of 60,000 ha, which translates into a leasehold share of 32%. The leased-farmland share is higher in Tohoku, Northern Kanto, Hokuriku, etc.

c) 47% of the farmland area of large-scale farms is leased farmland. This ratio of leased farmland is higher in areas from Southern Kanto to Sanyo (60% to 70% or more), and relatively low in Tohoku (34%) and Northern Kanto (47%).

Fig. 1 shows the relation of both ratios. The Y-axis shows the leasehold share of large-scale farms to all farms in local areas and the X-axis shows the ratio of leased land to farmland of large-scale farms. The ratio of leased land to farmland of large-scale farms becomes higher as these farms grow, and they have a larger share of leased farmland in local areas.

(3) Land on which cultivating has been abandoned and non-planted area is increasing

a) The area of cultivation-abandoned land belonging to farmers and non-farmers was 340,000 ha in 2000, an increase of 100,000 ha from 1995. There are two main features: the first is that cultivation-abandoned land owned by small-scale farmers and non-farmers increased especially, along with the rising percentages of farmers and non-farmers owning that land. 34% of non-farmers had land on which they had abandoned cultivation in 1980, but that figure had risen to 47% by 2000. In two farm-size classes, 0.1-0.3 ha and 0.3-0.5 ha, 11% of owners had land on which they had abandoned cultivation in 1980; by 2000, this figure had risen to 33% and 32% respectively. Secondly, abandonment of cultivation is increasing rapidly on paddy fields. The increase in area of uncultivated paddy fields was 30,000 ha from 1995 to 2000, while that of non-paddy fields was 20,000 ha.

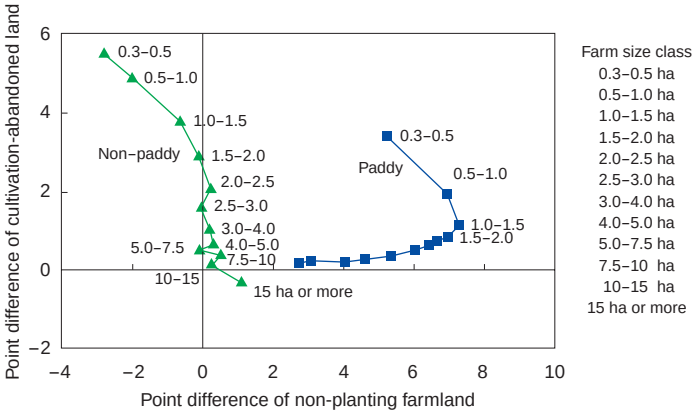

Fig. 2. Point Difference of Non-planting Farmland and Cultivation-abandoned Land (1995-2000)

b) Fig. 2 shows the relation between non-planted farmland and cultivation-abandoned land according to the farm-size class. The Y-axis shows the point difference of cultivation-abandoned land and the X-axis shows that of non-planted farmland ratios between 95 and 2000, as the denominator of the ratios is the total area of managed farmland and cultivation-abandoned land. On paddy fields of medium- and small-scale farms, the ratio of non-planted farmland is large (the maximum is in the 1.0-1.5 ha class). This ratio declines, but the cultivation-abandoned land ratio rises in the small-scale class. On the other hand, in non-paddy fields, the cultivation-abandoned land ratio rises at the medium- and small-scale class, and the non-planted farmland ratio of the small-scale class is negative. It is clear that in 1.0-1.5 ha farms, there was an increase in non-planted paddy fields and no longer cultivated non-paddy fields. Further, small-scale farms have much non-planted farmland and abandoned cultivation in paddy fields, and have abandoned cultivation much more in non-paddy fields.

Characteristics of the Agricultural Laborforce

Tsutomu MATSUHISA

For this research, analysis was performed on the agricultural laborforce in the 2000 agricultural census.

A feature of the year 2000 was that the speed of decline in the laborforce decreased. Looking at the chief indicators of the agricultural laborforce in Japan – the Population Mainly Engaged in Farming and Core Persons Mainly Engaged in Farming – over the last 15 years (see Table 1), the rate of decrease was around 10% from 1985-1995, but between 1995-2000, the Population Mainly Engaged in Farming declined by 8 points, Core Persons Mainly Engaged in Farming by close to 2

Table 1. Trend of Agriculture Laborforce (Commercial Farm Household)

(milion,%)

	year	Farm household population 15 years and over	Population mainly engaged in farming	Core persons mainly engaged in farming
Number	1985	6,179	2,202	1,762
	1990	5,533	1,978	1,522
	1995	4,955	1,767	1,372
	2000	4,416	1,721	1,260
The rate of increse and decrese	85-90	▲10.5	▲10.2	▲13.6
	90-95	▲10.5	▲10.6	▲9.9
	95-00	▲10.9	▲2.6	▲8.2
Ratio of farm household population 15years and over	1985		35.6	28.5
	1990		35.7	27.5
	1995		35.7	27.7
	2000		39.0	28.5

Source: The Census of Agriculture and Forestry.

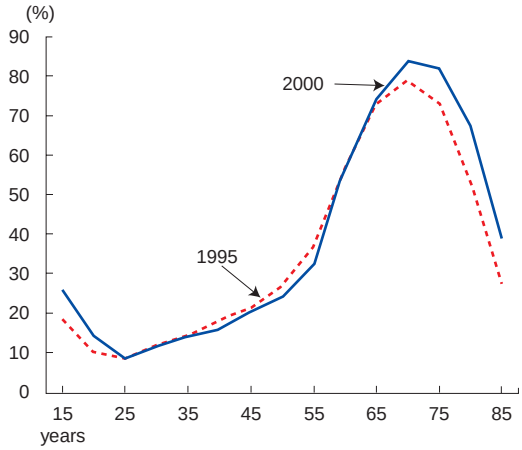

Fig. 1. Ratio by Age Group of Population Mainly Engaged in Farming

points. During this period, the speed of decrease in household members did not change greatly, so an increase in the rate of the laborforce (ratio of the employment rate to household number) slowed the speed of decrease.

Next, we would like to look at the age group in which this increase in rate of entry occurred. Fig. 1 shows the ratio by age group of Population Mainly Engaged in Farming for 1995 and 2000, and a large increase can be seen in people aged 15-19 and 70 and over. The 15-19 group may be influenced by changes in the survey items, but the 70 and over group indicates that an increasing percentage of people are entering agricultural jobs in spite of their age.

As the number of people 70 and over entering work increases, the number of household members is also rising, so the actual number is increasing greatly, and the ratio of the total overall has risen drastically. In other words, while the rise in 70 and over has slowed the trend of decline in the agricultural laborforce, on the other hand it has resulted in increasing the advanced age [of the laborforce] even more.

Looking at Working Days Engaged In Family-operated And Custom Farming, one more indicator of the agricultural laborforce, in the range of "150 days and over", the margin of growth for the 70 and over group increased from a 4 point increase between 1990-95 (20.4% to 24.6%) to a 7 point increase between 1995-2000 (24.4% to 32.2%). From this indicator, it can be seen that the number of people aged 70 and over engaged in farming fulltime is growing.

From the above, it was understood that the slow in the speed of decline in the agricultural laborforce is due to people aged 70 and over continuing to work in farming and not retiring. As it is certain that the 70 and over agricultural laborforce will decrease due to death, it is predicted that the speed of decline in the agricultural laborforce will increase hereafter.

Econometric Analysis of Farm Household Behaviour during the Farmland-use Adjustment Process

Takeshi FUJIE

1. Objective

This study predicts demands for organization of farmland-use coordination in some cases. Using micro data set for agricultural households, mainly in hilly and mountainous areas, we estimate econometric models and conduct simulations in each scenario. Also, we investigate how agricultural household costs of searching farmland affects the rate of abandoned land or rent in the farmland market.

2. Method

Micro data concerning farmland-use adjustment is applied to estimate the econometric model. We use two types of data. One is from a mountainous and hilly farming area (City A in Hiroshima Prefecture). The other is from a flat farming area (City B in Nagano Prefecture). Using the data, a probit or ordered probit model is estimated. Simulation analysis is performed using these estimates on the basis of three scenarios. The scenarios of the simulation are as follows. (i) Scenario of decreasing agricultural successors (scenario 1) (ii) Scenario of promoting residential measures (scenario 2) (iii) Scenario of excusing agricultural financial support (scenario 3). Also, apart from these simulations, we construct a theoretical farmland market model focused on search and mismatch.

3. Outline of the results

(1) For scenario 1, potential demand for organization of farmland-use coordination increases with decreasing agricultural successors. Agricultural households with no regular farm workers have the intention to use this organization. In addition, reduction of family size leads to an increase in the probability of utilization of farmland-use coordination organization.

(2) For scenario 2, potential demand for the