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Introduction

Transaction Cost Economics provides a powerful framework for understanding the development of governance structures and institutions we can see in the modern market economies. After Coase's insights in 1937 this new theory of economic organization has been developed in recent 15-20 years, and reshaped fundamentally principles for public policy and business strategy formation. Postulates of the neoclassical economics have been reexamined and a substantial part of economic expenditures - *the transaction costs* have been introduced into economic analysis. Types of transactions and origin of costs associated with them have been classified. Critical dimensions of different transactions have been identified. Alternative market, contractual and hierarchical arrangements for organizations of transacting have been specified.

Most recently the Transaction Cost Economics has been implemented in studying out institutional structure of farm production and "quite revolution" in agricultural organizational forms. Attempts have been made to specify character of transactions in agrarian sphere, and to study managerial economics of vertically coordinated agro organizations. Substantial results have been achieved in understanding motives for contract choice in agricultural inputs supply and marketing transactions. However, this new developing concept has not been completely applied to the agrarian sphere to examine governance mechanisms and factors for institutional modernization. Besides most of research to date has been theoretical and limited to separate kinds of agrarian transactions.

Goal of this project has been to incorporate the transacting costs minimizing principle to the Japanese agrarian economy and to show that the Japanese agrarian economy is a *transaction costs economy*. Japanese agriculture gives us unique examples for institutional development and big varieties of modes for organization of transactions. Systematic study of this reach experience would contribute substantially to development of the Transaction Costs Economics. On the other hand implementation of the transaction cost minimizing framework to the agrarian area would picture all development of governance forms in the Japanese farming, their current problems and prospects. Traditional Agricultural Economics has failed to address why there are different organizations in market based agrarian economy, which factors determine the type and size of farm organizations, when the Government intervention in agrarian transactions is necessary etc.

As specialization and diversification of farming develop individuals need increasingly to exchange their products, activity, and own resources - they have to transact with each other. In modern economies the costs associated with various transactions take a big part of all social expenditures. That is why development of costs minimizing modes for transacting becomes an important part of business management and in the economic theory. Individuals can use market to coordinate their transactions or they can design special organization to transact through. Which mode of transacting they will chose depends on costs minimizing potential of different forms. Apparently for various kinds of transactions quite different transacting modes will be effective. For instance, a farmers markets chinese cabbage in a wholesale market and use market mode to coordinate his marketing transactions with other individuals. However, the same farmer participates in a cooperative to organize his inputs supply transacting through this joint ownership

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mode. Accordingly size of farm (and farm organizations) becomes bigger when some costs minimizing potential of internal mode exists and a farmer integrates previously organized by market transactions.

Our Transaction Cost Economics approach has put agrarian transacting in the center of economic analysis. Origin of the costs for transacting in the market place, and through different bilateral and multilateral organizations has been classified. Macroeconomics factors for emergency, evolution and failure of alternative governance structure have been examined in comparative transacting costs economizing way. Our study has been based on behavioral assumptions for agrarian agents such as bounded rationality, opportunism, reputation considerations. Critical dimensions of agrarian transactions (frequency, uncertainty, asset specificity) according to with transaction costs differ has been clarified. Costs for using of various transacting modes have been put along technology in defining the effective horizontal and vertical boundaries of farm and farm organizations. Ultimate objective has been to develop effective modes for organization of different types of agrarian transactions and to estimate the potential of various organizational arrangements to save on transacting costs. In this way we have tried to determine which agrarian transactions are to be organized by market, which of them would be vertically integrated through different contractual and organizational devices, and where market and private initiatives fail, and therefore a public third party intervention in agrarian transaction is necessary. As a result more effective framework for business organization formation and agrarian policy development have been proposed.

This project has contributed to the Agricultural Economics in both conceptual and empirical respects: a new transaction costs dimension of economic relationships in agrarian area has been incorporated into theoretical analyses; main assumptions have been tested through individual case studies of organization of different kinds of agrarian transacting; alternative structures for organization of various types of agrarian transactions have been proposed; microfondations of macroeconomics have been reexamined and more realistic prospects for organizational development in Japanese agriculture have been presented.

Transacting costs economizing approach has helped us to understand why there are so many kinds of farms in Japan and part time farming phenomenon; why some farmers buy inputs and other produce them; when farmers buy equipment and when they pay for machinery service supply; what is a reason for permanent labor contracts and why temporary labor has been important in some productions; why some farmers sell products and other process them; when we have independent family operations and when contract system or totally integrated business; why group farming exists and the role of informal contracts in the Japanese society; why part time farmers rely on cooperatives for input supply and marketing while full time farmers look for market transacting; why common organizations and community institutions have been so important in rice production; why lease would be the most likely way for development of agriculture; why agricultural cooperatives exist and what should be right direction for their reorganization; why such institutions as quality standards and wholesale markets have been developed by the Government; why technological innovations are free for farmers and what should be future role of agrarian research potential; what are prospects for development of national agrarian transactions and what should the Government role be.

It has not been easy to test the Transaction Cost Economics principles in Japanese agriculture. Firstly, this newly developed concept has not been completely implemented to agrarian area. Therefore we have got to develop a little bit methodology and to find out ways to test organizational development against transaction cost criteria. Second, traditional accounting and statistical data are not suitable for analysis of transacting economizing, and some of the official data are not reliable. That is why much of our study has been based on data collected through interviews with participants in agrarian transactions and through studying out typical and prospective forms of transacting. Third, much of prospective organizations have not get to their mature stage and spectrum of factors for their development has not been observable. This lack of historical prospective may put some of our conclusions behind the pace of real life development. Forth, there have been many non economical factors for institutional innovation and interdisciplinary approach should be undertaken. That is why our study contributes to see only a part of complicated transacting structures (including great varieties of non economic transactions)

that characterize Japanese rural society.

Three kinds of data representing different sides of agrarian transactions and types of their organization has been used. First, available statistical and Census data for land and labor transactions, for contract service transactions, and marketing transactions in Yachio machi. Second, data from the Land Committee on registered land ownership and land transactions in Nakatsubo hamlet. Third, data about critical dimensions of agrarian transactions and kinds of their organizations from personal interviews with number of farmers, Municipality officials, managers of the Cooperative and other farm organizations, Leader of the farm group, Hamlet leader, Director of Extension Office.

Yachio machi and Nakatsubo hamlet have been chosen as a representative for typical farming structure in Kanto area with predominance of vegetable and rice productions. In this area agrarian transaction structure has been characterized with dynamic institutional innovations during the last 20-30 years. With assistance of the Hamlet Leader and City officials nine farmers from Nakatsubo have been selected and interviewed. Among them are the Manager of one of the biggest farm (Agrocorporation) in Japan, six business farmers and two part time farmers. This sample has given us a full picture of farming structure and prospects for organizational modernization in the area. Also data from our interviews with a number of farmers, leaders of farm groups and managers of farm organizations in Hokkaido, Kyushu, Nagano prefecture, and Tsukuba area have been extensively used in the analysis.

We have tried to determine existing types and intensity of labor, land, input and service supply transactions, capital and insurance supply transactions, and marketing transactions. We have got full classification of all variety of formal and informal contractual arrangements, hybrid and unified organizations, interlinked and trilateral governance modes for organization of different agrarian transactions. Attempt has been made to find critical dimensions of different agrarian transactions and microeconomic factors responsible for the transaction costs. This have been done according to type and size of farms, structure of production, and kind of transacting modes. Relationships between development of agricultural technology, markets for agricultural products, agrarian policy of the Government, and development of organizational forms for different agrarian transactions have been elaborated. We have tried to estimate factors for development of different farmers, markets and government organizations, and their role for improvement of the efficiency of agrarian transacting. Attempt has been made to make some generalization about transaction costs minimizing prospects for development of agrarian structures in the conditions of liberalizing agrarian policy.

I own very much for overall contribution of Dr.Nobuhiro Tsuboi whose role for designing and carrying out this project has been extremely important. Without his strong personal involvement in all stages of the project, and extensive use of his big professional experience this study could not have been done. I would like to thank to Shigeki Yokoyama whose expertise and great assistance during my research help too much this project to be completed effectively. I extend my gratitude to all colleagues in the Department of Farm Management of the National Agriculture Research Center for their ideas, comments and contributions for the success of my study in Japan. I own very much to many researchers from the National Research Institutes of Agricultural Economics and the Norinchukin Research Institute in Tokyo, Japan International Research Center for Agricultural Sciences in Tsukuba, Sapporo and Obihiro Experimental Stations, Kyushu Universities and Tokyo University of Agriculture for productive discussions and contributions to clarify complex agricultural development in Japan. I appreciate very much my meeting with many farmers, farm groups leaders, managers of cooperatives and other organizations, and official from different governmental institutions around the country. Their first hand information and sincere opinions have been ultimate test and invaluable source of ideas for project development.

Despite of big opportunities my own language inproficiency has impeded me to take all benefits from those meetings and extended Japanese literature. Consequently many parts of the projects have not been as well deliberated as I initially intended. Also there may be mistakes in some of the conclusions as a result of my misinterpretation of complicated Japanese farming structure. All shortfalls of the study should be considered my personal failure to use provided excellent opportunities for research and to explore the potential that the Transaction Cost Economics concept contains.

Transaction Cost Economics of Japanese Agrarian Economy

Advantages of specialization and division of labor have been well known since ancient time. In such a system individuals need to exchange products of their work and owned resources, or putting it in another way they have to transact with each other. Economic agents use market as an effective mechanism for organization of their transactions. Importance of the "indivisible hand of market" for coordination of economic activities has been among fundamentals of the political economy for more than 200 years. Market prices provide economic agents with powerful incentives and all relevant information about economy to make efficient use of available resources maximizing their utilities and profits. Totally decentralized market system gives producers effective signals about level of demand, consumers preferences, supply of inputs, technological possibilities etc. Individuals do not need anybody to organize them whether to produce rice or wheat, whether to be farmers or bankers, whether to buy or rent resources, whether to cultivate their land or to build golf clubs on it etc. All this is done by market. Market is the ultimate judge and guide of economic activities. Market serves as a mode for organization of individuals transactions and for distribution of economic resources among different activities. Moreover the allocation of social resources that come out as a result of this market coordination (competition) is the most efficient one. This fundamental achievement of the Neoclassical Economy is a textbook truth which could be found in any writings in economics.

What has been a new insight in recent development of economic theory is the idea that "there is costs of using the price mechanism". As Coase formulated it in 1937: "if production is regulated by price movement, production could be carried out without any organization, well might we ask: Why is there any organizations?" (Coase 1937, p.19). Would not it be possible all transactions and coordination between factors of production to be carried out by market? Why are there organizations for joint production, purchasing inputs, marketing, processing, innovation? Why do farmers groups, cooperatives, corporations, and contract farming exist in agriculture? Why are technologically separable stages of business activities linked with each other rather to all others (market)?

We have met Kuboya Akiya, a farmer from Nakatsubo hamlet of Yachio machi, who is a member of 20 members machinery group and jointly uses tractor and equipment with other farmers in the hamlet; he is one of the several thousands members cooperative which supply him with main inputs; he joined 5 members marketing group, which has got long term contract relationships with a supermarket. Akiya san practically does not use market too much for organization of his transactions with other individuals. We have visited a 7 members farm machinery utilization group in Abashiri area which extends coordination of activities in production process as well on one tenth of total area (so called common farming section). There are 50000 different kinds of farm groups in Japanese agriculture and several thousands other types of farm organizations like cooperatives, land improvement districts, corporations etc. Fundamental question is: why farmers chose to organize their activities within organizations instead of transacting in the market place.

One possible explanation for existence of organizations in Japanese agriculture could be that because of tradition, habits etc farmers continue to work jointly. Another interpretation may be that farmers enjoy community work and they prefer to transect in organizations without interesting in market. Third explanation would be that farmers can only work under someone guidance and they are not good managers. Apparently those are non good explanations of a big variety of organizations that exist in Japanese agriculture. The opposite is more suitable for agriculture which has been characterized as a family rather than a group or corporate business. Hamlet is considered as a symbol for community life in Japanese rural society. However, all of interviewed farmers in Nakatsubo hamlet answered that hamlet plays no role as a factor for their farm decision making. As far as local authority is concerned 78% of requested farmers said that it has no role and rest of them believe that its role is small in decision making process. In heavily protected Japanese agriculture only 11% of farmers said that the Government policy has a big role to play as a factor for their management decision. All requested members of the agricultural cooperative responded that the cooperative is no factor or a small factor in their decision making. At the same time 67% of

interviewed farmers put a big weight of market prices in the decision making process.

There are many noneconomic reason for evolution and existence of many rural organizations. However, there must be some economic reason for development of economic organizations. One such a reason could be that any transaction which is organized in market place could be also governed within a organization. Sometime it could be cheaper (economical) to organize a transaction through internal mode rather than in market. If there are costs of using price system no wonder why individuals set up different organizational and contractual devises to minimize on transaction costs. Thus in real life the coordination of economic activities of individuals is done not only by market but through different private organizations set up by individuals to economize on their exchange.

In fact there is not one but a set of local, regional, national, and international markets. There are costs to find best prices and partners for farm inputs and outputs. Level of costs to organize a farms transaction through market could be very high for individual farmers. As many as one third of interviewed farmers in Nakatsubo hamlet pointed out that "existence of too many dealers" is a problem in input supply transactions.

Second, there are costs to get information about available technologies, machinery and chemicals quality, consumer preferences, as well as costs for promotion of new products. Third, there are costs for negotiations, bargaining and sometimes for writing a contract for conditions of exchange, for time of delivery, products specifications etc. Next, there are costs for monitoring compliance and enforcing contract terms, and binding costs for secure partners commitment. Fifth, there are costs for adjustment to consequences during the execution of the contract and for renegotiations of new conditions of exchange. Next, when dispute arise there are costs for private or court dispute resolutions. Last, we should include all losses of potential benefits because effective transactions delay or fail to occur as a result of high information costs or fair from opportunistic behavior.

Market is not an unique nor a perfect form for organization of economic transactions. Sometime is more profitable to coordinate division of labor in an organization either through group decision making or under "visible hand of manager". When some of 28 hired labors of 45 ha Onodato Shuichi's Agrocorporation in Yachio machi move from one farm plot to another that is not because relative factors prices have changed. They have been ordered to do so by the manager. In this case a farmer replaces a set of market transactions for service supply with a new form for organization of previous transactions such as an employment contract. Initially labor are hired from market and this is connected with costs to look for good workers, negotiations for conditions of work, wages etc. However, ones this transaction occurs labors agree to follow the orders of owner (to be directed) during all contracted period. As a result coordination of economic activities between those agents (contractor in former case and employee in later) is done not by market price movement but in centralized manner by authority of the manager. Internalizing of transactions gives to the farmer an opportunity (power) to control transactions more effectively and to increase his adaptive capacity. It also allows the manager to save repeated costs for finding contractors (or suppliers), and for negotiations of conditions of exchange, and for renegotiations during execution stage, and for third part (e.g.court) dispute resolutions etc. Benefit from this new way of transacting takes a form of governance rather than production costs savings.

But we might ask: Why is not then all agricultural production in Japan carried on by one big company? As Williamson puts it: "Why can not a large firm do everything that a collection of smaller firms do and more?" (Williamson 1992, p.339). Why are there individual farms and other organizations with different size in agriculture? Why is family farm the main organization in agriculture and its size is much smaller than industrial companies? What determines the limits of farm and farm organizations?

Why for instance, already mentioned 7 members farm group from Abashiri needs two different organizations for coordination of their activities - one for machinery utilization and second for common farming. Why have they not extent common farming section to all 270 ha of cultivated area? Why do they need a common farming section at all? All those farmers are members of another 30 members group for large machinery use and of a big agricultural cooperative. Why those farmers have to participate in so many organizations with different size? Why for instance do not they use the cooperative to organize all their transactions? Why do Japanese farmers make up

large several thousands members cooperative but keep small family operations of farm activities?

Answer would be that advantages of internal organization do not come without cost namely transaction costs for coordination through group decision making or in a hierarchy. First, there are cost for determine potential of available resources and technologies, and for developing the efficient plan. Second, there are costs for monitoring implementation of the plan and for preventing labor shrinking. Next, there are program adjustment costs along with current changes in conditions for implementation of the plan. Forth, there are costs for motivation economic agents to provide information for improvement of plan efficiency. Next, there are costs for aligning conflicts between different members of organization or levels of hierarchy. Last, we are to include any losses of efficiency as a result of communication and incentive disabilities which prevent achievement of potential for development.

When we asked the leader of the Abashiri farm group "why they do not organize all operations as common operations" the answer was that this could destroy incentive of individual farmers: "Now before coming to the group farm office everybody goes to see it own plot. After merger they would come directly to the office. Now not only collaboration but also competition exist between members of the group and this is very important for efficiency". Many of interviewed farmers in Hokkaido and Ibaraki respond that possibility to use family labor is the main limit of farm size. Family labor is characterized with very low costs for decision making, monitoring, directing, preventing of shrinking, dispute resolution etc. Outside of the family borders coordinating costs of individuals activities in farming are much bigger through an organization compare to market. Internal organization has big advantages to control transactions compare to autonomous market. However, it dose not enjoy high powered and self-enforcing market incentives. Thus the basic trade off must be between increased control potential and lost incentives regime of the integral mode.

While natural boundaries of internal organization are determined by technological imperatives (like nonseparability, economy of scale and scope), the effective size of integral mode should depend on its potential to economize both on production and transaction costs. If we look at historical development in the Eastern European agriculture we can see that organizational size went far beyond the point of positive trade off between technological economies of scale and scope (production costs), and bureaucratic costs for coordination and motivation (transaction costs).

Market and organization are not opposite but two extreme in the continuum of alternative governance modes for transaction. Transacting forms range from spot market, through various short and long term bilateral and multilateral contractual arrangements, to unified (ownership) integration. Whether a transaction would be executed across market or whiting an organization depends on differential transaction costs: a transaction will be carried out from an organization if the costs are less than to carry the same transaction by market or in other organizations. Hence one organization becomes bigger if it includes (internalize) additional transaction which previously has been done by market or another organization. The organization becomes smaller if an internal transaction is left to the market or to the another organization. So we can explain all economic structures in agriculture and distribution of economic activities between different organizational forms on the base of comparative efficiency of those transactional modes.

Farmer can organize a transaction, say cultivation of land by tractor, in quite different ways: he can buy a tractor (unified ownership), he may rent a tractor (rent contract), he can lease a tractor (interlinked contracts), he could buy cultivation service from market (contract service), a few farmers may buy a tractor (joint ownership) but they use it individually, farmer can joint the cooperative which provides cultivation service (non for profit organization), he may rent his land to a tractor owner and share the output (share tenancy contract), farmer can hire a tractorist to cultivate his farm (employment contract) and he may sell cultivation service to market (profit making organization). These alternative forms for transacting have quite different costs and incentive advantages. Which mode will be chosen depends on costs for carrying this transaction through those alternative governance forms. That is why we suppose that organizational design is comparative and predominantly transaction costs economizing undertaking.

When a transaction is turned in basic unit of the economic analysis then farm (and farm organizations) is a mode for organization of transactions - a nexus of internal and outside transactions. There is not internal transacting in an individual (one person) farm. The level of

outside transactions depends on degree of self-sufficiency of the farm and it could be close to zero (e.g.traditional agriculture). In a family farm internal transactions are carried between family members and transaction costs are low. Once a farmer hires a permanent labor then level of internal transactions increases. Accordingly costs associated with internal transactions get bigger and decision has to be taken: whether is more economical to hire labor (internal employment contract) or to buy from market (outside contract). The later also offers different cost minimizing alternatives such as whether to contract service work or to buy finished product. Economic description of farm organizations that come out is that: this is a devise (mode) for organization of internal and outside transactions at minimum costs.

Transaction Cost Economics overcomes zero transaction costs assumption of the Neoclassical economy. It puts the "cots of running the economic system" along production costs when defining effective boundaries of different governance modes for organization of economic activities. As Arrow approaches it: "Market failure is not absolute. It is better to consider a broader category, that of transaction costs which in general impede and in particular cases block the formation of markets" (Arrow 1969, p.46). As specialization and diversification of economic activity increase then exchange between economic agents become complex. Consequently the costs for coordination and motivation of activities of specialized agents take increasing part of all social expenditures. According to some estimated transaction costs reaches up to 45% of the Gross National Product of industrialized countries like USA (North 1994, p.360). In order to share the gain from specialization and to save costs for their exchanges economic agents use appropriate forms of transacting such as "pick you up" marketing invention or widespread trade with brand names in Japanese agriculture; they make different private arrangements like contract farming, strategic alliances, franchises etc; they establish special organizations such as farm groups, cooperatives, corporations etc. In modern economies complex institutions have been invented to minimize on transaction costs such as contract enforcement system, quality standards, labeling etc. Rough idea about evolution of organizational modes for transacting can be get checking changes in labor, land, input supply, service supply, and marketing requisites of the Japanese Agricultural Census.

Concept of "market failure" has not been a new one in economic theories. Marks made comprehensive analysis of market imperfections and capitalistic forms of organization. However, he saw the solution as organization of all transactions in a single form - national hierarchy. He also missed transactional diseconomy from coordination and motivation of activities through bureaucracy. Traditional Institutional Economics describes cases of market failure in order to justify the Government interventions. However, it misses all variety of effective private governance organizations which can substitute market as well as possibility for "government failure".

When a big dairy farmer hires a veterinarian instead of relying on market for veterinarian services; or when farmers set up an input supply or marketing cooperative instead of using free market for product procurement; or when a farmer enters in a long term contract with processing company or retailer; and when an agrofirm opens up a technology division instead of baying extension service from market, it means that economic agents replace price system with different forms of non market organizations of agrarian transactions (such as employment contract, joint venture, strategic alliance or vertical integration). Thus structure of activities in agrarian area is defined not only by prices in the free market but also by negotiations between partners and by bilateral or multilateral arrangements, or from authority in a hierarchy.

Sometime a third part involvement in individual transacting is necessary to make it possible or more efficient. Very frequently this comes out as a result of a private third part involvement in transactions. For instance, Hamlet leader in Nakatsubo hamlet mediates renting of farmland from 20 owners to 5 farmers. Both owners and leasers take advantage of this trilateral form of land transacting which could not have happened at the same level or same costs of transacting otherwise. Both sides rely on respect and authority that the Leader of the hamlet has got in this community.

Third part transaction cost minimizing involvement develops as a market organization as well. There are for example, numbers of private "whole sale" markets in Kanto area such as one we visited in Chiokava. In Japanese economy quality standards and grades for farm products serve

as an important part of market institution aiming to make transactions more effective. In many cases they have been developed by private sector (e.g.whole sale and terminal markets, food chains, distributors etc) as transacting minimizing devise both for producers and consumers of farm products.

It is common when effective third part involvement comes up as a result of community efforts and done by community organizations or by local authority. For instance, registration of available land for rent was started in 1979 in special Farmland bank in Yachio machi Municipality. Goal is to assist land owners and farmers to find partners. As a result both sides save costs for looking for and finding each other. Authority also provides a standard form for contract and recommends rent level which save costs for negotiating and contract design. Copy of lease contract is kept in Land Committee and their content is made public knowledge. This public enforcement prevent violation of contract terms and save both sides execution costs. In addition local authority provides incentives to ease land transactions giving subsidy of 20000 yens to owners and farmers in condition that they sigh lease contract for 6 years. This is a good example for an effective third part involvement of local authority. Positive result is that there has been no available land in stock. Similar organization exists at prefectural level (Kenkusho) and Farmland bank has been set up for available land for sell. Those who sell or buy through this agency get some tax preferences as well. The organization mediates land transaction at prefectural or even national level. Considering scale and involved individuals in this trilateral mode we could conclude that realizing economy of costs of transacting is quite big.

When all types of economic organizations in private sector do not work satisfactorily there is necessary conditions for the Government intervention or third part Government involvement in agrarian transactions. Agricultural research and extension, infrastructural development, and farm credit transactions, all are typical examples for inefficiency of market organization. Those activities might be carried out as a private organizations. However, the transaction costs for organizing of ten and thousands farmers would be very big, it may take a long time to build such an organization, and most likely this organization would not be very stable because of small relationship between individuals contribution and benefit (free riding problem). That is why the Government intervenes in this transactions to make them more cost effective or possible at all. It is, for instance, when an experimental station is set up to provide free technological development for farmers or when the Government promotes farmers organizations like cooperatives, associations to guarantee for agricultural credit, land improvement districts etc.

The biggest problem here is that when market or private sectors seem they work ineffectively it does not mean that the Government intervention always is more effective. For every Government involvement in agrarian transactions benefits must be judged in relation to the costs (including transacting costs). This cover the general case of public intervention in agrarian sphere as well as selection of the specific modes for its organization (direct financing or in house production of public goods, various regulations etc) in comparative transaction costs minimizing way. For example, preservation of Japanese environment and improvement of countryside is in big demand now. Apparently market mechanisms would not serve this public demand effectively. Individuals may develop different kind of private organizations to meet their demand for beautiful countryside. However, it would be very time consuming and expensive because of little appropriability and high externalities. Government involvement in this transactions could be more cost effective. However, there would be very different ways to organize such a trilateral transaction: Government could introduce some standards for farming and for protection of environmental resources; Government may even prohibit some environmental friendliness technologies and to set up a special agency to enforce this measure; Government could establish its own companies, and preserving and improvement of environment would be its main duty; Government may promote projects and give subsidy, tax preferences etc for farmers which are involved in such environmentally sound activities; Government might provide direct payment to farmers to do the job of protection and improvement of countryside; Government could give price support or can be engaged in marketing of farm products in order to keep farming going on, and ultimately preserving environment. Apparently those different modes to govern this transaction would have quite different costs for Japanese taxpayers.

Thus in the market based economy individual agents need and develop non market forms

for organization of their transactions, and real economy consists of many coordinating subsectors. Given competitive setting the tendency will be to adapt those organizational modes that best economize on transaction costs. It means that there is not a singe form for organization of all kinds and types of agrarian transactions nor universal governance modes exist forever. Economic agents will chose and improve forms for organization of their transactions along with development of technology and changing conditions of exchange (e.g.improvement of contract enforcement system, development of communication technologies etc). Governance modes will emerge and evolve as long as any transaction economizing potential exists, and they eventually die when more effective forms for organization occur. In the long run the most transaction costs minimizing organization for each particular transaction will prevail (efficiency principle). Ultimately available for individuals continuum of alternative modes for agrarian transactions find its base in dominant legal system. For instance, if restrictions on land ownership and land lease exist then small scale farming and part time farming will developed as main form for organization in agriculture; or if ban on use of share tenancy exists then fix rent tenancy would develop as a single although not the most efficient form for organization of land transactions; when direct private marketing of rice is prohibited then a big black (illegal) market develop as substitute etc.

So far we have examined the Current Transaction Economics of economic activities in agriculture. Besides that each society has to bear the Long term transaction costs for setting up one or another organizational form. Those are high level of preliminary entrepreneurial costs in private sector and political entrepreneurship costs for public goods supply or institutional development. They are different from Current transaction costs for using alternative modes and thus long term investments which are to return from transaction economizing potential of the new forms. Let us suppose that a transaction requires high level of specific investment but it is occasional. Trade with intellectual agrarian products (e.g.patent) can be included in this class of transactions. Market mediation is not effective because of little appropriability, divisibility, measurability and high uncertainty of innovation activity. Set up costs for special bilateral private structure for secure effective transacting may not be covered for each occasion. Consequently parties would not invest in transacting specific assets and this transaction would fail to occur. Hence, a third part involvement (e.g.assistance, arbitration, enforcement etc) is needed for effective organization of such transactions. In this case the Governments role in new property rights development and enforcement would be crucial.

There are two types set up transaction costs: for establishing "institution of governance like firms, hybrids, bureaus" and for changing "institutional environment of which property rights are part". Factors and mechanism for "induced" institutional innovation in agrarian area have been well developed in the Public Choice literature. For instance a brilliant model of the Rice policy in Japan has been presented by Hayami (Hayami 1988, p.132). Moreover efficiency of mobilizing of factors for institutional modernization depends on tradition, cultural endowments etc and they are quite specific for each country. Some of the challenges for Japanese farm organizations during transforming from "property dominated to corporation dominated society" are profoundly elaborated by Tsuboi (Tsuboi 1991, p.66). Here an interdisciplinary approach is necessary to study out complex of factors responsible for one or another organizational development. In this sense microeconomic analysis which is broadly employed by the Transaction Cost Economics could contribute substantially to understanding forces of institutional innovations.

In any case transaction costs during periods of transformation of society and associated with development of institutional environment (liberalizing markets, introducing new property rights, rights on contracting etc) must be much higher than in periods of stable institutions development. Public preferences at any stage of development and admissible social costs of institutional modernization are quite specific for each society. They are very important economic parameters but they come to the economic system outside - from political system of society. Economic analysis could less contribute in defining those levels since this is the area of the political decision making. Essential economists role would be to evaluate alternative ways and to chose the most effective (transacting minimizing) modes for getting to the social goals.

New institutions come out as a result of private entrepreneurialships, and negotiations, and associations. Therefore individuals must not be restricted to develop their private organizations for minimizing costs of transacting. Moreover economic agents must have political freedom to develop

organizations and associations to promote public goods supply and demand for fundamental institutional changes. Effective economic development can not be sustained without democracy in economy, which means free market and freedom for choosing private modes for transacting. But we can not expect to have real economic democracy without having democracy in political area (we refer to relationships between political and economic systems of society which has been discussed in previous paragraph). The later means freedom to express economic interests and lobbing for public good supply and institutional modernization. In this light we have to see the fundamental changes in institutional framework of Eastern Europe and to estimate their potential for increasing efficiency of agrarian transactions. This is especially important when we have to compare current results from reforms in those countries with economic reforms in some Asian countries (e.g. China, Vietnam) which have being going on without fundamental changes in political structures.

Effective Boundaries of Farm and Farm Organizations

What determines the boundaries of farm organizations and what determines the boundaries of agrarian markets? This old question has not get a good answer in the Traditional Economics. In the Neoclassical Economics the boundaries of the firm are determined by technology and firm is presented as a production function. In this model using of the markets and firms is free for individuals. However, real life economy is not so smooth and easy to describe as it is in textbooks.

Why for instance 10 ha technologically optimal size of rice farming in Japan has not been reached? Why would not the effective farm size be say 100 ha but it must be determined by technology? Even in labor intensive vegetable production we can observe cases for effective big size operations. Prospective form in this respect is cited 45 ha Agrocorporation in Yachio machi.

No doubt that production technology is an important factor for organizational development. Minimal size of farm operation is to be found in technological parameter such as technological nonseparability of activities. In Japanese dispersed paddy agriculture for instance, water supply could not have been conducted by individual farmers since interdependency (nonseparability) of water use. That is why since the earliest period water use organizations have been developed as public projects (Mori 1991, p.5). Besides this exception it is almost impossible to give examples in farming activities where organization form is determined unilaterally by technology. Usually there are plenty of alternative modes for organization of agrarian transactions under the same technology. One extreme is when farmers are engaged only in farm management and contract all farm activities from market. This is not a hypothetical case. Great part of rice part time farmers are not involved in farm operation at all but they rely heavily on contract services. For full time farmers separation of management functions from production (technological) activities is even more defined. The owner of already mentioned Agrocorporation in Yachio machi spends 75% of his time on management activities besides 50% of total time distribution in on strategic management. He also has employed two division managers to assist him in overall management of the farm. Our investigation shows that management comprises 38% of total time of the real farmers in Nakatsubo hamlet. Detachment of management functions has been an important characteristic of farm groups development in Japan. According to a survey leaders of farm groups intend to change their present management status to a long term basis and a full time employment (Ito 1991, p.47).

Another technological parameter which could determine the farm size farm is economy of scale. In order to use the capacity of a large combine for instance a farmer increases size of operations. However, the development of the technology usually follows demand and in fact it is changeable parameter as well. Otherwise it is very difficult to explain widespread existence of small scale machinery in Japanese agriculture. Moreover maximum economy of scale can be reached not through internalizing the activity but by market through buying (or selling) the product or service of specialized activity. Farmers can get resources or services cheaper through market procurement as they do for post service, renting cars, inputs supply etc. Why farmers do not buy machinery services or rent farm equipment but prefer to set up own organization for machinery services? Even if ownership is the best option why specialized farm organizations do not grow up

to the national scale where economy of scale would be totally explored?

Third technological factor is economy of scope. Farmers have to produce two or more products under different technology in order to use temporarily free resources (e.g.paddy field after harvesting of rice). Indeed in farming this could be very important especially as far as effective use of family labor throughout the year is concerned. However, free resources could be trade more effectively in the market place instead of using them in nonspecialized activities (opportunity costs reason). As a matter of fact modern farming is characterized not with diversification of production but with high product and technology specialization. Again we have no answers why farm managers do not buy or rent more resources to increase farm operations. Why do farming continue to be a family business in contrast to incredible concentration of resources in all other industries?

Technology and its development is very important for determine the effective size of farm organization. That is particularly important in transaction cost minimizing respect. For instance, the mechanization of farm operations saves on transaction costs and allows to increase farm size in three ways: first, farmer needs less hired labor and can supervise them effectively in large operational scale. Second, mechanization is connected with standardization of farm operations. It means that manager capacity to monitor more hired labor at large scale increase. Third, farmer ability to control farm operations extend. Consequently he can get cheaper and in bigger quantity standardized service through outside (market) contracts.

Technology development in information and communication systems revolutionaries organizations for agrarian transactions as well. Costs for finding prices for farm inputs and outputs in different markets become very low and available "on line" for farmers. This increases transaction cost minimizing potential for direct market procurement of farm inputs and products. Recent bum in catalog sales of farm products through post office system in Japan is a good example for effective organization of marketing through direct transaction between producers and final consumers. Kobayashi san, apple and jus producer from Nagano has got 40000 clients using post office and local NTT computer network system. Most recent introduction of Internet for marketing of farm products in Japan practically connects directly all producers with final consumers. This organization of transactions is close to the ideal market since it practically makes transacting costs for marketing close to zero. Most likely this new means of communication will change substantially structures for organization of agrarian transaction in near future.

Framer is not only a part of technology or a factor in production function. Individuals are the basic economic units and centers of economic transactions. As a good manager farmer is interested not only how to use technology with minimal production costs but how to transact with other individuals in the most economical ways. Actually the farmer as a manager of agrarian transactions is the real object of our analysis. Few economics can be found in traditional self-sufficient agriculture where little specialization and exchange take place. Level of transactions intensity and costs of transacting is negligible. When specialization increases then exchanges (transacting) and costs associated with them get bigger. In order to find out good answers of all questions about the modern farm organizations we should leave "black box" textbooks approach and look at real life. In real agrarian economy farm, and farm organizations, and market are only alternative modes for governing of farm transactions. For farm managers agrarian economy is not only production cost economy but a transaction cost economy as well. Therefore we should follow the practical business sense of farmers if we intend to develop good models for farm economy.

Under certain circumstances market prices provide individuals with all relevant information about economy and powerful incentives to use available resources effectively while maximizing their profit (Milgrom and Roberts 1992, p.58). Free market is a perfect mode for organization of agrarian transactions when neither sellers nor buyers can affect prices (agents are price takers and they lack bargaining power); when barriers to exit or entry in different activities are low (no monopoly exists); when information is fully available in the same degree for all partners (lack of information asymmetry and possibility for opportunism); when products are homogeneous or standardized (minimum costs for finding partners, negotiating, exchange and contract enforcement), when no externality exists (parties bear all costs and benefits associated with their choices). In such a market costs of transacting are very low, initial assignment of property rights does not matter and economic agents trade property rights on resources up to the pattern of their

effective Neoclassical equilibrium (so called "Coase theorem" based on Coase 1960). Therefore any society needs market as the most effective or alternative form for organization of some part of economic transactions.

Since a great part of agricultural inputs are highly standardized for a big number of users, and technological changes in farming are slow, and most of farm products have mass "commodity" character, market is the most effective way to organize a large share of agrarian transactions. We say that agrarian factors and output markets work well. Here we feel very comfortable in the Neoclassical framework. In this imaginative world of zero transaction costs there is no need for any farm organizations.

However, totally decentralized market system of decision making can not organize all transactions in agriculture. Here we enter more dapper waters of the positive transaction costs agrarian economy. First, product and technology differentiation makes it expensive for individual farmers to check all relevant market information about inputs quality, conditions for use, best input and output prices etc. In order to save information and operational costs of transacting farmers set up input supply or marketing coops.

Second, farmers may experience small numbers bargaining conditions (or monopoly) in upstream and downstream industries. So they may organize bargaining cooperative to save on negotiation and bargaining costs of transacting.

Third, farmers may face missing markets for some products or services - e.g.bank service in rural area, machinery and computer service for farming etc. That is why farmers have to develop this activities as internal or joint non for profit operations.

Next, farmers face risk from price fluctuation of agricultural products. They may set up a coop to pool the risk or they could share the risk with processing industry on the base of long term contracts, vertical integration etc. Farmers can also develop organization for political lobbing and eventually to use tax payers money for price support of farm products. Sometimes benefits from lobbing could be so big compare to costs for political organizing that for a long period of time great public resources would be redistributed in farmers favor.

Fifth, when a transaction is associated with externality (e.g.small appropriability of intellectual agrarian products) no market can organize such a transaction effectively. Farmers are to develop organization for public goods demand and for a third party (community, Local authority, Government) involvement in agrarian transactions.

Sixth, because of information asymmetry a farmer can be exposed to opportunistic behavior before or during execution of transaction (e.g.difficulties in verification of inputs quality, labor shrinking, partners refusal to buy perishable product at harvest time, lack of pay off). So he would prefer to rely on some stable form for organization of transaction like brand name or guarantee in the former case, output based contract or share tenancy in the second case, long term contract or joint investment in the third case, and advance payment in later case.

Seventh, if a farmer makes transaction specific investment he may either lose their value (if transaction does not occur) or he may face unfavorable trading condition when the transacting recurrent time comes. There are plenty of examples in farm production specialized (prior harvesting) for particular end use or for low volume niche markets like: organic farming or brand name products, production of farm products under special technology for processing industries etc. When farmers investments are "lock up" with particular transaction then open market exchange is usually displaced by some form of contract or ownership integration (e.g.contract farming, processing or consumers cooperatives). Such tight bilateral coordination between farmers and processors or distributors exist also for perishable products (milk, fresh vegetable and fruits, animals for slathering) where assets are in high bilateral dependency and quantity, quality and time of delivery are extremely important both for farmers and clients. In input supply side such high asset specificity is usually insured by long term contracts, common ownership (open membership cooperative), joint ownership (close membership cooperatives) or even unified organization. In later case we would expect that farmers own rather rent all farm specific assets and it is not likely to develop orchard or build a green house on rented land.

Transaction costs depend on the nature of transaction and on the mode of its organization. It is not possible to measure transaction costs directly but we do not have to. We are interested not in their absolute level but in relative costs of transacting through different modes.

Opperationalisation of the Transaction Cost Economics has been done namely defining the microeconomic factors responsible for transacting costs differences among variety of organizational forms. In order to determine effective horizontal and vertical boundaries of alternative governance modes for organization of agrarian transactions we are to match attributes of transactions (which differ for each transaction) with governance structures (which transaction costs minimizing capacity differ) in discriminating way. In this way we will have defined the matrix of effective governance modes for different transactions, and we will get criteria to determine the effective boundaries of farm organizations.

There are two behavioral assumption about economic agents that the transaction cost economizing is based on: bounded rationality and opportunism. The first is cognitive assumptions according which human agents are assumed to be "intendedly rational" but they experience "limits in formulating and solving complex problems, and in processing information" (Simon 1957, p.198). Real "organizational" man is less calculative than traditional "economic" man. Economic ramifications of this assumption are that practically all forms for contracting of complex transactions are incomplete.

The second assumption is that economic agents are given to opportunism as a "deep condition of self-interest seeking with guile" (Williamson 1985, p.30). This means that transacting counterparts are less thrust worthy and not reliable in actions. Accordingly if there is an opportunity for one of transacting sides to get extra rent from exchange he will do so.

Those two behavioral assumptions have been broadly used in the Agency literature to analyze (inter) organizational failure. Williamson puts them as a base for solving the problem of any economic organization: "assess alternative governance structure in term of their capacity to economize on bounded rationality while simultaneously safeguarding transactions against opportunism" (Williamson 1985, p.42).

Bounded rationality and possibility for opportunism are not important when frequency with which transactions recur is small, when there is no big uncertainty associated with transactions, and when a transaction is not supported by transaction specific investments. In this case transaction costs are negligible and price (market) mediation is the most effective mode for organization of transactions. However, when bounded rationality and opportunism coincide with frequency, uncertainty and asset specificity of the transactions then autonomous market exchange gives way to more complex forms of contracting or internal organization. That is why Williamson identifies asset specificity, uncertainty, and frequency as "principle dimensions with respect to which transactions differ and among them the first is the most important" (Williamson 1985, p.52).

When frequency of transactions between same parties is low, uncertainty of transacting is not big and neither sides invest in transaction specific capital there is no need for a special private organization. Coordination of transactions is effectively done by market and a farmer buys for instance, necessary long tern inputs (tractor, equipment) from a specialized shop. Bounded rationality is easily overcome since uncertainty is low. Parties restrain from opportunism since market competition does not tolerate bad reputation. Since low specificity of assets to bilateral transacting either of partners can turn at any moment to competitors. Spot market transactions or classical contracts are main modes for carrying out transacting.

When frequency of transacting is high, and uncertainty and asset specificity are low then market mode is again a cheap one. That is for instance when a farmer buys regularity gasoline from closest station or regularly left on trust some farm operations to his neighbor. However, because of the high frequency of transactions between same partners both sides are interested to continue their relationships. Long term transacting develop confidence between parties and they have incentives to design modes to save on repeated costs of transactions. Besides since uncertainty is low it is not costs consuming to develop such mechanisms. Very frequently such transactions are govern by good will of partners rather than of some formal modes. For instance instead of renting a land plot after each crop unlimited lease form is used. Because of low uncertainty and lack of asset specificity partners restrain from opportunism. Unhappy partner can easily turn to another supplier or buyer since his assets are not specific. Bounded rationality is not important since uncertainty is low. However, no special interest to develop some complex mode to govern this transactions since market enforced relationships effectively.

When frequency is low but uncertainty is high and no transacting specific investments are involved then again market mode is the most effective. Since recurrence of transaction between same parties in low they have not specific interest to develop a special mode to govern transactions and overcome uncertainty. High investments in transacting with particular partner are not made and transacting could take place on market (anonymous partner). Opportunism is possible because of incidental character of transaction and repeating of the transacting with same partner does not matter. Because of high uncertainty bounded rationality is crucial, and it is costly to elaborate and enforced conditions of transacting. It is important to build some mode to avoid opportunism but it would be expensive to design such a mode for rare transacting in high uncertainty. However, affecting size can change partner any time without big loses since only universal capital support transactions. Depending on the level of uncertainty which surrounds transactions farmers take different business risk and get normal, low or extra than average rate of return from market transacting.Wholesale marketing of farm products is a typical example for this kind of transactions.

When frequency is high and uncertainty is high but transactions are not supported by specific capital then partners are interested to continue transacting and to develop modes to deal with high uncertainty. When for instance a farmer signs a year long contract with a supermarket with fix prices he avoids uncertainty of price fluctuation. For the supermarket this mode guaranties stable supply of farm products without depending on changes in market supply and prices. Besides both parties have incentive to overcome emerging difficulties associated with uncertainty in mutual interests since high recurrence of transacting. That is why despite of the high uncertainty bounded rationality does not matter and no opportunism develop. Because of the law asset specificity a special mode is not even necessary and transacting problems are govern by the good will of long term partners. For instance such a character of transacting have many employment contracts in farming. Since transactions are frequent but uncertainty is high a farmer hires a permanent labor to save on repeated costs for service supply or daily labor. Because of the high uncertainty duties usually are not specified. Since both sides invest no transacting specific capital there is not a need for a sighed contract and term is not limited. Also various organizations develop to share risk of uncertainty on the base of high frequency of transactions like poling cooperatives for instance.

However big transaction difficulties arise when bounded rationality and possibility for opportunistic behavior are combined with high level of transaction specific investments. When big investments to support transactions with a particular partner have to be made then coordination of exchange hardly would be through market mode. Specific investments are locked in a particular transaction and they can not be transferred to alternative use or users without big losses in value. Here bounded rationality and possible opportunistic behavior matter since high investment could be lost if transaction does not occur or conditions of exchange are unfavorably renegotiated during execution stage. If there is unilateral dependency of assets of same of the partners such transaction would not occur if measures are not taken to safeguard against possible opportunism. Therefore, a special private mode is necessary to govern such transactions and to safeguard against possible failure. It is not likely for instance, a private road to remote farmers plot to be build by market investors. If farmer rejects to buy the road or to lease it out, or stop paying toll fee then specific investments in this transacting will be lost. Since investments are in a high unilateral dependency from exploitation of the farm plot the only mode to govern transactions supported by them is through internal ownership (or joint ownership) mode or a long term lease. In the same way since farmers are heavily dependant from water supply transactions water supply facilities are usually organized by ownership mode or a strict third part regulations of water use is necessary in order to carry such transactions smoothly.

When asset specificity of transaction is high but frequency and uncertainty of transaction are low dependant party is interested to develop a special mode to guarantee his investment in transacting specific capital. Since uncertainty is low it is not difficult to write and enforced a detailed contract for conditions of transaction in order to prevent opportunism. Since recurrence of transaction is low neither party would made transaction specific investment if this investments can not be returned during contracted period. Transaction would occur only if assets of both sides are in high interdependency for a long period of time and long term contract will be developed to

govern those transactions. If unilateral dependency of assets specificity exists then either a long term contract (if it is not costly to elaborate terms of transacting) or internal mode of organization would be possible.

When chances to repeat a transaction are rare, uncertainty associated with transacting is high, and asset specificity for transacting with a particular partner is high then serious transaction difficulties occurs. Here bounded rationality coincide with high uncertainty and this prevent possibility to write complete contract for conditions of transactions. Possibility from opportunism is high and effective punishment is low since transactions are accidental and uncertainty is big. Costs of termination of the contract is very high for a partner with high specific investment involved. Besides low recurrence would block such transacting if effective lifespan of investment is longer than the transacting period. Since it is difficult to find alternative partner to return on highly specific investments the only way to carry out such transaction is through internal mode. If assets of both sides are in high transaction interdependency than a special private mode would have a high value for them to overcome transacting difficulties. However, because of the high uncertainty, costs for designing of such a transacting mode would be very high. Since possibility for recurrence of transactions between same parties is low set up costs for a special mode of transacting would not be recovered by occasional transactions. Either a third part assistance or internal mode come up to organize such transactions. For instance investments in agricultural research in development are highly transacting specific, uncertainty to get positive results is big, however frequency of transacting for individual farmers is not high. If a third part is not involved then private partners would not invests in such activities and technological supply transactions would fail to occurs at effective scale.

When assets specificity is high, and frequency of transacting between same parties is also high and uncertainty is low then both parties are interested to continue their relationships. Transactions can not be organized by autonomous market since specific investment are required. If assets of both parties are in high bilateral dependency a long term contract mode comes up as a form of transacting. Designing of such a special mode for organization is not difficult since uncertainty is low. Also efforts to develop such private mode for standardization of transactions (incentive structure, adjustment mechanisms, conflict resolution devices etc) are justified and costs can be returned by transaction minimizing potential of new forms. If there is unilateral dependency in assets either detailed contract form or internal (ownership or joint ownership) organization of transacting are a solution. Bargaining and service supply cooperatives are good examples in this respect.

When high assets specificity coincides with high frequency and uncertainty of transactions then the ownership (internal) mode is the most likely solution. Since uncertainty of exchange is high it would be very difficult (expensive) to elaborate all possible consequences and corresponding obligations for partners in a contract form. Internal mode has big control and adaptive advantages comparing to other forms of transacting. Transaction can not be govern through market modes since special investments are necessary. Because of high uncertainty potential for nonmarket based rent seeking from a transaction is high during contract writing and contract execution stages (contractual asymmetry). Frequent recurrence of transacting increases the potential of internal mode of organization. If assets are in unilateral dependency possibility for opportunistic behavior is high when recurrent transaction time is shorter than life span of the assets (Fundamental process transformation). Therefore, internal organization like an inputs supply cooperative is more likely to govern transactions then contract mode. When assets are in high interdependency then both parties are interested to develop effective forms to overcome uncertainty of transacting and to benefit from frequent transactions. In modern agrarian economy rational contract has been invented to serve this purpose. Since detailed specification of conditions of transacting is not possible in high uncertainty parties negotiate only policy of their relationship and mutual expectation. For instance instead of fixing prices of farm products only formula for their calculation is negotiated in a contract with processing company.

Therefore, assets specificity is the most fundamental dimension of transaction and different nonmarket modes are to be developed to organize transacting supported by specific investments. This is because the value of transaction specific assets is much smaller than its value under alternative use. It is not possible to change use or users of specific capital without loosing great

part of its value. Degree of assets specificity measured by costs for redeployment of locked in investments can be considered as opportunity costs of the transacting costs. It expresses what a party pays (loses) for organization of alternative transactions if initial transaction does not occur, it is terminated or conditions of exchange are unfavorably renegotiated. Internal organization comes at cost but it has big investment protecting advantages over market contracting thus transaction costs minimizing potential. That is why internal governance (ownership) is always the mode to organize firm's "core" assets and special purpose technology. As assets universality increases then continuing transacting with a particular partner becomes less valuable. Those transactions are more effectively organized through bilateral contracting (medium asset specificity) or by market (general purpose assets).

Asset specificity is not a technological but a transaction characteristic of the farm organization. It shows whether a farmer depends on particular supplier of buyer, and whether this transacting dependency is supported by big investment. In variety of situations the same assets could be with very different level of specificity. For instance, paddy field could be an asset with high specificity to the farm if production resources and rice marketing are strongly regulated by the Government. But it could be with low asset specificity if there is free movement of agrarian resources and liberalized market for rice. In both cases the transacting value of paddy field would be very different for farmers. That is why transaction cost minimizing is a microeconomic undertaking and requires studies of the context (micro factors) of transacting in each circumstances.

Large part of agrarian inputs, assets, and outputs are not farm (transaction) specific, and farm gate market transactions are dominant. Besides long term informal and interlinked personal relationships are common in rural community. Recurrent long time transactions prevail between partners as trust and reputation have a big role to play in minimizing cost of transacting. All of interviewed farmers in Nakatsubo hamlet indicate that they always use the same partners for inputs supply and marketing transactions. Almost 57% of transactions are reported to be interlinked. In many cases farmers business relationships with partners have been continuing for several generations.

At the same time natural uncertainty is high in agriculture, technology is very flexible and productivity varies according to specific micro environment conditions. Output level is very sensitive to quality effort and depends on precision of critical farm operations. Thus human asset could be strong farm specific.

There have been two main concerns for Kojiura san, the manager of the one of the biggest dairy farm in Hokkaido: possibility for technical failure and environmental problem. No wonder that he has got as full time employers a mechanic and an university graduate. In addition he has build a small veterinarian clinic and appointed a veterinarian in the farm. Manager may get veterinary service and machinery maintenance service and technology development from the market. However, dependance of his big farm operations from the skills of those persons is very high. Due supply of those services are critical for output level. Permanent employment contract (internalization of transactions) allows the manager to control directly those transactions avoiding risk from market procurement.

In dairy production knowledge of the state and behavior of individual animals is critical for efficiency. This knowledge and experience turn to an asset with high specificity to the farm. For labor his farm specific skill is also asset with high specificity since he can get higher return on it (wage rate for permanent labor usually is higher than for daily based labor). That is why most of dairy operations are organized as internal transactions and done by family members or permanent employees. The opposite is truth in highly standardized rice cultivation. Here knowledge of technology is not farm specific but an universal asset. That is why a big part of operations can be contracted (left on trust) and only few critical operations (like water control) executed by farmers.

In agriculture the managers ability to control hired labor is usually limited, and monitoring and enforcement costs could be quite high. Very frequently because of the big natural uncertainty it is difficult to verify relationships between labor performance and output level. Transacting costs for supervision of labor and for measurement of work (or contracted) results could be very high even for an experienced farm manager. That is why extension of farm size is heavily restricted from the dependance of critical farm operations from hired labor or contract services. Besides

managerial ability differ among various farmers (good managers, bad managers). Even if agrarian service and factors and output markets are well developed there would be different costs for farmers to use those markets. That is why we can expect that farm size and scope of market transactions will be gradually adjusted along with learning by doing experience of farmers.

Potential of economy of scale and scope from general technology is not big in agriculture. This potential is easily achieved if internal organization does not experience high transaction costs or any institutional restrictions exist. There is no incentive to extend farm operations through horizontal integration with competitors (group farming, production cooperatives, agrocorporation) because trade off between team work gains and internal costs of organization has a very low margin. It is only possible where horizontal coordination costs (for decision making, measurement of performance, avoiding free riding etc) are low as in homogeneous and less labor intensive productions. Hence boundaries of horizontal integration is determined by the potential to achieve scale (scope) economy through common management and use of resources (e.g.pastures, large machinery etc) versus organizational costs.

Risk from market price fluctuation (economic uncertainty) or monopoly could be shared via specially designed organization with competitors (specialized or pooling cooperatives, buffer stocks, associations of cooperatives) or with upstream and downstream partners (contracts, quasi or complete integration). In such conditions effective horizontal boundaries of agrofirm (farm) is determined by technological opportunity to achieve scale economy (single product) and scope economies (by products), farmers personal abilities to supervise hired labor, technical opportunity to use self enforcing contracts (output based compensation, share tenancy), and possibility to use low transaction costs (e.g.family) labor for core farm operations. Data shows that world-wide owner-cultivation has been the most common form of land tenure comprising about 80 percent of all farms covered by World Census (Hayami and Otsuka 1993, p.7).

When assets specificity is relatively high to particular transaction in vertical chain (strong dependance from particular supplier or buyer) and behavioral uncertainty is high, then a farmer rarely relies on open market for transacting. Those transactions are safeguarded either through farm ownership on transaction specific assets (e.g.dairy cows and milking facilities) or through joint ownership (shareholding, cooperation in processing or storage facilities), or through tight modes for vertical coordination (stakeholding alliances, supply and delivery contracts), or even unified integration in industry (e.g.poultry and swan production, cattle feeding). Vertical integration is attained at farm level for highly specific assets (make or buy decision), or through common or joint ownership outside farm borders (cooperation economy on highly specific assets), as well as through joint ownership or tied-up contracts with upstream or downstream partners. In each cases there must be some potential surplus from bilateral (or multilateral) exchange and it is to be shared by each partner through integration of transactions.

Vertical integration at farm level depends on managerial possibility to reach economy of scale for more than one specialized activity (diversification of farming, developing of marketing and processing operations) and it faces limits of managerial diseconomy. Otherwise farmer either builds inefficient facilities and lose on production costs competition (upward side) or makes efficient investment but has to bear risk to buy from (or sell to) competitors (downward side). Moreover when assets dependency is negligible integration into related stages incurs only additional costs without any extra benefits. It is well known that low transaction specific investment's risk is more effectively managed not through diversification of production (vertical integration) but at capital market through extending assets portfolio.

Transaction cost economizing approach to vertical integration outside farm gates gives a new look at effective boundaries of farm cooperatives. Cooperative is a form for unified (ownership) organization of transactions with high assets specificity for members. We visited a very modern Fruit Selecting Center of Inan Agricultural Cooperative in Nagano. Selection of fruits is done by sophisticated equipment and every fruit is tested for sweetness, color, rape etc by electronic sensor. Efficiency of marketing increases since this technology allows to give 100% quality guarantee and meet high consumers demand in this respect. However, the investment of 2.4 billion yens is highly transaction specific for 890 fruit producers from the region. Such a substantial, long term, and highly dependant from limited numbers of farmers investment would not have been done as a market oriented business activity. There is big uncertainty about level of

transactions during effective life of the investments. Dependance of exploration of the capacity of the Center and return on investment highly depends on fruit producers demand in the area. On the other hand possibility of opportunism or even termination of transactions is very high. For instance, farmers may refuse to use this expensive (comprised 23 yen per kilo selected fruit) service and start to apply traditional technic for selection. This high unilateral dependency of transaction stops outsiders to invested in such highly (transacting) specific assets. Since farmers hardly would get such a service from the market (or effectively turn to another supplier) asset dependency on this transaction takes a high bilateral character. As a result the integral mode such as joint ownership (cooperative) develops as an effective form for organization of those transactions with strong bilateral interdependency.

High asset specificity can explain why market value of cooperative assets is much lower that its value for farmers (cooperative is member oriented). Economic ramifications are that members are ready to accept much lower than market rate of return on their cooperative shares. As our survey shows many Japanese farmers do not even know what their cooperative shares are. In many cases cooperatives accumulates at least a part of dividends and members practically get much lower cash return on investment. We have not found examples for redemption policy (current revolvement of equity to members) in any of visited cooperatives in Hokkaido, Nagano and Ibaraki. Cooperative can be considered as a typical example for organization of transactions supported by high asset specificity where opportunity for economy of scale (scope) can not be explored by individual farmers. That is why joint ownership mode is the most efficient for organization of these farm transactions.

However, cooperative form faces memberships limit to get efficient scale or scope economies, as well as managerial diseconomy. Those shortcomings are only partly compensated by specialization and association of cooperatives. Another challenge is toward market orientation of cooperative and turning it in a profit making organization. Our survey shows that namely increase of membership and reduction of non profit making activities are the most important issues on current agenda of cooperative management in Japan. However, market (profit) orientation is connected with well known disadvantages that cooperation posses as a form for business organization such as: conflict with members, low efficiency of group decision making, life cycle problem, investing limits, legislative restrictions etc (Sexton and Iskow 1991). On the other hand high degree of outside (market) transactions means that cooperative assets become more transacting universal (therefore less members oriented). In this case no more economic reason for internal integration since market coordination of vertical transactions is more effective than any integral mode.

Governance matrix for organization of different input supply and marketing transactions in agriculture have been summarized in Table 1. Most effective contracting and organizational modes differ according to type of transacting, and depend on combination of assets specificity, uncertainty and frequency of transacting. When there is no asset dependency, uncertainty is low and frequency is high then market is the best mode for organization of transactions. However, when agrarian transactions are characterized by high asset specificity, big uncertainty and less recurrence then an internal organizations based on ownership or tight integration comes up to be the most effective ways of transacting. In some cases private agrarian transactions fail to occur at effective scale and then strong necessity for third path involvements in agrarian transactions comes to agenda. Development of farming system would be substantially deformed if the effective modes for public involvement are not introduced in due time.

Table 1 Alternative Modes for Organization of Agrarian Transactions

Type of transactions	*Asset specificity*							
	High				Low			
	Uncertainty							
	High		Low		High		Low	
	Frequency							
	Occa-sional	Recur-rent	Occa-sional	Recur-rent	Occa-sional	Recur-rent	Occa-sional	Recur-rent
Land supply	O	O,LL	LL,O	LL	FRC,JO	SRC,JO	M,FRC	M,SRC
Labor supply	F	F,P	F	P,OBC	TBC,F	TBC,P	TBC,OBC	M
Input supply	O	JO,VI	JO	JO	JO	VI,JO	C,M	M
Service supply	O	JO	O	JO	JO	RC,JO	C,M	M
Capital supply	O	JO,VI	JO	TPI,JO	JO,TPI	C,TPI	M	M
Marketing	JO	JO,VI	JO,C	C,VI	JO,TPI	VI,TPI	M	M

M - market, O - ownership, JO - joint ownership, VI - vertical integration, TPI - third part involvement, F - family labor, P - partnership, TBC - time based contract, OBC - output based contract, C - classical contract, RC - rational contract, LL - long lease, FRC - fix rent contract, SRC - share rent contract

Organization of Agrarian Transactions in Yachio Machi

Agriculture and agrarian transactions have always taken an important part of Yachio machi economy. Number of individuals which have been involved in some kind of direct agrarian transactions is quite big. According to the Census more than 50% of households are farm households and 59% of population is farm population in 1990. There are 2734 farms with family farmers averaging 2.53. Those figures give us idea for number of basic units for organization of farm transactions (farms) as well as for the size of internal transacting through this mode.

Both number of participants in agricultural transacting and character of these participation have changed dramatically for last 35 years. Since 1960 number of farms has declined more than 20%. Share of full some farms accounting almost 70% of farms in 1960 reduced to 17% of total farms in 1994. At the same time "part time farms II"[2] comprising 13% of farms in 1960 increased up to 63% in 1994. Only for the period 1975-1990 farmers per farm dropped 37%. More than a half of farmers were engage in farming more than 150 days in 1975. While this share dropped off with 15 points in 1990, the share of farmers involved less than 29 days in farming increased up to one third of total. Thus fundamental changes in structure of transactions have been in place and importance of agrarian transactions in all economic activities has been decreasing.

However, intensity of agrarian transaction has been getting bigger. Share of farms without any sells from one tenth of all farms in 1975 was less than 4% in 1990. Agricultural marketing transactions as a source of net income per farm and per mainly engaged in farming rose up respectively with 58% and 106% in 1994. This has been a result of progressive changes in production stricture. Livestock income comprises less than 9% of total income. It used to be one third of total income in 1975. As a result of expansion of marketed (profitable) products the share of crop production occupies 91% of the total farm income.

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[2] farms for which share of agricultural income is less than nonagricultural income

The most significant changes have been in vegetable production. Its share in farm income was 48% in 1975. Now it comprises two third of the total income. Despite of 40% declined in cultivated land there has been relative and net increase in harvested area of vegetables since 1960. Now vegetables share is almost a half of total harvested area comparing with less than 12% in 1960. For that period production area for vegetables increased more than two and a half folds.

Chinese cabbage, melon, cabbage and water melon occupy biggest part of cultivation area and in production (Fig 1). Intensity of outside (marketing) transactions is highest for these vegetables as the share of marketed farms is bigger for the same products. All vegetables have got a very high marketed ratio measures by share of products for sell in all production.

There has been around 40% decrease in the harvested paddy since 1960. However, contribution of rice production to total farm income has decreased slightly since 1975 comprising 18% of total figure in 1994.

Amount of outside transacting for vegetable and rice production is also big as regards as input supply. Share of purchased and paid items in total production costs for autumn chinese cabbage was 37% in 1993. In Yachio machi part of capital and land supply for vegetable production are through outside (market) procurement. If we take in mind interest and land rent the share of outside transacting in production costs should be much bigger. Share of costs for outside procurement for other vegetable productions is usually bigger that one third. In Ibaraki prefecture more than 37% of production costs for rice come through out farm transactions. Data shows that as much as one fifth of total costs for paddy are for interest (including self interest) and rent (including self rent).

Therefore, analysis of different kinds of input supply and marketing transactions in vegetable and rice productions will give us quite a good picture for a substantial part of agrarian transactions in Yachio machi. Investigation of various forms for organization of different transaction and microeconomic factors for their development will present the agrarian transacting cost minimizing structure.

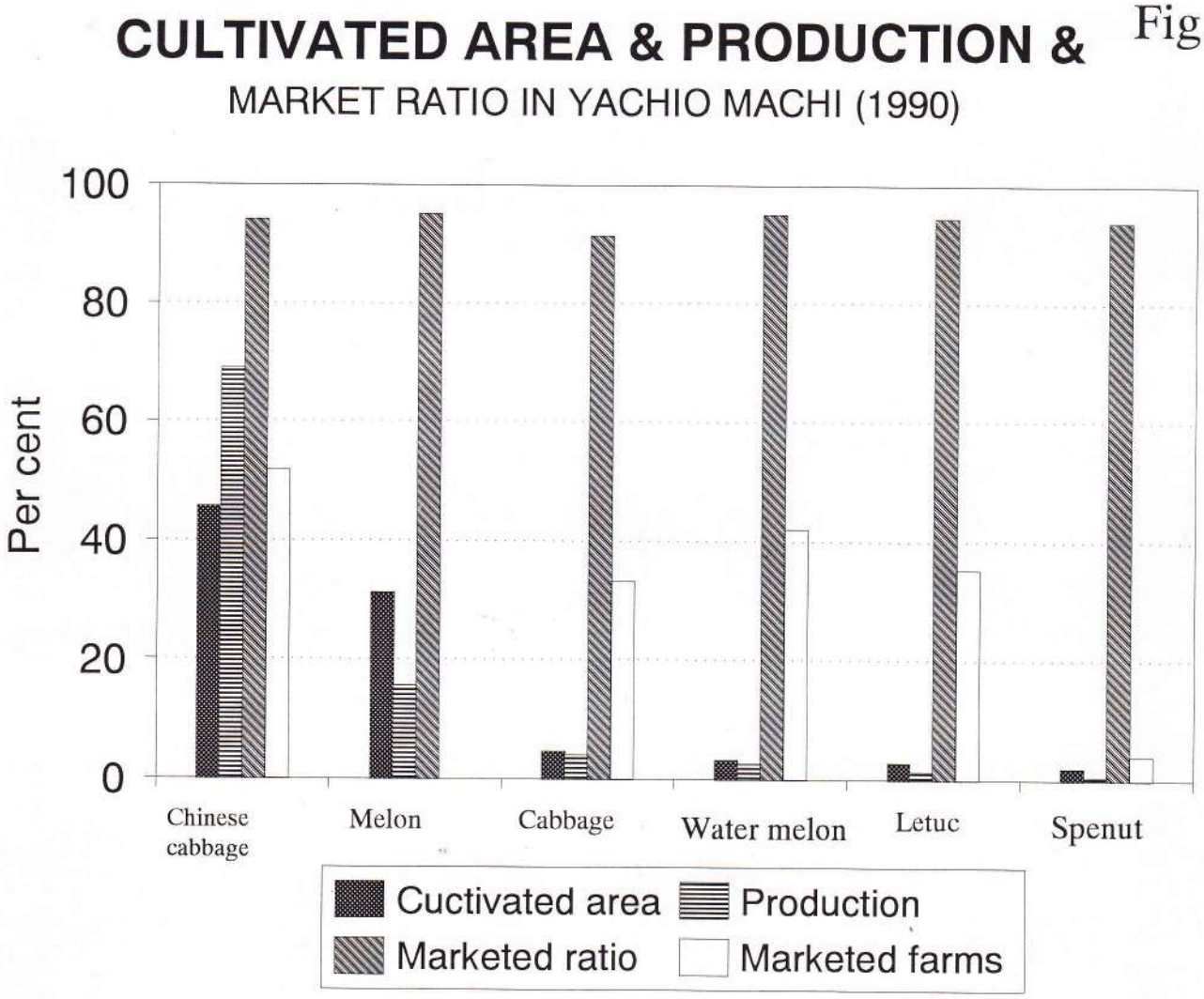
Land is the main and irreplaceable resource in agriculture. Its productive use for vegetable and rice cultivations is restricted from climatic seasons. It is also employed during all production process. Investments in land are usually long term improvements which effective life is much longer than production cycle. All those factors determine the ownership as principal organizations of land supply transactions in agriculture. Only 0.26% of farms are without owned land in Yachio machi and number of farms has been practically equal to number of land owners since 1960.

Farmers could hardly rely to get needed land through market transactions at the beginning of each season. They also would have no incentive to make appropriate investments if they are to return land after every production season. Paddy field is a good example in this sense since the effective life of land investment is much bigger then rice production period. In vegetable production potassium and phosphate fertilizers have a such long lasting effect. It is very difficult to express this added "artificial" productivity of land through market prices since it is not easy to verify land quality. Besides farmers acquire special learning by doing knowledge exploring same plots of land for a long time (such as fertility of land, crop rotation, climate particularity). This special knowledge has a character of transaction specific capital. That is why internal (ownership) organization or long term lease are the most transacting cost minimizing modes for land supply transactions in agriculture.

In Yachio machi more than 91% of managed land is owned land in 1990. Since 1960 total managed land decreased 14% while number of farmers draped off one fifth. Size of managed land per farm have risen 8.2% for 30 years averaging 1.12ha in 1990.

Farms taking part in lease in transactions account almost one quarter of all farms. Their share in all farm household has been reduced slightly since 1975. However, area under lease in transactions in total farmland increased 3.3 points and comprises about 9% of the total managed land. As a result share of leased in land in total managed land of renting farms increased. Land under lease contracts doubled for 1975-1990 and reached 0.43ha per leasing farm.

Fig.1


CULTIVATED AREA & PRODUCTION &
MARKET RATIO IN YACHIO MACHI (1990)
Per cent
100
80
60
40
20
0
Chinese cabbage
Melon
Cabbage
Water melon
Letuc
Spenut
Cuctivated area
Production
Marketed ratio
Marketed farms

Since actual starting of lease market in 1980[3] there has been gradual increase in share of long term (more than 6 years) contracts both for newly and renewal sighed leases (Figures 2 and 3). Number of renewed contracts in all signed leases also has been grown and accounts for more than 70% of total contracts after 1990 (Figure 4). Therefore, long term contracting and renewal the contracts between same parties became the main modes for land supply transactions. In many cases contragents are from same neighborhood, close friends or relatives, and usually contract enforcement costs are low.

We have made a detailed survey of all registered since 1980 land transactions in Nakatsubo hamlet. Extension of farm size has been higher than on average for Yachio machi (Table 2). That is a result of bigger involvement of farmers in agrarian transactions as most of them are vegetable producers and more than 38% of farms are full time farms. Only for 1990-1994 managed farmland has risen 14.8% (correspondingly 5.3% in Yachio machi). Increase of farm size has been predominantly through upland land supply transactions as high as 19% for the period.

Table 2 Managed Farmland per Farm in 1994 (ha)

Land Categories	Yachio machi	Nakatsubo hamlet
Paddy	0.65	0.48
Upland	0.48	1.19
Orchard	0.04	0
Total farmland	1.18	1.67

Source: Statistical Yearbook

Total managed farmland is almost as big as owned farmland. There is only 0.061ha net surplus of land supply transactions in the hamlet. The biggest part of land supply transactions is organized by full time farms. They own 61% of total farmland and their share in managed land is 67%. Farmland is an asset with high transacting specificity for the group of full time farmers since their total income depends heavily on agriculture. Besides farmers labor and land supply transactions are in high interdependency. That is the reason for high scale of internal (farm) organizations of land and labor supply transacting. Average farm size of full time farms is 2.3 ha and this is 76% higher than the average for the hamlet. Average size of owned plots is higher for full time and part time I farms. Also the number of plots managed by full time farmers is 55% higher than the average of 11.5 plots per farm for the hamlet. Average plot size of managed land exceed the average size of owned plots only for full farmers. This means that business farms better than other farms use land supply organization in order to explore economy of scale and scope. That is why they tend to extend both the number and size of plots.

Lease mode is commonly used for organization of land supply transactions. Almost 8% of managed land in the hamlet is under lease in contracts. While share of lease out paddy is more than 13% and there is negative balance of land supply transactions through this mode, the hamlet is a net importer of upland through lease. Nearly one third of farmers take part in lease in transactions. Intensity of this type of land supply transactions is the highest for full time farms as almost half of them are involved in lease in land supply. Share of full time farmers is 77% of total land under lease.

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[3] Before that land lease was heavily regulated in favor of tenants. The Law for Promotion of Agricultural Land Utilization (1980) gives freedom for contracting partners to negotiate conditions of lease.

Fig.2

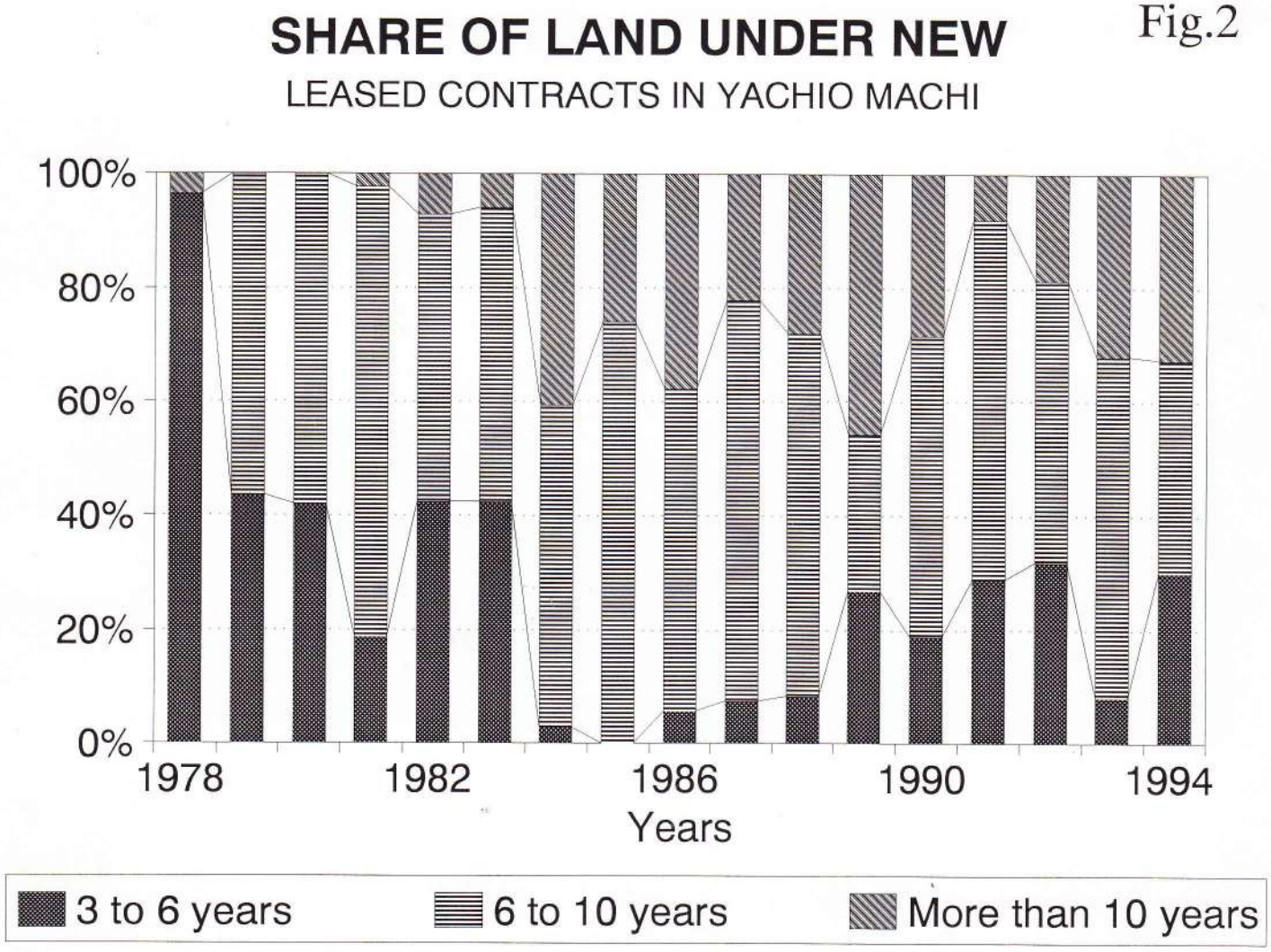

SHARE OF LAND UNDER NEW
LEASED CONTRACTS IN YACHIO MACHI
100%
80%
60%
40%
20%
0%
1978
1982
1986
1990
1994
Years
3 to 6 years
6 to 10 years
More than 10 years

Fig.3

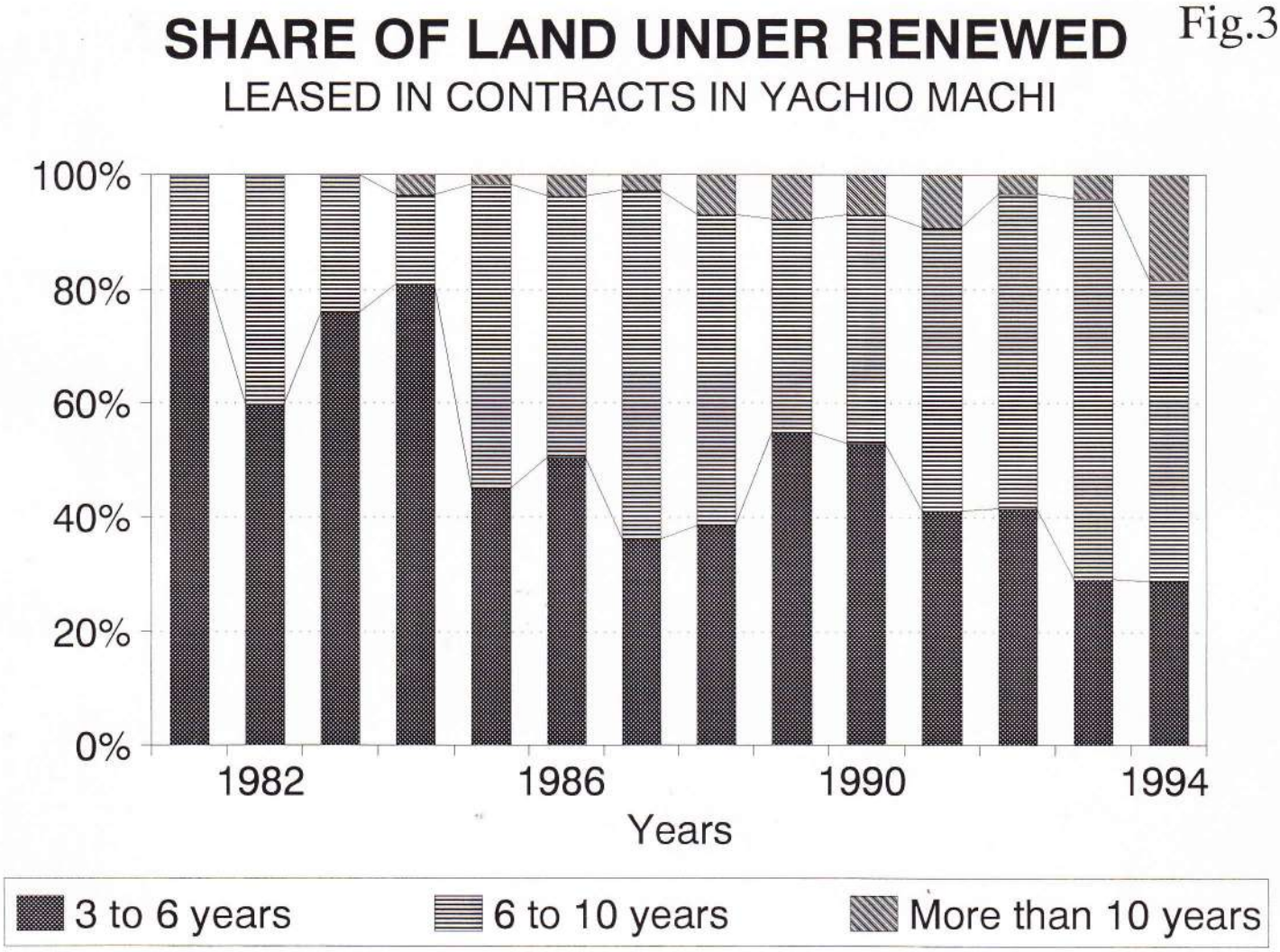
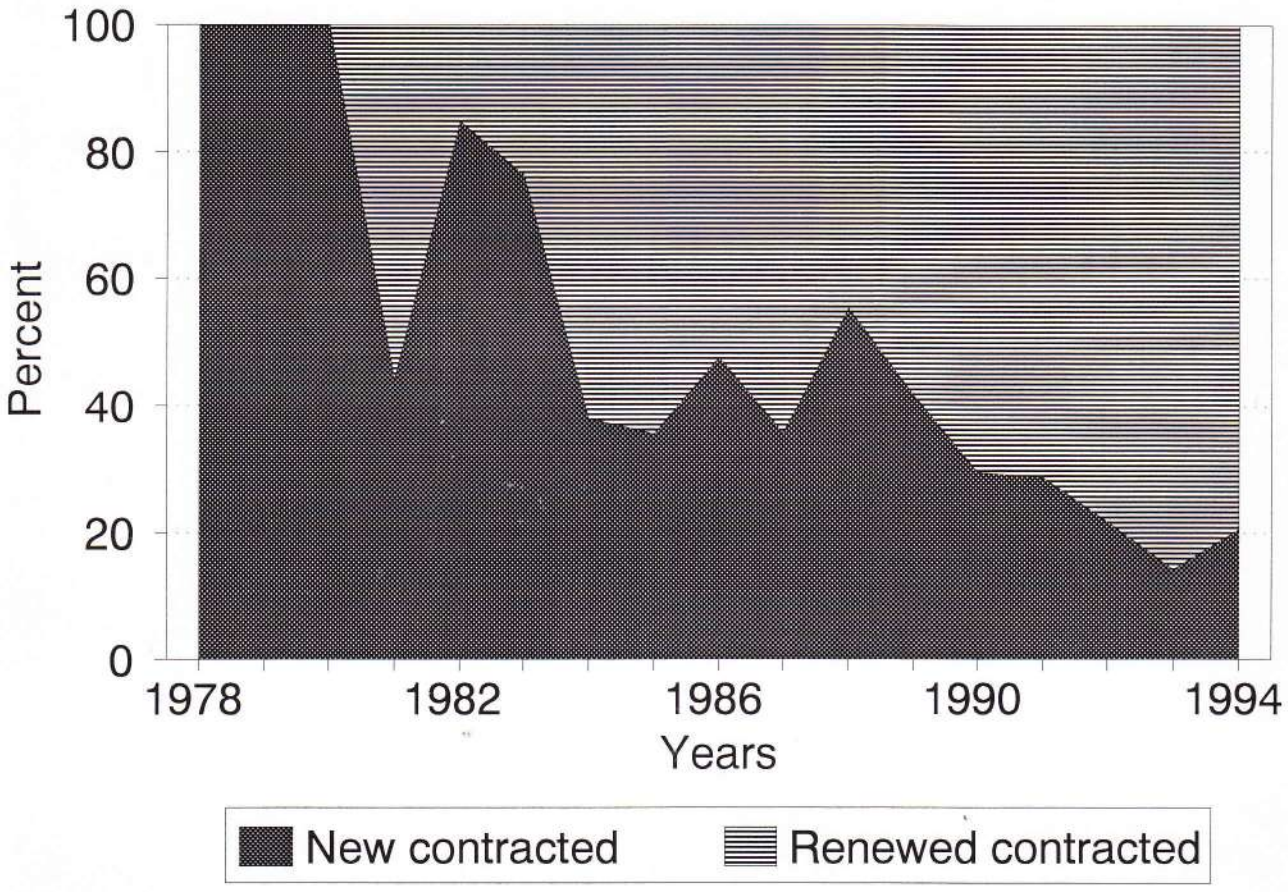

SHARE OF LAND UNDER RENEWED
LEASED IN CONTRACTS IN YACHIO MACHI
100%
80%
60%
40%
20%
0%
1982
1986
1990
1994
Years
3 to 6 years
6 to 10 years
More than 10 years

Fig.4


SHARE OF NEW&RENEW CONTRACTED
LEASED LAND IN YACHIO MACHI
100
80
60
40
20
0
Percent
1978
1982
1986
1990
1994
Years
New contracted
Renewed contracted

As much as 27% of farmers are involved in lease out transactions. Main contributes are part time II and non farmers which account for more than 80% of leased out land. Only 5.4% of farms use both lease in and lease out form for land supply transacting.

Share of land supply through lease in transactions constitutes 28% of the farms size of renting farms. For upland supply transactions lease in is the main mode for more than 30% of managed farmland. Number of leased in plots is one third of managed plots and two third of them come up as upland supply transactions. All types of farmers except part time I tend to lease in plots with an average size bigger than the size of owned plots. Size of renting farms is smaller than the average farm size for the hamlet. All this means that farmers use lease as a main form for extension of farm size. At the same time only full time and part time II farms among net leasers tend to lease out land. However as little as 4.4% of their owned land is under leased out contracts. Therefore, they use renting out as transactions minimizing mode as alternative to hiring labor on exceeding land.

All but full time farmers which lease out land have more than 34% of owned land under lease out contracts. For net lesser full time farms this figure is less than 10%. To the biggest extend paddy fields are involved in lease out transactions as their share reaches 42% of owned area. Land owners which chose outside land supply transactions (such as rent out land) instead of internal organization on owned land (family or hired labor, or contract service) is highest for part time II farms. For this group the decrease of farm size through lease out is more than a half of owned land. Contraction of land supply for part time II farmers reaches up to 65% of owned paddies. The second biggest contributor to paddy lease out transactions are full time farmers. They are usually specialized in vegetable production and keep out a part of paddy for own consumption. Our investigation shows that leasing out full time farms usually lack family labor or are older in age and they gradually close farm operations. Land owners from part time II and full time farms rely on lease out mode of transacting instead of increasing paddy cultivation through baying contract service or hiring labor. Lease out transacting for paddy is cheaper to carry out comparing to more expensive negotiation and supervision costs for non family labor (or contractor).

Part time I farms do not lease out paddy and lease out transactions for non farmers are low. Most of them cultivate paddies as "weekend farming" or are old in age and concentrate their efforts on less labor intensive paddy cultivation. Some of them rely on highly standardized market for contract service instead of renting out. Market procurement of inputs for paddy is well developed and highly standardized. Strong marketing regulations for rice make it easy to extend farm size through internal organization of land supply. Area per plot under lease out transactions for all lessors but full time farms is bigger than owned paddy and upland plots. This means that real farmers tend to use lease out in order to adjust the effective farm size while other groups try to meet demand for big plots on lease market.

Full time farmers have got 72% of all lease in contracts. Number of contracts per full time leaser is 15% higher than the average of 2 for all leasers. At the same time number of plots per contract for full farmers is higher than the average for paddy and low for upland. Since upland lease in is the main way to increase farm size in this hamlet (accounting for 78% of all contracts) it means that full time farmers tend to get such an extension with less costs per contract. However, as a result of big number of small land owners real farmers need more lease in transacting in order to get to the effective size. Share of part time II and non farmers accounts for 80% of all contracts among the group of positive lessors. Number of contracts per part time II and non farmer lesser is higher than the average of 1.3. Lease out transactions are most cost effective for full time farmers. That is because they have more experience in outside transacting and rely less on this kind of land supply. Number of leased out plots per contract is highest for full time and non farmers.

Term is not mentioned for about of 28% of the lease in contracts and they are supposed to be with unlimited period. For the rest of the contracts the average term is 5.5 years for paddy and 4.7 years for upland lease. Only 6% of total contracts do not specify rent level. As much as 19% of contracts are interlinked both for paddy and upland lease. Rent is higher for paddy transactions than for upland lease, correspondingly 2269 yens and 1488 yens per 10 ar. For two third of interlinked contracts a single rent level for paddy and upland has been applied. All registered contracts have cash rent payments. Most farmers do not have problems finding leasers in the condition of decreasing farms number and reduction of the cultivated land. Lease contracts have been repeated between same

parties for a long period of time and transacting costs are low. Contracting parties usually apply low standard rent. That is why even part time farmers prefer to use potential of family labor through leased in land instead of facing big transaction difficulties offering family labor (or contract service) on highly competitive agrarian labor (and service) market.

Share of lease out contracts with non specified term and rent level is 30%. For rest of lease out transaction contracted period is 7.3 years for paddies and 5.7 years for upland. Only one among all registered contracts has rent payment in kind (1020kg brown rice per 10 ar). Rent per 10 ar for paddy lease out transactions is bigger than for lease in contracts averaging 2754 yens. That is because transacting costs to find a good partner and contract enforcement costs are much lower between neighbors, and this compensates the lower level of rent at hamlet level transactions. Rent for lease out and lease in upland transactions is the same since hamlet is net importer of leased land. In this case dominant for the area rent is used also in inter hamlet transacting. As much as one fifth of all contracts are interlinked both for paddy and upland lease out.

Among interviewed farms in Nakatsubo hamlet 78% reports that they lease in upland while only 22% rent paddy. Most of interviewed farmers (86%) have been participating in lease in transacting for more than 5 years. However, less than 29% have their lease in contracts registered in the Land Committee. All of questioned part time farmers have written lease contract and it is registered. Among full time farmers less than 17% practice contract registration. No lease in contract have been reported in written form for full time farms. Since real farms are the biggest leasers we can suppose that the total area of farmland under lease transactions is much bigger than the official figures. In our sample average operating size of farms is much bigger for full time farmers than it is officially registered (Table 3). Therefore, real farm size and its enlargement through lease in transacting mode is much bigger than in official papers.

Table 3 Owned and Managed Land by Different Types of Farm (ha)

Farmland	Agrocorporation	Business farms	Part time farms	All group
Owned land	2.8	2.97	1.34	2.59
Paddy	0.4	0.82	0.44	0.69
Upland	2.4	2.15	0.9	1.9
Leased in land	42	1.37	0.4	7.06
Paddy	0	0.09	0	0.09
Upland	42	1.28	0.4	6.97
Leased out land	0	0.17	0.7	0.53
Managed land	44.8	4	0.84	7.83

Source: Personal interviews

To the great extend the contract terms are well determined and understood by parties. There is no need for written specification of conditions of transacting since partners expectations are standardized: first, land quality is well specified by authority for different categories paddy and upland. Standard rent reflect quality differences and deviation for technological opportunities (plot location, land improvements etc) are easily negotiated; Second, in vegetable and rice production transacting specific investments are low and usually limited for a season.Thus contract term does nor matter for either parties since transaction can be terminated any time without big loses for neither of

parties. In this conditions it is cheap to get agreement and to verify meeting of contract terms (taking care for land, due rent payments etc). Contract writing of standard obligations make no sense. Moreover filling out of complicated standard contract form prepared by authority does not look necessary and it is time consuming. Big farmers usually carry out many lease transactions (many contracts) and they change their partners frequently. Therefore, formal contract writing and registration procedures make transacting unnecessarily costly. No wonder why widespread "illegal" lease have taken place as a result. Another reported reason for shortage of registration of lease contracts is "lack of desire of land owners to do so". This is likely in order to avoid tax payments or fear for possible transfer of property (cultivating) rights to tenants. However, when a big transacting specific investment in land are to be involved then a written specification of terms is a requisite. This has been the case of lease in contract between a cooperative and 5 land owners in Tsukuba for establishment of the Civic Garden. Since the land supply transaction is supported by long term specific investment (land improvements, buildings etc) by the Cooperative a contract period of 10 years have been specified.

More than 71% of lease in contracts in our sample are with neighbors. However, big business farms have their lessors from very large area up to the next prefecture. While most of contracts are without fixed terms big farm operators usually apply short term lease. Almost 29% of contracts are with fixed term and the average reported term is 2.2 years. In order to avoid decease problem and needs for rotation the big vegetable producers prefer to use short lease (one or two seasons). Big leasers tend to negotiate rent and they apply different level depending on plot size, location etc. The largest leaser in the area pays 33% higher than standard rent for plots bigger than 1 ha. Small farms usually contract standard rent in their lease in transactions. No one reports that difficulties exist to find out land for lease.

In the most of the cases a third part involvement in lease transactions is reported. While no part time farms uses a mediator, every two out of three full time farmers rely on a third part involvement in transacting. In all cases this is some private agent or partner. Two third of leasers point out the important role of the fertilizer dealer in contract mediation. Full time farmers need a great number of plots from large dispersed area to carry out farm operations effectively. In order to get economy of scale for highly specialized production, and to avoid disease and soil exhaustion they have to change plots every 2-3 years. One big vegetable producer changes plots (respectively lessors) every season. In this condition the costs of finding partners, checking quality of land, developing confidence between partners, and for negotiating become very high for individual farmers. The third part involvement mode develops to save on transacting costs or to make transacting at such a large scale possible at all. Manager of the Agrocorporation reports that the number of his lessors reach up to 100 land owners from a large area. Fertilizer dealer finds out and negotiates lease in contracts for him. This is not costly for the merchant since he visits frequently many farms in large area and knows available land for lease, its quality etc. Also he has got confidence of land owners as a result of long common business experience. Dealer provides this service for free since the Agrocorporation is a big customer for his chemicals. Stable interlinked transacting mode developed which save transactions costs for all parties. In the same manner many land owners from Nakatsubo hamlet use the respect of the hamlet leader to rent their land through his mediation. Hamlet leader is a fertilizer dealers and he is interested in extending farm operations of his clients. Again a third pard mode of transacting with a strong interlinked character replaces direct contracting between partners.

Among questioned farmers all part time and 14% of the full time farmers are involved in leased out transactions. All these transactions are for upland lease out. Land under lease is small and less than 6% of owned land. All lessors use neighbors as partners. Usually term in not specified and standard (fixed by authority) rent is applied. No owner reports that he executes any control on leased out land. All interviewed say that there are many possible choices for partners and that it is not a problem to find out leasers. Usually farmers rent the land to someone they rely to: friends or relatives. As one of interviewed points out "there are many choices to rent out but it is difficult to find a good lesser". Those farmers who chose not to sell land but lease out mode apparently intend to keep the farm. For them not the rent level but to be a good farmer is important when they look for partner to lease out land. That is why they rely more on personal than market (price) relationships for lease out transacting.

We have made a detailed study of all registered sales land transactions in Nakatsubo hamlet since 1972[4]. For the period 6.2% of land has been sold out while share of bought land in owned land has been 3.6%. There has been decrease in farm transactions in the hamlet through ownership mode on land since 1972. Both number of sell out transactions and amount of sold out land is higher than purchasing transactions and size of bought up farmland (Table 4). Hamlet has been net exporter of land and the role of ownership in increasing farm transactions is lower than in the beginning of the period. Most intensive transactions for transfer of ownership were carried out between 1982-1986. For this subperiod more than 60% of sold out land was transacted. For the same period only 32% of total increase of owned land through baying transactions were registered and no purchase occurred before the date. However, after 1987 there has been positive balance of 5000 sq.m. between bought and sold farmland. While almost 70% of total bought land has been for the last 7 years only 30% of sells transactions occurred since. Therefore, importance of acquisition of farmland for extension of farm transactions in the hamlet tends to increase relatively and absolutely.

Table 4 Land Transactions in Nakatsubo Hamlet (sq.m.)

Year	Sold paddy	Sold upland	Bought paddy	Bought upland
1972	1799			
1973		758		
1979		745		
1980		669		
1981		1348		
1982		1475		1348
1983	8517	482		482
1984	1148	8976		6055
1985	200	4302	113	
1986	317	1657	317	
1987				1420
1988			3001	2588
1989	1238	1433		1861
1990	1190		1190	
1991				1307
1992	1089	4237	461	
1994	2790	582	5640	
Total	18288	26664	10722	15061

Source: Land Commission, Yachio machi

[4] Since all changes in land ownership have been strictly registered our analysis includes all real transactions during the period

Share of upland in total sold out land is 59%. Roughly same is the share of bough upland in total purchased land. Average area per purchased transactions is higher than area per sold out transactions. It means that purchasing transactions have been to the bigger extent connected with increasing the size of participating farms.

Almost one forth of all farms in the hamlet have taken part in purchasing transactions since 1972. Nearly 40% among full time farmers bought up land and their share in purchased land in about 60%. Second biggest contributor have been part time II farms which acquired more than one third of bought up land. Part time I farms have not participated in land ownership acquisition type of transacting.

Share of bought up area is higher than the share of purchased plots only for full time farmers. At the same time share of sold out land by this group is less than 10% and smaller than the share of sold out plots. This means that full time farmers use better than other groups ownership extension of farm increasing both farm and plot sizes. While bought up land per farm is bigger for part time farms the average purchased upland is highest for full time farms. Size of purchased paddy plot is biggest for part time farmers. That is because part time farms use ownership integration of paddy to get to effective size of part time operations while full time farms use paddy extension to satisfy own consumption demands or for subordinate farming activity.

On average bought up farmland accounts for more than 10% of managed land of purchasing farms, while sold out land in less than 8% of owned land of the same farmers. Full time farms use less ownership mode to increase farm size. Bought up land comprises only 7% of their managed land and sold out land is less than 1% of owned land. Part time farmers use to the biggest extend ownership extension as a means to increase farm size. The share of purchased land in their managed land is 28% while there is less than 3% sold out land of owned land. The biggest share of all purchasing transactions is split between full and part time II farms (47% per each group). However, land per paddy and upland transactions is much larger for full time farmers. This means that business farms carry out purchase transacting much more effectively.

Only full time farmers use service of the Kenkusho to mediate their land supply transactions. The share of the third part involvement of Kenkusho is one third of all paddy transactions and 17% of upland purchases. Part time farmers are small buyers and they usually use personal relations in neighborhood to extend land ownership. On the other hand full time farmers have big demand for size of land and plots which can hardly be meet in neighborhood. That is why they use Kenkusho assistance to minimize on large scale searching costs of transacting.

One out of tree land owners has taken part in sell transactions. More than 70% of net sellers are part time II and non farmers. Their share in sold out lend is more than 80% and they executed more than 70% of all sells transactions. More than a half of total bought by the net sellers land is by full time farms. Size of sold out plots and of the land per sold out transaction are smallest for the full time farmers. On average sold out land accounts for more than one fifth of the owned land of net sellers. Real farmers squeezed ownership land supply only on 6% of the size of owned land. Share of bought up land in managed land of selling farms is a little more than 8% and it is equally represented by all groups. Only part time I farmers and non farmers use Kenkusho to sell out land. Its third part involvement is registered accordingly on 50% of transactions for the first group and on 14% of transactions in the second.

Purchasing of farmland is alternative mode for land supply to lease in contract. Accordingly selling out land is the alternative to lease out contract. Different forms for organization of land supply transactions are associated with different control, incentive and risk futures. As a result costs for transacting differ and farmers chose the most economical way for land supply. When a farmer buys a piece of farmland he transfers outside land supply transacting with integral (ownership) mode. It means that he gets full control on land supply transactions and there must be some incentives to do so. For instance, if he leases in land and apply fixed rent he would bear all risk of crop failure or market fluctuation of prices. This king of risk could be overcome by practicing share rent if no

institutional restrictions exist for this mode[5]. On the other hand when a farmer sell out farmland he either chooses more effective forms for land supply transacting (e.g.lease contract) or decides to increase farm size on the bases of different kinds of transacting (livestock operation, providing farm services etc).

In any case there must be some transaction difficulties or extraordinary costs for selecting of the internal (ownership) mode of transacting. Transaction difficulties could be associated with a strong third part regulation of lease market. It could be high level of transacting costs for repeated contracting in a large scale. However, the most fundamental reason for internalizing some transactions is the condition of high asset specificity. This could be some long term investments in land like building, trees etc. It is very risky for farmers to rely on short term lease market for land supply since his investments are lock up in the land. That is because possibility for opportunistic behavior of counterpart at contract renewal time is very high. There is a great risk to lose transacting specific capital in the conditions of high uncertainty of development of lease market (termination of contract, renegotiation of terms etc). Farmer either will not make such investments or he will overcome transacting difficulties through ownership mode. In farming the human capital (e.g.learning by doing experience) would have such high specificity to particular farmland, production etc. At any rate farmers always keep full control on some critical mass of land supply through ownership organization. That is to avoid dependance on outside transacting for this important agrarian input.

Since the acquisition of farmland is connected with big long term investment in specific agrarian capital the extension of farm size through purchase of land results in increasing transacting specificity of farm capital. This is especially through for the conditions of uncertainty about development of agrarian policy, constant reduction of agrarian economic value of farmland, and heavily regulated (undeveloped) farmland market. That is why when a farmer decides to quit farming he usually transfer his assets into more universal form (e.g.money). It is because transacting costs and risk of keeping the capital in highly transacting specific (e.g.farmland) form and renting it out are much higher for non farmers.

One of the main restrictions for extension of farms through land purchase in Yachio machi has been extremely high farmland price (as high as 133 times of the annual rent in 1995). According to some interviewed farmers if they invest in land they would get no positive income. However, no questioned farmer reports that there is any capital restriction to increase farm size as much as they want. Besides land is a special (undepreciable) kind of capital and incentives to invest in such a long lasting assets must be strong. That is why many farmers keep land as a stable form of capital and use it only for part time farming. The main reason for the long term high price of farmland has been big non agrarian economic value of farmland. Owners expectation to transfer their farmland to infrastructure development projects, housing etc during the period of economic boom blocked many effective land supply transactions both via ownership mode or lease.

Lack of desire to sell farmland is another factor for slow development of land market. Some land owners keep doing farming for own consumption or as free time favorite occupation (hobby). Some of them intend to become farmers after retirement from other businesses. For many land owners farm and farmland as a symbol has a special non economical value. As much as one third of interviewed farmers in Nakatsubo hamlet point out that "preservation of the farm for future generations" has been one of main reasons for their farm activity. Since farmland is the most specific asset for agrarian transactions, preservation of farm is not identified with farm transactions but with preservation of control (ownership) on land. As far as future plans are concerned more than 22% of questioned farmers put preservation of the farm as priority. On the other hand for generation of predominant land owners to "sell land means to lose reputation". That is why when they decide to quite farming and sell out the land they usually look outside own neighborhood.

Post war policy toward "owner oriented farmism" has put many legal restrictions for ownership transfer on farmland in Japan. Even nowadays it is almost impossible for non farmers to

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[5] However, fixed rent has incentive advantages since lesser gets all net product. Ultimately which king of lease contract will be implemented depends on risk aversion of land owner and tenant.

buy farmland and to start farm business. Business organization like company is prohibited to take part in land transactions at all.

Dominant until 1980 policy for "strong rights of tenant" blocked any incentive of tenant farmers to buy land. Their cultivating rights could not be terminated by land owner. This specific form for land supply were enforced through a third part Government involvement in transactions. In fact tenants had full control on leased in land such as internal (ownership) mode but not formal title of land. They got all advantages of ownership form without any costs for transacting. They saved not only current costs for negotiating, contract writing etc but big investments in transacting specific assets. They had no incentives to invest in land. The opposite was true since a large transacting specific capital is involved. No wonder why tenants did not apply ownership mode for farm extension. Land market could not develop if there is no lease market. Otherwise land owners take all risk of losing the value of transaction specific capital (tenants quit farming) and tenants enjoy full benefits for free. That is the main reason why practically all ownership land transactions in our Nakatsubo survey have been carried out after 1980. While this specific mode of a third part involvement in land supply transactions was very effective for post war conditions it was out of date in eighties. This policy was shift toward giving full authority of private parties to negotiate organization of their land supply.

Some full time farmers are getting back their leased out under previous regulations land and they do not have to buy new land. Some of them also own forestry and when it is necessary they easily extend the farm size through transfer it into farmland. Some of interviewed farmers present as reason for buying farmland requests for neighbors who quit farming.

However, there must be some other economic reasons for farmers reluctancy to use ownership land supply mode. In the case of paddy fields (which are strongly connected with rice production) farmers worries are easy to understand. Decrease of the demand and prospects for market liberalization put highly specific investments in paddy in unfavorable (from the view point of efficiency) lock up regime. The same high asst specificity during the period of strong regulation of the rice production and guaranteed income was positive incentive to keep paddy cultivation under farmer ownership. Even part time farms have taken advantages of guaranteed rice marketing and income, and well develop inputs supply, and highly standardized technology, keeping land via internal mode. Many of them practically have been involved in farming very little using easy to carry out contract service mode to support farm operations.

Liberalization of the Japanese agrarian markets make it difficult for vegetable farms to compete as well. Long term structure of demand and market access of individual producers is impossible to predict. Investments in farmland become highly specific for future agrarian transactions with big uncertainty for development. That is why even business farmers prefer to extend farm size on the base of lease in mode of land supply. Instead of bearing the risk of long term lock up investments in highly specific assets they chose more effective transacting lease mode. This form for organization gives them flexibility to adjust farm size according to current changes in structures of agrarian transactions (inputs and output markets) for less costs. First, it assures them easy supply of necessary land from speedily extending lease market; Second, besides saving on direct investments for farm size adjustment, this mode for land supply avoids the risk of losing the value of transacting specific capital. Moreover, lease mode allows business farmers to avoid rotation and decease problems, exploring fully advantages of specialization and economy of scale. Transacting costs to change ownership (buy and sell land) on many plots every two-tree seasons would be very high.

We have examined some critical dimensions of land supply transactions which blocked extension of farm size through one or another land supply mode. However, following this line we can not explain why farm size has not changed too much for last thirty years. Otherwise it would be difficult to argue why land owners chose sell out mode or lease the land out, instead of hiring labor or contract services on their owned land To get these answers we should look at general framework of all kinds of agrarian transactions and at structure of total transacting costs. The most obvious restriction for expansion of farm size through internalizing agrarian transactions apparently is the high transaction costs of hired labor.

The main mode for organization of labor supply transactions in agriculture is use of family labor. That is why the basic business organization in agriculture is usually described as "family

farm". Family labor supply has big transaction saving advantages in comparison both with outside labor supply (e.g.contract service) and internal organization of non family labor (e.g.employment contract). Agricultural technology is very flexible and can be hardly standardized. Efficiency of different farming operations depends on their carrying out in a due time according to specific changes in climate conditions (e.g.yield level highly varies according to precision and timely herbicide treatment, water supply etc). At the same time quality of labor input is very difficult to verify and permanent monitoring costs would be very high. Family labor supply is self enforced since family members share not only business but human goals. Family ties and informal relationships make business transactions between them castles to carry out. Transaction costs for coordination of activities, building incentive structure, and dispute resolution among family members are very low. In many cases family organization is based on authority of the head of the households and management decisions are easy to implement.

To the great extend efficiency of farm management depends on personal abilities and experience of farmers ("good" and "bad" farms). Production management can not be standardized and planed beforehand in great details. Thus the human capital is with a big importance for farming and in many cases it is with a high farm specificity. In developed market economies namely this specificity allows a farmer to get extra rent from running its own farm. Otherwise he would prefer the alternative to sell his standard skills on labor market. In modern farming where farm operations are highly standardized (e.g.paddy cultivation) almost all transactions can be organized through outside contracts. Therefore the farm size depends on the management capital of the farmer which is high farm specific. Otherwise it is very difficult to explain why in the same industry and similar conditions there are so big differences in farm size. In our Nakatsubo survey the largest farm is 45 ha while the smallest is less than 1 ha. Different farmers explore to the different extent managerial possibility to extend farm size.

Supervision costs for implementation of non routine management decisions with extension of labor supply are very high. Therefore, either individual farm operations ("farmer is his own master") or use of low transacting costs (e.g.family) labor. While market competition has high intensive potential to coordinate labor supply through price system internal labor organization meets limits of high enforcement costs. That is why the extension of farm size through labor supply transactions is determined to the great extent by possibility to use family labor for critical farm operations. When hired labor is applied that is for routine easy to control and with low risk farm operations. In many cases increases of outside labor supply transacting depends on possibility to use self enforcing contracts such as output based compensation for hired labor or contracting service. Application of those modes depends on standardization of farm operations, and from possibility to verify relationships between labor efforts and results. In many respect these modes are alternative to rent sharing in land supply transactions, and they depend on the extend of risk and risk aversion of partners. In farming very frequently contract labor supply transactions are interlinked with providing accommodation and food for hired labor or in some cases with land supply transactions.

In Yachio machi as a result of increasing productivity of technology and mechanization of farm operations the family labor per farm has decreased more than one third since 1975. Replacement of labor supply with materialized inputs supply transactions has taken place. Extension of farm size has been achieved with substantial decrease of labor supply both as absolute level and as share in total agrarian inputs. Technological development has also changed gender structure of the family labor increasing women contribution in all labor supply. While in 1975 men were 72% of family labor, in 1990 men share in family labor declined to 56%.

According to census data labor supply organization is highly limited to family labor. In 1990 number of family members engage in farming per farm is 2.53, respectively 1.66 mainly engage in farming. Less than 0.2% of farms hire person on yearly base in 1990 while thirty years ago this number was more than 2%. It has been a result of mechanization of routine and labor intensive farm operations. At the same time technology sophistication increases transaction costs to find good workers (quality requirements) and to supervise them (complication of operation). This extremely limits extension of farm size on the base of employment contract mode for labor supply transactions. At the same time number of yearly hired persons per farm increased almost twice for thirty years averaging 2 in 1990. This means that possibility to control hired labor relatively enlarged with

development of technology. For the same period farms with seasonal and daily based workers increased two fold accounting for 4.8% of all farms in 1990. Between 1975-1990 number of seasons with hired labor per hiring farm increase 2.3 times and reached to 42.

Traditional for Japanese agriculture form for informal nonmonetary and interlinked labor supply, known as "exchange labor", gradually decrease from about 9% in 1975 to less than 2% in 1990. At the same time person exchange per farm has been almost the same averaging 15. Widespread distribution of this mode used to be connected with exploring the effect of labor cooperation and economy of scale, necessity of carrying out of farm operation in short time, getting benefits from community work etc. However, direction of technological development has been toward individual than group farm operations. When labor supply is connected with development or maintenance of common assets (infrastructure, water supply), and they are highly farm specific, then a special (farm) organization to govern this transactions is necessary. That is how Land improvement districts or (and) Hamlet organization of this activities has been set up to secure control on transacting. When operations are standardized then market procurement (e.g.contracting) of labor supply has been increasingly practiced.

Another topical for Japanese agriculture mode for labor supply organization such as "free help" is get by 2.6% of farms. Comparing to 1975 labors without pay per farm increase 47% to about 14 per farm. This form of labor supply organization is still practicing as help to relatives and neighbors or old farmers. However, it has no economic importance as labor supply mode.

In our survey of Nakatsubo hamlet the average number of family members per farm is 2.9 for full time and 1.5 for part time farms. Part time farmers spent for farming 150 days a year while business farmers are engaged twice as much. Only full time farms hire labor and 28% of interviewed report existence of early base contract. Sample number of hired labor excess statistical figure for all Yachio machi as much as three folds. Therefore, we can suppose that farm size extension on the base of ("illegal") hiring mode is much bigger than the official data. This is partly because of a great number of illegally hired foreigners.

When a farmer turns to employment contract mode for labor supply there must be some transaction costs minimizing reason. Why does he choose a long term form for organization of transacting instead of relying on daily labor market? It could be economizing on frequently repeated costs for finding appropriate person, for negotiation, for duty specification, for direction and supervision of newly hired labor etc. This might be in order to overcome risk of labor prices fluctuation or possible shortage of qualified labor in pick seasons. It could be return on farm specific human capital which hired labor acquire (learning by doing) working on the same farm. In all cases the internal organization of transacting (employment contract) has big advantages for either parties comparing to market mode. In the former two cases this is simply saving on direct transaction costs while in the later one this is opportunity for both partners to get extra rent through integral mode of transacting (exploring farm specificity of the human capital). That is why wages of yearly based workers are higher than for daily based labor.

The reason for a special long term form for labor supply could be uncertainty of outside labor supply. That is when a farm depends heavily on special skills of outside worker (e.g.veterinary service, maintenance of machinery etc). It can not be bought as specialized service on market or market procurement is associated with transacting difficulties (e.g.risk form opportunism, insecure supply etc). This high farm unilateral dependency from labor of particular partner usually brings the internal labor supply organization as a result. Since labor detailed duty specification in contracting time would be very expensive or impossible permanent labor contracts have no duty specification in all interviewed farmers. Our survey in Nakatsubo hamlet shows that wage level is time based and vary according quality of labor (e.g.possession of driving license). Increase of wage level usually depends on the period of on farm experience. Also hired labor is provided free housing, food, bonuses for good achievements. Only in a big Agrocorporation insurance for employees is included as a part of the contract. All big business farms apply higher ware rate than the average in the region. In a half of cases combine time and output base compensation is practiced. All those futures of employment contracts come up to express this high farm specificity (and consequently return) of human capital. This is also the way to prevent any transacting difficulties that might occur if market mode form of labor supply is used.

While in a half of interviewed cases the reason for employment contract is to "supplement family labor", all others use this mode in order to "enlarge business". In the Agrocorporation size is increased through internalizing labor supply transacting up to 28 yearly based workers. Apparently transacting costs to supply this labor on daily based contracts would be very high. However, extension of farm size is connected with increasing internal transacting (management) costs. Development of a special internal structure to minimize on intrafarm coordination costs becomes necessary. Specialization of management functions come up as result and two division managers are appointed. Since their human capital is highly transacting specific (valuable) to the Agrocorporation their compensation is time based and as proportion of owner salary. The form of permanent employment contract is the most appropriate mode. On the other hand one of most important problems before of the Manager of the Agrocorporation comes out to be "to find good division managers". Selecting of qualified labor takes a big part of overall management time. Accordingly special procedures are applied to recruit such personnel outside local labor market (e.g.advertisement in newspapers). Manager concern is also the high turnover of regular labor as contracts term is less than 2 years. That is connected with low return of (preliminary) transacting costs for developing employment contract mode. Since many of labors are foreigners (more than one third for the Agrocorporation) their mobility is high as well as testing period is applied. Problems connected with group working is also reported. All those add to the level of current transaction costs through this mode of labor supply.

If operational size (total farm transactions) is not big enough then the cost for special transaction mode for outside labor transacting are not justified (no employment contracts). Development of good skills to all critical activities come up as a requirement to run own farm. That is why the farmer is to be at the same time a good agronomist, mechanic, manager etc, and he must have long on job training experience before to start own farm. On the other hand if a farmer has free labor resources he can sell them out on standardized service and (or) labor markets or to become a part time farmers. In our survey no farmer reports using such a labor supply mode.

Japanese farmers inherit the farm and farming activity for many generations. For many modern farmers to be a farmer has a special value. That is why the farm size does not depend always on economic efficiency. Those farmers do not apply at any time the most transacting saving mode for labor supply. It is not rare case when they are ready to accept even less income than their opportunity costs instead of selling (renting out) the farm and entering the job market.

Routine and non farm specific (universal) labor supply transactions can easily be get from current (daily) labor or service market. In this case a farmer is not unilaterally dependant from skills of particular partner (or contractor) and changing of partners is not associated with big transacting costs. He either uses service market for highly standardized operations or hires labor on daily (seasonal) bases from labor market. There is not necessity to negotiate the conditions for exchange since market price coordinate transactions effectively. Many of the interviewed farmers in Nakatsubo practice ordering contract service through a phone call. Contract conditions are standard (standard operation, standard price etc) and transacting costs are low.

Usually "phone call" mode is used for daily based labor supply too. Difference here is that labor is used for various and routine operations. It is hired for some (short) time during which it is directed (managed) by farmer. Detailed contracting is not necessary and it would be too expensive. Since employer does not depend on special skills of a particular person, he can effectively use market (or turn to the market) instead of transacting through costly employment contract. In two third of interviewed farmers in Nakatsubo only general duty specification is used. Another one third get detailed duty specifications. As much as on 33% of contracts for daily supply labor output base compensation is applied.In this case efficiency of organization of transaction is similar to service supply mode since both forms have strong self enforcing potential. Differences are that in service supply mode contractor is independent and labor supply organization is interlinked with input supply mode (machinery service, chemical distribution etc). Hired labor supply is directed by manager and more frequently input supply is organized by farmer.

Big part of business farms (as much as 43% of interviewed) use daily based contracts for labor supply. For two third of cases the purpose of this mode is to enlarge business rather to supplement family labor. All of the farms hire the same persons all time and contract relationships

have been more than for two years. One of the farmers reports that transactions with one of his daily hired workers have been continuing for 30 years. This long term partnerships saves costs to find daily workers, to renegotiate hiring conditions, to specify requirements, to get know labor skills, to develop confidence between partners etc. Therefore, personal than market organization is more important for this kind labor supply transactions. Many of daily based hired workers are female. Since they have high incentive to work hard and get own income supervision costs are very low.

All interviewed farmers do not have problems to find out workers and many possible choices of partners are reported. Special mode to save on transacting costs for both parties in short term labor supply is developed and provided by specialized market agent (brokers).

No whiten contract for labor supply organization has been reported. That is a result of long term relationships between partners. Also strong tradition in the Japanese rural community is still alive when a contract is to be set up. Here the gentlemen agreement between partners is much more important than any signed contract.Only case of whiten contracting in our survey is between family members (spouses). However, that is in order to register a special business farm organization (corporation) and to save tax payments.

When a labor supply transaction is not supported by specific assets, when uncertainty to carry out the transaction is small, and when transacting frequency is low, then the most efficient way to organize such a transaction is through service market mode. Instead of hiring labor manager trust the work to a contractor. The more standardized farm operations are, the less transacting costs are for contracting, control, dispute resolution for service supply. Due to progressive changes in technology working hours per 10 ar of rice production have been reduced more than twice since 1975 (Table 5). Since operations are highly standardized and time for execution very short many farmers have replaced internal labor supply mode with outside service supply. Through this mode they can support farm operations saving investment costs for modernization, getting cheap specialized service from market, and realizing potential of their off farm opportunity costs. Those farmers only concentrate their efforts on critical (transacting expensive) operations and leave all (transacting cheap) others on market mode. In the conditions of the strong third part regulations of marketing of rice (zero marketing transaction costs) widespread part time organization of farm management comes up to be the most effecting form.

Table 5 Working Hours per 10 ar Paddy Field

Operations	1975	1993
Seedling preparation	7	5
Plowing	9	6
Manuring	5	3
Transplanting	13	6
Weed control	11	3
Irrigation	10	7
Harvesting & drying	27	9
Total	82	39

Source: Second Asian Crop Science Conference, Fukui Prefectural Government, 1995

In Yachio machi the share of farms which contract service for paddy cultivation has increased substantial for 1975-1990 (Table 6). Almost for all main operations the share of contracting farms becomes quite big in the end of the period. Only exception is the critical spread of chemical which has been kept through internal (family or hired labor supply) mode. The share of contracts with farmers has been the biggest. However, the contracting mode with farmers (cooperative) and specialized organizations relatively increased. According to the management of the local Cooperative part time farms are the main users of their machinery service and of the Cooperative rice center.

Area per contract for different operations has not been practically changed since 1975. For commercial farms this figure is only slightly bigger. Therefore, the potential to enlarge farm size through contract supply transactions has not been effectively used. It has been a result of already discussed transacting difficulties to extend farm size on the base of land supply transacting.

The share of paddy area under different contract operations is much smaller than the share of contracted farms. For each main operation contracting farms usually use service supply for all amount of the work rather as supplementary to internal mode. Therefore, increasing number of small size farms rather than bigger operators tend to apply contract service supply mode.

The share of farms which contract everything from seedling to processing but spread of chemical approaches one third of rice farms. The share of farms which contract everything from seedling to trashing has been increasing as well. This is a quite different mode since practically all production management is suspended.To the great extend this kind of contract service supply is equal to the short (one season) land lease out mode. Accordingly it could be similar to fix rent when a standard or other negotiated fixed price is applied, or to share rent when contract price is set up in proportion to the output (and costs). Since operations are highly standardized variation of yield is low. Moreover risk from crop failure is shared through special organization (insurance cooperatives). Highly competitive service supply market is practically transacting free to use ("phone calls orders"). Long term lease mode only would lock up farmers control on owned land without any transacting benefits. Besides lease regulations and control of rent level make it less effective to use lease out land supply mode compare to contracting of all farm operations. On the other hand, for a specialized contractor investments are not transacting specific (dependant) to particular customer. They usually enjoy extending demand for such services along with increasing the number of part time farms. In many cases contractors are not specialized in service supply but only apply this mode to get more efficient use of own (extra) farm resources. There is not any transaction needs for internalizing land supply through lease. The opposite is truth since implementation of rice reduction system limits the extension of farm size. That is why the flexible (short term) service contracting instead of (long term) lease out is chosen as the most effective mode for either sides of transacting.

Contract service for other crops has been sharply increasing recent years. In 1990 more than 6% of farms practice this form of organization of transacting comparing with 0.04% five years ago. However, this mode is less intensively used since only 1.7% of managed land is under contracts in 1990. Exceptions are wheat and burley where one forth of producers use contract mode and 20% of the area is under contract service supply organization. Similar to the rice cultivation operations for wheat and burley are highly standardized and transacting costs for outside (contract) supply are less than internal mode.

Share of farms which provide contract service is around 2% (Table 7). While their share has not changed since 1975 the number of farms decreased almost one fifth. The biggest part of farms provide only rice cultivation. Share of the farms supplying contract service for other crops tend to increase.

One third of service supplying farms for paddy contract all works for rice. Contracted area per farm is 1.8 ha and it increased more than twice for 1980-1990. Therefore, contracting farms increasingly use transacting minimizing potential of this mode. Area per contracting farms for main operation has not changed or decrease for 15 years. This means that farms apply this mode in order to make more efficient use of extra resources rather than as specialized market activity. Apparently lease in mode for extension of farm size is more effective for farmers than outside service supply form of transacting. For seedling production share of contracting farms has decreased while the area per farm increased almost 9 times. However, that is because of a new level of minimum effective scale of operation to trade off against transacting costs for seedling contract.

Table 6 Paddy Contract Service Transactions in Yachio Machi (per cent)

Indicators	1975	1990
Share of farms contracting	17.4	56.4
Seedling production		
Share of farms contracting	n.a.	19.6
Area per contract (ha)	n.a.	0.29
Contract with farmers*	95.7	77.7
Plowing & leveling		
Share of farms contracting	15.5	29.2
Area per contract (ha)	0.46	0.31
Contract with farmers*	89.8	75.5
Transplanting		
Share of farms contracting	4.5	26.7
Area per contract (ha)	0.37	0.31
Contract with farmers*	94.9	76.1
Spread of chemical		
Share of farms contracting	2.3	5.8
Area per contract (ha)	0.39	0.32
Contract with farmers*	81.2	61.8
Harvesting & threshing		
Share of farms contracting	6.9	48.3
Area per contract (ha)	0.37	0.38
Contract with farmers*	90.2	70.8
Drying & processing		
Share of farms contracting	n.a.	48.4
Area per contract (ha)	n.a.	0.35
Contract with farmers	n.a.	70.4
Seedling to threshing	n.a.	3.6
Seedling to processing	n.a.	6.4
Everything but chemical	n.a.	28.5

Source: Census data
* 1980 data

Table 7 Share of Contract Providing Farms (per cent)

Indicators	1975	1990
Contract providing farms	2.2	2.1
Contracting only rice	97.2	94.8
Contracting other crops	12.7	27.6
Providing all works for rice*	39.1	31
Area per farm (ha)*	0.88	1.8
Seedling production**	87.7.	32.8
Area per farm (ha)	0.2	1.7
Plowing & leveling	83.1	62.1
Area per farm (ha)	2.7	1.4
Transplanting	33.8	50
Area per farm (ha)	1.9	1.3
Speed of chemicals**	12.3	3.4
Area per farm (ha)	1.9	1
Harvesting & threshing	56.3	72.4
Area per farm (ha)	1.8	1.7
Drying & processing	n.a.	58.6
Area per farm (ha)	n.a.	1.8
Wheat & burley	n.a.	15.5
Area per farm (ha)	n.a.	2.2
Other crop	n.a.	12.1
Area per farm (ha)	n.a.	1.3

Source: Census data
* 1980 data
** 1985 data

In Nakatsubo hamlet as much as 86% of interviewed full time farmers use some kind of service supply contract. As much as 83% of them contract operations for paddy cultivation. Service supply contracts are usually for different operations in busy seasons. Contracts for plowing, leveling, preparation for transplanting, transplanting, harvesting and drying are reported. Rice production is not the main business for any of the farmers. Therefore, they use this mode in order to save on transacting costs for subordinate farm activity rather than to extend farm size. Only Agrocorporation contracts service for vegetable production. That is for fertilizer distribution on small operational area which is done for few days.

Phone calls mode is broadly used in contracting. Most of contract supply transacting (83%) is

with individual farmers. Only one farmer gets the service from the Cooperative. Reported reason is "easy to request and low price". In all cases long term contract relationships have been reported. Standard (recommended by cooperative and local Government) rate is used in all contracts. Payment for private suppliers is usually after delivery of the service. The farmer who use the Cooperative service doest not know when the payment time is since money are transferred directly from his cooperative account. Less than 17% of contracting farms execute some control on supplied service. According to a farmer he is interested to control the quality of service. When he delivers tea and cake during harvesting or shows fields for work he also executes control on service supply.

No full time farmer reports having a contract for providing service. Fort them extension of the farm size through land lease in and (or) labor supply transacting modes is less expensive than service contracts. Among part time farmers one farmer reports practicing service supply transactions. He has got a 15 years interlinked contract with a land owner. The farmer supply plowing and transplanting paddy operations in exchange for the land rent. However, only one forth of his lease in land is under such interlinked contract with service supply transactions. Interlinked mode reflects more demand of land owner for contract service rather than desire of farmer to extend farm size through supplying contract service. Apparently for part time farms it is more economical to apply internal labor supply organization or outside input supply mode instead of short term service supply. In the later case they prefer to adjust farms size either through market transactions buying finished products (inputs) or via long term lease out contracts.

Distribution of farmers time between routine and critical operations, and for introduction of innovation is quite different for various main productions in Nakatsubo (Table 8). In paddy cultivation only 17% of farmers time is for critical operation and no time for innovation is reported. For melon production less than 41% of total time is spent for routine operations. Efforts level for different activities also depends on the farm size. Those figures gives us an idea for potential of deferent farms to use various alternative forms for organization of their agrarian transactions. Transacting difficulties to use outside mode (such as contract service and daily labor) in paddy cultivation is smallest since the share of standardized and routine operations is big. In vegetable production efforts for critical operations and for innovation are high. This limits costs saving potential of outside modes for carrying out farm transactions. Efficiency of outside forms decreases particularly when the size of farm operations becomes very big. That is why the Agrocorporation relies predominately on integral labor supply mode (long term employment contract) rather than to the alternative transacting forms (contract service or daily based labor contract).

There have been two big projects for land consolidation of paddy and upland in Nakatsubo hamlet. Those projects were under special Prefectural and National programs for development of agriculture. Investments for these large scale projects are highly transaction specific to participating farmers. Market or private organizations could be very expensive to carry out such service supply transactions at effective scale. Third part public involvement through subsidy, organizational and technical assistance has been very important for success of those transacting. In order to overcome free riding in organization of service supply, financial and labor participation of all farmers have been important (compulsory) for carrying out such projects. Since their large scale, high asset specificity, less frequency (unique character), the joint ownership mode with strong third part involvement has been the most effective for transacting. Regional Land Improvement District is a large farmers organization for carry out such common (project) service supply. Number of members is 5666 farms and it covers area of more than 2100 ha in 8 municipalities. According to the District staff a new project has been promoted recently for upland water supply. However, farmers do not want to start this project since the high price of water supply. Thus the mode has an incentive potential to involve individual farmers in the management of the organization. It also gives members control power and when farmers find it necessary they stop development of projects promoted by authority.

Among non material (intangible) services extension supply and insurance supply are most commonly used. Only full time farmers participate in extension supply transactions and 57% of them report they use some extension service. According to the local Extension office their main clients are full time and part time I farms. Public extension supply in Japan has got a long history as an effective third part involvement in agrarian transactions. It is organized by Prefectural Government and financed by the Prefectural and National budgets. For individual farmers this service has a public

good character and it is provided for free. Extension service transactions are characterized by high uncertainty, and asset specificity and low frequency. At the same time little appropriability and divisibility and measurability are main futures of intangible extension output. Big transactions difficulties are in place for both suppliers and consumers (farmers). Private organization of extension supply transactions would fail to occur at effective scale. Strong necessity for a third part public involvements in agrarian transacting comes to agenda. That is why the third part mode has been the most effective way to govern extension supply transactions.

Table 8 Distribution of Farmers Time between Different Operations (per cent)

Operations	Agricorporation	Business farmers	Part time farmers	All group
Cabbage				
Routine	33.3	70	40	61.7
Critical	33.3	20	30	22.9
Innovation	33.3	10	30	15.4
Melon				
Routine		39	50	40.8
Critical		41	50	42.5
Innovation		20	0	16.7
Rice				
Routine		75	90	82.5
Critical		25	10	17.5

Source: Personal interviews

Great part of technological development is supplied by the Agricultural Cooperative as an joint ownership mode for organization of complex transactions. According to the Cooperative management their extension service is used mainly by members rather to serve market. Since high asset specificity conditions to members imply, the internal mode comes up to be the most effective way for transacting. In many cases close collaboration between Cooperatives and Extension offices is practiced. While forth fifth of interviewed farmers in Nakatsubo use public extension service, it is usually very rare. As one of the farmer points out "once or less a year". Most frequently this is for soil and disease tests, market information and marketing preparations, or "when extension officers come to the farm". However, main part of extension service is reported to come through interlinked mode with input supply transactions. All business farmers report that private merchants supply them with all important knowledge and information for free. Bilateral mode with strong interlinked character comes up to be the most effective way for the extension supply of questioned farms.

Modern technological development in agriculture is characterized with increasing involvement of private capital in all its stages. Along with introduction of property rights on intellectual agrarian products and extending of possibilities to enforce those rights, the role of private modes for transacting in research and development becomes bigger. That is why market and direct private forms for organization of extension supply are dominant for questioned business farms. Besides that relationships between public, cooperative and private sectors develop both in terms of competition as

well as complementary with each other. As e a result new hybrid forms for organizations of extension supply for farming emerge and they involve public, local, cooperative and private agents.

All interviewed farms in Nakatsubo have some insurance supply transactions. Most of interviewed (89%) get it for paddy, one third of farms make insurance for cabbage, 44% of them insure buildings, and only the Agrocorporation has employers insured. Extend to inter farm organization of insurance depends on risk aversion of farmer. When risk is too big for individuals they develop special organization to share the risk. In the most of the cases insurance supply transactions is organized by farm cooperatives. Since risk for failure of farm production is high, internal (joint ownership) mode is the most appropriate from of risk sharing. In some cases the reason for own farmers organization could be missing market for such services. One of interviewed farmers points out as reason to choose the Cooperative for insurance supply that "only coop comes". For paddy cultivation insurance supply is mandatory and farmers do not have freedom to chose transacting mode or partners. Since membership in this organization is obliged it has character of public organization. Free riding in insurance transactions is not a problem since rice production is closely monitored and regulated by authority. That is an example for a third part public involvement in insurance supply transactions. Since transaction costs for internal organization of many small producers would be very high, the third part involvement mode develops as a substitute for private organization. Only the Agrocorporation contracts service on risk market (with Insurance company). Reason is that "cooperative service is not professional". Reported cooperative delay of policy payment is not acceptable for this large scale operations. That is why the Manager chooses professionalist service (specialized company) to organize this very critical for his cash flow transacting.

Since crop tends to have character of specific assets for big and highly specialized farmers they tend to insure crop as well. In our sample as much as 29% of full time farmers insure chinese cabbage. Through this mode they can extend size of farm transactions exploring economy of scale for specialized production with minimum transacting risk. Loses for small farms are not so big in the case of crop failure. Some of them practice very traditional forms for risk minimizing as diversification of the production. That is why they do not use outside supply for crop insurance service. In the same way farmer bears the risk for crop failure, hired labor take the risk for its insurance. Thus all farming risk is shared internally by participants in transacting and no outside insurance supply is carry out. However, the bigger farm size the bigger risk for failures. Therefore, the importance of risk sharing through joint ownership (e.g.cooperative) or outside (market) modes is increasing. Possibility for labor injuries in a large scale and labor intensive operations is very high. In order to avoid this risk the Agrocorporation uses insurance supplying mode even for employed workers.

In the insurance markets information asymmetry and risk for opportunistic behavior are very high. That is why insurance supplying agents always use detailed written specifications of contract terms. Also no questioned farmer reports negotiation of insurance premium or policy. Competition in rural insurance market intensifies very much both in term of provided service and insurance policy (price). Cooperatives are also involving in this competition to keep business with members and to get new (outside) customers as well. That is why profit making in insurance activity is important policy for the local Cooperative management. This also means that market transacting for insurance supply is becoming increasingly more effective for farmers. Framers need less a special organization to carry out this transaction since they can get it (transfer to) cheap through market mode. On the other hand size of the Cooperative involvements in insurance supply transactions (its market share) is heavily depends on its ability (flexibility) to provide high quality and low costs service through market mode. This tendency is also based on decreasing the share of full time farmers in the cooperatives. Big number of part time farms less depend on agriculture and their main interests are quire different. Therefore, less transacting specificity of assets in insurance activity to farming and increasing their universal character (open to market) come as a result of this development. That is why instead of members demands profit making is crucial for development of the cooperative insurance business.

Fundamental changes have been in place for agrarian input supply transactions for last decades. In Yachio machi there were only 0.07 tractors per farm and 0.07 per ha in 1960. Thirty years later the number of tractors gets to 1.1 per farm and 0.99 per ha. While more than 80% of all tractors were manual in 1960 more than a half of them are bigger than 15 hp now. Since a tractor is a

highly specific asset for farm, frequency of its use is high, and no lease market for tractors exists, internal (ownership) mode is common for this transacting. In 1990 more than 77% of farms own tractors. Joint ownership form is less preferred since its high level of transaction costs. It is used only when trade off with economy of scale could be explore. Less than 1% of tractors in Yachio machi are owned by groups while more than 80% of them are bigger than 15 hp. Average number of other important for farms equipments like rice transplanters, chemical spreaders and dryers is also big (Table 9). Time of effective use of those tools is very short but their timely supply is extremely critical for the production. Those inputs get high transacting specific character and ownership mode which assume full control on transactions by farmers is chosen.

Table 9 Agromashinary per Farm in Yachio Machi

Type	1990
Tractors	1.11
Manual chemical spreaders	0.36
Chemical spreaders	0.05
Rice transplanters	0.55
Binders	0.26
Combines	0.28
Dryers	0.51

Source: Census data

In Nakatsubo hamlet the number of tractors per farm and per farmland is smaller than in the city accordingly 0.96 and 0.66. That is a result of bigger farm size and better exploration of economy of scale in the hamlet comparing to Yachio machi. Most of the farmers in the hamlet have their own tracts for transportation of vegetables to markets. One third of tract are 4t and all other 2t.

While much of inputs used to be produced on farm there are specialized economic activities now. In these conditions joint ownership or market modes are used to organize inputs supply transacting. Agricultural cooperative is a main supplier of big part of long term and short term inputs. According to the manager of the local Cooperative the full time farmers are their main customers for inputs. Next come part time farms, non farmers and other clients. Since non farm inputs supply for farming increases, transactions become more (farm) universal and market (rather than internal) organization takes dominant share of all transactions. In Nakatsubo hamlet less than 50% of the fertilizer and chemical supply is through the Cooperative. Since vegetable producers use a great amount of fertilizers and chemicals the hamlet is important for private dealers. While in all Yachio machi 10 dealers compete with the Cooperative in Nakatsubo alone their number is 6. Price competition becomes important part of the Cooperative policy. Same price level is applied both for members and nonmembers. Cooperative employers visit every farms and advertise products and prices. When it is necessary they make discount below dealers offers. Also three different levels of prices for inputs are applied: spot, planed, business. When farmers make advance orders they get special discounts or when they buy in big quantity they receive gift cars. According to the Cooperative officials in the past dealers prices were lower than the Cooperatives. However, nowadays merchants arrange their prices after the Cooperative.

Each branch of the Cooperative has direct relationships with the Federation of Cooperatives. Besides all branches have freedom to choose partners and to negotiate prices. This mode allows local

managers to adjust their operations using economy of scale of joint transactions according to the local and Federation interests or switching to direct market inputs supply. Local managers can use other suppliers but in this Cooperative inputs supply is mainly through the Federation. According to the officials as much as 90% of inputs supply is from the Federation. President of the Federation is also the President of the local Cooperative. Therefore, not comparative efficiency of transacting modes but personal influence of the President is important in choosing the partner. While in principle prices with Federation could be negotiated actually fixed prices of inputs are used.

Among interviewed farmers in Nakatsubo hamlet 78% use the Cooperative for some kinds of inputs supply. Most of the farmers use several suppliers for chemicals and fertilizers. They either get different products from various merchants or divide orders between different suppliers. In 56% of farms some interlinked mode is reported. For all part time farmers that interlinked is with paddy marketing. Several farmers from the hamlet produce melon under special technology. Technology has been designed by Hamlet Leader, who also supplies specially developed fertilizers, and markets the brand name products through the Post Office system.

In one third of the cases negotiation of prices is practiced. All interviewed farmers point out that the Cooperative prices are fixed and higher than merchants. Negotiation takes place only with private dealers and according to one of the farmers "when vegetable prices go down the merchant but the cooperative makes discount on inputs prices". All of questioned farmers pay for current input supply only twice a year. Thus all short term inputs supply modes are characterized with partial interlinked with current capital supply by partners. Otherwise farmers would have faced the need to increase capital supply transactions (invest more capital) to support current input supply and farm size.

Only the Agrocorporation reports having only one supplier for all fertilizers and chemicals. In order to coordinate inputs supply for the big farm operations a private dealer visits the Agrocorporation office 4 times a week. Dealer also arranges land for lease in and supply other information (for available labor, markets etc). Despite the big amount of transacting and possibility to negotiate prices the Manager of the Agrocorporation does not do so. This is because he gets for free (save on transacting costs for) other services through this interlinked form of transacting.

All farmers have got a long term relationships with same partners. One third of interviewed farmers put as a problem in input supply transacting the "big number of dealers". Apparently increase of the number of suppliers save on prices but costs for selection of the best partner go up. When intensity of inputs supply is very high (big operation size) the stable form of transacting develops to economize on transacting costs. In the Agrocorporation where frequency and amount of transacting is very high market mode would have been very expensive to use. That is why the inputs supply is practically integrated in the corporation structure through a long term interlinked mode.

All of interviewed farmers buy long term inputs from private companies. Prices usually are negotiated. Long term business relationships are registered in all cases. Guarantees by makers are broadly used to save on transacting costs in highly competitive market for farm machinery. However, in the market for used machinery some transacting difficulties are reported. According to the Manager the Cooperative has registered some quality disputes for its second hand machinery supply. Among interviewed farmers in one third of the cases input supply disputes are reported. They are connected with efficiency of supplied chemicals, quality of materials (e.g.venae sheet tunnel) etc. Only one among interviewed farmers report using inputs through the Cooperative organization. This is for a short days lease of a dam track based on written contracts with the Cooperative.

In Nakatsubo hamlet there is a non formal farm organization for part of input supply transactions. So called Vegetable Study Group has been established by 20 farmers in order to stop soil and decease problems through manure use. Almost all full time farmers are members of the group with equal share in the assets (tractor, manure spreader, building). Activity of the group is coordinated by 7 members committee. Hamlet Leader (non farmer) serves as the Secretary of the group and keeps records, collects money, helps farmers to find manure etc. Maintenance of facilities is on the base of fees (half or full day) and labor supplied by the members. Depreciation is not recorded and replacement of assets is through collecting of necessary capital. Organization is strongly members oriented and non members can not use groups facility. . Farmers explore jointly economy of capital costs through this organization.Most of the farmers use the groups tractor and equipment 3-4

days a year. According to the Leader of the Group farmers in the hamlet intend to keep this organization. However, no extension of groups activities is discussed. Simple character of transactions and strong informal relationships in the neighborhood make coordination costs of this mode close to zero. Potential of self enforcement of transactions is very high. However, some transaction costs associated with free riding is reported. They find expression in some cleaning up disputes and faster than in the private farms depreciation of the common machinery.

Capital supply transactions of interviewed farms in Nakatsubo are organized mainly through internal mode (self financing). Only the Agrocorporation reports to use short term credit and 44% of farms have long term credits. Only full time farms use outside capital supply mode. Largest part of farmers (60%) use the Cooperative to carry out capital supply transactions. Low interest rate or availability of preferential loan are reported as reasons to chose the Cooperative bank. However, big business farms tend to use commercial banks. All of them point out the professionalism as the reason to chose bank. Farmers usually use all time the same partners to borrow money. In one fifth of the cases (land) collateral in used. Farmers have got own Prefectural and National organizations to guarantee their loans. Agrocorporation alone reports that negotiation on interests rate is practiced.

There are many Government Programs for promotion of agriculture in Japan. Interested farmers can easily get preferential loans. Most of the public funds for those programs are managed by the Cooperatives. While commercial banks also can supply credit under the Government Programs our survey shows that it is not always known by farmers. These large promotion programs are examples for a third part public involvements in agrarian credit supply transactions. Lack of this public intervention in capital supply transactions could have deformed substantially development of the farming structure. Besides the Cooperative bank is one of the world largest banks with broad spectrum of financial operations (including overseas transactions). Cooperative members can easily get various (production, consumption) credits trough this joint ownership mode. That is why most of the questioned farmers (78%) report they have no problems to get any amount of capital they want to extend their farm operations. Agrocorporation is eager to use preferential (Government) long term credit but it is not eligible since the company is not formerly registered for farming.

Marketing transactions are very important for a great number of farms in Yachio machi. Most of the farms are involved in some kind of marketing transacting. However, the extend of this involvement varies significantly for different farm products (Table 10). Besides share of farms which produce various farm products is quite different from the share of marketed farms for those products. It means that some specialization and exchange take place. However, since the share of most of the products in total farm output is not significant, marketing transactions for such products are with local importance only. Moreover in rural area it is still common for many households to take part in agrarian transacting (farm production) in order to supply farm products through internal or non market modes. Size of farm transactions in such cases is not determined by efficiency but from non economic factors. Those farms do farming not as a specialized market activity but for own direct consumption or for traditional exchange (barter) of farm products, or for non economic transacting (e.g.gift for relatives and friends).

While tobacco, burley and wet rice have the biggest commercialization among all farm products, the greatest share in all marketing transactions is for chinese cabbage, rice, melon and cabbage. Biggest part of farm transacting is connected with production of those products and their share in cultivated area, total production and income is the biggest. Chinese cabbage accounts for 70% of production and sold out vegetables, and it has 94% of products marketed. Share of melon in total vegetable production and sold out products is 16%, and marketed ratio is high (94%).

Potential to increase farm size through internal consumption of farm products (e.g.processing, production of feed for animals) is not very big. "Make or buy" decision in farming is almost always in favor of product specialization of farm. That is because of the mass commodity character of farm products and discussed high costs of internal mode of agrarian transactions. Consequently organization of marketing transactions gives up the biggest number of various off farm modes of transacting. Actually all attention of managers (and scholars) was initially put in studying transacting difficulties and developing modes to overcome these difficulties for marketing transactions.

Table 10 Market Transactions for Different Farm Products in Yachio Machi for 1990 (per cent)

Products	Marketed farms	Share in all farms
Wet rice	87.3	83.6
Upland rice	84.6	6.4
Wheat	84.6	20.1
Burley & other	91.7	1.3
Burley for beer	66.7	0.1
Tobacco	100	0.1
Tea	78.6	0.05
Chinese cabbage	51.7	66.3
Water melon	42.1	17.7
Lettuce	35.3	11.6
Cabbage	33.2	35.7
Other vegetables	69.3	48.1
Millet	23.2	7.9
Potatoes	9.8	37.2
Sweet potatoes	2	3.6
Soybean	14.7	18.1
Other beans	7.1	12.4
Other industrial	9.1	0.04
Tomatoes	0.8	36.4
Cucumbers	0.7	64
Egg plant	7.3	67.6
Spinets	3.9	52.2
Leek	3.3	62.4
Japanese reddish	1.2	62.6
Carrot	0.6	31.7
Taro	0.5	54.5
Green paper	0.7	15.7
Strawberry	2.4	1.5
Onion	0	17.2

Source: Census data

All among interviewed farmers in Nakatsubo hamlet produce rice and 78% of them market rice. Only two big farms cultivate paddy for their own consumption. Most of rice is marketed through private contract modes (Table 11). Usually farms have got a long term (several generations) transacting with their partners. For all part time farmers and one third of business farms interlinked mode with fertilizer supply is reported. One of the full time farmers has a contract to supply a special rice variety (Kosihikari) to a restaurant. Only part of rice marketing transactions is organized through the Cooperative. One of questioned farmers present as a reason to chose this form the request from his relative who works for the Cooperative. Another full time farmers market only a part of its paddy to the Cooperative in order to pay supplied fertilizers and chemicals. Share of illegally marketed rice is not big for questioned farmers. Rice income through different modes is the same and guaranteed by the third party (Government). No significant differences between the Cooperative and contract prices for rice are reported. Therefore, some transacting benefits rather than income opportunities are reasons for farmers to chose one or another form. It is not accidental that almost in all cases the interlinked character of marketing mode with organization of other kind of transacting is in place.

Table 11 Share of Various Modes for Marketing Transactions (per cent)

Indicators	Business farms	Part time farms
Rice		
Share of farms producing	100	100
Share of marketed farms	71	100
Contract mode	80	100
Cooperative	20	0
Chinese cabbage & cabbage		
Share of farms producing	100	50
Share of marketed farms	100	100
Market mode	60	100
Contract mode	20	0
Cooperative	20	0
Melon		
Share of farms producing	57	50
Share of marketed farms	100	100
Market mode	100	100

Source: Personal interviews

All full time farms produce chinese cabbage and some of them cabbage. All of them use wholesale markets for marketing of those vegetables. One fifth of business farms use both market and

contract modes for transacting. However, importance of those mode for different farms is not same. Only 2% of 500 million sells of the Agrocorporation is carried out on wholesale market. Practically all market transacting is through contract mode with 23 partners (companies, supermarkets, processors). Capacity of the individual partners of the Agrocorporation are smaller than its production potential. That is why the Manager was introduced by his first partner to new contragents. Since frequency and volume of transacting are high all parties are interested in carrying out transactions smoothly. Besides the long term contract mode gives transacting sides opportunity to adjust production and delivery plans, to overcome disputes etc. Therefore, costs for contracting and carrying out transactions in such a large scale are not big for either parties.

Two business farm use the Cooperative organization to market their chinese cabbage. One of them sells the biggest part of his output through the Cooperative because of already mentioned request by a relative. Contract is written with every 10 days specification of quantity of marketing products. Prices are not fixed but to the some extent they are guaranteed under a special Government scheme. Another farmer does prefer market mode but he still uses the Cooperative for spring cabbage marketing. That is because of interlinked organization of marketing transactions with service supply by the Cooperative. Since farmers does not have resources (time) for critical clean up operations and for preparing vegetables for marketing he chooses the interlinked mode. One case of contract failure with the Cooperative is reported. Because of high market price of the chinese cabbage one of questioned farmers did not meet his contract obligation to sell through the Cooperative. No any fine is reported since the (joint) ownership mode is more important then current use contract. However, next year only farmers who completed their previous contracts get transplanting service (for chinese cabbage) from the Cooperative at a half price. Thus tendency of strong interlinked character of marketing transactions through the Cooperative mode exists.

Great part of full time farmers produce melon (57%) and all of them use wholesale market mode only for transacting. Only a half of questioned part time farms produce vegetables and melon. They prefer wholesale markets to carry out marketing transactions. While business operators look for best markets and they tend to market a large part of vegetables in big wholesale markets, part time farms use local collecting markets. According to an old part time farmer he prefers the local market despite lower price level. That is because it is very close to his farm and company employers help him to unload his products.

One of such local collecting markets (in Chiokava) serves 250-300 farmers. For almost thirty years this private company collects farm products and sale them through other modes (wholesale markets, supermarkets etc) as main business activities. According to the company staff 60-70% of farmers in Ango region (which includes Nakatsubo hamlet) and a half of full time farms use this market. Accordingly 30-40% of farms probably sell all their output here. Most of farmers bring themselves farm products to market facility. Only for 5% mostly aged farmers output is collected by company. Usually prices are not announced and any products are accepted. However, when company needs more products it announces price level to attract more farmers. Also when whether is not good (e.g.heavy rain) company staff ask some farmers to market there. According to the company employer they do not have any problem marketing chinese cabbage since no big quality differences of products exists. However, for melon marketing big quality differences are a problem. In order to improve products quality this Collecting market organizes joint seminars for farmers with a Seed company. However, even when quality is not very high the Company gives a good price otherwise farmers would easily move to other markets. One of interviewed full time farmers, who markets his vegetables both in wholesale and local markets, points out that price levels are almost the same.

According to the Leader of the Nakatsubo hamlet more than 80% of the farmers market directly their chinese cabbage in Tokyo wholesale market. Half of the melon is marketed in local market and another half in Prefectural wholesale markets.

Mainly full time farmers use the cooperative form for vegetable marketing. According to data from the local branch farmers in Nakatsubo do not market through the Cooperative too much (Table 12). One of the reasons is that there are several wholesale markets in the area. Since commission of the Cooperative of 7-8% is twice as much as in the wholesale markets, farmers simply use cheaper mode. Despite that according to the branch staff good quality melons come to the Cooperative and bad ones are marketed through other modes. Another reason is that the Cooperative collects melon only

from their own seeds. However, most of the farmers prefer low sugar grade but much resistance to deceases varieties. Coordination of marketing transactions by the Cooperative is done through farm and plot level plans for every 10 days of the season. In order to increase sugar degree the Cooperative staff give recommendation for starting date of harvesting. Farmers select products in groups and Cooperative checks up every 240th box. According to the staff they have been practicing this system successfully for the last three years. Since self enforcing potential and intra group control are very high only few bad boxes have been found for the period.

Table 12 Share of the Cooperative in Marketing Transactions in Nakatsubo

Products	Per cent
Rice	80
Spring chinese cabbage	50
Spring cabbage	20-30
Autumn Chinese cabbage	30
Atom cabbage	10-20
Melon	Less than 10

Source: Cooperative data

Share of the Cooperative in paddy marketing is high and mainly part time farmers use this transacting mode. Marketing transactions for rice have been strongly regulated (enforced) by the Government in order to guarantee farmers income. Transacting costs of better marketing opportunities are extraordinary big comparing to possible extra income or opportunity costs of part time farmers. For their low marketing level (small paddy operation) those extra transacting costs (and efforts) are not justified. That is why most of the part time farmers use the cheap cooperative transacting mode instead of looking for best marketing of rice.

Local Cooperative does not take any commission and all margin goes to the Federation. Prices are not negotiated and income is pooled among different branches. Cooperative does not take ownership on marketed products. In order to improve marketing strategy the Cooperative promotes hamlet level farms organizations. There are two such clubs in Nakatsubo for melon and cabbage producers. Only members use the cooperative mode and income transfer rather than profit making is important for the organization. According to the Manager to keep market share and to increase transferred income to the members are the most important policy issues for the Cooperative marketing activity. Size of this form for organization of marketing transactions depends heavily on management ability to do business with members. Only way to do so is to extend variety of supplementary marketing services and to make them cheaper comparing to other transacting modes. Otherwise farmers would easily switch to more effective marketing mode. None of interviewed farmers in Nakatsubo hamlet reports having problems in marketing their products.

There is one 5 members marketing organization with a participant from Nakatsubo hamlet. Farmers use a joint contract mode for organization of their marketing transactions for lettuce, cabbage and leak. Fixed prices for all year are contracted with adjustments according to market levels. Farmers negotiate quantity and time of delivery with partners (supermarket, processing company, merchant). If they produce more but there is not demand in partners they earth up extra products. Farmers use joint marketing organization to save on transacting costs of negotiation, finding partners, secure marketing, and adjust production. Costs for internal coordinations are not big since the small size of the group and limited area of internal organization of (marketing) transactions. On the other hand for

their partners freshness of products and time of delivery are very important. Since frequency of transacting between same partners is high both sides have incentives to develop stable private mode of transacting in order to save on costs of their exchange. Long term contract form allows them to make easy quantity and delivery adjustments. Also both sides realize all potential of the highly transacting specific assets (freshness of products) through this form. That is why the long term private mode for integration comes up to be more effective way of organization of marketing transacting.

There is another interlinked private mode for marketing transactions in the hamlet. Several farmers produce melon under the special technology and organic fertilizers developed by the Leader of the Hamlet. He selects products for special price and markets them as brand name through the Post office catalog sale. Through this mode input supply and marketing are integrated by the Hamlet leader around a Brand name capital. In this way Hamlet Leader realizes the extra rent of the brand name melon (and 5 years investments to develop it) approaching interested clients. This brand name is an asset with high specificity and a special mode is necessary to carry out transactions supported by it. Long term contract mode with producers is the form which secure control on quality and save costs for training on special technology. Further integration (internal mode) is not necessary since transactions are for limited time of year (one season), special transacting investments from farmers are not required, and uncertainty of transacting is low. For interested consumers this brand name melons have a special value (different product) in their utility and preferences function. That is why they chose the form of direct ordering to get this special quality which can not be supplies through market mode of standardized products. Guarantee on advertised quality and location given by the Hamlet Leader plays a role of additional transacting minimizing device. Diversification and changes in individual consumers preferences prevent further internalization of marketing transactions. Through this direct marketing annually 800 clients get brand name melons. However, according to supplier less than 10% of clients are constant. Hamlet Leader could keep all his client through integral mode of marketing transacting (like consumer club for instance) but he has to develop all class of various organic products. However, to organize supply of all class such brand name products (which also would require internal mode) would be transacting costly and economy of specialization would be hardly reached. That is why through this non market mode transactions between producers and final consumers are effectively integrated around a brand name capital. Form of marketing of brand name agrarian products is an effective way to organize transactions in highly competitive markets for fruits and vegetables. However, because of the high asset specificity for both producers and consumer sides, possibility for opportunism, less frequency and uncertainty, a special private mode is necessary to carry out transactions effectively. There are plenty of examples for such marketing and interlinked organizations which replace traditional market modes. Widespread distribution of customers clubs and cooperatives, brand names, pick you up yourself, farm tourism etc give some transaction costs minimizing prospects of organizational development in Japanese agriculture.

Transaction Costs and Prospects for Organizational Development in Agriculture

Organizational development of the Japanese agriculture depends on many factors. One of the most important is the transaction costs minimizing reason. It is impossible to measure the level of total costs for agrarian transacting. However, we can get an idea about the transaction costs from the distribution of the time for management of farm and farm organizations. We also can examine various factors responsible for the agrarian transaction costs differences. Last but not at least we could study out the costs minimizing potential of various modes for organization of transactions. In this way we can predict what kind of organizational forms for different transacting most likely will develop.

In modern agriculture management takes a major portion of the time of farmers. Our survey in Nakatsubo hamlet shows that 37% of the total time of interviewed farmers is devoted for management (Table 13). However, various kind of farmers spend quite different part of their time for main management functions. Efforts for current management accounts for only 15% of the time of part time

farms and no time is spent for strategic management. On the other extreme is the Manager of the Agrocorporation who allocates three forth of his time for management activities and a half of his total time is for strategic management. Therefore, the management costs depends on the size of farm transactions. Larger the size of farm transactions bigger the costs for management and greater the share of time spent for strategic management.

Table 13 Distribution of Total Farmers Time (per cent)

Functions	Agrocorporation	Business farmers	Part time farmers	All group
Production	25	61.7	85	62.8
Management	75	38.3	15	37.2
Current	25	19.2	15	18.9
Strategic	50	19.2	0	18.3

Source: Personal interviews

Besides technological management the total time of a farm manager consists of direct efforts (costs) for organization of agrarian transacting. Definitely production management could be very high in agriculture since its big dependance from climatic factors and necessity for "permanent" manager's attention. As a matter of fact more than 55% of questioned farmers in Nakatsubo report that production management takes a high or moderate level in their current management efforts. However, aside of this direct production management all other management functions are connected with some kind of transactions. They could be management of inter farm transactions for organization, direction, and supervision of family or (and) hired labor. Most frequently that is for management of outside farm gate transacting with market agents and organizations. Accordingly the transacting costs for inputs supply, marketing, participation in organizations etc could be quite a big part of total management costs. Namely this management of internal and outside transacting characterizes to the great extent farming as a business. Consequently approaching the farm management as management of (farmer's) transactions with other individuals must be the main object of the economic analysis. It is not accidental that business farms spend more time for management since the intensity and amount of transactions, and hence the costs for organization of transacting, are also big.

In the structure of current management costs the level of transacting costs to hire labor and for labor supervision, to find suppliers for inputs and for marketing of farm output, and for contracting, are big or moderate for one fifth of interviewed farmers (Table 14). Share of the full time farms with high efforts for input supply and marketing transacting is especially large. For the Manager of the Agrocorporation current transacting costs are not so high. That is a result of specially developed internal structure (division managers) to save on interfarm costs of transacting. Since number of hired labor is big it would have been very costly (or impossible) for the Manager to extend farm size trough labor supply transactions in such a large scale. He develops a special farm management structure to economize on costs for internal transacting. Besides almost all of the Agrocorporation inputs supply and marketing are through specially designed private (costs minimizing) modes with partners. For the Manager it is very important to develop modes to economize on costs of transacting such as long term contracts since the level of transacting is great. Much of his total time is spent on strategic management, and designing and developing of new forms for transacting are important part of it. According to the Manager to find out management class labor takes a good part of his current management efforts. Some of the questioned full time farmers spend a lot of management time for functions closely connected with farm transactions like book keeping, preparing tax documents etc.

Structure of the costs for organization of inputs supply depends on the farm size. Share of farmers which spend high or moderate time for finding the best suppliers of all kinds of farm inputs is large (Table 15). Full time farms are heavily involved in inputs supply transactions and level of transacting costs associated with inputs supply is much bigger for this group. According to the Manager of the Agrocorporation he is "engage finding out good labor every day". For non labor input supply of the Agrocorporation efforts level is not high since special bilateral cost economizing modes have been developed.

Table 14 Efforts for Current Management of Farms (per cent)

Efforts level	Agrocorporation	Business farms	Part time farms	All group
Production management				
High	100	16.7	50	33.3
Moderate		33.3		22.2
Low		50	50	44.4
Hire labor & supervision				
High		25		20
Low	100	25		60
No		50		20
Find inputs suppliers				
Moderate		33.3	100	22.2
Low	100			55.6
No		66.7		22.2
Find markets for output				
High		33.3		22.2
Moderate		33.3		22.2
Low	100	33.3	100	55.6
Contracting				
High		16.7	50	22.2
Low	100	50	50	55.6
No		33.3		22.2
Deal with organizations				
Low		83.3		62.5
No		16.7	100	37.5
High other tasks	100	16.7		22.2

Source: Personal interviews

Table 15 Time Devoted to Find Best Suppliers of Inputs (per cent)

Kind of inputs	Efforts level	Agrocorporation	Business farmers	Part time farms	All group
Labor supply	High		25		20
	Moderate	100			20
	Low		25		20
	No		50		40
Land supply	High		20		14.3
	Low	100	20		28.6
	No		60	100	57.1
Long term inputs	High		33.3		22.2
	Moderate		16.7		11.1
	Low	100	50	100	66.7
Short term inputs	High		50		33.3
	Moderate		16.7		11.1
	Low		33.3	100	44.4
	No	100			11.1
Service supply	Low		60		50
	No	100	40		50
Insurance supply	High		16.7		11.1
	Moderate		16.7		11.1
	Low		33.3	100	44.4
	No	100	33.3		33.3
Capital supply	Moderate		25		20
	Low	100	50		60
	No		25		20
Public good supply	Moderate		16.7		11.1
	Low		16.7		11.1
	No	100	66.7	100	77.8

Source: Personal interviews

Level of interfarm costs of transacting depends on labor supply transactions trough employment or daily based hiring modes. Only one fifth of questioned farmers in Nakatsubo report that their time for "supervision of hired labor is high" while for the most of participants in labor supply transactions this time is low or none. That is a result of relatively low level of non family labor supply for critical farm operations, long term relationships between partners, and broad use of output based compensation for hired labor.

Farmers participation in various organizations gives an idea about alternative modes for minimizing on intrafarm or market forms of transacting. Participation in outside organization must have some transacting advantages for farms. Otherwise farmers would not carry out transactions through an organization. Shift to outside mode relatively increases farmers costs for participation and transacting through these organizations. However, total costs for agrarian transacting have to be lower. When organization is not very big then internal costs for coordination, decision making and incentive structure are negligible. All interviewed leaders of the farm groups in Abashiri, Nagano and Yachio machi areas point out that coordination costs are very low and no transaction difficulty of these modes exists. According to the Leader of a farm group in Sapporo area his job is to make plans and to adjust individual plans. This takes only a limited time and management efforts. Members of the group change leadership on rotated base every year and they do not expect any compensation for leadership job.

Big organizations like cooperatives, corporation etc have their own internal costs of transacting. According to the Manager of the Yachio Machi Cooperative his biggest efforts in total management time are for dealing with members and other tasks which are specified as coordination between Directors (Table16). Sometimes internal coordination and incentive costs in an organization could be so big that it would make transaction advantages trough it close to zero. This put at new level the problem for developing incentive, control and transacting minimizing structures for such complex organizations of farm transactions. That is why strategic management takes high time of the Managers effort in Yachio coop and it is closely connected with overall organizational development, improvement of the internal structure and incentive system.

Table 16 Distribution of Management Efforts in Agricultural Cooperatives

Management functions	High efforts	Moderate efforts	Low efforts
Strategic management	X		
Production management		X	
Technological development	X		
Hire labor & supervision			X
Find best inputs suppliers			X
Find best markets for output			X
Contracting			X
Deals with members	X		
Deals with Federation			X
Deals with other institutions			X
Other management tasks	X		

Source: Personal interview

All of interviewed farmers in Nakatsubo but the Agrocorporation are members of the Agricultural Cooperative. Farmers usually have got membership from previous generations. Only 12% of them report participating in some kind of management of the Cooperative. Biggest part of members (88%) point out that they have no influence on organizational policy and only 17% of the full time farmers report a moderate influence on the Cooperative policy. According to the two third of business farms the Cooperative service is moderate to members. However, only a half of part time farmers describe the Cooperative service as moderate while another half evaluate it as low for members. For one of interviewed part time farmers "cooperative is the same like merchants". One of questioned business farmer never attends the general meetings of the Cooperative. Surprisingly for good managers none of the questioned farmers knows what his cooperative shares are.

Most of the questioned farmers (56%) are members of some king of farm organization different from the Cooperative. While none of part time farmers and Agrocorporation participate in farm organizations, the organizational involvement of full time farmers in joint modes is as high as 83%. As much as 60% of the members report that they participate in management of organizations actively and their influence on the organizational policy is high. All of them point out that those organizations provide high service to members. Therefore, business farms tend to use special organizations to govern part of their transactions and they find this participation effective. For part time farms it is more economical to use the Cooperative or bilateral modes for transacting. Agrocorporation carries out a big part of outside transactions through its own bilateral forms.

Half of interviewed farmers in Nakatsubo used to be members of some farm organizations. All of part time farms and a half of business farms took part in organizations for marketing transactions. For another half of full time farmers it was organization for service supply transacting. All those organizations disappeared and that is pointed out by all farmers as a reason to quite membership. Joint ownership modes is easy to develop, manage and quite. When it becomes unnecessary or too expensive for transacting it is replaced by new mode of organization. As soon as all farms in the hamlet have internalized tractors and tracks supply transactions previous common machinery use organizations sloped to exist.

Small farm organizations are strongly members oriented and individuals influence to the great extend organizational development and policy. Cooperative has its own organizational policy and development, and they are not always members oriented. As our survey in Nakatsubo shows time for participation in organizations is low or none for all members. For small private organizations that is because of little costs for coordinating of transactions through those specialized modes. Transaction costs for organizational setting up, for current management, and liquidation are low. Big organizations like cooperatives have their own management structure and substantial internal costs. Because of the big transaction level, asymmetry of information, opportunism etc sometime it comes up to be difficult for members to manage their own organization. That is why they start to feel the cooperative not as an ownership mode but only as an alternative to other form of transacting.

When farmers in Nakatsubo have been asked about the role of different factors for their decision making all of them put high weights on their own experience (Table 17). For the most of questioned farmers the role of long term partners and market prices is big. For some farms friends and lending institutions have a substantial role to play. However, for all interviewed farmers the role of the Government policy, local authority, hamlet, Cooperative and other membership organizations, leading farmers in the area, extension office and private consultants, is small or none. All those confirm that intrafarm organization, market, and long term (in many cases interlinked) modes are the most important for the organization of agrarian transactions. That is why we can expect that private and market rather than joint ownership or public (third part involvement) modes will be dominant in future organization of transacting.

As far as future plans are concerned more than 71% of interviewed full time farmers in Nakatsubo hamlet intend to extend farm size. All of them have plans for some new form for organization of transacting. Changes of inputs supply, developing of greenhouse production and processing, new organization of marketing are intended modes for extension of farm size. All

questioned farmers plan to increase farm size through introducing contract or other special mode for direct marketing. One of the farmers intends to joint the big farmers-consumers organization for direct marketing of chemical free products in Tsukuba area. One out of four farmers plan to develop some processing operations. This means that the farm size will increase through internal organization of previous marketing transactions (intrafarm production consumption), associated extension of inputs supply transacting, and through marketing of new value added products. As much as 29% of business farms point out that the lack of family labor limits further extension of farms size. The same share of full time farmers want to use labor employment contract for extension of farm size but find it difficult. Some of them prefer to have only japanese workers on year base contract but report that they are not available. Part time farmers have no plans to increase size of farm transactions.

Technological development have changed substantially structure of agrarian transacting and modes for their organization. Improvements in technology and labor productivity increase enormously farmers capacity to manage large farm transactions at low costs. Standardization of farm operations make it possible to control and carry out a large scale internal transactions effectively. Both efficiency to supervise farm labor and capacity to manage more labor increase. Standardization of technological operations extends the possibility to use output based compensation for hired labor or to contract them as a service supply. Automatization and computerization replace many critical farm operations with sophisticated technical systems (e.g.automatic water control supply in greenhouses). Extension of farm size becomes less dependant on transacting limits of hired or service labor. Besides development of agrarian inputs markets brought the transaction costs for market procurement down. Uncertainty of development of markets and information asymmetry for market transactions have fallen substantially. As a result the opportunity to extend farm size through large scale nonfarm inputs supply becomes very big.

Technological opportunities have increased the minimal effective size for organization of different farm transactions as well. In order to explore the potential of available technologies farmers are to make various organization for their transacting. Accordingly the size of traditional farm organizations (groups, cooperatives etc) for different agrarian transactions get bigger. However, it makes the intensity of transactions under farm or group management much higher and contributes much to the transaction costs.

Intensification of agrarian transactions also has increased costs for their market coordination. Risk from fluctuation of prices and overseas competition, and potential of recurrent transaction between same parties, level of transactions asset interdependency, all have brought to a live various nonmarket and private modes for organization of transactions. This costs economizing potential of specialized governing modes contributes to the extend of transacting through various organizations. For instance in Abashiri a farm organization for machinery utilization practices risk sharing through pooling of income of newly introduced products. Radish is an effective product but with great variation in prices. That is why existing organization for inputs supply transacting is also used for overcoming uncertainty of marketing transactions.

Frequency of transacting between same parties and their interlinked character have increased incentives to design various formal and informal forms to save on transaction costs. Many such forms in input supply and marketing transactions have been described in analysis of the different types of agrarian transaction in Yachio machi.

Structures of farm transacting have become complex and organizational innovations of industrial type emerged to minimize on transaction costs. Many types of integral, bilateral or multilateral private forms have developed to facilitate transacting. Purpose of these organizational innovations has been to improve coordination of transactions, to increase individuals control on their transacting, to introduce strong incentive of transacting parties to overcome transacting difficulties. This changes substantially organizational structure of farm transactions. Importance of nontraditional agrarian inputs supply transactions (land, labor) for extension of the farm size relatively has decreased. Consequently the share of non family agricultural establishment in some agro industries have become substantial (Table 18). While in rice, wheat and soybean production small scale and group farms are still dominant, in cattle and greenhouse production large scale and corporate type farms are the major producers (MAFF, 1990).

Table 17 Role of Different Factors in Farm Decision Making (per cent)

Factors	Role	Agrocorporation	Business farmers	Part time farms	All group
Own experience	Big	100	100	100	100
Friends	Big	100	50		33.3
	Small		50	50	44.4
	No			50	22.2
Leading farmers	No	100	100	100	100
Log term partners	Big	100	83.3	50	77.8
	Small		16.7		11.1
	No			50	11.1
Cooperative	Small		66.7		55.6
	No	100	33.3	100	44.4
Member organizations	Small		40		
	No		60		
Hamlet	No	100	100	100	100
Government policy	Big		16.7		11.1
	Small		33.3		22.2
	No	100	50	100	66.7
Local authority	Small		33.3		22.2
	No	100	66.7	100	77.8
Extension Office	Small		16.7		11.1
	No	100	83.3	100	88.9
Lending institutions	Big		25		20
	Small		25		20
	No	100	50		60
Private consultants	Small		16.7		11.1
	No	100	83.3	100	88.9
Prices	Big	100	66.7	50	66.7
	Small		16.7		11.1
	No		16.7	50	22.2

Source: Personal interviews

Table 18 Share of Heads Raised by Non Family Organizations (per cent)

Kind of production	1980	1985	1990
Fattening hog	20	27	30
Layers	42	42	56
Broilers	38	41	47
Fattening cattle	14	17	19

Source: Annual Agricultural White Paper 1990, p. 139

Extension of farms start to depend not on organization of traditional inputs supply (e.g.farmland) but on farmers abilities to introduced agrarian innovations and build farm specific capital. Ogawa Sachi a big cattle producers from Kagoshima area plans to extent farm up to 1000 head per year not through hiring labor but introducing a new technology. He does not want to follow the way of his neighbor through increasing of the labor supply up to 20 employers. Despite of that big output of 4000 heads his neighbors income is as high as of the Sachi san. Big rice farmers from Sapporo area relays on family labor only. He expects his son to join the family farm. However, farmer does not intend to increase the farm through land supply but introducing new intensive crop structure. Diversification of production is also seen as a way to reduce uncertainty from liberalization of rice market.

Managers personal abilities to organize internal and outside transactions at large scale turn to be the most important part of the farm specific assets. Namely improving skills (technology management) is put as the most important poind in individual management by farmers (Ito 1991, p.47). As a result of this development building of farm specific rather than standardized farm operations started to determine success of a good manager. Accordingly various new forms to increase interfarm transacting and for direct transactions with final consumers turn to be the way to survive in market competition with overseas products.

We have visited three farms in Hokkaido which are good examples for extension of farm size and development of inter organizational structure. Intention of the Manager of the large Corporative Corporation from Abashiri is to increase the farm size through vertical integration in processing, direct marketing in farm side shop, and agro tourism. High level of transaction costs for hired labor supply limits extension of farm size through labor supply mode. Moreover, uncertainty associated with market fluctuation of prices increases risk for extension of the farm size through marketing transactions of farm products. At the same time freshness and time of delivery of main product (milk) is highly transaction specific capital. That is why the Manager looks toward to the internal mode of consumption (instead of marketing) of row milk in order to overcome unilateral transacting dependency from local processors demands. As a result the farm size will increase through internal organization of large inputs supply and marketing of value added products. This mode will eliminate the transacting risk from changes of milk prices since processed products can be keep in stock for a long time. Also transportation costs will be much low per unit processing products and the Corporation can get advantage of marketing opportunity nationwide. Farm has already joint the village farm organization for direct marketing transactions.

In this Dairy Cooperation dividends are not distributed and all profit is accumulated. Since the high farm asset specificity large dept financing organization is not always easy. Therefore, equity

financing of the Corporation happens to be the most efficient mode to organize capital supply transactions. Besides members of the corporation lease out their land to the company but rent level is lower than market rate. Lower than market return on this resource futures the high transacting specificity of particular land to the farm. Land supply is in interlinked dependency with other input supply such as dairy facilities, feed production for dairy sector etc. That is why the internal rather than market mode for land supply happens to be most the appropriate - owners of the corporation lease in for themselves. Moreover the corporative form of transacting allows internal redistribution of income and direct links between personal performance and income level. Low rent level is also important part of designed incentive structure since this is a way to reduce gap in income of participants in the organization. Special mode for increasing the size of the Corporation through labor supply is also applied. New members are recruit nationwide through adds and 5 years testing period for new comers before accepting them as members is practiced.

In a big dairy farm in Obihiro one third of profit is kept in the Corporation, one third is distributed among owners-managers, and employers get one third as bonus. Half of bonuses have to be invested in the corporation at equal to the cooperative interest rate. Since the big size of internal transacting and their interdependency individual incentives are connected with overall performance of the organization. In order to overcome opportunism and difficulties to measure individuals contributions employers also share investments and profit of corporate activities. Therefore, equity and internal (employers) financing mode is effectively used for capital supply with high farm specificity. In order to minimize on transaction costs for labor supply a three months testing period is applies before to get regular employment contract.

There are two section in an Abashiri farm group: for machinery utilization and for common farming. Income from joint farming section is used to buy new machineries. Again equity financing interlinked with inputs supply transactions (joint production) has developed as an effective way for organization of capital supply. In order to improve coordinations of the interlinked transactions between two sections previous separate management structure has been replaced by unified management.

Modern technological development also substantially revolutionalizes forms for organization of transactions and increases efficiency of new transacting modes. Improvement in information, communication and transportation systems makes it cheap to transact directly at national inputs supply and output markets. Widespread mobiphons introduction for instance make it possible for a farmer to order needed chemicals (or buy shares at Tokyo stock exchange) from his paddy field. Inputs are delivered fast and cheap to the farm spots by market agents without any need of special organization. Many farmers have on line information about markets, prices, farm innovations, and other important data. In this way some cherry tomatoes producers from Kyushu follow whether forecast for Tokyo area in order to adjust their shipment plans (JAN 1996, p.4). If rain is expected in Chiba prefecture and therefore harvest would be delayed, Kyushu farmers increase temperature in their greenhouses to accelerate shipment. In this way they can avoid competition with Chiba farmers and get high prices in the capital markets.

Recent introduction of internet in farms decreases costs for direct nationwide marketing to final consumers practically to zero. This invention reduces dramatically information asymmetry at all stages of carrying out transactions. All current information on product specification, supply, demands, prices etc can be exchange on line at low costs. This makes transacting fast and effective as in ideal market. Also enforcement costs are dramatically reduced since information about cheating could be effectively distributed among all participants in transactions.

Computerization also gives farmers unlimited opportunity to exchange ideas on technology innovation, business plans etc. They can easily set up electronic network organizations and explore fully the potential in large transacting at very low costs.

Products and technology standardization have been only one direction of the development. As income level and consumer preferences develop competition with non standardized farm products becomes increasingly important. Besides development of technologies for transportation and preservation of freshness of farm products overcomes limits of overseas agents to compete on internal markets. Needs to produce for niche markets, and special consumers, and to meet particular demands, bring to a live new forms for organization of transacting. However, those transactions are

to be supported by transaction specific capital contrarily for ordinary farm investments for standardized (wholesale market) products. Besides those transactions are characterized with less frequency (relatively limited number of participant) and high uncertainty (new products, demands). Since transactions are not standardized they hardly can be govern by market mode. Private modes to carry out transactions between particular agents has a special values since they have cost saving potential for both parties. Therefore, efforts are made for designing coordination and incentive structure of such bilateral or multilateral forms of transacting. That is how the organic production of apples by a farm group in Nagano has been integrated through a contract mode with a consumer cooperative from Nagoya. Farmers investments in special (non standard organic) production are highly transaction specific to interested consumers. For consumers this mode secures regular supply of special products to meet their demands. Since the big interdependency and high frequency of transactions a stable contract forms for their organization has been developed. It reduces risk of market uncertainty and guarantees return on investments in transacting specific assets.

Smoke Cabin is well known brand name for meet products in Tsukuba. Livestock production and processing of specially developed hams, sausages etc is organized by a farmer. Membership club has been set up for year around supply of brand name products. Also direct marketing on Setbu site is successfully introduced. There is also a consumer cooperative in Tsukuba which has came up a result of residence desire to get fresh, reduced chemical, and cheap farm products directly from producers. Farmers are also interested in this direct private mode of transacting since they can get information about consumer preferences and introduce new (organic) products. Advantage for farmers is that unaccepted in wholesale markets high quality but non standard products can be sold through such direct mode of transacting.

All these development changes the structure of costs of transacting and both market and long term costs for setting up private modes of transacting relatively increase. Standards have been a good device to save on transacting costs for farmers and buyers of farm products. However, enormous diversification of production has taken place. Single rice transactions for instance, have been replaced by number of characteristics which turn to be important for the organization. Nowadays different variety of rice, special technologies and locations of production, and various rice products compete with each other for resources and consumers. Results of this post standardization stage has been increasing of non agrarian transactions on farm level, tight farm integration with processing and distribution sectors, new modes for direct links with final consumers. Organization of interlinked transactions become important way to compete for consumers. That is how different forms of agro tourism have been invented and high interlinked of farm and service supply transactions have been developed (farm holidays, farm rental and farm education, golf and horse riding etc.). Complete classification of forms of diversification in Japanese farming is made by Goto (Goto 1995, p. 115). However, increasingly the costs for less frequent and highly asset specific transactions are effectively organized through specialized market agents. Stands for chemical free farm products with declared origin could be found in the all large department stores. Here the name of the store has a character of brand name since the high quality of products are enforced by supplier.

Traditional value system in the Japanese rural community substantially has determined the character of developed modes for economic transacting. Widespread distribution of informal contracting based on oral agreements and enforced by community have been dominant in organization of agrarian transactions. As one of interviewed farmers describes it "Japanese farmers spend a lot of time getting to agreement but once they complete negotiations self enforcement of contract is more important than any formal system". In nonagrarian transactions this cultural background of strong self enforcement of clauses of agreements has brought to a life specific forms for the organization of input supply transactions in electronics, auto and textile industries.Well known subcontracting system for vertical integration of small companies and households to the big industrial manufacturers has been quite different mode from totally integrated industries of USA and Western Europe.

However, recent liberalization of economy and fundamental transformation of farming into a large scale business activity have been changing the traditional transaction structure as well. High mobility of agrarian resources becomes important feature of this transformation of farming. Big number of participants from a large area are involved in agrarian transactions exchanging huge amount of resources and activities. Farm size extension started to depend heavily on mobil resources

like inputs, credit etc. Even land turns to be a great mobility as an object of frequent transactions between different partners far way from neighborhood. More than any time before farmers use anonymous market to organize their transactions and find their partners nationwide. Market competition, uncertainty and less transacting between same parties increase bounded rationality and possibility for opportunism. Risk for failure in a large business operations becomes very big to rely on informal transacting modes. Farmers report that it is difficult finding neighbors to guarantee for their loans. Family farm and inter generations transfer make the farm unstable rural institution similar to other business formations. Moral hazard, opportunism and other terminologies of the Transaction costs economy started to be used to explain new phenomenon in organization of transactions in the Japanese economy. In this conditions traditional community enforcement system has not been able to deal with complex transacting between private agents. Farmers need and develop more complex forms to facilitate their transactions in larger than community borders scale. In order to specify rights and obligations of big number of participants written contracts form is extensively used. Besides modern institution developed in rural areas (like bank, insurance companies etc) and they introduce formal contracting as a transacting mode. New hybrid forms with substantial public, cooperative and private investments have been developed and required formal distribution of responsibility and liabilities. Also labor protecting legislation is involving agrarian labor and even illegal foreign workers get benefits from formal organization of transactions. Court system has been introducing for resolution of complex agrarian conflicts as well. All those developments have changed traditional picture for organization of farm transactions. New business type modes have started to determine structures for agrarian transacting.

According to the survey in Nakatsubo more than 44% of questioned farmers plan some organizational development in near future. All of them are business farmers. As a goal for such development a half of the farmers put profit making while another half suppose economy of scale through joint transactions. Agrocorporation Manager intends to increase farm operations up to 1000 million yens through including trade activities. He also plans to open a marketing company as well as a branch farm in another Prefecture. According to him a corporation will be the most appropriate form for extension of agrarian transactions and profit making is his single goal. Other full time farmers intend to use farm groups as the mode for organizational development. For two third of them purpose of this new form of transacting is to get economy of scale (reduce on distribution costs) through processing and marketing. Another one third of the farmers plan to use group farming to extend negotiating power and as a profit making organization. Two third of all farmers point out as the most likely counterparts for joint organization of transacting their neighbors and friends.

Liberalization and intensification of agrarian transactions put big challenges before agricultural cooperatives as well. Most of them have been trying to respond to those challenges of organizational development through amalgamation. According to the Manager of the Yachio Machi Cooperative there are three main reasons for merger: first, policy of the Prefectural and National Federations; Second, easy access and effective use of the National Federation activities; Third, economy on management costs. Among 6 previous cooperatives in the area only two have been profitable (not surprisingly one of them was against the merger!). Therefore merger is also seen as a way to stabilize cooperative finance. Besides merger is a manner to support efficient cooperative activities in the conditions of constant decrease of the number of farms. Big policy issues of all visited by us cooperatives around the country has been to increase the number of coop members. Since most of the farms are already members of the cooperatives the tendency is to extend formal membership through increasing the coops members per farm household.

One of the prime goal for extension of size of the cooperatives is to save on management costs. According to plans of the management of the Yachio Machi Cooperative there will be more than 8% staff reduction in 5 years. In the Inan Agricultural Cooperative of Kamanageshi management costs savings will be as much as 27% as a result of the merger. Thus in both cases some net cash economy of transaction costs for reorganized modes is expected. Besides numbers of coops will decrease as their operational size will become bigger. So transacting with the Federation will be easier and some savings on coordinating costs nationwide will be made.

We doubt however, that enthusiasm after amalgamation of the cooperatives will give positive results in any case. Since there in no universal size (and mode) for organization of all agrarian

transactions that is truth for the cooperatives reorganization as well. In order to evaluate the transacting costs minimizing potential of old and new cooperative structures it is not enough to measure direct cash savings on (internal) management costs. We are to include total costs of transacting, namely costs for organization of transactions between owners and cooperative staff, and costs for transacting with outside partners (suppliers and buyers) of the cooperatives.

Number of members in the Inan Cooperative after merger will be 27000. In Yachio machi case the Cooperative members are more than 15000. Structure of transactions and costs associated with it implicitly will change after the reorganization: First, coordination costs in such a large organization would be much higher and decision making more difficult as a result of increasing the number of participants in transactions. Second, possibilities for members to influence organizational policy and development would decrease. Consequently less member oriented activity and development of the cooperative as a separate entity can be expected. Third, some serious incentive problems will definitely arise in such a large and bureaucratic type organization. Traditional incentive system of seniority promotion used to work well since the small cooperative's employees were in everyday "eye control" from members. However, information asymmetry between internal department as well as between staff and owners will substantially increase in a large scale of complex activities. Consequently possibility for opportunism will become bigger and the effective control on cooperative management would fall: cooperative will go far way from members. Recent involvement of the agro cooperatives in the big Jusen crisis only shows the extent of possible passing with members interests.

Forth, there is not any technical reason to organize all service supply transactions in such an equal (large) scale. Most effective size of machinery service for instance (potential of economy of scale and scope) can be easily reached at low scale (small group, hamlet or village) levels. Besides production costs reason management costs for such a small organization will be less than in a large clumsy for coordination organization. For instance, extension of management of a Rice center beyond its technical capacity would impose only additional costs without any transacting benefits. There are 14 small and effective machinery utilization groups in Abashiri area. They own equipment and coordinate all activities from seedling production to harvesting for each crops. Members in one such a group organize 8 tractors supply transactions for their 270 ha. If farmers cultivate this area individually they would need 20 tractors. Besides, there are 4 sub groups for large machinery utilization. All machinery group in the area also coordinate rate and fee level, share experience how to improve efficiency etc. Farmers in the area need no additional organization to coordinate their activities.

Modern farms are quite big consumers of main inputs like fertilizers and chemicals. Thus a small numbers and specialized input supply cooperative may explore economy of scale (and scope), and to have enough negotiating powers with chemical company or other suppliers. It also will be flexible to members demand, and could organize all transaction effectively at low costs. Moreover, agrarian inputs supply markets are well developed and standardized. In many cases there is not any necessity for farmers to organize inputs supply through any organization. They either tend to use direct market procurement or develop bilateral private modes for their inputs supply transactions. Since there in no any uncertainty, assets specificity or unilateral dependency of transactions, no reason for a special organization of transacting. Only reason for inputs supply through any big organization such as a cooperative would be potential for some economy on cost of transacting, needs for in house production of specialized inputs, economy on inputs storage facilities etc.

In the same way marketing transactions should be governed through different mode depending on critical dimension of transactions. In big consumers regions like Tokyo and Osaka farmers tend to transact directly on wholesale markets and they do not need any organization to market through. In remote area marketing transacting through a farm groups or a big cooperative could be advantage to save transportation, marketing and transacting costs. Kyushu farmers may need own organization in order to get to big markets. According to a survey namely marketing is put as a major subject of the future management of existing farm groups in Japan (Ito 1991, p.47). However, alternative market and private modes also can compete effectively for organization of marketing transactions. Development of private collecting markets, direct marketing through post office system, door to door delivery, marketing groups, consumer cooperatives etc are good examples in this

respect. When marketing transacting are supported by mutually dependant assets then a special mode (contract or total vertical integration) with processing or distributors tend to develop. When unilateral dependency exists then a bargaining cooperative is the effective solution.

On the other hand for insurance and capital supply transactions even the big post merger scale of the cooperatives is not large enough. Apparently nationwide organization of those transactions is the most effective mode. However, here the role of a third part involvement through different public programs for development of agriculture has become much more important. It changes substantially structure of financing of agriculture as the role of nonfarm and public capital supply becomes crucial for organization of the farm transactions. However, any institutional restrictions for modes that can be chosen by farmers for organization of capital supply transactions are not justified. Competition between financial institutions to serve this third part involvement would increase quality of capital supply transactions and reduce on current costs of transacting. Increasingly farmers tend to use market rather than cooperative forms for organization of their capital supply and insurance transactions. On the other hand abandon cooperative capital is more effectively used through market than inter organizational modes. That is why cooperative banks and insurance institutions increasingly find a big part of their clients among non farmers (general public).

Therefore, despite of the some economy of costs that will be realized after merger the total costs of transacting less likely will decrease. It is not possible a single or one size organization to govern effectively all king of agrarian transactions. More effective approach would be to adjust the size of the cooperatives up to the potential to get scale and scope economy. For capital and insurance supply transactions this size apparently has to be the national scale. Specialized national cooperative bank with branches around the country will be a solution. No any economic reason to organize this transaction through a joint (complex) mode with a quite different kind of transacting under the same management. If members wont to carry out unprofitable cooperative activities it could be through direct payment, bank loans etc but through a separate (special) mode.

Thus the optimal size of many transactions organized by cooperative mode could be determined by technological parameters. Accordingly many activities would be effectively organized by small local and regional specialized farmers organizations. There are plenty of farm groups with different size in Japanese agriculture which explore effectively economy of scale through this private mode. Large intensity of agrarian transactions allows a great part of input supply, service supply and marketing to be through small local or regional farm organizations with different size. However, one complex organization such as coop can not govern all transactions at any level since different effective size for organization of various agrarian transactions. While the optimal size for machinery supply transacting could be farm, neighborhood, hamlet or town lever, exploration of a modern fruit selection center would be in a region, and a big feed or processing factory may serve farmers from a very large area. Apparently not one big or small but various specialized organizations with different size are necessary to govern agrarian transactions. Any extension of those determined by technology organization upward bears additional costs for transacting without technological advantages. Extension (e.g.amalgamation) should take place only if any transaction costs economizing potential exists and it is bigger than additional costs of transacting through new organization. Otherwise, no economic reason to merge independent organizational modes.

Therefore, instead of the current shift of management functions upward efficiency could be improve giving more autonomy to main branches of existing cooperatives (move downward). Predominant current system of the pooling of income in a large scale is to be suspended and local management should be given more operational freedom. In this way cooperative would be more members instead of "federation" (as now) oriented. Such an organization of transactions could be really directed, controlled and managed by owners. Local managers would have the initiative how to organize various transactions in best members interests. They would have more flexibility to adjust to current changes in the members demands. This mode would allow those organizations to be more competitive since not for profit activities. In order to keep efficiency of organization some transactions may be shift to other private or market forms according to their relative costs for members. For instance, there are many cooperative supermarkets in Japan. Joint ownership mode used to be very effective to supply this missing service in rural area. However, nowadays it is becoming difficult for cooperatives to compete with newly developed chains of Jusko, Daiei etc. Cooperative mode can not

meet members demands for cheap and better service which they get through market mode. That is why this organization of transacting are to be suspended.

Suggested model of organizational development would give the local management the power to select its outside contragents on the base of relative efficiency. Only when there are some transacting advantages (less costs) they would transact with the Federation. When there is potential to explore some transacting efficiency or overcome transacting difficulties they would join some regional or national specialized organizations (cooperatives). Besides that they would developed others bilateral modes to transact or would trade through market. Thus the size of extension of transacting through the cooperative should be determined by members instead of up side down. In this way at high level only long term transactions will be coordinated such as research and development, large scale project development etc. Accordingly they will be set up as a project or permanent organizations depending on frequency of transacting. Size of organization will be determined by interested farmers and would be at neighborhood, hamlet, regional or national levels. Therefore, extent of centralization of the cooperation management is to be determined by need (potential) to coordinate such long term transacting links. Federation of Hokkaido Cooperatives for instance has a research farm on milk, soil and feed projects. It also provides soil testing and dairy management information services.

It is not necessary to organize all transactions at high management level. Relationships between high and low levels of the cooperatives have to be equal (partners). Namely that is the power of the cooperative mode of management (democracy) contrary to the firm form (bureaucracy). High level management would be engaged less with service activities but predominately with coordinating of transaction at this level. Prefectural Federation of Nagano cooperatives for instance owns the brand name of mushroom but it has been developed by private company, production is at farm level, marketing is through local branches. Only function for high level of management is to keep brand name through extension, to enforce the brand name, to minimize on advertisement and promotion costs. Therefore, role of the new management structure and justification for existence of high levels of management could be coordination of the long term links and transactions with less frequency, high uncertainty and assets specificity to members. As a matter of fact biggest efforts of the Cooperative managers happen to be on strategic and technological development and project activities. (Table 16). According to the director of the local branch of the Cooperative in Miyata 80-90% of his time last year was on coordination of project activity (building a new sides).

Beyond this technically determined first level farm organization further extension of the cooperative size should take place only if some transaction costs minimizing potential exists. Therefore, cooperative will become bigger in order to overcome some transacting difficulties or to economize on costs of transacting. Extend of the process will depend on structure of agrarian transactions and their critical dimension such as uncertainty, frequency and asset specificity. Accordingly effective organizational modes for various agrarian transacting will differ and change. That is why we expect that new big cooperatives in Japanese agriculture will be unstable modes of transactions. They will tend to adjust to transaction cost minimizing potential through specialization and splitting out. Otherwise they would be replaced by more effective for members private or market modes. Therefore, instead of one multipurpose but not effective organization the transaction costs economics prospects see a solution of the problem in many and with different size specialized organizations.

Necessity of high level coordination would arise when a large transacting specific capital is to be invest and transactions are characterized with big uncertainty and frequency. For instance, that is for development, organization of production, and marketing in nationwide scale of brand name products. Marketing of the famous "twentieth century" pears from Nagano has been effectively organized through Prefectural cooperatives level. Only at this level transacting costs for brand name support, advertisement, marketing etc can be minimized. Also a special technology for mushroom production has been developed and marketing of brand name product is organized by the Federation. Apparently a specific and large joint ownership mode is necessary to organize transactions for development, promotion, distribution of capital intensive and transacting specific brand name products. However, Prefectural organization can not govern all transactions effectively. Marketing transactions are organized at low level through a contract mode as in the case of Miyata branch for instance. Long tern contract with a consumer cooperative in Nagoya specify monthly quantity of

transactions, method of production and set up a formula for payments.

Next, purpose of such large scale cooperatives would be assistance in establishment of different kind of farmers organizations for transacting. This role of a "third part" participation of the cooperative in farmers organizing has had good tradition in Japan. Management of the Miyata branch of the Inan Cooperative for instance initiated a new land use system. In order to develop effective fruit production it assists land exchanges between farmers and land owners. When paddy is transferred to orchard the cooperative arrange the same rent level. Also diversification of paddy production (exchanges of quotas) which is on equal presented has been successfully coordinated by cooperative or farm organizations.

Last, political lobbying at different levels could be successful only through high level of coordination of farmers activities.

Many managers look for the solution of the current cooperative crisis through introducing of new profit making activities. However, since such an organization of transactions is market rather than members oriented the cooperative form is not the best one. If cooperative members want to invest jointly in such public serving activity they can use cooperative capital. However, it does not mean that they have to organize all their transactions under a single (e.g.cooperative) mode. Cooperative may set up a separate profit (or not for profit) making company with shares of some all cooperative members. Which form will be chosen depends on king of transacting, on the incentive and control futures of different modes, and ultimately on their transaction costs minimizing potential for farmers.

Cooperative can successfully compete with other forms for organization of agrarian transactions if they change their functions and incentive structure. There is plenty of room for cooperative managers to provide new kind of service in the conditions of liberalizing rice market for instance. Cooperative mode would be the most effective for many farmers to save costs of transacting, to share marketing risk, or to use assets dependency from the cooperative facilities. Cooperative role would be especially important to develop, organize extension and production, and market local variety and brand name products etc. Introduction of new activities in farming like changing products structure, processing, agro tourism, direct marketing is important direction to improve efficiency of organizations.

Already mentioned third part involvement role of the cooperative in farm transacting will be important. Designing and setting up of various farm organizations take increasingly big resources. Cooperative experience, staff and resource potential, organizational structures, political power could be effectively used. In this process the cooperative would be more like a third part partner to farmers rather than as a specialized joint ownership mode. Since development of farming turns to be a major community and national social problem such cooperative involvement will be increasingly in tight collaborations with other farm organizations, local authorities and governmental agencies.

Fundamental changes in internal management structures could improve substantially efficiency of existing cooperative organizations of agrarian transactions. Already developed idea of giving managerial and financial autonomy of local branches is one point. Second is introduction of merit system of compensation of cooperative staff. Management of the Inan Cooperative is looking for such direction and a special committee has been set up to develop such a system. Big problem is how to evaluate the individual performance. Besides they need 70 million additional yen to introduce such system. In this process of restructuring of incentive system experience could be taken from internal incentive structure of big industrial companies. Moreover introduction of merit system compensation should not be connected only with one way movement of staff compensation movement (salary increase). Potential of such a model of organization of internal transactions could not be realized unless a variation of income level depending on performance results would not be applied.

Reorganization of management structure should contribute to real involvement of members (owners) in cooperative management. This could be done through introducing of redemption policy of cooperative capital for instance. Current return back of invested in the cooperative shares would increase members concern in cooperative matters and would involve them in organizational activities. Suspension of practice of accumulation of dividends and total cash return would increase members incentives to take part in the cooperative management. Distribution of the dividends according to the business with the cooperative also will involved members in cooperative matters. All those would

increase interest of cooperative members in effective management of their invested capital in the organization.

Measures also have to be taken to decrease information asymmetry through the organization. Since it is not possible direct individuals control on the management discloser of information to members and to the public must be enforced by a third part. Only when owners have got full information they can effectively take part in the management. That is why reliability of such information has to be guaranteed and enforced by Law.

Community movement of the cooperative is associated with increasing the number of part time farmers and diversification of their interests. Community orientation approach is taken as strategy for future development of the Inan Cooperative for instance. Cooperative develops activity to serve general public like cable television, gas station, create jobs etc. Accordingly 30-40% of the managers time is for such outside (public) relationships with schools, business groups, municipality etc. Cooperative in Tsukuba set up a Civic garden where residence can practice farming on small plots. That is an example for a new king of service to community. Also new organization of agrarian resource is introduced: land is leased in from farmers, farmers are involved in consultation activities etc. Besides through this mode consumer preferences are carefully studied and cooperative policy improved.

All this put a new direction for improvement of the management structure of cooperatives. They are not any more pure farmers organization since many transacting parties are involved. Cooperative is a big farmers organization but it is also a great employer, it is involved heavily in community service, it assists implementing public policy etc. However, this mix structure of transactions in large scale cooperatives faces big managerial disabilities since existing conflicts of basic interests of different category of members (young - retired, full time - part time - farm groups, etc), between owners and employees, managers, consumers etc. In order to harmonize emerging conflicts of transactions through this organization a special innovation in management structure is to be made. For instance, representation of all interested groups in the Management Board of cooperatives could answer challenges that traditional management structure faces. Accordingly not only owners farmers but employees, costumers, community, public have to take part in formulation of the policy of development and in direct management of the cooperatives.

In the new conditions of overall liberalization there should be a substantial changes in the forms of public involvement in agrarian transactions as well. Direct third part interventions in agrarian transactions has been dominant in post war years as it has been direct control on inputs supply (e.g.paddy under cultivation) and marketing transactions for rice, strict regulations of lease and purchase land markets etc. This out of date Government policy should give way for more assistance role for transactions between private agents. For instance, third part involvement in supplying information about markets and prices, for trends in consumers demand, for available new technologies and methods of productions etc, would increase efficiency of market transactions. Also improvement of quality standards for farm products and animal feed could be response to public concern for food safety. Effective control and enforcement of those standards by third party would decrease uncertainty of market transactions and would intensify transaction through market modes. Recent innovations of food labeling, and improvement of chemical tolerance levels for farms products, and guidance for organic and reduced chemical farming, are good examples for such effective Governmental involvements in transactions on market place.

Government policy should be shifted toward less direct regulations of different types of private transactions. Farmers should be given chance to chose the most effective modes for transacting as well as to design appropriate organizations for transacting with other individuals. In this way there would be less institutional limits for private entrepreneurship to extend farm size through organization of more agrarian transactions under farm management. Current Government intervention in inputs supply and marketing transactions support to the great extend the average farmers. As a result widespread part time farming rather than business farms have been formatted. Agrarian policy should not restrict economic agents in agriculture to realize their personal potential to manage farm transactions and develop farm specific capital. As a result some of the farmers will be good managers and they will extend farm size to explore potential of the farm specific capital through internal mode. Some farmers will become good suppliers of contract services and they increase

internal size of agrarian transactions around this specific capital. Some of the farmers will be good labors and they would get maximum return on their specific skills. Those who do not posses farm specific capital would quite farming. This opportunity would allow agrarian agents to take part in more transactions through the most effective for them forms. As a result specialization and concentration of farms will accelerated and more intensive transactions will be carried out.

Institutional restrictions for setting up private mode that farmers find effective for organization of their agrarian transactions should be removed. Individuals are to be allowed to organize farming in different from family farm forms like corporation, joint ventures, limited companies etc and take advantage of control and incentive features of those modes. Besides all forms of transacting should be given equal legal rights, appropriate access to public programs etc. That will increase potential of development since the most effective transacting mode will be designed for bilateral and multilateral agrarian transactions. As a result the farm size will extend both through big share of integral transacting as well as through various outside private modes and organizations. Overall transactions that farmers are involved in and managed will go up. This will increase potential of market and private mode of transactions. As market experience and managerial abilities of farmers increase than their human capital specificity to standardized farm operations will decrease and more market transactions can be expected. Accordingly they will be able to extend farm size through more market and service supply around their farm specific capital. Thus farm size will be gradually adjusted along with learning by doing experience of farm managers. In this respect there is an important role for a public third part involvement through extension education, price information and institutional support for effective development of private and market agrarian transactions.

Building of safeguard against uncertainty in development of international markets and national food security should be important part of Government market intervention. However, less expensive modes should be applied for organization of such national agrarian transacting. High public demand on quality of imported foods comparable with Japanese standards should be enforced by the Government. Also minimum domestic food supply as national food security measure should be guaranteed through Government intervention. Apparently the minimum (protecting) scale of organization of farm production in the country is a big public demand. Government is to set up criteria for national food supply and organize transacting for meeting this public goals. However, instead of previous direct regulation of production and import more effective modes for the Government involvement could be chosen such as like tariffs, stock keeping, financing of farm development programs, public support for agricultural research and extension etc.

For instance, as alternative for inefficient proportional supply by all rice farms (production adjustment scheme) the Government may announce stock keeping needs at the beginning of each season. Interested farmers will prepare and present projects to take governments order. Only best projects with minimal price offered by farmers will be accepted. In this way market like mode will be used to organize transactions and to minimize on transaction costs through effective involvement of Government and farmers and in the best interests of consumers. First, this would increase price competition between farmers to get Government orders which will guarantee more effective use of available resources. Second, public demand for food security will be meet at less costs since only most effective plans will be included in the Government scheme. Third, this competition will be at pre production stage and only the most effective projects will actually be accepted and realized. Now policy give no preferences for good or bad production and in fact it harms good farmers and benefiting bad farmers. Forth, price level of the Government order will be formed by efficiency principle, and heated political discussions what should the price level and price formula be will be overcome. Next, this policy will give freedom for good farmers to develop rice farming to meet effectively the Government plans. Besides all farmers will be free to invest in rice production to meet market demands taking all risk and benefits. In this way individuals will be free to organize their transactions through public, market or private modes they find as most effective. There will be no any institutional restrictions for farmers to develop rice production and improve its efficiency. Apparently this policy will be much more effective since it explores potential that all mode of transactions contain. Namely both Government and voluntarily marketed rice production will be coordinated by market. Ultimately efficiency will increase since only effective rice farmers will be able to compete and food security will be achieved at less costs for taxpayers. Costs for organization of this Government

involvement in transaction will decrease and both producers and consumers will benefit.

In the same way environmental preservation and protection programs should be a big third part Government involvement in transactions. However, farmers are to be free to participate in such program and to chose the most effective modes to meet announced by the Government programs goals. All economic agents are to be free to compete for Government programs.They will develop and offer different forms for organization of this transactions like appropriate changes in production structure or direct protecting activities (e.g.forestry instead of farming). Only individuals or groups projects which meet Government goals at least costs will be accepted. Government programs and participation of economic agents should not be understand only as direct financing but as indirect support measures, mandatory standards for environmentally friendly farming etc.

Suggested direction for improvement of the modes for the Government intervention find their bases in technological development. When technology is standardized and product is not diversified it is not difficult to coordinate transactions at high level. However, when product diversification increases and transactions become complex it is impossible to coordinate prices, production, technology etc at high hierarchical level. Accordingly direct third part intervention in agrarian transacting comes up to be expensive and restrict getting the potential than market and provide modes have. For instance there are number of materialized monuments of ineffectively spent public money in some dairy farms in Hokkaido. Big investments for introduction of special technology in silos by the Ministry were made and they happened to be unproductive. That is why those silos have not been use at all. Therefore, only strategic links have to be coordinated at national level connected with food security, consumers protection, environmental preservation and farmers public goods demands. Initiatives of individuals have to be mobilized to meet those social goals and market demands through giving them freedom to organize agrarian transactions through any modes. In this way potential of market and private modes for organization of current transactions will be effectively used by all participants according to their interests.

Second fundamental direction for policy changes should be to give more autonomy for local authority in order to involve them in agrarian transactions. Since development of farming becomes important part of community life local agencies will have opportunity to develop appropriate policy and set up necessary forms for involvements. Local Governments are closer to residence needs and they could be easily influence to respond to peoples demand for their third part involvements. That is why they are to have power (autonomy) to develop such modes for involvements in agrarian transactions from local importance. This changes would guarantee effective organization of third part public involvement as low costs. There are plenty of examples for effective third part involvements of local authorities. As a result importance of hybrid modes of organization of agrarian transactions with public, cooperative, farmers and consumers participation increases substantially. For example Obihiro Public Corporation has been set up by local government and farm cooperative in order to economize on dairy production, to develop original products from Obihiro, and to provide technical service to farmers. Only 52% of the income of the corporation come from service fees and profit making activities. This form for organization of transactions allows effective use of public pasture at large scale, creates extra income for farmers and residence, contributes for preserving the beautiful scenery of countryside, brings visitors from all around the nation, and adjusts technology to the interorganisational needs. Thus technological development, farming, processing and direct marketing transactions are effectively coordinated with supply of non economic benefits for the local residence.

Development of international markets and competition with cheap foreign products can not be sloped Besides country has to meet its GATT obligations and to open its markets for farm products. Also increasingly Japanese food companies have been investing overseas to overcome Government restrictions for direct import of farms products through organization of food import transactions. On the other hand overseas producers have started to adjust production structure according to quality preferences of Japanese consumers and they are introducing Japanese varieties of rice, apples, beef etc to use potential of market transactions in the country. Competition on agrarian markets becomes strong and this process can hardly be avoid. Ultimately consumers make everyday judgments and no government intervention could stop them to buy cheap and quality products. Like in other industries there are not once for ever seats in agrarian markets and position must be defended. One direction to increase market share of domestic products is to offer transactions which are supported by highly

specific capital. Freshness of farm products is one such asset and overseas competition hardly can meet consumers demand for many domestic products. However, as a result of revolutionalisation in transportation and preservation technologies freshness would gradually loss its character of highly specific capital.

Second, potential of interlinked forms of farm transactions with various service supply will be very big since it contributes to high asset specificity. For instance, consumers demand to enjoy Sakurajima volcano and get this externality transactions along with consumption of farm products from Kagoshima area hardly can be met through import.

Next direction for increasing the efficiency of domestic agrarian transactions comes from the system of agrarian research and development. Final products from the innovation system (new products and technologies) have character of national specific capital and they could not be imported from international markets. Therefore, intensification of agrarian transactions with innovation system are ultimate source of unlimited increase of competitiveness of domestic production. In this respect the importance of innovation sphere for development of the national agrarian transactions would relatively increase in the future. Here the Government third part role to assist development of agrarian research potential is very big in respect of direct support of public system research and extension. Also institutional modernization which would facilitate development of different private forms of agrarian research and development (e.g. agrarian intellectual rights legislation and enforcement) will substantially extend the potential to intensify agrarian innovation transacting through various modes. Framework for increasing of the collaboration between public, cooperative, and private agents, as well as for development of various hybrid forms of coordinations of transactions is to be extended as well. Many examples for such effective joint mode of innovations can be found in Japanese agriculture .

In order to get a full picture of the structure of agrarian transacting we should include the big numbers of non business farms. Prospects for development of transactions through this mode would be quite different from the real business farms. Number of individuals who are involved in farming as a favorite free time occupation or lifestyle after retirement tend to increase. Accordingly they participate in agrarian transactions in order to get extra income, and increasingly for internal consumption or to get non economic benefits. Farming is more part of the utility function of those individuals rather then business mode for transacting. Those individuals support their farms in the same manner like some people build a tunis ground in their gardens to play favorite game or cultivate flowers to make their back gardens beautiful. That is why this farms are an internal mode for organization of transactions for final individual consumption. Therefore extension of agrarian transactions through such mode is limited (by individuals demands of such activity). Despite the big number of participants the economic importance and costs associated with those kind of agrarian transacting will relatively decreased. Accordingly quite different from agrarian policy should be undertaken for public involvements is such transactions. This policy is to be restricted to eventual regulations of personal final consumption, and increasingly to public organization of the effective reproduction of natural resources (land, environment etc).

As a reason for engagement in farming all full time farmers in Nakatsubo hamlet point out that it is their main sours of income. For one third of farmers preservation of the farm for the future generation, and farming as favorite lifestyle has been reasons (Table 19). For part time farmers supplementing income and consumption of farm products have been also important. As far as future is concerned, main sours of income and preservation of farms will be important for full time farmers. For part time farmers supplement of income and consumption of farms products will be main reasons for farm activity.

Asked about future role of the Japanese farming most of interviewed farmers in Nakatsubo think that local and national farming will remain unchanged (Table 20). While more than one fifth of questioned believe that future of the local agriculture will increase none of interviewed farmers think so for Japanese farming. Most of farmers believe that number of (real) farms will decrease and farm size will increase.

As far as their preferences for agricultural policy are concerned more than a half of interviewed farmers want more supportive Government policy (Table 21). According to the Manager of the big Agrocorporation every farmer has been supported by the Government. However, future

agrarian policy should be selective and only good farmers "farmers with spirit" are to be supported. There is a very interesting split up in opinions in a two generations business farm. According to the farther, a retired but still actively involved farmer, Government agrarian policy should be more supportive. However, his successor and young manager of the farm believe that policy is to be liberalized. Thus modern business farmers and young generation managers see bright perspectives for the Japanese agriculture contrary to the dominant pessimistic view.

Table 19 Reason for Engagement in Farming (per cent*)

Period	Reasons	Agrocorporation	Business farms	Part time farms	All group
So far	Main income source	100	100	50	77.8
	Supplement income			50	11.1
	Consumption			50	11.1
	Preservation of farm		33.3	50	33.3
	Favorite occupation		33.3	50	33.3
In future	Main income source	100	100		77.8
	Supplement income			50	11.1
	Consumption			50	11.1
	Preservation of farm		33.3		22.2
	Favorite occupation		16.7		11.1

Source: Personal interviews
* More than one answer

Table 20 Future role of Japanese agriculture (per cent)

Level	Role	Agrocorporation	Business farms	Part time farms	All group
Local	Increasing	100		50	22.2
	Unchanged		83.3		55.6
	Decreasing		16.7	50	22.2
National	Unchanged	100	33.3	100	66.7
	Decreasing		66.7		22.2
	Difficult to predict				11.1

Source: Personal interviews

Table 21 Preferences for Governmental Agrarian Policy

Answers	Agrocorporation	Business farmers	Part time farmers	All group
More supportive	100	50	50	55.6
Same as now			50	11.1
Difficult to specify		33.3		22.2
No interests		16.7		11.1

Source:Personal interviews

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