU), the difference in the ratio of those aged 65 or older (DOLD), the difference in the ratio of employees engaging in primary industry (DR1S), the difference in the ratio of employees engaging in secondary industry (DR2S), financial capability index (FCI) and log of population (POP)¹⁴. Data on municipal expenditures and the financial capability index comes from the ‘Survey on Municipal Government Settlements’ by MIC. Dummy variables relating to the status on preparation of financial statements are based on ‘the Situation on Preparation of Financial Statements of Local Governments’ by MIC. We obtain data regarding the population from the ‘Annual Report on Internal Migration in Japan Derived from the Basic Resident Registration’ by MIC. The ratio of those aged under 15, the ratio of those aged 65 or older, the ratio of employees engaging in primary and secondary industry come from the ‘Census’ published by MIC. Data in the years when the Census was not conducted are obtained by linear interpolation.

Here, what should be considered as an econometric issue is the endogeneity problem. For example, if a municipality conducting fiscal adjustment is actively working on preparation of financial statements, the financial statement dummy (FS) will be endogenous. Therefore, explanatory variables based on the ‘Situation on Preparation of Financial Statements of Local Governments’ including the financial statement dummy may be endogenous. In general, reasons why explanatory variables become endogenous and make estimates biased are:

¹⁴ We take a one-year lag for the financial capability index and log of population, because we employ these as proxy variables for a municipality’s effort for fiscal adjustments, which may have lags in affecting expenditures.

1. Omitted variables, 2. Measurement error, 3. Simultaneity (e.g. Wooldridge 2010, ch.4). Among these, 2. Measurement error will not be applicable for the present study, because the MIC survey targets all municipalities in Japan. Moreover, 3. Simultaneity may not matter in this study because we can deal with intra-temporal reverse causality from independent variables to the status on preparation of financial statements by taking a one-year lag for explanatory variables. However, 1. Omitted variables may be problematic, because the ‘municipality’s effort for fiscal adjustment’ is unobservable and omitted. Although this effort is unobservable, we employ population size of municipality and the fiscal capability index as proxies. This is because municipalities which have a large population or high financial capability are in general abundant in human or financial resources and tend to have more power to progress fiscal adjustment. If this is the case, these proxy variables may affect preparation of financial statements and the change in expenditure as an independent variable. Thus, we deal with this omitted variable problem by adding log of population and the financial capability index (one-year lag)¹⁵.

IV-3. Data

We take 1,718 municipalities which existed at the end of the FY2015 into consideration for our empirical analysis, however, we exclude ordinance-designated cities (20 cities) from our sample because they have different administrative powers from other municipalities. Moreover, municipalities with which some data is unavailable, municipalities which experienced amalgamation and municipalities which had a city status in our sample period are also excluded from our sample. Municipalities excluded from our sample are shown in Table 3. Because of these reasons, 116 municipalities (79 cities, 37 towns & villages) are excluded, then the number of remaining municipalities in our sample is 1,602 municipalities (712 cities, 890 towns & villages). Our sample is a five-year¹⁶ balanced panel of FY2010-FY2014 or FY2011-FY2015, and the total sample size then becomes 8,010 (=1,602×5).

Descriptive statistics for the period of FY2010-FY2015 are summarized in Table 4. If we look at the mean of the rate of change in per capita expenditures, the mean takes a positive value except for public debt service expenditure. Therefore, even if a sign of a coefficient is negatively significant, it does not necessarily mean a decrease in per capita expenditure. Moreover, the difference between maximum and minimum for change in expenditures is large, and we can confirm that the maximum is positive, but the minimum is negative. In

¹⁵ In general, estimation with instrumental variables is a normal method to deal with endogeneity. Bessho and Hirota (2023) employs a dummy variable which discriminates large scale cities with small scale cities, towns and villages as an instrument for a financial statement dummy variable. This is because MIC (the Japanese Government) asked municipalities to compile financial statements in 2007, however, a certain grace period for preparation of financial statements is granted only to small municipalities. They take advantage of this difference. Because we consider not only preparation of financial statements but also utilization of financial statements or preparation of fixed asset ledgers, it is not easy to pick proper instruments to deal with these dummies. Estimations with instruments are left for future research.

¹⁶ The reason why FY2009 is the first year (FY2010 is the first in estimation) in our sample is preparation of financial statements had started in FY2007 based on ‘Report of Practical Study Group on New Public Accounting System’ published in 2006, and we suppose that financial statements can affect budget formation at least two years in advance as discussed in IV-2.

Table 3. Municipalities which are excluded from the sample (116 municipalities; 79 cities, 37 towns & villages)

The reason	Municipalities
1. Ordinance-designated cities	Sapporo City (Hokkaido), Sendai City (Miyagi), Saitama City (Saitama), Chiba City (Chiba), Yokohama City (Kanagawa), Kawasaki City (Kanagawa), Sagami City (Kanagawa), Niigata City (Niigata), Shizuoka City (Shizuoka), Hamamatsu City (Shizuoka), Nagoya City (Aichi), Kyoto City (Kyoto), Osaka City (Osaka), Sakai City (Osaka), Kobe City (Hyogo), Okayama City (Okayama), Hiroshima City (Hiroshima), Kitakyushu City (Fukuoka), Fukuoka City (Fukuoka), Kumamoto City (Kumamoto) (Total: 20 municipalities; 20 cities, 0 towns & villages)
2. Some data are unavailable (* denotes a municipality which experiences amalgamation in our sample period)	Ofunato City (Iwate), Rikuzen-takata City (Iwate), Otsuchi Town (Iwate), Yamada Town (Iwate), Shiogama City (Miyagi), Kakuda City (Miyagi), Tagajo City (Miyagi), Iwanuma City (Miyagi), Kurihara City (Miyagi), Higashimatsushima City (Miyagi), Osaki City (Miyagi), Zao Town (Miyagi), Ogawara Town (Miyagi), Murata Town (Miyagi), Marumori Town (Miyagi), Watari Town (Miyagi), Yamamoto Town (Miyagi), Matsushima Town (Miyagi), Shichigahama Town (Miyagi), Rifu Town (Miyagi), Osato Town (Miyagi), Tomiya Town (Miyagi), Shikama Town (Miyagi), Kami Town (Miyagi), Misato Town (Miyagi), Onagawa Town (Miyagi), Minami-sanriku Town (Miyagi), Hirono Town (Fukushima), Tomioka Town (Fukushima), Kawauchi Village (Fukushima), Okuma Town (Fukushima), Futaba Town (Fukushima), Namie Town (Fukushima), Katsurao Village (Fukushima), Shinchi Town (Fukushima), Iidate Village (Fukushima), Awashimaura Village (Niigata), Fujikawa Town (Yamanashi), Tabayama Village (Yamanashi), Ama City (Aichi)*, Chuibu Village (Shimane), Itoshima City (Fukuoka)*, Minami-aso Village (Kumamoto), Aira City (Kagoshima), Yoron Town (Kagoshima), Tonaki Village (Okinawa) (Total: 46 municipalities; 12 cities, 34 towns & villages)
3. A municipality which experiences amalgamation in our sample period (excluding 2.)	Yubetsu Town (Hokkaido), Miyako City (Iwate), Ichinoseki City (Iwate), Kesenuma City (Miyagi), Fukushima City (Fukushima), Tochigi City (Tochigi), Mooka City (Tochigi), Takasaki City (Gunma), Nakanojo Town (Gunma), Kawaguchi City (Saitama), Kazo City (Saitama), Kuki City (Saitama), Inzai City (Chiba), Nagaoka City (Niigata), Murakami City (Niigata), Nagano City (Nagano), Matsumoto City (Nagano), Achi Village (Nagano), Fujinomiya City (Shizuoka), Shimada City (Shizuoka), Fuji City (Shizuoka), Yaizu City (Shizuoka), Fujieda City (Shizuoka), Kosai City (Shizuoka), Toyokawa City (Aichi), Nishio City (Aichi), Kiyosu City (Aichi), Nagahama City (Shiga), Omi-hachiman City (Shiga), Matsue City (Shimane), Izumo City (Shimane), Yamaguchi City (Yamaguchi), Mine City (Yamaguchi), Kochi City (Kochi), Yame City (Fukuoka), Saga City (Saga), Sasebo City (Nagasaki), Miyazaki City (Miyazaki), Nichinan City (Miyazaki), Kobayashi City (Miyazaki), Minami-kyushu City (Kagoshima), Isa City (Kagoshima), Yakushima Town (Kagoshima) (Total: 44 municipalities; 41 cities, 3 towns & villages)
4. A municipality which became a city in our sample period	Takizawa City (Iwate), Shiraoka City (Saitama), Oami-Shirasato City (Chiba), Nonoichi City (Ishikawa), Miyoshi City (Aichi), Nagakute City (Aichi) (Total: 6 municipalities; 6 cities, 0 towns & villages)

Note: The prefecture which a municipality belongs to is in parentheses.

Table 4. Descriptive Statistics

	Variables	mean	S.D.	max	min
Dependent variables	Rate of change in primary expenditure(per capita)	0.0352	0.1360	2.2002	-0.7800
	Rate of change in debt service expenditure(per capita)	-0.0124	0.1165	1.6689	-0.7602
	Rate of change in ordinary construction expenditure(per capita)	0.1378	0.6303	10.0289	-0.9091
	Rate of change in expenditure for maintainance and repair(per capita)	0.1495	3.5221	328.3649	-0.9240
Independent variables (preparing of FS)	Financial Statement dummy:'FS'	0.6790	0.4669	1	0
Independent variables (utilization of FS)	Explanation for residents dummy:'Residents'	0.2964	0.4567	1	0
	Explanation for assembly dummy:'Assembly'	0.2803	0.4492	1	0
	Analysis of financial situation dummy:'Analysis'	0.3898	0.4877	1	0
	Fiscal management targets dummy:'Targets'	0.0680	0.2518	1	0
	Linkage with administrative evaluation dummy:'Evaluation'	0.0080	0.0891	1	0
	Reconsideration of policy dummy:'Policy'	0.0089	0.0937	1	0
	Reference material for budget ing dummy:'Budget'	0.0382	0.1916	1	0
	Utilization for asset management dummy:'Asset'	0.0495	0.2170	1	0
	Raise awareness of public officials dummy:'Awareness'	0.0388	0.1932	1	0
Independent variables (publication of FS)	Public relations magazine dummy:'PR'	0.2600	0.4387	1	0
	Website dummy:'Web'	0.8042	0.3968	1	0
	Booklet dummy:'Booklet'	0.1206	0.3257	1	0
	Informational meeting for residents dummy:'Meeting'	0.0030	0.0548	1	0
	Newspaper dummy:'Newspaper'	0.0041	0.0641	1	0

Note: The Sample period is FY 2010 to FY 2015

Table 4. Descriptive Statistics (continued)

	Variables	mean	S.D.	max	min
Independent variables (Fixed asset ledger)	Fixed asset ledger dummy:'FAL'	0.4398	0.4964	1	0
Independent variables (Control variables)	Rate of change in population	-0.0087	0.0104	0.0920	-0.0683
	Δratio of aged under 15	-0.0016	0.0016	0.0130	-0.0260
	Δratio of aged 65 or older	0.0075	0.0030	0.0230	-0.0140
	Δratio of employees engaging in the primary industry	-0.0010	0.0027	0.0270	-0.0220
	Δratio of employees engaging in the secondary industry	-0.0015	0.0038	0.0730	-0.0380
	The lof of population (1year lag)	10.0047	1.3752	13.3223	5.0876
	Financial capability index (1year lag)	0.5022	0.2981	2.7700	0.0500

Note: The Sample period is FY 2010 to FY 2015

addition, although not shown in this table, compared with the cities sample, the towns & vil-lages sample tends to have greater variance across municipalities. These points should be kept in mind when interpreting the estimation results.

IV-4. Estimation Results

Estimation results on hypotheses 1 and 2 are shown on Table 5 and 6, respectively. We estimate 3 cases depending on selection of explanatory variables as we mentioned earlier. In case 1, we include only variables directly relating to examination of hypotheses regarding ways of utilizing financial statements or the status on preparation of fixed asset ledgers as explanatory variables. In case 2, we added dummy variables relating to other ways of utiliz-ing financial statements. In case 3, dummy variables relating to ways of publishing are also included as explanatory variables. Control variables are included in all specifications.

First, if you look at the results of hypothesis 1: The ways of utilizing public accounting and the size of local public expenditure, setting fiscal management targets dummy (Targets) is negatively and significantly related to primary expenditure in three cases, which implies municipalities utilizing public accounting for setting of financial goals tends to suppress pri-mary expenditure. Based on size of coefficients, municipalities which make use of public accounting in this way suppress an increase of primary expenditure at about 1% point com-pared to municipalities which do not do so. On the other hand, another important variable,

Table 5. Estimation Results (model 1)

Dependent variable	(1)		(2)		(3)	
	Rate of change in primary expenditure(per capita)	Rate of change in debt service expenditure(per capita)	Rate of change in primary expenditure(per capita)	Rate of change in debt service expenditure(per capita)	Rate of change in primary expenditure(per capita)	Rate of change in debt service expenditure(per capita)
FS	-0.0093 (-3.05)***	0.0013 (0.47)	-0.0101 (-2.53)**	-0.0009 (-0.24)	-0.0093 (-2.28)**	-0.0019 (-0.52)
Residents			0.0021 (0.59)	-0.0037 (-1.17)	0.0004 (0.13)	-0.0037 (-1.18)
Assembly			-0.0029 (-0.86)	0.0010 (0.33)	-0.0042 (-1.22)	0.0006 (0.20)
Analysis			0.0015 (0.46)	0.0071 (2.39)**	0.0010 (0.30)	0.0070 (2.36)**
Targets	-0.0121 (-1.75)*	0.0007 (0.11)	-0.0147 (-2.04)**	0.0037 (0.59)	-0.0153 (-2.12)**	0.0037 (0.58)
Evaluation	-0.0053 (-0.34)	-0.0232 (-1.67)*	-0.0103 (-0.62)	-0.0162 (-1.10)	-0.0114 (0.68)	-0.0171 (-1.16)
Policy			0.0097 (0.57)	-0.0161 (-1.10)	0.0092 (0.54)	-0.0152 (-1.03)
Budget			-0.0027 (-0.34)	0.0049 (0.68)	-0.0028 (-0.35)	0.0047 (0.66)
Asset			0.0110 (1.53)	-0.0181 (-2.86)***	0.0110 (1.52)	-0.0183 (-2.89)***
Awareness			-0.0017 (-0.27)	0.0030 (0.47)	-0.0020 (-0.28)	0.0030 (0.46)
PR					0.0083 (2.72)***	-0.0008 (-0.30)
Web					-0.0035 (-0.92)	0.0060 (1.77)*
Booklet					0.0016 (0.40)	0.0040 (1.06)
Meeting					0.0207 (0.80)	-0.0128 (-0.57)
Newspaper					0.0102 (0.48)	-0.0311 (-1.63)
Sample size	8,010		8,010		8,010	

Notes: z-values are in parentheses. ***, **, * denotes statistical significance at 1%, 5%, 10% respectively. Control variables and year effects are not shown in this table.

linkage with administrative evaluation (Evaluation) dummy is not significantly related to primary expenditure in any case. Thus, we consider that the results do not contradict hypothesis 1, because setting fiscal management targets dummy (Targets) is consistently negative and significant for primary expenditure, despite the insignificant results on linkage with

Table 6. Estimation Results (model 2)

Dependent variable	(1)		(2)		(3)	
	Rate of change in ordinary construction expenditure(per r capita)	Rate of change in expenditure for maintenance and repair(per capita)	Rate of change in ordinary construction expenditure(pe r capita)	Rate of change in expenditure for maintenance and repair(per capita)	Rate of change in ordinary construction expenditure(pe r capita)	Rate of change in expenditure for maintenance and repair(per capita)
FS	-0.0144 (-1.15)	-0.0155 (-0.53)	-0.0103 (-0.74)	-0.0149 (-0.46)	-0.0122 (-0.85)	0.0033 (0.10)
Assembly			-0.0129 (-0.96)	0.0094 (0.30)	-0.0147 (-1.06)	0.0125 (0.38)
Targets			0.0226 (0.89)	-0.0621 (-1.14)	0.0221 (0.87)	-0.0589 (-1.08)
Evaluation			0.0364 (0.53)	0.0566 (0.37)	0.0365 (0.53)	0.0474 (0.31)
Budget			-0.0275 (-0.85)	0.0365 (0.50)	-0.0282 (-0.87)	0.0390 (0.54)
Asset	0.0128 (0.44)	0.0181 (0.28)	0.0106 (0.35)	0.0182 (0.27)	0.0111 (0.37)	0.0179 (0.27)
FAL	-0.0271 (-2.28)**	0.0272 (0.99)	-0.0265 (-2.23)**	0.0262 (0.95)	-0.0267 (-2.25)**	0.0270 (0.98)
PR					0.0052 (0.42)	-0.0054 (-0.18)
Web					0.0076 (0.46)	-0.0949 (-2.51)**
Booklet					0.0059 (0.35)	-0.0072 (-0.18)
Meeting					-0.5366 (-0.48)	0.2669 (1.08)
Sample size	8,010		8,010		8,010	

Notes: z-values are in parentheses. ***, **, * denotes statistical significance at 1%, 5%, 10% respectively. Control variables and year effects are not shown in this table.

administrative evaluation dummy (Evaluation). Turning to expenditure for debt service, we can hardly conclude that ways of utilizing financial statements is related to expenditure control, although linkage with administrative evaluation dummy (Evaluation) is negatively significant at a 10% level only in case 1. On the other hand, financial statement dummy (FS) is negatively and significantly related to primary expenditure in all cases, which is consistent with the results of Kondoh and Ogawa (2020a, b) and so on. If we look at other variables, regarding ways of utilizing financial statements, utilization for asset management dummy (Asset) is negatively and significantly related to expenditure for debt service¹⁷. Regarding ways of publishing financial statements, PR magazine dummy (PR) is positively related to primary expenditure, and website dummy (Web) is positively related to expenditure for debt

service. However, our results imply that ways of publishing do not generally relate to expenditure control.

Second, if we look at the results of hypothesis 2: The ways of utilizing public accounting, preparation of fixed asset ledgers and infrastructure investment, among ways of utilizing financial statements, utilization for asset management dummy (Asset) is not statistically significant in all cases. However, fixed asset ledger dummy (FAL) is negatively and significantly related to ordinary construction expenditures. Based on size of coefficients, municipalities which are progressing preparation of fixed asset ledgers suppress an increase of ordinary construction expenditure at about 2.7% point compared to municipalities which do not do so. On the other hand, financial statement dummy (FS) is negative, but insignificant in all specifications. This is a somewhat different result from that of Kondoh and Ogawa (2020a, b), which states that financial statement dummy is negatively and significantly related to construction expenditure in most cases. This may imply that the preparation of fixed asset ledgers is more important in control of construction expenses than just preparing financial statements. Regarding change in per capita expenditure for maintenance and repair, utilization for asset management dummy (Asset) and fixed asset ledger dummy (FAL) do not have significant coefficients. Then, we have consistent results with hypothesis 2, to some extent.

Also, in case 2 (which considers ways of utilization) and 3 (which considers ways of publishing as well), the main results remain unchanged. Regarding ways of publishing, we do not have significant coefficients except that website dummy (Web) is negatively and significantly related to expenses for debt service. Therefore, other ways of utilizing or publishing financial statements do not seem to matter in spending control.

V. Conclusion

In this study, we investigate how local public accounting reform affects fiscal behavior of Japanese local governments, through examining two hypotheses by empirical analysis using municipality level panel data for the period of FY2010-FY2015.

Previous papers looked at effects of preparation of financial statements on local public expenditures, while we make two hypotheses by utilizing the ‘Situation on Preparation of Financial Statements of Local Governments’ by MIC, which surveys the situation of ways of utilizing or publishing financial statements and the status of preparation on fixed asset ledgers. Hypothesis 1 relates to the relationship between ways of utilization and expenditure size of local governments, in which we hypothesized that utilization through setting of fiscal management targets or linkage with administrative evaluation can affect primary expenditure, which is defined as total expenditure minus expenditure for debt service. Hypothesis 2 relates to the relationship between utilization of financial statements or preparation of fixed

¹⁷ It is theoretically plausible that utilization of financial statements for asset management decreases debt and expenditure for debt service through downsizing infrastructure investment. However, we do not have such results in estimation relating to hypothesis 2.

asset ledgers and infrastructure investment, in which we hypothesized that utilization through asset management and preparation of fixed asset ledgers can suppress ordinary construction expenditure but increase or keep the level of expenses for maintenance and repair. We examined these two hypotheses based on estimation results.

We use panel SUR (Seemingly Unrelated Regression) method to estimate two equations where primary expenses and expenses for debt service (rate of change in per capita expenditure compared to the previous year) are entered as independent variables for hypothesis 1, while ordinary construction expenses and expenses for maintenance and repair (rate of change in per capita expenditure compared to the previous year) are employed as independent variables for hypothesis 2.

From our empirical results, regarding hypothesis 1, among ways of utilizing financial statements, setting of fiscal management targets is negatively and significantly related to primary expenditure, which is consistent with our hypothesis, while we do not have significant coefficients for linkage with administrative evaluation. It can be regarded that ‘linkage with administrative evaluation’ is one of the prospective tools for making use of local public accounts, however, ‘linkage with administrative evaluation’ may not have been recognized to be important because the number of municipalities which reply, ‘yes’, to this question is only 13 (0.8% of total sample size). By the way, in the survey conducted by MIC at the end of FY2009, the ‘setting of fiscal management targets’ started to appear as one of the ways of utilization. Based on the fact that the ‘Situation on Preparation of Financial Statements of Local Governments’ by MIC published at the end of FY2009 introduces the initiatives conducted by Uki City, Kumamoto Prefecture in 2005 as an example of ‘Setting of fiscal management targets and considerations for future directions’, it is natural to regard this as an example of ‘Setting of fiscal management targets.’ In this attempt, Uki City selected items that needed reform (expenses for personnel, supplies and services, social assistance, subsidies, transfer to other accounts and so on) through thorough assessment of their balance sheet and set target values. By doing so, how the future balance sheet would be and target values were open to public. This attempt by Uki City was also introduced in a study group for utilization of local public accounts organized by MIC in July 2016. This kind of attempt will contribute to local governments’ efficiency. Regarding ‘linkage with administrative evaluation’, segment analysis¹⁸, which was introduced in the previously mentioned study group held by MIC, is thought to be an example. Saito (2020) also stated that cost information for administrative assessment should be calculated on an accrual basis.

Turning to hypothesis 2, we do not have statistically significant results for ‘utilization for asset management’, but ‘preparation for fixed asset ledger’ is negatively related to ordinary construction expenses, which is consistent with the hypothesis. On the other hand, ‘financial statement dummy’ is not statistically significant, which may imply that not only preparation for financial statements but also preparation for fixed asset ledgers lead to re-

¹⁸ This is a way of administrative evaluation through making financial statements by projects or public facilities. In evaluation, information which can be available from financial statements by segments (depreciation for example) is utilized.

form of assets and debt. Regarding utilization for asset management, sales of unused assets or asset management using financial statements, which were introduced in ‘Case studies of attempts regarding public accounts’ shown in MIC’s website, will be examples. Needless to say, ‘Preparation for fixed asset ledger’ is indispensable for these attempts. In general, maintenance of asset and accounting ledger have been separated, and managed by different departments in local governments. Because ‘Preparation for fixed asset ledger’ can put them together for the first time, ‘Preparation for fixed asset ledger’ possibly leads to reform of assets and debt.

Based on our empirical analysis, we can conclude that it is important not only to compile but also to utilize financial statements from the viewpoint of expenditure control. Regarding infrastructure investment including ordinary construction expenses and expenses for maintenance and repair, it is desirable to progress preparation and utilize fixed asset ledgers.

Attempts for utilization of financial statements have been accumulated as shown in ‘Case studies of attempts regarding public accounts’ shown in MIC’s website. The ways of utilizing financial statements can be classified into US style and UK style¹⁹. US style stresses disclosure of financial information for investors (management by outsiders), on the other hand, UK style stresses management by insiders including performance assessment or improvement. Given the current situation of local bonds in Japan, it may be better to aim for UK style than for US style, and most attempts of case studies introduced by MIC are UK style. In US style, integration with budget is not taken to be important, while in UK style, integration with budget and to be a part of administrative assessment is to be stressed.

In Japan, the formal public accounting system is still cash based, both for budget and settlements. Therefore, public officials of municipalities are required to make conventional documents for budget and settlement, and to make and utilize financial statements in UK style, which do not have linkage directly with conventional documents. Based on the author’s interview for municipalities, it is clarified that this bottleneck hinders internal utilization of financial statements. In ‘Case studies of attempts regarding public accounts’ shown in MIC’s website, there was ‘An attempt to unify items in budget and public accounting’ by Kotoura Town, Tottori Prefecture and Wako City, Saitama Prefecture. This kind of attempt or switching the public accounting system to an accrual basis like the EU may be needed.

In this study, some aspects regarding the ‘channels’ through which local public accounting reform affect fiscal behavior of local government, which were not clarified in previous studies, are thought to be discovered. However, there are some limitations or problems in our study. First, limitation for interview surveys should be noted. Although ‘the Situation on Preparation of Financial Statements of Local Governments’ by MIC used in this study discloses the situations of preparation for financial statements based on the previous year’s settlement at the end of the fiscal year, it may be possible that the real situation is not reflected depending on attempts by municipalities, and it is possible that responses to questions are slightly different by the person in charge. Second, we do not take the ‘Unified standard’,

¹⁹ See Osumi (1999), Akai and Tanaka (2001) and Osumi (2002).

which is a format of financial statements and has been introduced from FY2015, into consideration. It may be possible that the ‘Unified standard’ affects the degree of utilization or its effects on local expenses because of its enhanced comparability with other municipalities. Third, investigation using data provided from local public accounting is also useful. These are left for future research.

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