MULTIFUNCTIONALITY AND RURAL TOURISM: A PERSPECTIVE ON FARM DIVERSIFICATION

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Abstract

Despite the growing interest in rural tourism in rural communities, there has been little investigation of how to introduce this new activity into conventional farm management while taking advantage of multifunctionality in agriculture. Considering rural tourism as a new farming activity that transforms a positive externality of multifunctionality into an income-generating opportunity (or the internalisation an of externality), this paper examines the evolutionary process of farm management by focusing on a farm household that operates a rural tourism business in Hiroshima, a mountainous area in western Japan. The examination of this household pioneering rural tourism showed that the rural tourism activity was a product innovation in farming whereas a traditional innovation in farming techniques was a process innovation. The former evolved from an interaction between multifunctionality and a rural tourism activity. Therefore, we should put more emphasis on policy that focuses on promoting product innovation in farming especially in the field of rural tourism by farm women.

Keywords: rural tourism, farm diversification, multifunctionality, service goods, product innovation, externality, internalisation, gender, entrepreneurship

Introduction

Rural tourism has been advocated as a means of farm diversification (Haines and Davies, 1987; Slee, 1989) and has been studied from the viewpoint of

farm-based rural hospitality businesses in many countries (Page and Getz, 1997). However, how to combine multifunctionality in agriculture with farm diversification has not received sufficient attention. The basic idea behind multifunctionality is that agriculture is more than just producing food and selling commodities; it also produces many intended and unintended by-products. Some externalities are "good", such as creating employment in rural areas, while others such as pollution and erosion are clearly undesirable. Externalities can be intangible, such as the preservation of a farming heritage. If farmers can successfully take an externality into the farm business or internalise it, multifunctionality will give them a chance to realise a new income source.

This point will be important in designing rural policies to help farmers create a new farm activity through internalising an externality or transforming it into an income-generating process. This is why we focus on multifunctionality and farm diversification. However, to our knowledge, sufficient conceptual explorations taking into account the unique features of rural tourism[1)] that differ in several aspects from traditional farm products have been lacking.

Therefore, firstly, this paper clarifies the characteristics of rural tourism as a farm activity compared with traditional farming activities. Secondly, we evaluate multifunctionality from the perspective of innovation in farming activities internalising its externalities into a new farm activity.

Thirdly, we conduct a case study on how a rural tourism activity was generated by tracing the evolutionary process of farm activity focusing on one farm household in mountainous Hiroshima, Japan and on mutual interaction between multifunctionality and rural tourism development. This is because

pioneering farmers come into existence so sporadically that their existence is not incorporated into statistical data. This pioneering farm activity gives us an effective model for predicting the future evolution of rural tourism. Finally, we suggest future farm policy orientation that is in harmony with rural resource-environment policy.

Study area and rationale for case study

To shed light on the evolution of rural tourism we focus on a farm household that is conducting a rural tourism activity in the mountainous northern tip of Hiroshima, western Japan. Western Japan is one of the most profoundly less favoured areas in this country in terms of an ageing population, scarcity of successors and small farms. Over 100 farmhouses providing accommodation for skiers have been established in this area, as it is one of the largest ski areas in western Japan. A problem has been to promote rural tourism in the summer so that tourism is not limited to winter sports. In response, a few farm households, differing from traditional farmhouses who only provide accommodation for skiers, are engaged in rural tourism. A typical case is the Tamura farm. Through reviewing about 40 years of evolution within this household we contrast rural tourism and farming from an innovation perspective because these take place within the setting of two epochs. Through this case study we clarify the impact of rural tourism on farm management by elucidating the process of internalisation of multifunctional externalities and try to anticipate prospects for the future direction of farm diversification in less favoured areas. Although this is, of course, a personal history of one farm, we can observe a drastic change in the farming system within this family wherein they experienced events that often reflected the general socio-economic background that this country had experienced.

Emerging rural markets and conceptual consideration

The recent surge in rural tourism and direct selling by farmers from stands or shops in rural areas creates a new possibility for forming other markets in addition to the markets for farm products in the cities (Figure 1).

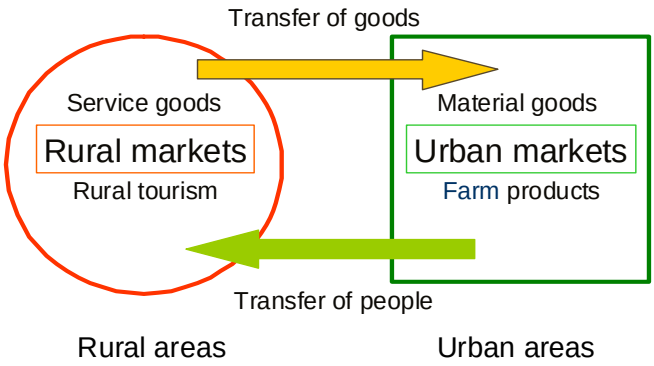


Figure 1 Rural-urban relationship between two products

Figure 1 illustrates that, in addition to the traditional route of farm products from rural areas to urban markets depicted by the arrow from left to right, another arrow emerges from right to left. This arrow exists because urban dwellers have begun to purchase farm products that often have the features of service goods such as rural tourism.

Therefore, we assume that there are two spatially segregated markets in rural and urban areas, and these are termed here “urban markets” and “rural markets”, respectively. This is because prices for traditional farm products are formed in urban markets, while prices for rural tourism are formed in rural markets. In other words, the difference is based on whether or not price formation is done at the point of production. This is why we should consider two spatially independent markets. Profiles of the two products, which we call “rural tourism goods” and “ordinary farm products”, are characterised and contrasted in Table I. The profiles show two different goods dealt in spatially different markets.

Table I. Comparison of two different farm goods

Characteristics	Rural-tourism goods	Ordinary farm products
Location of markets	Rural areas	Urban areas
Who pays transportation costs	Consumers (visitors)	Producers
Types of demand	Recreation, purchase of local foods	Food purchase
Types of goods	Service goods	Physical goods
Types of market	Niche, up-market	Mass market
Possibility of internalising multifunctionality into farm activity	Positive	Neutral

First, in the case of the urban market, ordinary farm products are traditionally shipped to urban markets for consumption. Generally, these products are for a mass market utilising a mass distribution system conducted by retailers or agricultural cooperatives. Transportation costs are usually borne by producers.

Conversely, in the case of rural markets, products are demanded mainly by urban inhabitants and partially by rural inhabitants. The following are included in the category of rural tourism goods: accommodation, rural cuisine, farm and farming experiences, pick-your-own, etc., and these have some of the characteristics of service goods. In addition, products from farmers' shops and ordered by telephone or e-mail and delivered through the postal service or other carriers are also included in this category. Products sold in this manner are considered to be purchased by urban consumers who pay transportation costs[2)]. A common factor with these products is that those who demand them pay the costs of coming to the rural markets or the delivery costs.

The markets for rural tourism goods are not large, and are considered to be niche markets, as is often pointed out (OECD, 1995a, OECD, 1995b). Thus, it

is assumed that these characteristics result in larger income elasticity of demand compared with that for ordinary farm products such as food.

In connection with multifunctionality, a positive externality such as landscape formation, land preservation, maintenance of a rural heritage, provision of a recreational opportunity and so on caused by a farm activity can be internalised or transformed into a farm business such as rural tourism activity by farmers as described below in detail. Otherwise farmers cannot receive payment for the benefit that they provide to society.

In this sense rural tourism can take advantage of multifunctionality by internalising an externality caused by multifunctionality. On the contrary, ordinary farm products can create multifunctionality, although they are considered to be neutral for utilising multifunctionality by internalisation into the farm business.

It is presumed that these two markets are not substitutable, but are complementary to each other for farmers. When we consider the two possible markets, it is easier to extend perspectives towards farm diversification.

Internalising multifunctionality into rural tourism

Here, we evaluate multifunctionality from the viewpoint of internalisation into an on-farm activity[3)]. We summarise types and features of multifunctionality from the perspective of Japanese agriculture in Table II; yet, we recognise that there is variation in what aspects are emphasised from one country to another. With regard to the impact of agriculture on the environment from each aspect, agriculture has both naturally positive and negative impacts depending on the

intensity of the agricultural activity[4)]. However, this paper focuses on positive externalities in farming activities.

Table II. Multifunctionality and possibility of internalisation as farm activity

Types of multifunctionality	Content of multifunctionality	Possibility of farm business
Environmental function	Land preservation: preventing flood water and soil erosion	Low
	Nurturing water resource: preserving underground water	Low
	Preserving natural environment: purifying water and air, ameliorating climate change, preserving bio-diversity and eco-system	Low
	Landscape formation	Low
Cultural and social function	Preserving cultural heritage	Middle
	Health and recreational function	High
	Educational function	High

First, we classified multifunctionality into two functions: one related to the environment and another related to cultural and social aspects as shown in Table II.

Concerning functions related to the environment, since externalities are widely exerted, these are not easy to entirely internalise at an individual farm level because these functions require collective efforts, for instance, at the local community level for complete internalisation.

In contrast, health and recreational functions and educational functions are interpreted as social functions rather than environmental functions and can be internalised into a farm level activity more easily than other functions, as they are easier to transform into service goods such as rural tourism by a farm activity. Thus, in multifunctionality, there are functions that are easily internalised at the farm level and ones that are not. For this reason, health,

recreational and educational functions have greater possibilities to be utilised as new farm activities.

To summarise, from the farm policy perspective, the significance of multifunctionality issues is the chance to enlarge the activity domain for farm diversification by taking into account environmental impacts. In this case, it should be noted that there are differences in terms of the ease in internalising an externality into a farming activity among types of multifunctionality. Hereafter, in the following section, we focus on the recreational function to examine how a rural tourism activity was generated.

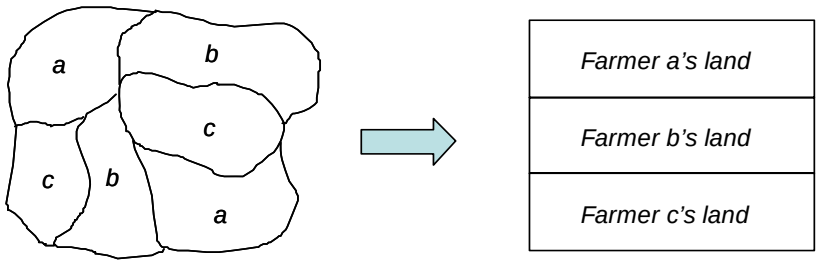
Evolutionary process of farming activity and rural tourism: a case study of innovation in farming

As a case study on how a farm operator generated an innovative farming activity in connection with multifunctionality, we focus on the evolution of the Tamura farm, beginning in 1963 when the Tamuras married, up until 2001. The profile of the Tamura farm is summarised in Table III. The Tamura farm is located in one of the steepest hilly and mountainous areas in Hiroshima. Mrs. Tamura was a pioneer of rural tourism in this area, although farming conditions for this family were very similar to those of other farm households there. Because of the highland climate, which is cool in summer and characterised by a large temperature difference between day and night, good quality vegetable products are produced such as tomatoes and cucumbers, which have been the main crops in this area. The Tamura's farm is slightly larger than the average in this area.

Table III. Profile of the Tamura farm (as of 2001)

Item	Data
Location	Hilly and Mountainous Hiroshima, Height: 450 m
Family labour	Husband (rice) and wife (vegetables, rural tourism) Wife: "designated excellent farmer" by prefectural government
Acreage: land use	1.6 ha: rice (0.3 ha), green house (0.3 ha), vegetables (0.1 ha), flower field (0.75 ha), car park (0.15 ha) 10.0 ha: wood

We recognise that there were two epochal events in the years during which the farm evolved. The first was mechanisation and the land consolidation process that spread throughout agriculture during 1960s to the 70s. The land, or paddy field, consolidation project was a prerequisite for mechanisation because traditional paddy fields were small, scattered, and irregular in form, which presented major physical obstacles to the mechanisation of growing the main crop, rice. Effects of land consolidation are summarised by an illustration in Figure 2. Until this obstacle was removed, mechanisation could not truly increase labour productivity. Therefore, we should treat mechanisation and land consolidation together as a unit of innovation in farming[5].



Effect of land consolidation	Before	After
Mechanisation	Difficult	OK
⇒ Increase labour productivity	Difficult	OK
Flexible land use	Difficult	OK
⇒ Increase land productivity	Difficult	OK

Figure 2 Effects of land consolidation

This innovation resulted in increased labour productivity and stimulated crop conversion from rice to production of more profitable vegetable crops grown in greenhouses. However, this process also resulted in husbands taking off-farm jobs, which was not anticipated by the government. This unexpected result was commonly observed all over the country during this period. Consequently, farmers attained income parity with urban households not by any on-farm activity, but by seeking off-farm jobs, where wages were rising faster than farming returns due to high economic growth in the industrial sector at that time.

Table IV. Evolutionary process of mechanisation and land consolidation: case of the Tamura farm

Year	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81
Tomato							^	Conversion from rice paddy			----	----	^	Green house			----	----	----
No. paddies	16 Paddies		----	----	----	----	----	----	^	Land consolidation project to 5 paddies						^	----	----	----
Ploughing	Cow	^	Tiller---	----	----	----	----	----	----	----	----	----	----	----	^	Tractor (15hp)		----	----
Rice planting	Manual	----	----	----	----	----	----	----	^	Rice planter (2 rows)					----	----	----	----	----
Harvesting	Manual	----	^	Binder and thresher			----	----	----	----	----	----	^	Group farming service					
Rice drying	Natural drying by hanging			----	^	Rice dryer		----	----	----	----	----	^	Service of agricultural cooperative					
Transportation			^	Carrier by tiller		----	^	mini truck		----	----	----	----	----	----	----	----	----	----

Source: Survey by the author and data from the town government.

We can see that exactly the same process occurred on the Tamura farm as is shown in Table IV. When Mrs. Tamura was married in the early 1960s, the farming operation involved cattle and crops were harvested manually. In a short while, tillers and binders were introduced for rice harvesting, meaning the beginning of mechanisation in the late 60s. Then, the farming operation was further mechanised with rice dryers, mini trucks, rice planters, etc. in the

early 70s. However, land consolidation was not yet completed. The sum of 16 paddies totalled only 0.9 ha, while the average was 0.056 ha. These were the typical scattered irregularly shaped paddies as illustrated in Figure 2. This was the traditional form of paddy that ensured equal opportunity for irrigation by the farmers concerned.

At this stage, tractors had not yet been introduced. This is because the shape of the paddy had to be transformed to become suitable for mechanical operation. This was not realised until the land consolidation project was started. The above facts make it obvious that land consolidation and mechanisation progressed together.

The direct effects of land consolidation was firstly improvement in labour productivity with mechanisation and crop conversion from rice to more profitable crops such as greenhouse vegetables, which required the transformation of irregularly-shaped paddies to square plots. Moreover, land consolidation not only raised productivity, but also enabled farmers to receive machinery operation services from cooperatives or other farmers. This out-sourcing behaviour eliminated the need for investment in machinery and further promoted off-farm jobs for householders on farms.

In summary, the first epochal event resulted in transformation of this area into vegetable production, while on the other hand, part-time farming grew due to improvement in labour productivity under relatively high off-farm wage rates.

New activity for the new market

The second epochal event was the start of a rural tourism activity.

The Tamura's farming started with rice production before moving to tomato production for shipment to the urban market; then Mrs Tamura began making dried flowers, offering accommodation to visitors and providing some pick-your-own services for garden flowers and greenhouse tomatoes. In another way, the activity evolved from physical goods to goods providing services. Thus, we can say that the market offering these goods with a service factor exists in the farmyard. In this case, unless people who want to enjoy these goods visit the farmyard, they cannot consume these goods. This means that a new rural market is emerging as explained in Figure 1.

The starting point for the rural tourism activity began accidentally when Mrs Tamura was injured during vegetable farming. She was hospitalised and had a good chance to review her life as a farmer's wife after she had completed her childcare responsibilities[6)]. She became interested in trees and wild flowers in the backyard wooded area and began to teach herself to make dried flowers. Then, she exhibited her work in Hiroshima and achieved a good reputation. This success gave her the momentum to launch a new activity. At the same time, she learned from people outside her region that the highland climate in her area created flowers that, when dried, had a clear colour that resisted fading and that had petals that did not easily fall. Until this time, this was an unrecognised local resource. Then word of mouth and publicity led to increased requests from visitors for accommodation and pick-your-own tomatoes and cucumbers.

This means that the rural tourism activity grew not only by her efforts, but also by interaction with people outside the rural community. This is a point of difference from traditional farm products. People from the outside world were

involved at every important turning point. The personal network grew in accordance with the growth of the activity.

Thus, the evolution of rural tourism is understood as a process of interaction of people outside of the rural community with a farm operator. This interaction brings about the objective evaluation of unutilised new farm and local resources, which creates a basis for a new activity. In short, multifunctionality is realised in the farm activity in accordance with a deepening rural tourism activity such as a recreational function and a partial landscape-forming function by the flower garden. Therefore, we can say that the development process of rural tourism is attained by discovering and nurturing multifunctionality rather than utilising ready-made local resources.

This was the process of creating a new farm activity that had not existed before and thus in this sense was a product innovation. The interaction of multifunctionality and internalisation added a new recreational value to the farmyard of providing dried flowers and a flower garden for urban visitors. Thus when multifunctionality was expressed in the product, the rural tourism activity became viable as a farm business. In addition, the Tamura's case clearly shows that multifunctionality is realised in the formation of a new farm activity.

Another point that should be kept in mind is that the more extensive the rural tourism activity became, the more clearly became Mrs. Tamura's sense of entrepreneurship, which was the process of transforming a farmer into an entrepreneur. By way of recognition of visitors' needs, taking advantage of the typical climatic conditions and making dried flowers, and then trying to establish her brand, she succeeded in making a new rural business by utilising

multifunctionality. Because of all of these pioneering accomplishments she was credited as a "designated excellent farmer" by the prefectural government in 1999.

Innovation in on-farm activities: comparison between the farming activity and the rural tourism activity

Here, features of the two epochs are contrasted from the perspective of innovation. Table V summarises the main differences between the innovations that occurred in the rice farming activity and those in the rural tourism activity. Innovation in the farming operation was apparently a process innovation because this was a mechanisation and land consolidation process introduced exogenously and that occurred in the process of farming production. This means that the products were the same as before the innovation. Specifically, these were machinery and farmland related hardware technologies.

Table V. Comparison of features of on-farm activities from innovation: case of the Tamura farm

Item	Farming activity	Non-farming activity
Content of innovation	Operation of rice farming	Creation of new activity
Place of innovation	Mechanisation & land consolidation	Rural tourism
Time of occurrence of innovation	Late 1960s to early 1970s	Late 1990s to early 2000s
Time of life cycle	Young	Middle aged: latter part of M-shaped job holding curve
Origin of innovation	Exogenous	Endogenous
Type of innovation	Process	Product: service goods
Type of innovative technology	Hardware technology	Software technology
Role of wife in farm management	Subsidiary of husband	Decision maker
Impact on farm management	Deepening of off-farm activity, introducing vegetable production	Heightening on-farm activity

The same process innovation in rice farming operations had diffused throughout the country at a period of high economic growth, and was a time of

modernisation of farming in Japan. This exogenous innovation triggered deepening of off-farm non-farming employment for husbands and of movement from rice to higher profit crops such as vegetables grown by farm women. The diversification of farming allowed husbands to take off-farm jobs and for wives to assume the on-farm farming activities instead. These changes, which were common throughout the country, happened exactly the same way in the Tamura farm household as described previously.

On the contrary, rural tourism in this case endogenously occurred and product innovation created a product that had never existed on the farm in this area. This innovation was the software technology of making dried flowers and offering accommodation services based on unused resources. In this case, the innovation resulted in extending an on-farm activity rather than extending an off-farm activity.

Moreover, another important point is that in the case of Mrs Tamura the role of the wife switched from providing mere subsidiary family labour performed under her husband's initiative to becoming a decision-maker and taking the initiative in the new farm business. This is another example of the significance of rural tourism in realising a gender-equal society.

Discussion: factors of product innovation

Here let us consider the factors influencing product innovation. First, we can observe that Mrs. Tamura clearly has affection for the local community and farm life. Developing rural tourism is a process of establishing clear identity as a farm woman starting from a vague identity.

Secondly, the rural tourism activity created a personal network of people outside the local community and this network stimulated discovery of new local resources and eventually the creation of a new activity as mentioned above.

Thirdly, rural tourism developed stepwise, not linearly. Extension of one activity served as preparation for starting another activity and the increase in the number of activities provided an opportunity for the enlargement of the whole farm business. Thus, it is safe to say that qualitative development needs quantitative development, and vice versa.

Table VI. Evolutionary stages of rural tourism activity: case of the Tamuras

Activity	Stage			
	Preparatory	**Take-off**	**Extension**	**Brand-establishing**
Year	1985-	1995-	1997-	2002-
(Age of Mrs Tamura)	-41	-51	-53	-58
Making dried flowers	^ ---------- Self-taught	*---------- Exhibition show	----------	----------
Studio & dried flower course		^ ----------	----------	----------
Flower garden & car park			^ ----------	----------
Accommodation			^ ----------	----------
Pick-your-own tomatoes			^ ----------	----------
Creating own brand by Yamahahako flower				^ ----------

With all of these features taken into account, we can classify the evolutionary steps as follows: preparatory, take-off, extension, and brand-establishment (Table VI). At the preparatory stage the rural tourism activity has not been launched. At this stage, there was the learning process of drying flower techniques as a pastime and preparing for opportunities to develop this into a farm activity.

The take-off stage is when the actual rural tourism activity began. In Mrs. Tamura's case, she had an exhibition of her craft at Hiroshima due to requests from friends in the city area. The success of this exhibition gave her confidence, which led to the creation of the new farm activity.

At the extension stage the activity was extended by such means as offering accommodation and setting up the flower field. Then, she tried to establish her own brand by featuring Yamahahako, a white wild highland flower suitable for pressed flower techniques. The idea of establishing her own brand is evidence of her becoming an entrepreneur. For that reason we can designate the place that she has now entered as the brand-establishment stage.

The evolution in farming activities was also a transformation process during which she changed from the role of a farm wife to that of an entrepreneur.

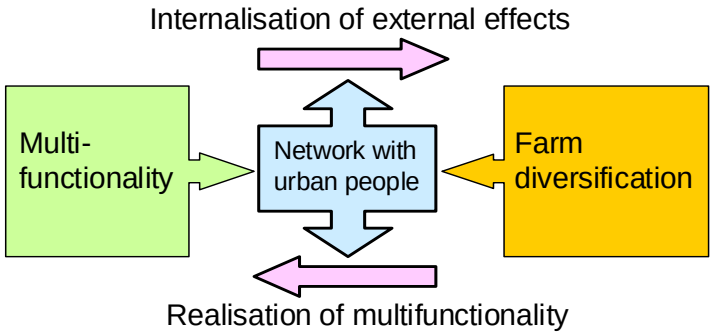


Figure 3 Interaction between multifunctionality and farm diversification

Figure 3 depicts the relationship between multifunctionality and farm diversification from the experience of the Tamura farm. The relationship is mutually positive. The more farm diversification evolves, the greater multifunctionality is realised. In this process a human network with urban

people plays an important role in stimulating farm diversification by requests from these people and extending the network itself.

To summarise, multifunctionality moved from a conceptual state to an actual state through the development of rural tourism. To put it differently, farm diversification and multifunctionality interacted and developed together. Specifically, Mrs Tamura began with dried flower making, moving on to pick-your-own flowers and offering an accommodation service, together with a dried flower course, which meant realisation of the recreational function in the farming. Then she started pick-your-own tomatoes as requested by visitors, which added a food educational function, too. Therefore, we can say that creating a new activity by internalising multifunctionality was attained stepwise by interaction with visitors rather than all at once. It was also the process of transforming herself.

Conclusions

This paper has explored the interaction of multifunctionality and a rural tourism activity by focusing on the evolution of an actual farm household in mountainous western Japan. The following are the main points discussed in this paper.

1. We showed farm diversification characterised by two different markets: an urban market for traditional farm products and a rural market for rural tourism. The latter is emerging and gaining importance in the farming community. We should explicitly take into account that there are two types of farm products in farm diversification.
2. There is a degree of difficulty in internalisation in multifunctionality. Among actual functions comprising multifunctionality, health,

recreational and educational functions are most suited for farm diversification or internalising by individual farming activities due to the relative ease in transforming these functions into service goods.

3. Rural tourism created a personal network of people outside the local community and this network stimulated discovery of new local resources and eventually the creation of a new activity.
4. Rural tourism developed stepwise, not linearly. This means that qualitative development needs quantitative development, and vice versa.
5. From a case study on the evolution of a farming activity, we classified rural tourism activity as a product innovation whereas innovations in the farming operation were characterised as process innovations.
6. From the above findings, we suggest that emphasis in policy should be placed more in promoting product innovations by farm women, particularly in promoting rural tourism.

Endnotes

1) For recent topics on rural tourism, see Hall et al. (2003). However, topics on the relationship between multifunctionality and rural tourism were not taken up. Ohe and Ciani (1995) and Ohe (2001) examined the behaviour of farmhouse accommodation operators in connection with farming production in the study area of this paper.

2) In taking into account transportation costs, in the case of rural tourism goods the demand curve will shift leftward while for ordinary farm products the supply curve will shift leftward. The detailed conceptual comparison of the two markets within a microeconomics framework was fully reported in Ohe (2003). However, no empirical study was conducted.

3) The most widely accepted characteristics of multifunctionality are joint production of farming and positive externalities or non-commodities. For

conceptual considerations see OECD (2001), OECD (2003) and Pezzini (2000), Van Huylenbroeck and Durand (2003) from the European perspective, Nagata (1991), Ohe (2001) and Tabuchi and Siomi (2002) from the Japanese perspective focusing on rice paddy.

4) For negative externalities of agriculture, see Hanley (1991), and Van Huylenbroeck and Whitby (1999).

5) For studies on the evaluation of farming mechanisation and irrigation infrastructure of Japanese agriculture see Hayami and Kawagoe (1991) and Akino and Hayami (1991). However, evaluation of land consolidation has not been conducted so far.

6) For introductory studies on gender issues in rural Japan, see Tsutsumi (2000).

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