A Review of the Double-Entry Accounting System and Accrual Accounting in the Public Sector

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1. Introduction

It goes without saying that the FY2005 budget shows the Japanese government in financial straits; that the primary balance, in which officials hope to see a surplus by the beginning of the next decade, has a deficit of 15.9 trillion yen (= tax and other revenues of 47.8 trillion yen minus general and other expenditures of 63.7 trillion yen); that government debt at the end of FY2005 will be 538 trillion yen, the equivalent of 12 years of general account tax revenues; and that local and national government accumulative long-term debt is expected to climb to 774 trillion yen, 151.2% of GDP.[1)]

As being well known, ordinary account balance sheets, administrative cost statements and local government-wide balance sheets covering ordinary account and local enterprise accounts are prepared at the local level.[2)] Since FY1999, the preliminary trial of the Government balance sheet has been prepared at the national level as well and, from FY2003, the national government has released financial statements that combine the balance sheets, operating cost statements, statements of changes in net worth, and cash flow statements prepared as financial statements by individual ministries and agencies.[3)]

These are all attempts to make improvements in areas regarded as problematic in the present system: (a) inadequate information is provided on assets and liabilities, (b) consolidated financial information is not provided and thus an overview of the public sector is not available, (c) cash flow and stock are not linked, (d) administrative costs, full costs, and life-cycle costs are not clear, and (e) the costs and benefits of individual projects cannot be assessed.[4)] These efforts thus seek to expand the range of accounting information beyond that previously offered in public sector accounting by introducing the accrual-basis accounting and consolidated financial statements that have become popular internationally.

On the other hand, the cash flow statement has been introduced into business accounting in recent years, but it is not called "introduction of public sector accounting." Despite the importance accorded to cash flow statement, it serves only to "supplement the information in balance sheet and income statement"[5)] as most companies develop a cash flow statement, using not their books of account but balance sheet and income statement information (indirect method); cash flow statement has

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1) Ministry of Finance website: http://www.mof.go.jp/jouhou/syukei/syukei.htm

2) On the progress made in introducing balance sheets (as of March 31, 2004), see http://www.soumu.go.jp/s-news/2004/pdf/040713.pdf

3) Op. cit., Ministry of Finance website.

4) Fiscal System Council, 'Basic Approaches to Public Sector Accounting,' (June 2003). This paper will only address the financial accounting aspects.

5) Accounting Standards Board of Japan, 'Position Paper: Conceptual Framework for Financial Accounting', p.1, Note 1.

consequently not changed the current framework.

In the discussions surrounding today's public sector accounting reforms, the prevailing view advocates a complete transition from "business accounting-like" methods, by which existing data is rearranged to generate supplemental financial statements, to double-entry bookkeeping and other business accounting methods – i.e., the adoption of business accounting practices for public sector accounting – and this switchover will require substantial modifications to the current framework.

Accounting has conventionally been divided into business accounting and nonprofit accounting on the basis of whether the economic unit operates to earn net income. Comparisons with business accounting, which has in common the "accounting" factor, must be drawn when discussing reforms of public sector accounting. One problem pointed out with the current system, however, is that such comparisons have entailed nothing more than listing those elements present in business accounting but not in public sector accounting, though the two differ in their objectives. Therefore, this paper will examine the nature of public sector accounting as it was and business accounting as it is, and will review the adoption of business accounting practices in public sector accounting just getting underway.

2. The fundamental role of accounting

According to one widely quoted definition, accounting is "the process of identifying, measuring and communicating economic information to permit informed judgments and decisions by users of the information." 6) In confirming to this definition, the objective of public sector accounting, too, is to provide information that will be useful in decision making by users of the information.

Business accounting has long used a double-entry bookkeeping and a pair of financial statements derived from this system, and efforts continue to be made to reflect accounting information useful in decision making as far as possible within the conventional framework.7) Not having adopted double-entry bookkeeping, public sector accounting is likely unable to determine what kind of accounting information is useful for decision making. Given the requirement stipulated in the above definition of meeting the needs of a variety of users of the information, there is no reason to limit disclosure solely to the general-purpose financial statements. Non-financial information and other statistical data may fall within the scope of accounting if they are useful for the decision making.

In stressing the intrinsic character of accounting, therefore, it could also be defined as "recording on a continual basis the cause and effect of changes in the resources belonging to an economic unit, and clearly establishing how many these resources have changed during given periods and for what reasons and how many resources are presently held." Presupposing a trustor-trustee relationship with regard to the assets, the fundamental role of accounting is then "to serve as a means for the administrator to directly manage the assets and as a means for the administrator to discharge his/her stewardship responsibility by reporting the management results to the trustor (owner of the assets)." 8)

In public sector accounting in Japan, the cause and effect of changes in cash are recorded on a continual basis, with a comprehensive report on revenues and expenditures prepared each period to establish plainly how much and for what reasons cash has increased/decreased and how much cash is presently held. For non-cash assets, "General Report on the Current Amount of Government Credits," "General Statement of the Fluctuation, Current Amount and Value of National Properties,"

6) American Accounting Association, *A Statement on Basic Accounting Theory*, (1966), p.1.

7) This definition is broad in scope and includes managerial accounting information but, for the purposes of this article, only financial accounting will be discussed. If accounting is considered simply a matter of providing information in support of decision making, then there is no particular necessity for such information to be provided only in the form of financial statements.

8) MORITA Tetsuya, OKAMOTO Kiyoshi, NAKAMURA Tadashi (ed.), *Comprehensive Accounting Dictionary (4th expanded edition)*, (Chuokeizai-sha, Inc., 2001), p. 93 (written by Morita).

"General Report of the Fluctuations, Current Amount and Value of Commodities" and "Accounting Statement on the Government Credits" are compiled. These reports accord with the narrow definition of accountability that requires discharge of the aforementioned stewardship responsibility through accounting reports. This narrowly-defined accountability can be seen to have two dimensions – accountability for stock (quantity) and accountability for flow (monetary amounts) – on the basis of the trustor/trustee relationship regarding the assets.[9]

For the former accountability, revenues as a charge of accountability and expenditures as a discharge of accountability are recorded[10] (assuming prior approval by a budget resolution) and a comprehensive report on the revenues and expenditures totaling these results is prepared. These revenues include not only tax revenues as a charge of accountability for the current fiscal year but also revenues stemming from debts to be repaid with future tax revenues. The accounting carried out here may appear in form to be price computation but, as monetary amounts are used as the measurement unit for cash, strictly speaking, this is not money-measurement from the accountability for stock. Reports on cash as well as on the actual balance (accountable amounts) of the assets and liabilities acquired as the results of expenditures fulfill this accountability. As is evident in the use of subsidiary books in business accounting, the adoption of single-entry bookkeeping rather than double-entry bookkeeping connected with this accountability is not in and of itself a problem.

The difficulty in grasping an overview because cash and non-cash assets/liabilities are reported separately and the failure of these reports to cover all resources are aspects of the current system that do constitute problems,[11] but accountability for stock naturally mandates that separate reports be prepared by each locus of administrative responsibility; if a list of resources is needed, a inventory (Inventar in German) covering all resources for the economic unit as a whole should be prepared. While there could well be a need to re-examine the scope of the resources to be ascertained and the methods for classifying the same, the problem in conducting this inventory has more to do with the relevance of such a report than with its preparation costs.

For the latter accountability, the Cabinet reports the state of balanced finance to determine if operations have been pursued in accordance with the balanced finance principle given in Article 12 of the Finance Act ("the expenses in each fiscal year must be defrayed with the revenues from that year"). The single-entry bookkeeping presently used presents no difficulties for such a status report.

Assuming fulfillment of the above accountability for stock and flow and largely from the latter perspective, reforms of public sector accounting must address the questions of what new kind of status report will be required and whether this status report will be similar to those used in business accounting.

3. Single-entry bookkeeping and double-entry bookkeeping

Bookkeeping is necessary to fulfill this fundamental role of accounting, and bookkeeping itself comes in two varieties – single-entry bookkeeping and double-entry bookkeeping – depending on the accountability required. There are various interpretations on the differentiations between the two but, as a matter of format, single-entry bookkeeping maintains records based entirely on quantitative data (including monetary amounts) and does not offer a means of verification through cross-checking of records because the units of measure differ by the type of resources. By contrast, double-entry bookkeeping uses dual aspect recording based on monetary amounts and enables verification of

9) Accountability is today used in a broad sense to mean accountability for accounting information, but it is by no means clear in this case as well what kinds of financial statements should be prepared. In regard to narrowly-defined accountability as it relates to statements, see the following: Morita et al., op. cit., pp. 103 – 104 (written by ANDO Hideyoshi) and ANDO Hideyoshi, *Commercial Law and Accounting System Theory, New Edition*,(Hakuto Shobo, 1997), Chaps. 6 and 7.

10) See NITTA Tadachika et al., *Introduction to Accounting and Bookkeeping (3rd revised edition)*, (Hakuto Shobo, 2005), pp. 8-9.

11) Ministry of Finance, 'The Fundamental Concepts Underlying the Nation's Balance Sheet,' (2000), pp. 3 - 4.

ledgers via the principle of equilibrium.

If double-entry bookkeeping is regarded formally as bookkeeping by “double” entry literally, then the accounting treatment of general fixed assets account group and general long-term debt account group in the US local governments qualifies as double-entry bookkeeping in the public sector accounting area.[12] However, such treatment requires offset accounts for the purpose of maintaining the equilibrium of account groups when this could be handled just as well via a single-entry approach. The documentation prepared therefore consists of little more than mere trial balance and thus this approach is lacking in practical benefits, not unlike processing by self-balancing ledger using a general ledger account that can no longer be seen in the world of business accounting.

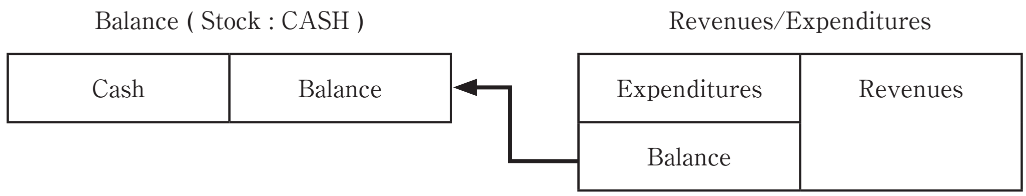
General fixed assets

Fixed assets account	XX	Investment in general fixed assets	XX
Fixed assets account	XX	(Source of financing)	

General long-term debt

Amount to be provided for the retirement of long-term debt	XX	Long-term debt account	XX
Amount available for the retirement of long-term debt	XX	Long-term debt account	XX

If double entry focused on cash (i.e., cash account, used on a temporary basis in public sector accounting during the Meiji Era) and cash flow (i.e., revenue/expenditure accounts) are used rather than double entry at this level, a pair of two statements such as that shown below can be prepared. In this case as well, though, all that can be done is to designate the balance on the flow statement as cash; the stock statement does not constitute a status report but serves only as a trial balance or, more strictly speaking, as a check calculation.

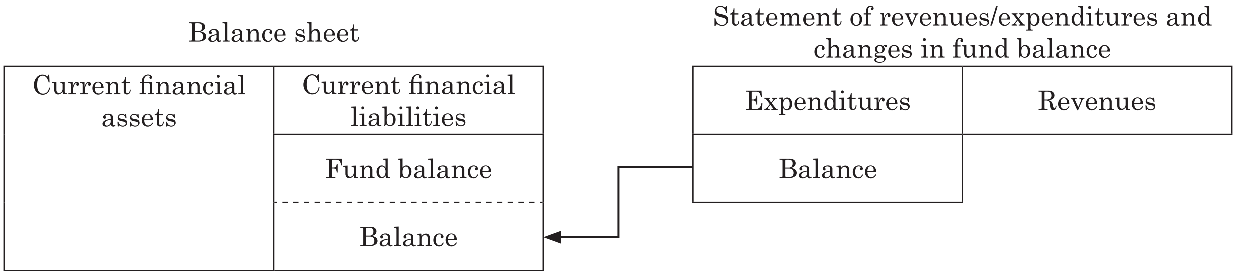


Although double entry as described above may be necessary in manual system where there is the possibility of an error in the course of the mechanical procedures of posting and taking the balance from each account, introduction of such a system is not essential for computer-based accounting as double-entry bookkeeping does not enable the verification of records and facts but only allows the verification of certain records against other records.

A somewhat expanded version of this approach is the accounting treatment for government funds in the US. The double entry used for government funds creates an account for current financial resources and a current financial resources flow account showing the causes of increases/decreases; a

12) See Ives, M., Razec, J.R, Hosch, G.H., *Introduction to Governmental and Not-for-Profit Accounting*, 5th ed., (Prentice Hall, 2004), pp.452 - 454.

statement of revenues/expenditures and changes in fund balance (flow statement) and a balance sheet (stock statement) are prepared as fund financial statements.



This balance sheet does not simply establish the principle of equilibrium but also serves a status report on short-term liquidity, which the following equality shows.

Current financial resources
(Current financial assets - Current financial liabilities)
= Fund balance (Working capital)

However, the balance sheet only calculates the timing differences between cash flow and the flow of current financial resources (unresolved revenue/expenditure items) that arises because the budget is not on a cash basis and, although there are some differences in the way the account adjustment period is established, the only key distinction is whether cash balance transactions occurring during the period are regarded as resolved at the time of settlement and the net stock amount presented (as in Japan) or the total amount shown, with the stock noted as an unresolved item.[13)] Hence, there is no substantial difference in the status report in the cash flow statement and, if the system is presumed to be computerized, the stock statement plays no role in arithmetical proof; the significance of disclosing these unresolved items is thus questionable in the context of a public sector status report although disclosing them might be significant in business accounting and non-profit accounting where liquidity in terms of working capital is emphasized.

In addition, the new accounting-standards for local governments in the US require the economic resources measurement focus on the statement of net assets in government-wide financial statements, and also require that the revenue/expenditure balance be calculated on an accrual basis in the statement of activities. Satisfying these requirements without changing procedures within the conventional accounting system may necessitate either revising work sheet on the basis of fund financial statements in preparing government-wide financial statements,[14)] or employing dual-track accounting system.[15)] If the latter option is consistently adopted, then the acquisition of fixed assets would be journalized as follows in terms of fund accounting,

13) Naturally, there are also differences in the methods adopted to set accounting units and to classify accounts. While these are extremely important issues in comprehending the complex flow of funds in the public sector, this article will assume that these procedures are being carried out appropriately.

14) Ives et al., op. cit., Chap. 10.

15) Wilson, E.R., Kattelus, S.C., Hay, L.E., *Accounting for Governmental and Nonprofit Entities*, 12th ed., McGraw-Hill Irwin, 2001, Chap. 4.

Dr. Fixed asset acquisition expenditures XX Cr. Cash XX

but in preparing government-wide financial statements, the following entry will be added:

Dr. Fixed assets XX Cr. Cash XX

As is obvious from this procedure, one entry in the dual-track double entry will be repeated because three sets of financial statements are needed. To avoid the need for such repetition, additional entries will be made that increase the assets (net assets) on the credit side and will be computed on a stock-type changes in net assets statement, as was once done by not-for-profit organizations in Japan; this essentially double-entry format serves more to reconcile than to articulate financial statements. Like the procedures for preparing cash flow statements in business accounting, dual-track double entry is a reconciliation process done on the work sheet, and there is no need seen for such double entry at the time of the transaction.

By contrast, a long-proposed approach using three financial statements would divide the cash account and set up revenue/expenditure accounts for processing purposes.[16] With this approach, the acquisition of fixed assets is processed as follows:

Dr. Fixed asset XX Cr. Fixed asset acquisition expenditures XX

The accounts divided up by revenue/expenditure would then be summarized in the revenue/expenditure clearing account, and the debit balance carried over as a brought-forward cash account or as a revenue/expenditure clearing account. This procedure uses single-track double entry rather than dual-track double entry and is designed so that the revenues/expense accounts comprising the income statement will be summarized in the profit-and-loss account and brought forward by the equity account. From the perspective of recording transactions during the term and not that of preparing financial statements, however, double-entry bookkeeping does not record all transactions that changes the economic resources but only changes in cash and in debts and credits, clues to the fact of changes in cash in the broad sense. These changes are recorded in the following three patterns:

Dr.	Increase in broadly-defined cash	XX	Cr.	Decrease in broadly-defined cash	XX
Dr.	Increase in broadly-defined cash	XX	Cr.	Cause for increase	XX
Dr.	Cause for decrease	XX	Cr.	Decrease in broadly-defined cash	XX

Consequently, the processing of fixed asset acquisition described above differs from traditional double-entry bookkeeping in that the cause of the decrease in broadly-defined cash is recorded under both credit and debit. While the preparation of financial statements is an acquired role for double-entry bookkeeping, this approach uses double entry only for the preparation of financial statements and, like dual-track double entry, these are superficial entries.

Why, then, are all non-monetary assets/liabilities and not just broadly-defined cash recorded by monetary amount in double-entry bookkeeping? The purpose is not in and of itself to verify books

16) SOMEYA Kyojiro, *Cash Flow Accounting Theory*, (Chuokeizai-sha, Inc., 1999), Chap. 7.

of account and ascertain by monetary amounts all assets/liabilities as stock, but rather to extract the amounts needed for the calculation of income from within the cause records and to compute income as the balance.[17] Double-entry bookkeeping was adopted in order to fulfill that purpose, and articulated financial statements are thereby being derived. This is the status report traditionally prepared in business accounting and, as has been indicated in the examples to this point, the introduction of superficial double entry, if even possible in economic units where the calculation of income is not necessary, only generates reconciliation statements that cannot be expected to serve well as status reports.

4. The significance of accrual accounting

Another assertion made in reforming public sector accounting is the need for full accrual accounting. Advocates of introducing double-entry bookkeeping presume that not only double entry but also accrual accounting will be adopted, because the need is not for financial statements prepared with work sheet but rather, as in business accounting, articulated flow and stock statements based on double-entry bookkeeping. The first step, then, is to examine the meaning of accrual accounting in a business accounting context.

In the conceptual framework of the US Financial Accounting Standards Board, accrual accounting for business enterprises and not-for-profit organizations (excluding the public sector) is defined in the following manner.[18]

"Accrual accounting attempts to record the financial effects on an entity of transactions and other events and circumstances that have cash consequences for the entity in the periods in which those transactions, events, and circumstances occur rather than only in the periods in which cash is received or paid by the entity. Accrual accounting is concerned with an entity's acquiring of goods and services and using them to produce and distribute other goods or services. It is concerned with the process by which cash expended on resources and activities is returned as more (or perhaps less) cash to the entity, not just with the beginning and end of that process."

"Accrual accounting uses accrual, deferral, and allocation procedures whose goal is to relate revenues, expenses, gains, and losses to periods to reflect an entity's performance during a period instead of merely listing its cash receipts and outlays. Thus, recognition of revenues, expenses, gains, and losses and the related increments or decrements in assets and liabilities - including matching of costs and revenues, allocation and amortization - is the essence of using accrual accounting to measure performance of entities."

Accrual accounting is thus an accounting system for cash flow allocation that measures the performance of an accounting unit. Its principle features, especially at business enterprises, are:

(a) The system is not constrained by cash flow in revenue/expense recognition,
(b) The matching principle is applied to the measurement of the cost of sales,
(c) Revenues and expenses arising over the course of time are recorded on an accrual basis, and
(d) Expenses other than those in b) and c) above are, in principle, recognized on the basis of the consumption of goods/services.[19]

In other words, accrual accounting in the context of business accounting is the system for measurement of income that "relates revenues, expenses, gains and losses to periods" and is

17) In order to carry out the calculation of income for a "term" for an accounting unit, it is necessary to grasp not only revenue/expense accounts that can not be grasped through single-entry bookkeeping but also to grasp equity through monetary amount.
18) FASB, *Elements of Financial Statements*, Statement of Financial Accounting Concepts No.6, 1985, paras. 139 and 145.
19) Morita et al., op. cit., pp. 858 – 859 (written by Morita).

concerned with "the process by which cash expended on resources and activities is returned as more (or perhaps less) cash to the entity." More specifically, net income is measured by first measuring revenues on a sales basis, production basis, or collection basis, deducting the costs directly matching with these (the cost of sales), and then adjusting the revenues/expenses arising (earned or consumed) during the period. This measurement is carried out not only to reflect performance in terms of income but also to meet the need for financial capital maintenance.[20]

It goes without saying that accrual accounting as utilized in business accounting would not be directly applicable to public sector accounting, which does not use income as overall measure of the entry's performance. Therefore, let us look at the accounting standards of local governments in the US for one example to explain accrual basis in a public sector accounting context.[21]

"The modified accrual or accrual basis of accounting, as appropriate, should be used in measuring financial position and operating results."

"The accrual basis is the superior method of accounting for the economic resources of any organization. It results in accounting measurements based on the substance of transactions and events, rather than merely when cash is received or disbursed, and thus enhances their relevance, neutrality, timeliness, completeness, and comparability. Accordingly, use of the accrual basis to the fullest extent practicable is recommended in the government environment. The accrual basis is necessarily applied somewhat differently in the proprietary funds (accrual basis) than in the governmental funds (modified accrual basis), however. The cash basis of accounting is not appropriate.

Unfortunately, the terms "accrual" and "accrual accounting" often are interpreted to mean "income determination accounting," and thus to connote the recognition of depreciation in the course of expense measurement. This misunderstanding likely has arisen because most accounting literature centers on income determination and uses the terms "accrual" and "accrual accounting" in that context. It should be recognized, however, that depreciation and amortization are allocations, not accruals, and that "accrual" in a governmental fund accounting context does not mean that depreciation, amortization, and similar allocations should be recognized."

Accrual accounting as it is used here includes both modified accrual basis and accrual basis, and this is a problem of terminology; both accrual basis as well as the system of the recognition of revenues and expenses in accordance with the realization/matching principle are called accrual-basis accounting in business accounting as well. In other words, the term "accrual accounting" is merely used in contrast to cash basis accounting,[22] and describes accounting system for cash flow allocation for given periods to measure income as the entity's performance for business or nonprofit accounting, and other operating results in the case of public sector accounting.

What cash flow allocation is carried out to measure operating results in public sector accounting? Looking at this objective from the standpoint of not-for-profit organizations that, like the public sector, have "no single performance index comparable to profit for commercial enterprises," "information on the nature of resource inflow/outflow and the relationship between inflow and outflow, and information on efforts to provide services" can be given as two performance indices.[23] A variety of information on operating results or performance[24] has been requested in the case of public sector accounting, but it appears that this information is just the information in financial statements prepared in accounting for commercial enterprises and not-for-profit organizations slightly tailored

20) MORITA Tetsuya, 'Notes on Realization Concept and Realization Basis,' Hitotsubashi Review, Vol. 83, No. 1, 1980, pp. 115 – 116.

21) GASB, *Codification of Governmental Accounting and Financial Reporting Standards*, as of June 30, 2000, Section 1600, paras. 103 - 104.

22) Furthermore, it appears that cash basis accounting is often confused with cash flow calculation in public sector accounting discussions. Cash basis accounting is a method for measurement of income that recognized revenues and expenses when cash is received or disbursed during the period, differing from simple cash flow calculation, which includes the inflow/outflow unrelated income measurement.

23) FASB, *Objectives of Financial Reporting by Nonbusiness Organizations*, Statement of Financial Accounting Concepts No.4, 1980, para. 9.

24) GASB, *Objectives of Financial Reporting*, Concepts Statement No. 1, 1987, para. 78, and FASAB., *Objectives of Federal Financial Reporting*, Statement of Federal Financial Accounting Concepts, 1993, paras.122 - 132, 192 – 199.

for public sector accounting. Given a wide range of operating results, cash flow allocation to show operating results cannot be determined unambiguously, as can be seen in the managerial accounting of "Different Costs for Different Purposes." Looking at a number of the statements on operating results prepared nowadays, they differ in terms of the way they address the bottom line but they both provide cost information on an accrual basis.

This differentiation in bottom line stems from the differentiation in cycle of money capital between business accounting and pure-public sector accounting. The former seeks to measure income as a performance index to determine the surplus/shortfall in investment return based on the premise of a 'G-W-G' continual cycle of money capital, i.e., Going Concern, but the latter features no continuous cycle of money capital; the cycle ends with the unilateral financing through taxation and expenditures (consumption) to provide government services. Hence this classification is based on whether the majority of the investment made to provide services is collected as charges from users, not whether the organization is for-profit or not-for-profit. It is only natural then, that showing break-even or net loss as the bottom line of the income statement – apart from the name for the bottom line – offers an index, albeit it not one at the heart of operating results, for organizations in the public sector involved in collecting funds just as for not-for-profit organizations.[25)]

An issue that should be addressed here is that of the operating results of organizations engaged in providing public goods but not in collecting fees. Since depreciation appears to be an unobjectionably typical example of accrual accounting, a numerically simple example should suffice.

(Example)

There are no assets or liabilities at the beginning of the FY.

Tax revenues are the only financial resources.

Assume that a unit buys a fixed asset for 30,000 yen that lasts for three years and at the end of 3rd FY is worthless. It uses straight-line depreciation method, as its services can be provided equally over the useful life.

Running costs are 5,000 yen p.a. in cash settlement at the end of every FY.

The financial statements for the three years are as follows.[26)]

Cash flow statement

	1st	2nd	3rd	Total
Revenues	35,000	5,000	5,000	45,000
Expenditures	35,000	5,000	5,000	45,000
Balance	0	0	0	0

Statement of costs and financial resources

	1st	2nd	3rd	Total
Costs	15,000	15,000	15,000	45,000
Financial resources	35,000	5,000	5,000	45,000
Balance	20,000	△ 10,000	△ 10,000	0

Balance sheet

	1st	2nd	3rd
Assets	20,000	10,000	0
Liabilities	0	0	0
Balance	20,000	10,000	0

25) Anthony, R.N., *Rethinking the Rules of Financial Accounting*, McGraw-Hill, 2004, pp.127 – 128.

26) In this example, cash and current financial resources flow are equal in amount. Several formats (combined /separated) and names can be used depending on the approach taken to the bottom line in the statement but, for the sake of convenience, they have been combined into the change in the asset/liability differential and presented as a statement of costs and financial resources. The balance sheet, too, is based on an equation "Assets−liabilities=Equity" to illustrate the linkage directly.

Does it make any sense to depreciate assets in above case? As is well known, depreciation in business accounting is used as the pricing decision of goods/services in managerial accounting, while in financial accounting it is solely a procedure for measurement of income that takes the process of matching in the case of cost of sales and recovery calculations in the case of other expenses. As there is no need to set selling prices in the case of public goods and therefore no need to measure the income, depreciation for the public sector, even if possible formally, does not have the same significance as in business accounting and indeed is no more than unilateral allocation of expenditures. There may well be plans to compare the costs hereby calculated not with revenues but with non-financial information, but including depreciation expenses, which are non-controllable past costs, in measurements of the results for an organization for which measures accountability rather than profitability seems to serve little purpose.

If this is advance information, then it can be used in deciding on the amounts of taxes to be collected by matching taxation with costs (matching revenues with costs), the opposite of standard practice in business accounting (matching costs with revenue). Supposing that 30,000 yen in government bonds (ignoring interest for the sake of simplification) were issued for this purpose at the start of the 1st FY with a redemption period of 3 years (amortization of 10,000 yen at the end of each FY) and that taxation is 15,000 yen for each FY, the financial statements will be as follows.

Cash flow statement

	1st	2nd	3rd	Total
Revenues	45,000	15,000	15,000	75,000
Expenditures	45,000	15,000	15,000	75,000
Balance	0	0	0	0

Statement of costs and financial resources

	1st	2nd	3rd	Total
Costs	15,000	15,000	15,000	45,000
Financial resources	15,000	15,000	15,000	45,000
Balance	0	0	0	0

Balance sheet

	1st	2nd	3rd
Assets	20,000	10,000	0
Liabilities	20,000	10,000	0
Balance	0	0	0

As a result, the costs of services consumed are borne by the tax revenues for the same FY, and it becomes possible to seek "interperiod equity." [27] Examining the example from the perspective of interperiod equity, the 1st FY taxpayers shoulder the entire burden for the fixed asset investment, while the 2nd and 3rd FY taxpayers receive the provision of government services without any financial burden. In particularly problematic cases where liabilities are repaid over a period exceeding the useful life and current-term administrative expenses are financed through borrowing, present taxpayers will shift the financial burden onto future taxpayers who cannot participate in decision making.

Needless to say, this interperiod equity is not a problem arising as a consequence of past expenditures being allocated as expenses, but is rather a problem of public finance. The operating results of organizations clarify the ways in which funds are used, but by their nature they are unconnected with the source of those funds.

27) See GASB, op. cit., 1987, paras. 59~61, 82~87. Only depreciation expenses were examined here for the sake of simplification, but repair expenses and all other expenses connected with fixed assets are included therein.

Support for depreciation has also been grounded in the benefits of self-financing but, as has been demonstrated in this example, these benefits are not present in public sector accounting, much less in bussiness accounting, when there is no revenue to recover the full amount invested rather than financial resources. The self-financing benefits that do arise in such instances appear only when financial resources for fixed assets already exist at the beginning of the 1st FY and depreciation and other expenses are entirely recovered through tax revenues, i.e., revenues are equal to expenditures plus total depreciation costs; this, however, flies in the face of the principle of one-year budgets.

There is thus no evident justification for depreciation to show the operating results of public sectors, and this point is obvious in the US' modified accrual-basis accounting. If depreciation is used not to reduce value unrelated to operating results but instead is used for showing the operating results report, then some justification other than accrual basis will likely be needed.[28)]

However, just because depreciation is not required does not mean that conventional cash flow statement is sufficient as operating results reports. The following classification will inevitably become necessary, with the difference between tax revenues and acquisition costs, running cost, & c. – that portion corresponding to free cash flow in business accounting – serving as the operating results report. These figures can be thought of as more than cash flow and current financial resources flow; they can be considered operating results in accordance with cash basis accounting or modified accrual accounting. Adjusting this with the cash flow from financial activities as a financial resource allows it to serve simultaneously as a cash flow statement.

Of course, there is little meaning to a single-year report, but disclosing cash flow for a long-term (for example, 10 years) may work as a status report.

If the bottom line on the operating results report is to be regarded as the "current" operating results, then a balance sheet as shown below summarizing as stock (revenue/expenditure differential) the disparity between operating revenues/expenditures belonging to the current FY and actual receipts/expenditures could be prepared.[29)]

Cash flow statement

	1st	2nd	3rd	Total
Tax revenues	15,000	15,000	15,000	45,000
Expenditures				
Acquisition costs	30,000	-	-	30,000
Running costs	5,000	5,000	5,000	15,000
Balance	△ 20,000	10,000	10,000	0
Borrowing	30,000	-	-	30,000
Redemption	10,000	10,000	10,000	30,000
Balance	0	0	0	0

28) On the significance of depreciation for the public sector, see also SAITO Shinya, 'Computation Structure in Local Governments' in *Accounting for Not-for-Profit Organizations* (SUGIYAMA Manabu, SUZUKI Yutaka (auths and eds.), (Chuokeizai-sha, Inc., 2002)), Section II, Chapter 3.

29) On this point, see also NITTA Tadachika (auth and ed.), *Introduction to Financial Accounting and Bookkeeping Theory*, 2nd Edition, (Hakuto Shobo, 2004), Chapter 1.

Balance sheet

	1st	2nd	3rd
Assets	0	0	0
Liabilities			
Borrowing	20,000	10,000	0
Balance	△ 20,000	△ 10,000	0

5. Conclusion

This article has examined the significance of introducing double-entry bookkeeping and accrual accounting into public sector accounting, that is today taken for granted. The article has also shown that, while superficial introduction of these methods might be possible, the significance of such a switchover is by no means clear.

Of course, even if double-entry bookkeeping and accrual accounting are introduced, double-entry bookkeeping (in subsidiary books) and accrual accounting (in cash flow statement) will include the system used thus far and, aside from the costs of introducing, operating and auditing a new system, there is no reason to reject the introduction of these approaches. However, those countries that have adopted accrual accounting have all done so on the basis of a special journal system, and none of them had previously prepared inventory (Inventar) of all resources. In the UK and similar countries, the data needed has been accessible at all times from day books and other auxiliary books, and balance sheet is not considered as a part of the double entry system; hence, these countries have been able to adapt flexibly to changes in status reports.[30] The books of account is simply a part of a database, then, and balance sheet can exist entirely independently of past records such as inventory (Inventar).

Status reports for the government as a whole have featured a variety of statistical data using economics methodology. In recent years, countries that have introduced accrual-basis accounting have sought to harmonize this approach with System of National Accounts and to substitute accounting data for statistical data, but often this gives rise to the danger of introducing market prices and estimates into the world of accounting.

Business accounting has traditionally shown the performance of companies by the allocation of cash flow in accordance with GAAP. Today, though, the economic concepts of income is extending beyond financial instruments and gradually making their way into business accounting. The introduction of cash flow statement, the international convergence of accounting standards, and the enhancement of accounting auditing have functioned as buffers to ensure objectivity, even as performance reports continue to become more subjective by including elements of uncertain future estimates.

Public sector accounting should perhaps be content with adopting "business accounting-like" methods. Naturally, problems must be discovered through trial and error and the precision of financial information improved. The first step that should be taken in today's critical situation, however, is to utilize economics to determine the status of the government as a whole without becoming fixated on highly precise measurements, all the while bolstering managerial accounting at the micro level.[31]

For the long-term debt, a growing problem in recent years, the equation "Assets (historical or replacement cost) – Liabilities = Equity" does no more than explain the debt and does not show the solvency. For that reason, proposals have been made suggesting that the present value of future tax

30)ANDO Hideyoshi, *Bookkeeping and Accounting Research*, (Chuokeizai-sha, Inc., 2001), Chapter 3, and SASAKI Takashi, 'Two Systems for Accounting Processing,' *Industrial Management and Accounting*, Vol. 53, No. 4, 1994.

31) See Anthony, op. cit., pp. 212~214.

revenues be reported as assets, but this falls outside the realm of accounting. If a new accounting system is to be introduced, the need will be less for financial accounting information and more for managerial accounting information. Opinions vary over just how far such information should be disclosed, but the benefits from introducing "soft" measurements (managerial accounting) will become clear through time-series analysis of status reports focused on "hard" measurements (cash flow).