

農業計算学研究

第 24 号

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(頼 平 教授定年退官記念号)

京都大学農学部

農業簿記研究施設



賴 平 教授

献辞

元農業簿記研究施設長 頼平教授は、京都大学の定めるところにしたがって、平成4年3月末日をもって、本学を退官されることになりました。

教授は、昭和29年4月農学部助手に任命、32年5月に講師、35年3月助教授に昇任され、農林経済学科に勤務されていましたが、昭和47年12月に本研究施設の農家経済分析部門担当の教授に就任、さらに、昭和58年8月には農林経済学科農政学講座担当の教授に転任され、今日に至っております。その間、本研究施設長（昭和49年1月～52年1月、55年1月～58年1月）をはじめ学内の要職を歴任されるとともに、30余年の長きにわたって本研究施設の学問的使命達成と発展に御尽力いただいていたところでもあります。

このたび、教授の御退官を記念して、本研究施設の専・併任教官をはじめ同教授が本研究施設在職中に親しく御指導いただいた関係各位にも寄稿を依頼し、『農業計算学研究』24号を『頼平教授定年退官記念号』として編集、刊行することにいたしました。

ここに教授の長年の御業績と御貢献をたたえ、この記念号を教授に捧げる次第であります。

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SUMMARIES OF ARTICLES

Development Mechanism of the Enterprise Organization of Farm Business

Taira YORI

The enterprise organization of farm business is basically determined by the farmer's subjective equilibrium based on the consideration of locational, specializing, and diversifying factors.

Recently the diversifying factor has been relatively underestimated, because the specialization of enterprise organization accompanied by the expansion of farm size has resulted in the increase of farm profit due to the scale economies and cutting off the transaction cost, in spite of the decrease of farm expenses by the enterprise diversification.

However, the serious problem of pollution is taking place in food and water as well as the destruction of natural environments. The complementary and supplementary organization of farm enterprise such as the organic farming and less-chemicals farming are among the most effective ways to solve these problems.

Policy of controlling rice production has enforced diversification of farm enterprise which utilized paddy field. The private profitability was supported by the subsidy. Various kinds of direct sale of farm products and services as well as organic farming have also stimulated such diversification of farm enterprise.

The diversification of enterprise organization may decrease farm profit at the present situation. Hence, the government policy should better subsidize to compensate farmers' sacrifices of bringing public benefit to the nation such as the preservation of natural environments, while the farmers should make efforts to adopt various innovations in production, marketing, and cooperative organization in order to increase the long-term private profit together with the public benefit accompanied by the optimum organization of farm enterprise.

Financial Structure of Farm and Farmhousehold

Kiyoshi KAMEGAI

This paper inquires into the significance of finance of farm and farmhousehold and examines in order to get systematically the financial phenomena on them. The main necessary conceptions for it are the managerial subject, the financial domains and the financial functions. The fund acquisition is the most important financial function. The theoretical framework of finance on farm and farmhousehold will be based on these conceptions. The first step toward the financial theory of farm and farmhousehold, or the micro agricultural finance theory was made in this paper.

Farm Management Study and Agricultural/Rural Development

— A Trial in Bangladesh —

Hiroyuki NISHIMURA

This study report is based on the farm economy survey which was conducted in two villages of Comilla in Bangladesh. One village attains a higher developmental stage and the other one remains at the under-developmental stage.

Through this comparative study, several evidences on resource productivities and income at farm household level are shown. At the same time, some constraints on resource ownership and their use, possibilities for increases in land productivities and income are explored.

It is believed that farmers have a potential for higher levels of productivities and income to some extent. However, as a prerequisite for further development it is essential to have a comprehensive plan which would push population control and area development. The latter is intended for industrial development and employment promotion under the closed linkage of rural and urban areas.

Legal Types of Farms and Their Courses of Development

Shiro INAMOTO

One of reasons of recent increase of the interest in farm corporation is the rise of the doubt about especially the ability of factor procurement and continuity of family farm entity.

In this paper farm corporations are categorized into three types from the view point of their relation to family farm and the characteristics and implications of each type are investigated. The three types are as follows:

1. farm corporation sole
2. collective farm corporation substitutive with family farm
3. collective farm corporation complimentary with family farm
 - a. farm corporation complimentary from outside of the organization
 - b. farm corporation complimentary within the organization

Farm corporation can be dichotomized in to the substitutive corporation which replace family farm through the complete merger family farm and the complementary corporation which complement the functions of the family farm through the merger of partial functions of the family farm and the collective farm entity.

Both types of farm entity have important implications, but one of the important conclusions of this paper is that the development of the complementary farm entity will make family farms properly adapt to the future economic society and play important roles in Japanese agriculture.

Farmer's Subjective Estimation of the Profitability of Farmland and Policies toward Preservation of Farmland

Hiroshi KUMAGAI

Diversions of farmland for some other uses in urban fringes and devastations of farmland in distant rural areas, for both of which the comparatively low profitability of farming is responsible, are on increasing in alarming way in Japan. These situations are

very important problems from the viewpoint of the external effects of farmland.

The farmlands in a area provide for the inhabitants in the area the following external effects; (1) employment opportunities for women and aged persons who have no better ones than farming, (2) supplies of fresh and safe agricultural food for local inhabitants, (3) provision of pleasure, recreation and sport opportunities for local inhabitants, (4) preservation of rural cultures, (5) formation of educational environment, (6) conservation of natural environment, (7) formation of residential environment. The farmlands have these external effects when they are used for farming.

The extent of diversions and devastations of farmland in a area depend on the intentions of farmers in the area. The farmers' intentions depend on the profitability of farmland estimated by them, that is the subjectively estimated profitability of farmland.

The objectives of the paper are as follows; (1) to analyze the system of farmer's subjective estimation of the profitability of farmland, (2) to analyze policies toward preservation of a certain expected area of farmland in the area.

There is a certain degree of difference between the subjectively estimated profitability of a farmland and the realized one. The farmland has external effects when this difference is borne by the society.

Economic Analysis of the Time Series Changes in the Differences of Rice Production Cost among Japan, America and Thailand

Hiroshi TSUJII

Comparing the rice production cost among the three countries, it was found that the absolute differences between Japan on one hand and America and Thailand on the other had increased rapidly during the seventies but have stagnated during the eighties, and that Japan's production cost has become 16.9 times and 11.3 times higher than Thai's and America's respectively in 1988 as the Thai and American costs have decreased considerably during the late eighties.

From the factor analysis of the changes in the relative cost differences between Japan and America and between Japan and Thailand, it was found that the appreciation of yen contributed 56~81% of the changes during the research period. The declines in

the Japanese rice productivity against American and Thai ones explain 58~78% of the changes in the relative cost differences during the same period. The relative declines in the factor prices in Japan against the other two countries have mitigated the increase in the relative cost differences by 36~44%.

The relative cost differences was expected not to increase very much in the future. But since the current differences are very large, it is suggested that Japanese rice farm size must be increased, new technology must be developed and the factor markets must be made more competitive and efficient in order to decrease rice production cost.

Characteristics and Extension of Single-Entry Bookkeeping and Double-Entry Bookkeeping

Toshio KATSURA

The need for bookkeeping for entrepreneurial farms has been increasing in recent years because of their tax calculation needs and managerial planning Purposes. These farms can choose either single-entry bookkeeping or double-entry bookkeeping. The objective of this paper is to compare single-entry bookkeeping and double-entry bookkeeping regarding their usefulness and problems for these farms.

On one hand such conditions as managerial sizes and the knowledge of bookkeeping of these farms, and on the other 110 cases of book-keeping by the farms which have been selected to be "Excellent Book-keeping Farm" from all over Japan by the Farm Accounting Council are analyzed in this paper.

The Agricultural Account in "Jinkouki"

Hikaru ARAKI

There is the word "Soroban kanjou" since olden times. It means that people act always thinking of profit or loss. Therefor "Soroban kanjou" is very important for management of enterprise. Then, "Soroban kanjou" is well acquired by caluculating

with soroban (abacus of Nippon).

It is the problem that there was "Soroban kanjou" in agricultural management in The Edo period, or not. In order to thinking about the problem, let me inspect "Jinkouki" which was the most popular textbook of soroban in the Edo period. It was written by Mituyosi Yosida who belonged to the Suminokura family which was the famous merchant of wealth. "Jinkouki" was characteristic of many practical examples in it. And there were several practical examples about an agriculture. There were 48 paragraphs in "Jinkouki" and there were 8 paragraphs about it. Those were not many examples considering that the agriculture was the largest industry in nippon of then and those were not for farmers but for merchants and samurais. If farmers thought "soroban kanjou", M. Yosida who was merchant inserted more practical examples about an agriculture in order to sell the book. Therefore it might be said that farmers of then did not think "soroban kanjou".

Self-Accounting Bookkeeping – An "Orderly Bookkeeping System" –

Hideo FURUTSUKA

The main purpose of this study is to examine whether the self-accounting bookkeeping can be categorized as an "orderly bookkeeping system" as defined by the financial accounting standards for business enterprise.

In general, three requisites must be fulfilled to be regarded as an "orderly bookkeeping system": 1) all transactions can be recorded exactly; 2) all the recorded transactions can be verified by official documents; 3) all the records from those in books of original entries to those in financial statements are orderly arranged and completely interrelated under the established rule. Among these requisites, the third one is regarded to be most important and to imply that the system must be based on the complete closing method employing both dynamic and static accounting.

The results of this study indicated that the self-accounting bookkeeping satisfies the three requisites and therefore it can be used for official reports on farm management.

Bargaining Power and Performance Evaluation in Agency Theory: in Connection with Zeuthen-Nash Solution of Bargaining

Hironori ONO

It is proposed to show that agency theory and Zeuthen-Nash theory of bargaining are complementary in a given condition. In order to show this, it is necessary to take a approach to introduce uncertainty of demand into Zeuthen-Nash theory.

Moreover, based on the conception mentioned above, the meaning of agency theory is discussed compared with Zeuthen-Nash theory. In the two points, Zeuthen-Nash theory is essential for agency theory. First, agency theory is based on a given outcome of bargaining. Second, the assumption of the perfect knowledge of the utility function of the party is unnatural, and so it is learnt from bargaining process. Besides, the risk attitudes and the type of utility function are the determinants of income distribution in the both theories, but they have the different economic significance in each theory. In this relation, it is explained that performance evaluation system is the determinant of the income distribution within a firm.

Finally, the significance and relationship of performance evaluation system and bargaining power are discussed after due consideration of the Agency theory expanded by introducing bargaining power.

A Study of Livestock Production Area System and Regional Livestock Organizations

Yoko NIYAMA

The support system of family farms in the production area is performing important role for production and marketing, in Japan. It's the same in the livestock farming. We refer to those support system as the term "livestock production area system", and refer to operators of those support system as the general term "regional livestock organizations", especially in the livestock farming.

Firstly by this study, we make clear the main parts of the livestock production area system as follows. (1) animal breeding system, (2) management techniques research, development and extension system, (3) feed production and distribution system, (4) processing (include slaughtering), shipment and marketing channel development system, (5) operating support system (such as a custom pasture), (6) management support system (such as materials procurement, consulting and information system), (7) total regulation system of among every part as stated above and among regional livestock organizations.

Secondly, We analysis kinds and characteristics of regional livestock organizations operating each part of the livestock production area system, such as farmer organization, agricultural co-operative and it's lineage firm, local government and public corporation, and those composite organization.

Increasing Agricultural Marketing Performance through the Construction of Information Network Systems

Yuichi KISHIMOTO

In this paper, it is discussed which kinds of methodology might be appropriate to measuring the impacts of constructing information network systems on increasing agricultural marketing performance. To clarify research purposes, literature on the intersection between the both studies on agricultural marketing and information network systems is discussed mainly related to the contributions by the Kyoto school of agricultural economic studies. Some tentative empiricity assessing information network system performances is shown through case studies on fresh fruit marketing and beef marketing.

In the third section, two methodologies are speculatively considered to be effective so as to investigate such impacts as shown above. One is cost-benefit analysis framework based on the precise data from accounting studies. The other one is a simulational analysis affiliated by mathematical theory of waiting lines.

A Study on the Informational Approach of the Estimating Model of Distribution Zone for the Wholesale Market

— The Case of Improvement of the Estimating Model of Market Dependence —

Shigeaki ODA

Generally, the construction of distribution zone of wholesale market is varied by the consolidation or unification of wholesale market. This study aims to suggest the direction of improvement of estimating model of market dependence which is the basic econometric method for estimating the variation of distribution zone of wholesale market.

The contents of this study are two-folds; 1) Defining the characteristics of construction of the estimating model of market dependent under the comparison market dependent estimating model with the Huff model of estimating marketing zone for general marketing, 2) Examination of parameter estimating when model of market dependent is defined.

As a result, in the field of distribution zone for the wholesale market, the estimating model of market dependence which seems very useful to estimate the distribution zone is found more useful than Huff model because of the better model structure in the sense that my model can explain actual distribution zone more accurately. It can estimate the best-parameter objectively, and the informational valuation of parameter is also constant through inducement of new probability model of market dependence.

Finally, the direction of improvement of the model can be found at the part of estimating parameter and construction of the model.

Soil Stewardship and Prevention of Underground Water Pollution in Agriculture

— A Fundamental Idea —

Takashi TAKEBE

When we argue environment and agriculture, we need consider two effects, namely, that of environment on agriculture and that of agriculture on environment. It is also important to identify positive and negative effects to study the latter effect.

Among the negative effects, we concentrate on the pollution of underground water by agriculture. We investigate an idea of soil stewardship without polluting underground water. It is hard to establish the soil stewardship, which is consistent with farm management, without causing damage to environment. The overwhelming development of science might open new possibilities. In the study we tackle the hard task to consider the abovementioned issue under the forthcoming revolution of agricultural system.

Global Warming and the Emission of Methane from Rice Growing

— The International Movement and Prediction —

Masaru KAGATSUME

The purpose of this paper is to build the econometric model which can be used for predicting the future quantity of the methane CH_4 emitted from the world rice growing and to investigate the preventing measures for the global warming.

The carbon dioxide is the major green house effect gas in terms of the density in the air but it is said that the potential of the methane to cause the global warming is much larger than the carbon dioxide. In the case of carbon dioxide, the quantity of CO_2 absorbed in the process of photosynthesis of the plants is almost offset by the quantity emitted through their burning. In this regards, the agricultural activities have more to do with the emission of the methane.

In this paper, the aspects of the methane emission through the rice growing in the

world are focussed on.

The result of the econometric analysis on the global warming through the agricultural activities shows that the quantity of the methane CH_4 emitted from the rice growing will be 0.12 billion tons in 1995 and 0.17 billion tons in 2080. This would be 20% ~36% of the total quantity of the methane emitted by all sources in the earth.

It is pointed out that the southeast asia emits the most methane and the second largest area is the centrally planned Asia. The increase rate of the methane quantity emitted in Africa is the largest in the world although the quantity of methane emitted is still very low at the moment.

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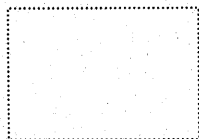
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