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Nishimura, Akira

https://doi.org/10.15017/4493020

出版情報：經濟學研究. 57 (3/4), pp.109-120, 1992-08-10. 九州大学経済学会
バージョン：
権利関係：

THE DEVELOPMENT AND FUTURE OF MANAGEMENT ACCOUNTING IN JAPAN AND THE U. S. A.: A COMPARISON OF MANAGEMENT PHILOSOPHIES

AKIRA NISHIMURA

1 DEVELOPMENTS IN JAPAN AND THE U. S. UP TO THE 1970s

A. JAPAN

From the 1950s to the 1970s for Japan was a period of management accounting by government orientation. This period witnessed the establishment of modern management organization and accounting control involving the formation of modern stock companies after the dissolution of the pre-war financial cliques (Zaibatu). The new, modern stock companies organized their management organization and control systems according to the separation of ownership and management. Internal control and organizational division according to profit planning or budgetary control was a definite example of this development. Japanese companies adopted profit planning and budgetary control extensively from the 1950s to the 1960s, because foreign government, foreign investors, and banks requested them to bring forward their plans for fund usage. Big Japanese companies made good use of these foreign funds to reconstruct facilities damaged by the war. Companies' reliance on banks also characterized the nature of Japan's management accounting after the Second World War. Thus, it is a characteristic of Japan's management accounting that budgetary control and profit planning were adopted more extensively and earlier than standard costing or direct costing. (see Table 1)

In response to these demands, Japanese government leadership established modern management accounting in Japan by introducing advanced accounting systems from the U. S. A. after the Second World War. The Ministry of International Trade and Industry (MITI)'s Industrial Rationalization Council played a critical role in promoting the spread of modern management accounting. From July 1951 to the 1970s MITI published the following reports on modernization: General Principles of Internal Control in Business Enterprises (July, 1951), Outlines of Procedures related to Execution of Internal Control (February, 1953), Profit Planning for Implementation of Business Policy (July, 1956), Profit Planning in Division System of Business Enterprises (August, 1960), Cost Management (November, 1966), and The Coming Policy of Business Finance in 1972.

After 1966 when the Industrial Rationalization Council drafted the former four reports, it

Table 1 Popularization of Planning in Japanese Companies

	Research Institute	
	Society for the Study of Business Accounting	Yoshio Aida
Year of investgation	October 1975	September 1964
Investigated number Answerers Ratio of collection	522 companies 151 companies 28.9%	1100 companies 354 companies 32.2%
Over 85%	fund plan (95.4%) profit plan (93.4%) budgetary control (92.7%) plan for investment in plant (92.7%) monthly profit and loss statement (91.4%) long-range plan (87.4%) financial statement analysis (85.4%)	finacial statement analysis(91%) monthly profit and loss statement (86%)
From 85% to 50%	internal audit (74.8%) break even point analysis (70.2%)	budgetary contol (83%) fund plan (83%) profit plan (81%) plan for investment in plant (79%) break even point analysis (75~80%) long range plan (75%) internal audit (57%)
Below 50%	standard costing (47.7%) direct costing (40.4%)	direct costing (43%) standard costing (41%)

Source: Research on New Commercial Law and Accounting, *Bulletin of Cultural Science Institute at Ritumeikan University,* No. 22, April 1976. Yoshio Aida, *Actual Situations of Companies' Management Accounting,* March 1966, pp. 39, 81-89.

assumed a new name: "Industrial Structure Council." The change from "Rationalization" to "Structure" likewise meant a change in the character of Japanese management accounting to a structural approach. This will be examined further below.

While developments were ongoing in technical matters, a sea change in consciousness was transpiring: the movements to raise national productivity and rationalize industry. These two movements had far-reaching implications for rebuilding a national consciousness that would reorganize the domestic economy and revive private companies. The general pre-war and war-time irrational and wasteful militaristic consciousness shifted towards economic rationalization by implanting the concept of profit and cost in the minds of managers and workers. This development also promoted the spread of accounting control and the application of modern management accounting to changing environments. Please note however that in this case, modern management accounting does not mean the recent quantitative model analysis or target costing, but the traditional budget control or standard costing method. Since the national movement's goals were reorganization and revival, themselves popular goals, new scientific management methods were easily established on the back of this popularity.

Turning now to the concrete characteristics of post-war Japanese accounting methods, first we should note that Japanese management accounting made much more of control than decision making. This was primarily owing to the demands of foreign loans and their management. Second, Japanese management accounting made the best use of human factors related to productivity. When the two characteristics are combined, the control function acts to plan production and sales and coincide actual processes with plans under a regime that seeks the total management of employees in comparison with the strong orientation of top managers' management in the U.S. But as a result of the national movement to increase productivity, the division between management and employee blurred resulting in management planning incorporating a strong human factor.

B. THE UNITED STATES

In contrast to Japan, U. S. management accounting from the 1950s moved towards planning or strategy. In the second half of the 1960s, a decision making style of accounting came to dominate. In the U. S. A., information theory played a more important role in all fields of accounting than in Japan, because information was thought to be indispensable to make a decision in management. Not only financial information, but also other information related to the business environment was collected for the purpose of planning and controlling management activities. Managers expected to make the best decision by using this information in models. Scholars, together with accountants and managers, developed concrete profit maximum or cost minimum models for decision making. Here, I would like to add that although accounting information as well as other information is useful for forming decision making models, we must make an exact distinction between accounting and other information from the viewpoint of accounting theory. In this case, we have to bear in mind that profit (or cost) plays the decisive part as accounting information in the management accounting model.

As stated above, American accountants developed profit maximum or cost minimum models and adapted them to changing environments by alteration or by creating new models. To cite the example of cost-volume-profit (C-V-P) analysis, they invented a linear programming model under the condition of multi-product production. They also created a non-linear C-V-P analysis model, which supposed that unit prices of materials or parts, or the sale price changed. When they could not estimate sales with certainty, they devised a C-V-P model that incorporated probability. This is true of the inventory quantitative control model. (see Table 2)

We should keep in mind that in the case of model analysis, accounting was dealt with as information or an information system to support decision-making for management. It is certain that putting accounting information in the same file as other economic and non financial informa-

Table 2 Comparison of the U. S. A. and Japan on Quantitative Analysis

Area	Method	American companies (1)	(2)	(3)	Japanese companies (1)	(2)	(3)
Cost analysis	regression analysis	91	21	23.1	108	5	4.6
	multiple regression analysis	91	14	15.4	108	5	4.6
C-V-P analysis	probability/decision theory	68	27	39.7	28	5	17.9
	mathematical programming	68	17	25.0	28	6	21.4
Allocation of service dept. charges	matrix algebra	102	8	7.8	168	6	3.7
Distribution of joint cost	mathematical programming	46	1	2.2	69	0	0
	game theory	46	0	0	69	0	0
Allocation of overhead cost	mathematical programming	102	1	1.0	168	2	1.2
Investigation of variance	Bayes' statistics	101	2	2.0	167	0	0
Decision making	regression analysis	102	2	2.0	167	b0	0
					129	s3	2.3
	control chart	101	16	15.8	167	b3	1.8
					129	s7	5.4
Cash flow	probability	57	23	40.4	32	4	12.5
Analysis	simulation	57	6	10.5	32	19	59.4
Capital budget	mathemetical programming	100	18	18.0	161	6	3.7

Source: Yutaka Katou, *Development of Management Accounting Studies,* 1989 pp. 121.
(1)represents the number of answerers, (2) the number of adopters, and (3) the ratio of adopters to the answerers. b and s mean budget and standard.

tion enlarged the sphere of adaptation and made it easy to construct models for decision making. However, such a theory of information made the special function of accounting vague and resulted in reducing accounting to the level of general information.

Not all was lost however, and in this regard, we need to pay intention to the works by Demski[1] in the U. S. A. and Samuels[2] in the U. K., which argue the special function of accounting (particularly, profit variance analysis). Nobody can deny that, in any case, American accountants have successively developed creative models which contribute much to the development of management accounting.

2 CHARACTERISTICS OF CONTEMPORARY JAPANESE MANAGEMENT ACCOUNTING: TARGET COSTING AND THE JUST-IN-TIME SYSTEM

Recent rapid progress in high technology (automation of production processes and computerization in office services) and keen competition in the international market changed management accounting systems in the U. S. A. and Japan. Recently, small quantity production of multiple products walks ahead of mass production of the same product. At the same time, all companies focus on product strategy as a result of acute competition in the international market. Nowadays companies must ceaselessly research and develop new products that anticipate trends, and these products must be cheap and of high quality. All present management accounting in advanced

nations therefore put importance on how to calculate and control profitability and cost related to such kinds of market-strategic products.

Japanese companies have striven to research and develop the strategic product more strongly than American companies, because they have aimed at international competitive power since the end of the Second World War. Particularly in the 1970s, Japanese enterprises that encountered heavy shocks from the formation of OPEC and the subsequent rise in oil prices responded by reducing their management costs. They made every effort to improve business structure and rationalize production to strengthen their flexibility and competitive power in the international market.

By the 1970s, Japanese enterprises established modern management accounting : budgetary control and standard costing. They also applied these methods to actual situations from a Japanese standpoint. A new stage of management accounting commenced on the base of these past practices after the end of the 1970s. From the 1970s to now private enterprises have led the way in creating a new style of management accounting.

In the same period, American management accountants have incessantly tried to develop the quantitative model : Economic Optimum Quantity, profit maximum model, and so on. On the other hand, Japanese have devoted themselves to creating and perfecting the just-in-time system, the major response to the oil shocks of the 1970s that involves zero inventory to settle problems of fund shortages caused by excess inventory. The result was a tailoring of production to exactly fit variable demand thereby insuring optimum liquidity from moment to moment to cope with sudden and unexpected price rises in basic supplies such as energy.

Though the just-in-time system became popular in the 1970s, private enterprises have long been developing it in cooperation with the government. At the same time, enterprises also established other control systems, for example, a physical distribution management system or a control system over the subcontractor for a total quality control system that supports the just-in-time system. The subcontractor system purchases needed amounts of materials and parts, and produces the exact required amount of finished products, whenever they are ordered. It is a principle of the system that an enterprise only starts to produce whenever a customer issues an order. Thus, it is a global management system involving production management, quality control, inventory management, personnel management, and so on.

Because traditional cost management of efficiency orientation was not fit for this system, it was necessary to construct a new cost management regime beginning from production and looking forward to the market and the customer. The critical activity for enterprises is to create cheap and high quality products, with consideration given to increasingly short product life cycles. Therfore, research and development plays the most important role in improving the technology

and quality of production. Cost management, cost design, cost target, or "genka kaizen" (improvement of cost) all took and still takes an active part in such a global management as the just-in-time system. Japanese enterprises have exerted themselves to calculate and control the cost and quality of products in the product design stage. Consequently they were able to get a bigger market through incremental improvements of technology, parts, and production methods.

Enterprises pursued improvement and effectiveness over the entire industrial structure, business organization, and production process since the end of the Second World War, but MITI clearly presented a new idea in the "Cost Management" report of 1966, as mentioned above. MITI's "Cost Management" focused on cost planning and control involving structural improvement in the fields of national economy, industries, and enterprises. Under the guidance of the recommendation, every company exerted itself for cost reduction and improvement of product quality from the angle of profit management. The yardstick of cost management shifted from efficiency management to cost reduction, that is from standard costing to a rearrangement of enterprise ownership and structural changes in business organization. Standard costing has a tendency to associate more strongly with the target cost induced from the market than cost efficiency induced from changes in the production process. Cost reduction rather than standard costing carries out a daily cost assessment accompanying operational cost improvement (Genka Kaizen).

In conclusion, after the war, Japanese enterprises actively applied the traditional budget control and standard costing to changing business environments to strengthen their international competitive power. But since the 1970s, they have tried to establish a menagement system and management accounting according to the just-in-time system, simultaneously and positively adopting computers to business management. The main fruit of the new management accounting is target costing or cost design. This, connected with the Kanban (just-in-time) system, directly resulted in the present, successful Japanese business management style.

Management accountants in the U. S. A. have developed many advanced theroies and models of management accounting more successfully and creatively than in Japan. However, in international business competition, American enterprises have lagged behind Japanese enterprises. American accountants at first thought that their defeat might have been caused by an incomplete relevance of management accounting to actual business organization and production process. Then, they not only eagerly learnt Japanese management systems and accounting systems, but also began work on creating new systems. As a result, they succeeded in creating the Activity Based Costing (ABC) system[3]. The ABC system focuses on human activities and movement of resources in allocation of product cost. According to this system, production factors (input) do not relate simply to finished products (output), but their cost is distributed among products

through the activities of personnel. Even if every product uses the same quantity of production elements, the distributed cost of the product is not the same since there are different activities for the same type of product. The reason is that each activity differs in the employment of resources. Therefore, the same type of finished products have different costs because of different cost drivers. We can definitely recognize the difference of product cost between strategic products and non strategic products by using this method. It is certain that the ABC system shifted the viewpoint of analysis from a quantitative to a qualitative or structural concern.

3 COMPARISON OF MANAGEMENT ACCOUNTING BETWEEN THE U. S. AND JAPAN

We can summarize the above into Figure 1. It is important to comment on a few points of the figure. Figure 1 represents a general trend in management accounting. This trend was widespread until Kaplan and Johnson[4] criticized the traditional average cost accounting and the quantitative model analysis from the viewpoint of their relevance to actual organization. First, concerning the horizontal line, on the right side lies a structural recognition method or a qualitative analysis. Under the qualitative and structural recognition method, every person is assumed to have different and heterogeneous characters. This method also puts importance on the effects of their personality on productivity. On the other hand, the left side reflects a quantitative and model analysis. This viewpoint considers human beings as a product factor that moves the same way all the time, and summarizes heterogeneous factors of human beings into a set of identical behaviors.

Second, we divide the vertical line two parts : decision making orientation in the upper part and control orientation in the lower part. In this case, the decision making orientation puts

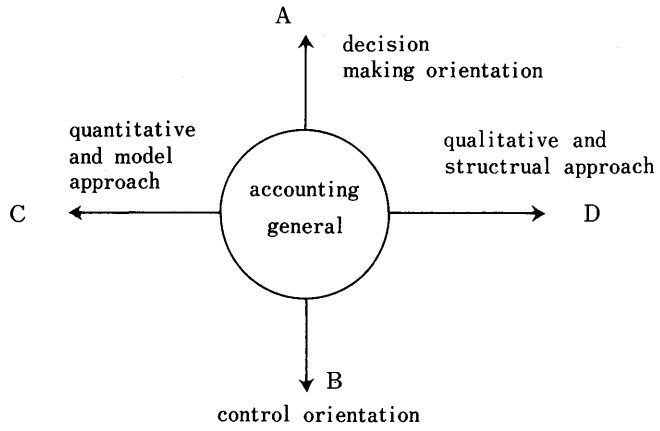

Figure 1 General Framework

absolute trust in planning or strategy, while the control orientation relies completely on an incremental control process. In the former, if a manager chooses a wrong plan or policy, everything turns out badly, even if he does his best in controlling the production process in cooperation with other managers and workers. On the other hand, the latter assumes an attitude of trust toward a human control function. According to this attitude, we can amend wrong plans or strategies, if every manager unites his efforts with workers to control the entire process.

The circle in the center represents accounting general. This is a recognition and control system to record and calculate daily economic transactions in a time series, to classify and summarize them, and to report their result (economic surplus) in the form of a balance sheet and profit and loss statement. However, accounting general assumes different forms under different conditions. The quantitative model analysis considers accounting in the same way as other economic or social information. This makes it easy for us to make up decision making models. On the other hand, the structural analysis method recognizes accounting as an independent calculation system or a specific information process system, that is a profit calculation system which uses double entry bookkeeping.

When we summarize the thoughts and methods of management accounting, we have Figure 2. Budgetary control and standard costing are put in the right quadrant of the lower part and near the circle, as they have a strong control orientation and a structural approach. We also put behavior approach of management accounting here away from the circle. A liner programming approach in production planning, cost allocation through shadow pricing, or economic optimum quantity model of materials and parts occupy the left quadrant of the upper part away from the circle. This is why they are stronger in terms of decision making and quantitative analysis orientation than the other, above-mentioned methods. Demski's ex-post programming model, i. e., profit variance analysis of ex-post system is put in the left quadrant of the lower part, since it has a strong control orientation and quantitative approach. Samuels's variance analysis is also set in the same quadrant as Demski's model, because Samuels tries to establish a new double bookkeeping connected with linear programming method for business. Special cost studies and cost-volume-profit analysis belong to the right quadrant of the upper part because of their strong decision making orientation and qualitative character.

When we put all the methods and approaches of management accounting into the four quadrants of Figure 1, we get Figure 2. Here we can easily understand the development tendency of management accounting until the 1970s in the U. S. A. and Japan. Simultaneously we can extract the difference of management accounting between the U. S. A. and Japan from these quadrants. The left quadrant of the upper part represents the characteristic of management accounting in the U. S. A. The right quadrant of the lower part does the same for Japan.

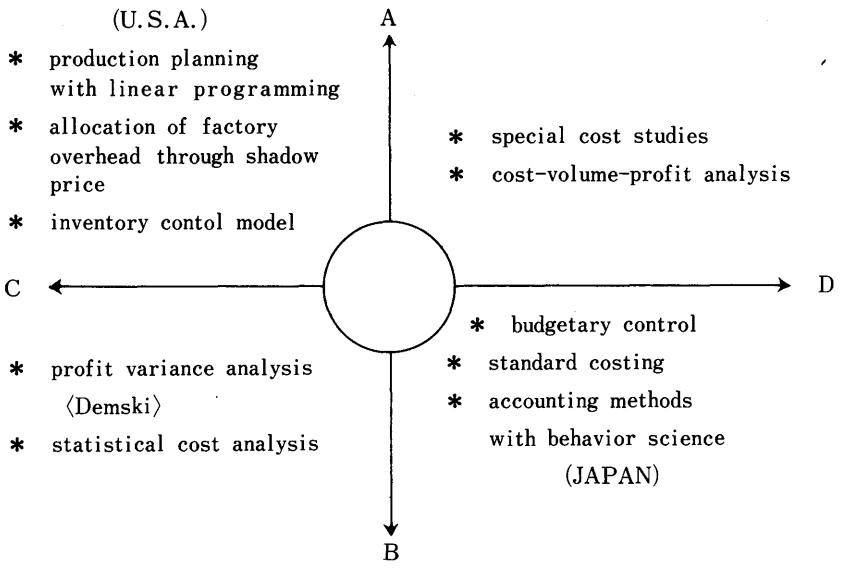

Figure 2 Country Comparison

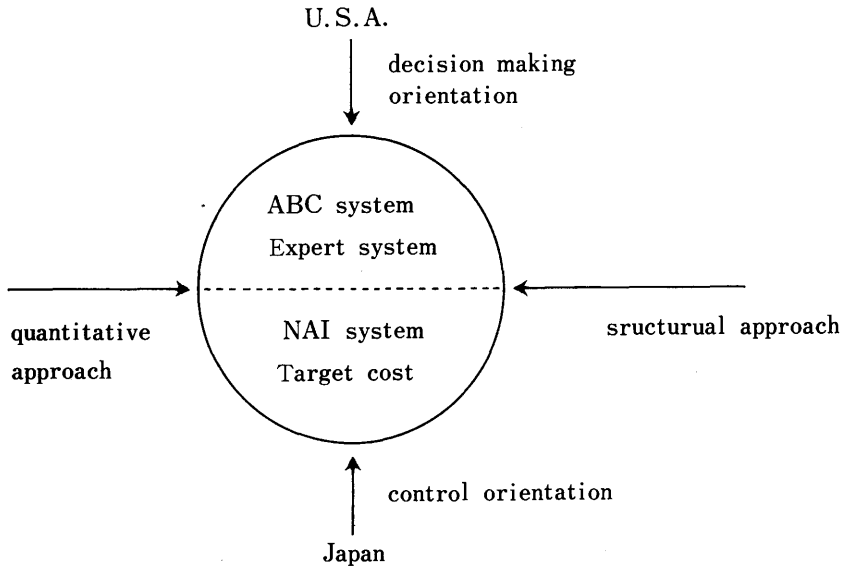

Figure 3 Future Orientation

Although both developed in opposite directions, recently they are converging on the structural and qualitative analysis style. This is owing to the sharp competition of product-strategy and rapid development of high technology. Another characteristic is that the management accounting methods are entering into the circle. They show the special function of accounting. Particularly, American management accounting is shifting from the quantitative and model analysis to the

structural analysis (see Figure 3). For instance, Activity Based Costing (ABC) is the most remarkable example of this new derection.

Professor R. S. Kaplan has contributed very much to establishing a new form of management accounting by adopting field study. According to his opinion, researchers have to begin entering business organizations themselves to discover first hand advanced experiences in management accounting. This is a structural and qualitative approach. However, even if the quantitative analysis gives way to a structural approach in the U. S. A., this structural analysis will still retain the characteristics of a decision making orientation. Thus, we need to point out that Japanese management accounting, although structurally oriented, retains a strong control orientation in contraposition to the American decision making orientation.

4 THE FUTURE

Form here on the futrue of management accounting lies in the Expert System in the U. S. A. and the New Accounting Information System (NAIS) in Japan. The Expert System integrates quantiative and qualitative analysis methods and differs from the above quantitative systems which only get quantitative output or judgments through the input of various data. The Expert System can extract experts' judgment and cope with changing situations by depending on data bases and using electronic brains. The Expert System acts as a substitute for many excellent professional accountants. Accountants already apply it to areas of auditing, financial accounting, and management accounting. At hand is the day when accounting has to operate reciprocally with computers on a new level. However, we have to remember that the Expert System has no common sense ; it can not swim alone in a changing business environment[5]. We have to make the meaning of accounting as a particular type of information quite clear before we can arrive at a new reciprocal level of operation between the computer and accounting.

The Japanese NAIS[6] also is a new system which joins accounting to computers by using a data base and gives relevant information to managers. However, managers in Japan even now put more importance on the ability of human experts than in the U. S. A. Japanese managers always put their ultimate trust in human judgment, even if they use computer information. The computer decision is only considered as a framework for judgment. The human factor will continue to play an important role in the Japanese NAIS indefinitely into the future.

The main benefit of these computer systems has been to free accountants from the drudgery of score-keeping. We can only hope they will use the saved time and energy to support managers and create newer accounting information systems.

CONCLUSION

The present task of accounting researchers is not only to create new models of accounting, but also to make the essential contents of accounting clear. We can now meet the need of getting real time information by using computer systems. However, we may fail to develop an adequate accounting science and solve present and future problems without a soul-searching inquiry of the essence of accounting: what is the basic characteristic of accounting as a specific type of information? In my opinion, accounting is an accounting control system which records and classifies daily economic activities in a time series by using certain accounting methods, and summarizes these economic activities into a few financial statements. At the same time, accounting calculates and recognizes profit from two angles: stock and flow.

Management activities are independent and discontinuous in terms of time and place. If they were not connected by accounting, management activities would fail to function in an integrated fashion with disastrous results for profit. Once accounting grasps these independent management activities in a time series, we can recognize their profitability and continuity over an entire business enterprise. For example, management activities through standard time, from the viewpoint of the whole business enterprise, are independent and discontinuous in themselves, even if they are scientific. Only when they are connected with and grasped by cost variance accounts, we can make their profit contribution to a business enterprise clear. Accounting gives management activities a history. Therefore, we have to analyze recent management accounting more concretely from the angle of accounting science, not only from the point of view of management itself.

Japanese automobile companies have adopted the Kanban (just-in-time) system or target costing. However, accountants do not completely understand how to take accounting proceedings of target costing, even less how to describe the relationship between the Kanban system and cost accounting. We have stressed the variance analysis of inputted factors for efficiency control. It however will be important to begin a cost variance analysis of output and indicate competitive power in the international market and structural problems through structural variance and budget variance. We might start to analyze cost variances of a finished product and then check efficiency of inputted factors through standard cost variance analysis. We are now just entering a new age of management accounting, in which we must solve new problems by new, flexible methods of recognition.

Footnotes

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