THE

KYOTO UNIVERSITY

ECONOMIC REVIEW

MEMOIRS OF THE FACULTY OF ECONOMICS
IN THE KYOTO UNIVERSITY

CONTENTS

COMPARATIVE ANALYSIS OF THE OLD JAPANESE BOOKKEEPING METHOD WITH THE WESTERN BOOKKEEPING METHOD

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I A New Methodology in Comparative Accounting History

From surveying many studies on the old Japanese bookkeeping method developed and practised in mid-Edo era (the 18th century), it will be observed that all these studies are using the Western bookkeeping method (so-called "double-entry bookkeeping method," introduced into this country from U. S. A. and U. K. in 1870's) as the principal reference in measuring or evaluating the level of evolution of the old Japanese bookkeeping method.

However, if we want to identify not only the continuity but also the discontinuity between the old Japanese bookkeeping method and the Western bookkeeping method as a historical matter, it then becomes necessary to construct a new methodology in comparative accounting history that would allow us simultaneous analysis of both the latent generalities and the apparent differences between the two bookkeeping methods.

Then, in order to proceed, where should we start from? Obviously, it will be our first task to give a clear indication as to the position of the Western bookkeeping method and the old Japanese bookkeeping method (which had advanced to a level comparable to that of the West) in a certain bookkeeping system, by using some criteria which would enable us to identify most effectively the common characters and the differences existing between the two bookkeeping methods.

In my thoughts, the fundamental bookkeeping system which we can call "dual classification bookkeeping system" or "two-dimensional bookkeeping system" could be distinguished into the "sole addition-using bookkeeping method" and the "both addition-and subtraction-using bookkeeping method", according to the difference in computation, namely, whether it uses solely addition combining addition and subtraction by addition, or it makes use of both addition and simple subtraction. Furthermore, as sub-division, these two constituents of the dual classification bookkeeping system could be divided, depending on the writing manner used in recording, into the "left-to-right horizontal writing bookkeeping method" and the "right-to-left vertical writing bookkeeping method," except the Arabic writing bookkeeping method.

This means that the dual classification bookkeeping system is constituted by (at least) four different bookkeeping methods as follows:

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1) Sole addition-using, left-to-right horizontal writing bookkeeping method (=the original Western bookkeeping method)

2) Sole addition-using, right-to-left vertical writing bookkeeping method (=the translated Western bookkeeping method in early Meiji era[1])

3) Both addition- and subtraction-using, left-to-right horizontal writing book-keeping method (=the new Chinese increase and decrease bookkeeping method[2])

4) Both addition- and subtraction-using, right-to-left vertical writing bookkeeping method (=the advanced old Japanese bookkeeping method)

(Here the corresponding actual bookkeeping methods are put in parentheses.)

As has been pointed in Leitner's dictum that "account knows only subtraction by addition (additive Subtraktion)[3]," the Western bookkeeping method is the sole addition-using, left-to-right horizontal writing bookkeeping method. On the contrary, the old Japanese bookkeeping method can be interpreted as the both addition- and subtraction-using, right-to-left vertical writing bookkeeping method. Therefore, by using algebraic expression which represents adequately the common characters and the differences existing between these two bookkeeping methods, it would be possible to build an ideal type model of the old Japanese bookkeeping method which corresponds to the Western bookkeeping method under the dual classification bookkeeping system.

Accordingly, we should first build the old Japanese bookkeeping model, and then, using the model as criterion for comparison, we shall try to trace how the old Japanese bookkeep method, which was used in the large merchant houses in mid-Edo era, was close to that model.

II Building the Old Japanese Bookkeeping Model

In the dual classification bookkeeping system, the movement (increase and decrease) in [elements of] business fund is composed (classified and summarized) as dual or two-dimensional movement of [elements of] the assets (using form of business fund) and the equities (raising form of business fund, consisting of the liabilities as creditor's equity and the capital and profit as owner's equity).

Such principal characteristics of the dual classification bookkeeping system can be expressed by the equation of business fund movement:

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1) As represented by Yukichi FUKUZAWA, *Choai no Ho* (Bookkeeping Method), Vol. 2, 1874, which was his translation of Part II "double entry" of H. B. Bryant and H. D. Stratton, *Common School Bookkeeping*, 1871, the translated Western bookkeeping method transformed, in accordance with the Japanese writing manner of that time, the left-to-right horizontal writing into the right-to-left vertical writing. However, this particular bookkeeping method had an only limited role as intermediary buffer in the transition process from the both addition- and subtraction-using, right-to-left vertical writing bookkeeping method to the sole addition-using, left-to-right horizontal writing bookkeeping method.

2) The both addition- and subtraction-using, left-to-right horizontal writing bookkeeping method was devised in China in 1964 as "increase and decrease bookkeeping method." See Paul Kircher, "Accounting Revolution in Red China," *Financial Executive*, February 1967, pp. 39ff.

3) Friedrich Leitner, *Grundriss der Buchhaltung und Bilanzkunde*, I. Band, 1909, S. 36

$$\Sigma a^+ - \Sigma a^- = \Sigma l^+ - \Sigma l^- + \Sigma c^+ - \Sigma c^- + \Sigma p^+ - \Sigma p^- \qquad (1)$$

or, by means of five equations obtained by dissolving the equation (1):

$$\Sigma a^+ - \Sigma a^- = \Sigma a \qquad (2)$$
$$\Sigma l = \Sigma l^+ - \Sigma l^- \qquad (3)$$
$$\Sigma c = \Sigma c^+ - \Sigma c^- \qquad (4)$$
$$\Sigma p = \Sigma p^+ - \Sigma p^- \qquad (5)$$
$$\Sigma a = \Sigma l + \Sigma c + \Sigma p \qquad (6)$$

(Here the increase, decrease and balance of elements of the assets, liabilities and capital are a^+, a^- and a, l^+, l^- and l, c^+, c^- and c, and the gross increase [revenue], decrease [expense] and balance of elements of the profit are p^+, p^- and p, respectively.)

Because all subtractions are converted into subtraction by addition[4] in the sole addition-using, left-to-right writing bookkeeping method, such characteristics can be expressed by the following five equations which consist of the positive terms obtained by transposing the negative term of equations (2) to (5) to the opposite side:

$$\Sigma a^+ = \Sigma a^- + \Sigma a \qquad (7)$$
$$\Sigma l^- + \Sigma l = \Sigma l^+ \qquad (8)$$
$$\Sigma c^- + \Sigma c = \Sigma c^+ \qquad (9)$$
$$\Sigma p^- + \Sigma p = \Sigma p^+ \qquad (10)$$
$$\Sigma a = \Sigma l + \Sigma c + \Sigma p \qquad (6)$$

On the contrary, in the both addition- and subtraction-using, left-to-right horizontal writing bookkeeping method, all subtractions are operated without transposing them into subtraction by addition.   Therefore, such characteristics could be expressed by the following five equations, apposing intact, without transposing the negative term.

$$\Sigma a^+ - \Sigma a^- = \Sigma a \qquad (2)$$
$$\Sigma l^+ - \Sigma l^- = \Sigma l \qquad (11)$$
$$\Sigma c^+ - \Sigma c^- = \Sigma c \qquad (12)$$
$$\Sigma p^+ - \Sigma p^- = \Sigma p \qquad (13)$$
$$\Sigma a - \Sigma l - \Sigma c = \Sigma p \qquad (14)$$

In the same manner, the distinctive characteristics of the sole addition-using, right-to-left vertical writing bookkeeping method could be expressed by the following unique equations, reversing the left and right sides of the equations (6) to (10) (or, moving to the upper and lower sides):

$$\vdots$$

$$\Sigma p^+ = \Sigma p + \Sigma p^- \quad \text{or} \quad \frac{\Sigma p + \Sigma p^-}{\Sigma p^+} = \qquad (15)$$

4) As *al-gebr*, from which the word "algebra" is derived, refers to the fact the negative term on one side of an equation may be made positive by adding the same magnitude of different sign to both sides, "account-computation operates through 'subtraction by opposition' or 'subtraction by contraposition'." (A. C. Littleton, *Accounting Evolution to 1900*, 1933, p. 24.)

$$\Sigma p + \Sigma c + \Sigma l = \Sigma a \quad \text{or} \quad \Sigma p + \Sigma c + \overset{\Sigma a}{\Sigma l =} \qquad (16)$$

(Here omissions are made with the exception of the two equations of income calculation and property calculation in summarizing procedure as the condensed bookkeeping process.)

In addition the distinctive characteristics of the both addition- and subtraction-using, right-to-left writing bookkeeping can be expressed in the following unique equations, reversing the left and right sides of the equations (2), (11) to (14), and giving the sign for minus as ← (or →) indicating the direction of subtraction:

$$\vdots$$

$$\Sigma p = \Sigma p^{-} \leftarrow \Sigma p^{+} \qquad (17)$$
$$\Sigma p = \Sigma c \leftarrow \Sigma l \leftarrow \Sigma a \qquad (18)$$

(Here similar omissions are made again with the exception of the two equations as algebraic expressions of summarizing procedure.)

Naturally, in order to convert these equations into the visual recording forms used in each bookkeeping method, the sign for equality of the equations expressing the sole addition using bookkeeping method should be converted to T form (or into ⊣ form so that the left and right sides can be moved to the upper and lower sides) and the sign for minus and equality of the equations expressing the both addition- and subtraction-using bookkeeping method should be combined into Π form.

Through such conversion, we can obtain the following figures which would show the Japanese bookkeeping model as an ideal type of the both addition- and subtraction-using, right-to-left writing bookkeeping method in contrast with the Western bookkeeping method:
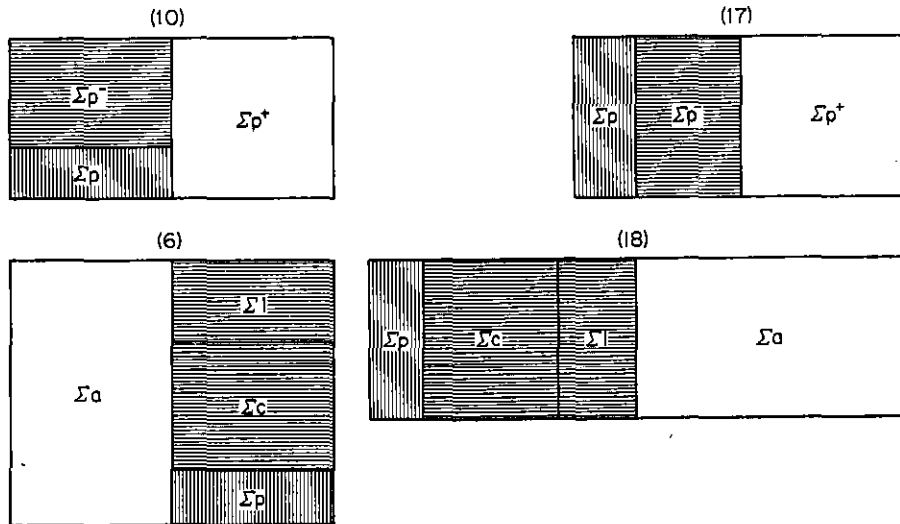
III Model Analysis of the Old Japanese Bookkeeping Method

After building the Japanese bookkeeping model, we may apply it to some actual bookkeeping methods practised in the large merchant houses in mid-Edo era to measure or evaluate the level of evolution of them.   However, in respect that there exist no complete materials of whole bookkeeping process which consists of collecting, classifying, summarizing and (internal) reporting procedures, our model analysis must be focused on the summarizing and (internal) reporting procedures which allow us access to relatively abundant historical materials.

It should be notified here that the bookkeeping of the large merchant houses in mid-Edo era consisted of the bookkeeping at the holding and operating head office jointly owned in the family (partnership) equity and of the bookkeeping at the autonomous branches as sub-entities in which quasi-equity was held by the head office as surrogate proprietor through capital contributions.   When the Japanese bookkeeping model is compared with the summarizing and (internal) reporting records of the head office bookkeeping or the branch bookkeeping of the large merchant houses in mid-Edo era, we can find two different groups of cases.

In Case I the model, with slight modifications, corresponds with records, while in Case II this does not readily happen as indicated below:

Case I–1   Edo Branch of House of Hasegawa, 1707

$$\Sigma p = \Sigma p^- \leftarrow \Sigma p^+ \quad \Sigma p = \Sigma c \leftarrow (\Sigma l \leftarrow \Sigma a)$$

Case I–2   Head Office of House of Mitsui, the first half of 1710

$$\Sigma p = \Sigma p^- \leftarrow \Sigma p^+ \quad \Sigma p = \Sigma a \rightarrow (\Sigma l + \Sigma c)$$

Case I–3   Sendai Branch of House of Nakai, 1801

$$\Sigma p = \Sigma p^- \leftarrow \Sigma p^+ \quad \Sigma p = \Sigma a \rightarrow (\Sigma l + \Sigma c)$$

Case I–4   Nanbu Branch Family Office of House of Ono, 1837

$$\Sigma p = \Sigma p^- \leftarrow \Sigma p^+ \quad \Sigma p = \Sigma a \rightarrow (\Sigma l + \Sigma c)$$

Case II–1   Head Family Office of House of Konoike, from September to December 1669

$$\Sigma s = \Sigma p^- \leftarrow (\Sigma p^+ + \Sigma c) \quad \Sigma s = \Sigma l \leftarrow \Sigma a$$

Case II–2   Joshu Branch of House of Tomiyama, the second half of 1707

$$\Sigma s = \Sigma l \leftarrow \Sigma a \quad \Sigma s = \Sigma p^- \leftarrow (\Sigma p^+ + \Sigma c)$$

Although at Edo Financial Branch of House of Tomiyama, for the second half of 1756, the latter summary recording procedure was operated as:

$$\Sigma s = (\Sigma p^- \leftarrow \Sigma p^+) + \Sigma c$$

Case II–3   Osaka Financial Branch of House of Tomiyama, the first half of 1758

$$\Sigma s = \Sigma a \rightarrow \Sigma l \quad \Sigma s + \Sigma p^- = \Sigma p^+ + \Sigma c$$

When Σc is added to the both sides of equations (17) and (18), and $\Sigma p + \Sigma c$ is replaced with Σs, we can obtain the following two equations:

$$\Sigma s = \Sigma p^- - \Sigma p^+ + \Sigma c \qquad\qquad (19)$$
$$\Sigma s = \Sigma l - \Sigma a \qquad\qquad (20)$$

It will be seen from above examples that while both Case I and Case II have a clear distinction between capital and profit, in Case I the double profit measurement is operated in term of income calculation and property calculation, whereas in Case II the double net property calculation is operated in terms of capital plus income calculation and property calculation by omitting the profit measurement.

Surely, in order to measure the net property in Case I, it is necessary to supply the calculation $\Sigma s = \Sigma p + \Sigma c$. Nevertheless, because the profit measurement is accomplished in Case I, it will be beyond all doubts that Case I is more advanced than Case II. In fact Case I shows a level of evolution comparable to the Western bookkeeping method.

In conclusion, the old Japanese bookkeeping method can be evaluated to have already attained almost the same level with the Western bookkeeping method in the early years of the 18th century. For this reason, after introducing the Western bookkeeping method in 1870's, the old Japanese bookkeeping method was easily convertible into the Western bookkeeping method first by changing the computation from the both addition- and subtraction to the sole addition, and then by converting the writing manner from the right-to-left vertical writing to the left-to-right horizontal writing.