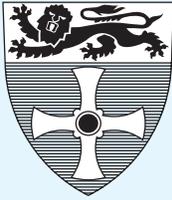


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CENTRE FOR RURAL ECONOMY

**FARMLAND ABANDONMENT,
FUNCTIONALITY AND DIRECT PAYMENTS:
LESSONS FROM JAPAN**

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**FARMLAND ABANDONMENT, MULTIFUNCTIONALITY AND
DIRECT PAYMENTS: LESSONS FROM JAPAN**

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Abstract

This paper addresses farmland abandonment, which is an issue of growing concern to policy-makers in Japan and Europe. In Japan, direct payments to farmers in LFAs have been used to tackle the problem, whilst at a more local level farmers have been encouraged to switch production from rice to other crops. The Japanese experience of policy response at both national and local levels may provide useful insights for strategies to counter the threat of increased farmland abandonment in the enlarged EU.

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INTRODUCTION

Recently, the amount of abandoned farmland² in Japan has been increasing quite dramatically, especially in hilly, mountainous and urban areas³. Farmland abandonment occurs when agricultural profitability reaches a minimum threshold and alternative productive uses for land cannot be found. It is a problem in mountainous areas in Southern Europe (MacDonald, et. al., 2000) and in Central and East European countries (e.g. Latvia, see Grinfelde and Mathijs, 2004), as well as in Japan. The issue is considered important in terms of a loss of multifunctionality — landscape degradation, reduction in biodiversity and water ecosystems — and in some cases is linked to natural disasters such as flooding and landslides. With the need for further agricultural policy reform, the prospect of more widespread farmland abandonment is a serious threat and poses an additional concern for policy-makers, both in Europe and Japan.

Direct payments to farmers in hilly and mountainous areas were introduced in Japan in 2000 as a response to mounting international pressure to reform price-related agricultural support. However, these payments, based on those in use in the EU, are also seen as a means of addressing farmland abandonment in Japan's less favoured areas (LFAs). In this paper, we examine direct payments as a policy response to the issue of farmland abandonment, highlighting the process and consequences in Japan. We begin at the national level and then focus on a specific region, Nagato-Otsu, which is adopting a unique approach at the local level, namely the conversion of abandoned paddy fields to pasture.

² That is, farmland which can be cultivated again after being kept idle with some treatments; it does not include land for housing and afforestation, or wasted lands (Definition in Agricultural Census, Japan).

³ Farming in urban areas is not uncommon in Japan.

FORMULATION OF DIRECT PAYMENTS IN HILLY AND MOUNTAINOUS AREAS

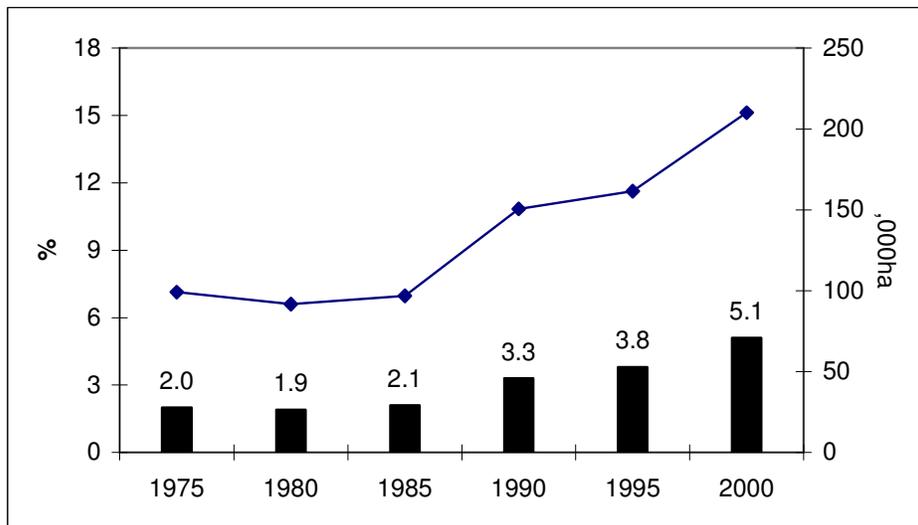
The purpose of the direct payments to hilly and mountainous areas, introduced from 2000, is to maintain not only stable domestic agricultural production but also agriculture's multifunctionality⁴ which has been of particular concern because of the recent increase in farmland abandonment (see Figure1). The target areas for the direct payments are the so-called LFAs for agricultural production, which are disadvantaged in terms of natural, economic and social conditions (MAFF, Japan, 1999). The direct payments are subject to the Basic Law on Food, Agriculture and Rural Areas (enacted in 1999):

“The State shall take specific measures for the fulfilment of the multifunctional roles of agriculture in hilly and mountainous areas, by providing support to compensate for disadvantage in agricultural production conditions so that such areas can maintain adequate production activities.” (Article 35, Clause 2).

There are two main reasons why the Japanese government favours direct payments as a form of agricultural support: one is the response to international pressure from the World Trade Organisation (WTO) to reform price-related agricultural support; the other is the urgent need to preserve the multifunctional role of farmland, particularly in hilly and mountainous areas.

⁴ Multifunctionality of agriculture here refers mainly to water-storing and prevention of floods or landslide on terraced paddy fields.

Figure 1: Area and proportion of abandoned farmland in Japan (Prefectures)



Source: MAFF, Japan, Agricultural Census, Japan.

Note: Line and column show the area and proportion of abandoned farmland respectively.

Following the Agriculture Agreement of the Uruguay Round of multilateral trade negotiations (GATT⁵) in 1994, by which countries have to cut trade-distorting subsidies, Japan was seeking an alternative form of agricultural support which would be categorised in the ‘green box’⁶. Concurrently, Japan faced a serious increase in the area of abandoned farmland, which more than doubled over 15 years (Figure 1) and became an urgent issue in terms of land preservation and prevention of natural disasters, such as floods and landslides. Given these circumstances, direct payments to LFAs, which had been introduced by the European Union (EU) in 1975 under the Common Agricultural Policy (CAP) and subsequently categorised in the green box, attracted attention in Japan. Furthermore, there is widespread belief that price-related agricultural subsidies are inequitable, favouring the larger and generally richer farmers

⁵ General Agreement on Tariffs and Trade, now superseded by the WTO.

⁶ That is, agricultural support payments which have no trade-distorting effects.

(see, for example, Howarth, 1990). With direct payments, support can be better directed at specific needs and objectives, and at producers rather than at production.

With a view to changing the system of agricultural support, an advisory panel was set-up under the Japanese Ministry of Agriculture, Forestry and Fisheries (MAFF, Japan). Direct payments to farmers with paddy fields proved controversial, because Japan had faced chronic overproduction of rice since the late 1960s. Some people were concerned that direct payments to paddy fields in LFAs would discourage rice production in more favoured areas unless the payments were limited, as land use varies little between the different farming areas in Japan (Table 1). Others, however, insisted that farmland preservation and production control were different policy objectives and should be treated as such. They were concerned that to enforce strict production control in the LFAs would be quite severe, particularly regarding crop conversion⁷. Therefore they thought that the direct payment measure combined with a particular level of production control would not bring about visible effects for LFAs.

The advisory panel concluded that production control would be obligatory when the *shuraku*⁸ agreed to direct payments⁹, whilst recognising that the payment itself has a different purpose from production control. The extent of production control has increased in recent years, generating disquiet amongst some farmers. The process of getting the *shuraku* to agree to

⁷ Crop conversion in LFAs is harder physically and economically than in the more favoured areas.

⁸ *Shuraku* is the smallest autonomous group in a village. An administrative area is divided into a number of *shuraku*.

⁹ The payment is subject to agreement by a group within the *shuraku*. A single farm unit is also acceptable, but only when farmers operate more than 3ha in prefectures (more than 30ha in Hokkaido), and more than 100ha as grassland.

direct payments provides an opportunity for government to reach a consensus on production control in order to achieve the targeted area.

Table 1: Land use in Japan (percentages)

Area	Paddy field		Vegetable field (Grassland)		Orchard	
	1995	2000	1995	2000	1995	2000
Urban	63	65	24 (4)	25 (2)	9	8
Flat farming	58	59	34 (2)	36 (1)	5	5
Hilly farming	50	52	35 (5)	36 (2)	10	9
Mountainous farming	53	55	35 (6)	36 (3)	6	6

Source: Agricultural Census 2000.

The Level of Direct Payment

The amount of direct payment was set at 80 per cent of the difference in production costs between the more favourable flat farming areas and the less favourable hilly and mountainous areas. This was regarded as an appropriate amount which would not discourage farmers' motivation for productivity growth in the favoured areas. The government subsidises one half of the payment and local authorities cover the remainder, with a total payment not exceeding the amounts shown in Table 2. Initially, the direct payment is made to the *shuraku*, and then distributed to individuals, with the amount received by an individual farmer determined by the *shuraku*.

Table 2: Direct payments for hilly and mountainous areas

Classification	Grade of inclination/amount	Yen per 10are	£ per 10are
Paddy field	1/100-1/20	8,000	42
	>1/20	21,000	111
Vegetable field	8-15 degrees	3,500	18
	>15 degrees	11,500	61
Grassland for pasturing	Proportion of grassland (>70%)	1,500	8
	8-15 degrees	3,000	16
	>15 degrees	10,500	55
Meadow	8-15 degrees	300	2
	>15 degrees	1,000	5

Source: MAFF, Japan (1999). Note: £1 = 190 yen, and 1ha = 100are.

1500 (500) yen for paddy (vegetable) fields are added to the above amounts in the case of new farmers or when farmers enlarge their fields by including farms in LFAs.

Direct Payments in LFAs in Japan and the EU: a Brief Comparison

The system of direct income support in Japan is based on the direct payments used in the EU since 1975. However, it is regarded as Japanese ‘in style’ for a number of reasons. A brief comparison with the EU’s direct payments in LFAs gives a clearer idea of the characteristics of the Japanese system.

(a) Purpose

The direct payments in the EU are under Directive 75/268 for the purpose of sustaining farming through income support in marginal regions. The EU has tended to focus on the negative environmental aspects associated with intensive farming as well as on maintaining the landscape, while Japan insists that agricultural activity plays a major positive role in maintaining multifunctionality in terms of land conservation.

(b) Targeted areas and criteria

The EU directive has definitive criteria to designate LFAs, which include the degree of altitude. Japan set a criterion in terms of the degree of inclination of the land, although some areas were designated in terms of depopulation and rural development. However, the farmlands targeted by direct payments and those areas designated as depopulating do not always overlap. Principally, targeted areas are defined subject to the inclination of the farmland (see Table 2). Some farmland that does not qualify can be designated if the governor of the prefecture identifies a need.

(c) Payment

In general, the payment levels in Japan (see Table 2) are fixed and the same over the whole country, although there is some variation in the distribution between the *shuraku* and individuals, compared to the situation in the EU where there is wide flexibility in the level of payments. Under the condition of the *shuraku* agreement, members should focus on activities which help to maintain multifunctionality¹⁰. Thus, in theory, farmers receive direct payments conditional on the use of their land, irrespective of their economic situation. In this context, direct payments in Japan are made not as income compensation but for agri-environmental activities. Furthermore, in principle, the payments are not to individuals but to the *shuraku*, as the average size of farm is much smaller than that in Europe. In this sense, Japanese direct payments can have an impact on the survival of a rural community.

¹⁰ For example, activities for land conservation, expanding recreational opportunities and maintaining the ecosystem.

(d) Production control

Both Japan and the EU argue that the purpose of direct payments for LFAs is far removed from the principle of production control. The EU combines production control with agri-environmental schemes, as a way of reducing environmental problems caused by intensive agricultural practice. In contrast, Japan introduced direct income support subject to the acceptance of production control as a part of the *shuraku* agreement. Therefore, the *shuraku* which do not agree to crop conversion are not allocated direct payments.

The characteristics of Japanese direct payments can be summarised as follows. In general, target areas are designated only subject to the degree of land inclination. However, there are several conditions necessary to receive the payment. Farmers have to accept the requirement of production control in terms of rice, and they have to undertake activities which help to maintain or develop multifunctionality in agriculture. Moreover, the amount of support is fixed nationwide and flexible only in terms of distribution between the *shuraku* and individuals. In this sense, the payment is an agri-environmental payment as part of regional support rather than income support.

The Implementation of Direct Payments in Japan

An overview of the implementation of direct payments in targeted areas in Japan is given in MAFF, Japan (2001). The number of cities or towns in receipt of payments is 1,687: about 80% of the targeted local authorities. The total number of participants is 489,000 with payments totalling some 42 billion yen (£22 million). The total area covered by the agreements is 541,000 ha, of which 538,000 ha is under *shuraku* agreements (with the

remainder covered by individual agreements). Average data on the payments per *shuraku* are given in Table 3.

Table 3: Direct payment agreements per *Shuraku*, (arithmetic means)

	Prefectures	Hokkaido
Area (ha)	10	672
Number of members	19	31
Total Payment:		
(£)	7,368	68,421
(Yen million)	1.4	13
Payment per member:		
(£)	421	2,210
(Yen '000)	80	420

The actual application of the direct payments depends on *shuraku*, with guidelines issued by the MAFF, Japan. Eighty-five per cent of agreements provide payment for activities carried out as a whole by the *shuraku*, and 89% for maintenance of irrigation channels or farm roads (Table 4). Payments to individual participants are included in 91% of total agreements. Nevertheless, there are some *shuraku* which do not allocate payments to individuals at all.

Table 4: Application of direct payments

Options	Agreements	
	Number	%
1) For activities undertaken as a whole by <i>shuraku</i>	21,657	85
2) For maintenance of agricultural land	18,141	71
3) For maintenance of irrigation channel or farm roads	22,732	89
4) For activities to enhance multifunctionality in the area	18,734	73
5) For increasing agricultural productivity	15,522	61
6) Distribution to individual participants	23,433	91
7) Others	9,840	38
Total	25,621	100

Note: Options are multiple selection.

The Effectiveness of Japanese Direct Payments

A serious problem in the LFAs is that the farming system is still labour-intensive and physically quite tough for the ageing agricultural population in these areas. Sometimes production control, which obliges rice farmers to keep some of their lands set-aside or requires them to convert to other crops, becomes a trigger for land abandonment. Nevertheless, it was decided that production control should be coupled with direct income support. Thus, this support is paid for maintaining farmlands as they were, and cannot cover the expenses of introducing new crops or other agricultural activities.

In the next section, the attempts of one region to address farmland abandonment through the use of direct payments in promoting labour-saving land use are analysed.

DIRECT PAYMENT SUPPORT AND FARMLAND CONSERVATION: A CASE STUDY

Farmland Abandonment

The Nagato-Otsu region is in the north-west part of Yamaguchi prefecture which is located at the west end of Honshu Island (the main island) in Japan, facing the Sea of Japan. It consists of one city, Nagato-shi, and three towns, Misumi-cho, Heki-cho, and Yuya-cho. All but Misumi-cho are subject to farmland conservation practices. The climate of this region is relatively mild due to warm tides; average annual temperature is 15° C, and the amount of rainfall throughout the year is 1800-1900 mm.

Almost all areas of this region are categorised as hilly and mountainous, and the proportion of terraced paddy fields is much higher than the average in Yamaguchi prefecture, except for Heki-cho (see Table 5). It is claimed that labour requirements on terraced paddy fields here are 3-5 times more than that of normal paddy fields, because modern machines cannot be introduced to such physically disadvantaged areas¹¹. While Japanese rice production has become more capital-intensive with the increase of part-time farmers, production on terraced paddy fields has remained labour-intensive. An ageing farm population and a lack of successors have led to an oversupply of farmland which, coupled with the disadvantages of its location and physical condition (Kashiwagi, 1994 and Odagiri, 1994) leading to low demand (Tanimoto, 1994), has brought about farmland abandonment.

¹¹ There are no official data in terms of labour requirements for rice production on terraced paddy fields. This is derived by interviews with farmers in the region.

Table 5: Arable land and paddy fields

Region	Arable land		
	Total area (ha)	Paddy fields (% of total)	
		All	Terraced
Nagato-shi	958	90	28
Heki-cho	801	92	18
Yuya-cho	1,470	92	51
Total	3,229	91	31
Yamaguchi prefecture	57,100	80	20

Source: Counterplan for efficient use of paddy fields, MAFF, Japan (1993).

However, from interviews with farmers in this region¹², it becomes apparent that important reasons why farmers are abandoning (part of) their land¹³ are the serious damage from wild animals and the allocation of production control. As shown in Table 6, the amount of agricultural damage has increased considerably, although recently it has abated as a result of hunting. Less-favoured areas tend to be more damaged by animals than favoured areas due to the mountainous location. In addition, the allocation of set-aside or crop conversion, which are the main measures to combat over-production of rice, have become a cause of farmland abandonment. Farmers aim to keep planting on favourable paddy fields because once the fields become idle, even for one year, it takes a long time to restore them to prime condition. Therefore, farmers tend to allocate their worst fields to set-aside or crop conversion. As for the latter, wheat,

¹² Interviews with farmers who are operating pasturing on abandoned paddy fields in Yuya-cho, Heki-cho and Nagato-shi.

¹³ Normally farmers do not give up cropping on every field. Even when conditions are tough, they still crop on fields which are in relatively better condition and abandon their worst fields.

soy bean and feeding-stuff are recommended, but the small amount of subsidy is insufficient for farmers to undertake unfamiliar land-use practices on less favoured fields, especially with the problem of damage from wild animals.

Table 6: Production damage from wild animals in Nagato-Otsu region

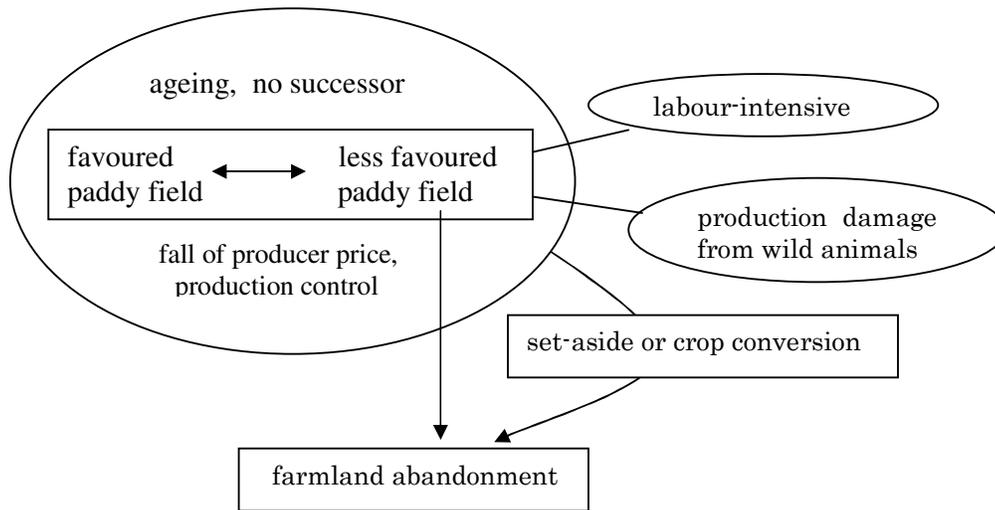
('000 yen)			
Year	Paddy fields	Vegetables	Others
1975	2,046	1,505	695
1980	2,594	6,935	1,004
1985	4,093	4,610	5,291
1990	25,564	10,781	7,181
1995	16,170	6,255	6,806

Source: Heki office of Agriculture and Forestry Section, Yamaguchi Prefecture.

Thus, the mechanism of farmland abandonment in this region can be represented as in Figure 2. The ageing of the agricultural population and lack of successors are general concerns in Japanese agriculture. However, less-favoured farmlands, which are labour-intensive and facing serious production damage from wild animals, would be especially affected by a fall in producer prices or by production control. Farmers who are more than 60 years old are easily discouraged by these factors. They allocate less-favoured paddy fields to set-aside or crop conversion, but when the latter fails or becomes too onerous, they abandon that part of their land¹⁴.

¹⁴ It can be difficult to find buyers for farmlands which are less profitable or have been kept idle for a while.

Figure 2: The mechanism of farmland abandonment



Farmland abandonment, especially on steeply-sloping land, has become a serious problem in this region, although the percentage is lower than that for the whole prefecture (Table 7). Once terraced paddy fields are abandoned, they are easily destroyed by the rapid growth of weeds and after two or three years become covered with bush and scrub. On such fields, the possibility of natural disasters, such as landslides and floods, increases. Thus local authorities in this region are faced with the need to conserve land.

Pasturing on Abandoned Paddy Fields

The main land use in the region is characterised by rice production and livestock. The net value of agricultural output in rice and livestock are relatively high overall, particularly in Nagato-shi and Heki-cho (Table 8). The majority of beef production is barley beef. Extensive grazing is suitable for small-scale breeding farms and more profitable than arable farming.

Table 7: Abandoned Farmland (1995)

Region	Agricultural	Agricultural	Area of	Area of
	households	households	farmland	farmland
		abandoning		abandoned
	(number)	(%)	(ha)	(%)
Nagato-shi	1,073	11.5	819	2.2
Heki-cho	519	9.2	692	1.4
Yuya-cho	954	14.5	1,168	2.5
Yamaguchi Prefecture	63,286	19.3	45,708	5.2

Source: Agricultural Census, Japan.

Table 8: Net value of agricultural output

Region	Agricultural output					
	Total	% of total				
	(m yen)	Rice	Vegetables	Flowers	Livestock	Others
Nagato-shi	3,046	26	12	3	57	3
Heki-cho	1,873	39	8	2	49	3
Yuya-cho	2,388	52	6	1	39	2
Total	7,307	38	9	2	49	2
Yamaguchi prefecture	102,300	43	18	3	24	12

Source: The 44th Agricultural Statistical Report of Yamaguchi Prefecture (1995-96).

In the late 1980s, the Yamaguchi prefecture authority paid particular attention to an individual farmer who started pasturing on a former paddy field located in a steep area; pasturing livestock on terraced farmland appeared advantageous in terms of savings on labour costs. Under a three-year 'modelling project for fixing the skill of pasturing on paddy fields' funded by the prefecture from 1989, six farms were directly supported for the development of pasturing in the Nagato-Otsu region. Training (how to grow pasture, etc.) was also provided under this project. The initial purpose of introducing pasturing on paddy fields focused on the lower cost of beef production, increasing the scale of enterprise and effective strategies for disused fields. From 1992 to 1994, ten farmers joined the project. It was seen as a countermeasure to the farmland abandonment problem, itself related to the ageing agricultural population. From 1995, abandoned farmland, rather than being treated as idle, started to be regarded as a regional resource. The project began to focus on the effective use of this farmland. Although there were no new cases under the 'project to promote the practical use of resources in hilly and mountainous areas' between 1995 and 1997, Yuya-cho started three new cases under a national fund called 'project to promote livestock by using abandoned farmland or woods' from 1998.

Advantages of Pasturing on Paddy Fields

Pasturing on paddy fields has advantages in terms of profitability and labour-saving for the ageing agricultural population in LFAs.

a) Reducing Production Cost

With the international trend towards more competitive markets, it is important to reduce production costs. Pasturing on paddy fields can reduce

livestock production cost through extensification with low initial investments. There is also limited need for additional facilities such as houses for calves and electric fences although, in the Nagato-Otsu region, farmers receive support for these. According to interviews with farmers, calves reared by pasturing are more marketable — in terms of being healthier and having a stronger body structure — than calves from intensive production systems. Although the differences are small, the market price of calves reared on paddy fields is generally better than the overall average for Yamaguchi prefecture (Table 9). Secondly, the production costs of pasturing are only just over half of those in Yamaguchi prefecture (Table 10). The number of hours of own-labour per breeding cow is higher, but income is also higher. Income as a proportion of revenue, at 37%, is twice the average in Yamaguchi prefecture. In terms of profitability and cost-saving, pasturing on paddy fields would appear to be a favourable option for small-scale farmers.

Table 9: Price of calves at market (1998)

Region	Price		Price per kg	
	('000 yen)		(yen)	
	ox	cow	ox	cow
Nagato-Otsu: farms pasturing on paddy fields*	394	324	1,594	1,325
Yamaguchi prefecture: average	395	309	1,518	1,298

Source: Heki office of agriculture and forestry section, Yamaguchi prefecture.

* average of six farms.

Table 10: Production costs and income

Costs, revenue and income (averages)	(per breeding cow)	
	Pasturing on paddy field	Yamaguchi prefecture average
Production costs, excluding own labour (yen)	120,000	208,828
Own labour (hours)	266	195
Gross revenue from calf sales (yen)	230,000	328,105
Income (yen)	85,100	59,959
Income per hour of own labour (yen/hour)	319	308
Income as % of gross revenue	37	18

Source: Heki office of agriculture and forestry section, Yamaguchi prefecture and the 44th Agricultural Statistical Report of Yamaguchi Prefecture (1995-96).

Note: data for Yamaguchi prefecture are for 1995; data for the six farms in the Nagato-Otsu region are for 1994-96.

b) Effectiveness with regard to land use

Shogenji (1998) noted that breeding livestock is dominant as a land use in LFAs in EU member countries, and claims that such extensive land use has a comparative advantage over rice production in LFAs in Japan. Comparative advantage can be examined by using estimates of the number of working hours needed to produce rice or beef on terraced (LFA) and non-terraced paddy fields:

Working hours to produce 100 kg rice on terraced paddy field	_____	vs.	_____	Working hours to produce 100 kg rice on <i>non</i> -terraced paddy field
Working hours to produce a breeding cow on terraced paddy field	_____		_____	Working hours to produce a breeding cow on <i>non</i> -terraced paddy field

which, using the data on rice production¹⁵ and that from Table 10, yields:

$$\frac{32.4}{266} = 1.2 \quad > \quad \frac{10.2}{195} = 0.052.$$

It is clear that pasturing on paddy fields has a comparative advantage in LFAs (terraced paddy fields), while rice production has a comparative advantage on non-terraced fields. Moreover, from interviews with farmers and local authorities, there are two further advantages of pasturing in LFAs. First, there is the effect of reducing production damage to the surrounding areas, because wild animals tend to keep away from cows! Second, farmers can use their abandoned fields without restoration, whereas it normally takes much time and money to restore abandoned lands to arable production. After two to three years of pasturing, the wild bushes disappear. Thus, pasturing on paddy fields is attractive not only as an alternative land use, but also as a powerful way to restore abandoned fields.

Obstacles of Pasturing on Paddy Fields

Despite the advantages in this use of land, there are several obstacles confronting farmers. First is the requirement of a sufficiently large contiguous area of land on which to pasture cattle. It is not easy to obtain

¹⁵

Per Field of 10 a	Terraced paddy field	Non-terraced paddy field
Yield (kg)	481	508
Working hours	155.7	51.9
Working hours to produce 100 kg	32.4	10.2

Source: Date for improvement in production and distribution of rice, wheat, and soybean 1998, Yamaguchi prefecture.

Note: The terraced paddy field yield data are from Yuya town which has a high rate of terraced paddy fields; that for non-terraced paddy field is the average in Yamaguchi prefecture. Working hours on terraced paddy fields are three times those on non-terraced fields, based on interviews with farmers in Yuya town.

consensus from all the necessary landowners. Moreover, some farmers feel uncomfortable about seeing cattle on their paddy fields, and would prefer to use their farmland in a less novel way. Previous experience of keeping cattle is also important and farmers in this project tend to have had experience of keeping cattle. For older farmers in particular, it can be difficult to accept this completely new use for their land.

Implementation of Direct Payments in the Region¹⁶

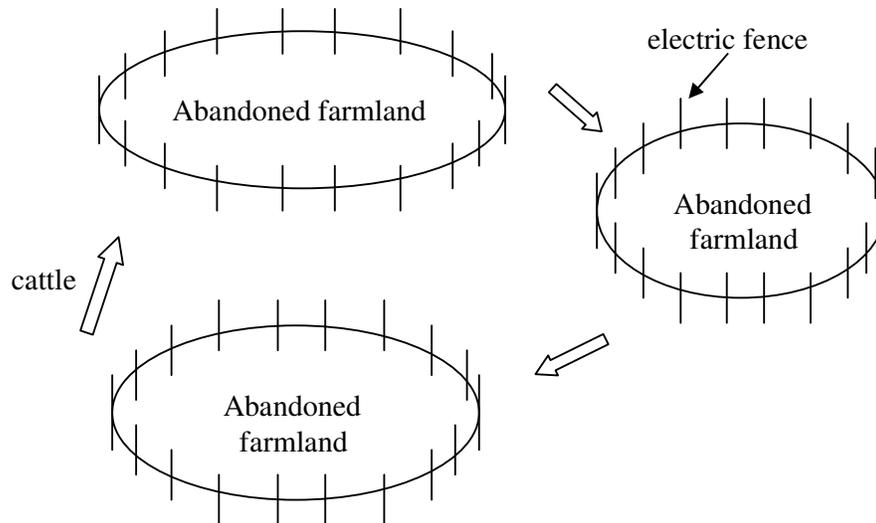
Through the adoption of direct payment support in this region, 42 out of 66 *shuraku*¹⁷ reached an agreement in Yuya-cho which has the most cases of pasturing on paddy fields. Twenty *shuraku* are designated as steep farming areas. Although almost all farmland is engaged in arable cropping, a new project, ‘promoting transhumance’, was established from 2000 in two *shuraku*, using direct payment support. This project is for pasturing cattle lent by larger scale livestock farms located in other *shuraku* on several areas of abandoned farmland in rotation (see Figure 3). Equipment, such as electric fencing, is lent by the prefecture for three years.

This transhumance system, to some extent, eliminates the obstacles of pasturing on paddy fields which were outlined above. Using the rotation system, it is not necessary to have a large contiguous area of land. Since this project targeted already abandoned fields, there is also less resistance from landowners to keeping cattle.

¹⁶ Based on interviews at the town hall of Yuya in November, 2003.

¹⁷ Except for some located in flat areas, almost all *shuraku* are eligible to receive direct payment support.

Figure 3: Transhumance system on abandoned farmland



Source: Yuya-cho, *The outline of pasturing on paddy field in Yuya-cho*, unpublished document.

SUMMARY AND CONCLUSION

Recently the area of farmland abandonment in Japan has increased markedly. Farmland abandonment, especially in steep hilly agricultural areas, increases the possibility of landslides and floods, as well as of degradation of the landscape. Additionally, the Japanese government has been under mounting international pressure to reform price-related agricultural support, hitherto the main support system in Japan. In 2000, a national Direct Payment to Hilly and Mountainous Areas, based on the payments to LFAs in the EU, was introduced in order to prevent a further increase in farmland abandonment. The mechanism of Japanese support policy is to subsidise the difference in production costs between favoured and less-favoured areas. However, for a number of reasons, this payment is, in effect, an agri-environmental payment as a part of regional support

rather than income support. For example, the amount of payment is not based on farmers' economic impoverishment but on physical disadvantage (the degree of farmland inclination). In this sense, the support is paid for maintaining farmlands in their existing use, as well as helping the maintenance of community activities. Thus, in Japan, direct payments are not targeted at individual farm support but, rather, at regional support to maintain agriculture's multifunctionality. Activities which help to maintain or develop multifunctionality in LFAs are also linked to direct payments. Another requirement is that farmers accept a certain level of production control by set-aside or crop conversion. Considering that production control has been a burden for many farmers, it may be easier for older farmers to continue conventional farming or just leave land idle.

In order to examine the response at the micro level to direct payment support, the latter part of this paper analyses one region, with a high proportion of terraced paddy fields. This region applied a form of direct payment support to a completely new land use prior to the introduction of the national scheme in 2000. It is often claimed that the cause of farmland abandonment is a lack of successors in LFAs. However, in the Nagato-Otsu region, the increase in allocation of set-aside or crop conversion from rice, along with production damage by wild animals, as well as the labour-intensive nature of the farming in the area, are also serious factors affecting farmland abandonment. The project of pasturing on paddy fields in the region initially started as a means of reducing production costs through extensive use of otherwise disused fields; production costs could be reduced and income increased. Pasturing, therefore, can be an attractive alternative land use in place of rice in LFAs facing serious production damage from wild animals. There are some

obstacles to this land use option but they are not insurmountable, as the case study in Nagato-Otsu region shows.

The EU has also faced difficulties in trying to improve the profitability of small-scale farms, particularly in mountainous areas, and has tackled farmland abandonment through income support to LFAs. However, the situation may worsen because many of the Central European countries that have recently joined the EU have already experienced a rapid increase in farmland abandonment. The Japanese experience of new policy implementation, based on an adaptation of existing EU policy measures, may provide useful insights into future strategic options to counter farmland abandonment in the enlarged EU.

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