Behaviors and Strategies of Japanese Rice Producers under Globalization

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- Rice supply and demand in Japan
- Japanese Rice Policy Reform
- Major farming types of rice producers and their behaviors
- The future of Japanese rice production
Rice supply and demand in Japan
In 2002,

- 8.876 million tons of domestic production
- 0.88 million tons of Import Rice
- Include 0.77 million tons of Minimum Access Imported Rice

Source: Reference on Japanese Rice Production, Production Bureau, Ministry of Agriculture, Forestry and Fisheries
Cultivated Area and Per Yield

- Cultivated area was 1.688 million ha in 2002, and it is decreasing.
- Average rice yield was almost constantly 5.27 ton/ha in past 9 years.

Figure 2: Trend of Rice Crop Area and Rice Yield

Source: Reference on Japanese Rice Production, Production Bureau, Ministry of Agriculture, Forestry and Fisheries
Demand and Price

- Domestic demand for rice decreased from 10.26 million tons (1992) to 8.95 million tons (2002).
- In that period, producers’ price of rice fell corresponding to the decrease in demand.

![Figure 3: Trend of Rice Demand and Price](image)

Source: Reference on Japanese Rice Production, Production Bureau, Ministry of Agriculture, Forestry and Fisheries.
Rice Supply Adjustment

- Decreasing of demand necessitates the reinforcement of rice supply adjustment
- The set-aside area of rice production reached 39% of paddy fields

Figure 4  Trend of Rice Crop Area and Production Set-aside Area

Source: Reference on Japanese Rice Production, Production Bureau, Ministry of Agriculture, Forestry and Fisheries
Government Expenditure

- The government expended $2.467 billion for rice supply adjustment program in 2002
- It occupied a half of financial expenditure related to rice policy
- Cut down of these expenditures become an urgent issue
Prospect of Structural Reform

In 1999, the government designed structural change in arable farming → 80 thousand farms cultivating 14 ha each sharing 60% of paddy fields by 2010

Table 1 Government Prospect for Desired Agricultural Structure on Paddy Field Farming

<table>
<thead>
<tr>
<th>Country</th>
<th>Farms who have core persons (full time worker under 65 year old) mainly engaged in own farming</th>
<th>Desired Farm Management Body (Efficient and Stable Family Farm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of Farm</td>
<td>Farm size</td>
</tr>
<tr>
<td>Hokkaido</td>
<td>97,000</td>
<td>4.6ha</td>
</tr>
<tr>
<td>Prefecture</td>
<td>13,000</td>
<td>10.2ha</td>
</tr>
<tr>
<td>Country</td>
<td>84,000</td>
<td>3.7ha</td>
</tr>
</tbody>
</table>

Source: Ministry of Agriculture, Forestry and Fisheries, The Prospect of agricultural Structure
Three main issues in Japanese rice production

- Market-oriented rice production is required
- Conversion from rice to other crops on paddy fields
- Reform of production structure by fostering large scale farmers
Food self-sufficiency

- Japanese food self-sufficiency rate is only 40%
- The government targeted 45%, nevertheless, it seems difficult to keep the level
- It is also important to increase food self-sufficiency in Japan

![Graph showing trend of food self-sufficiency](image)

*Figure 6: Trend of the Degree of Food self-sufficiency*

*Source: Food self-sufficiency table, Ministry of Agriculture, Forestry and Fisheries*
Japanese “Rice Policy Reform”
The government launched a “Rice Policy Reform” from April, 2004.

remarkable change from the existing rice supply adjustment program

→ abolished the set-aside program to achieve efficient land resource allocation for rice production under market mechanism by 2010
→ foster the large scale farms
Object

- Discusses the reactions and strategies of Japanese rice producers
- Structure of Japanese rice farming is highly dependent on farmers’ responses
- It is essential to understand the farmer’s strategies under their specific socio-economic context
View Points

- What is the major farming types of rice producers
- Their socio-economic characteristics and rice producers’ behaviors
- Future perspectives of Japanese rice production and the necessary conditions for agricultural structure change
Major farming types of rice producer and there behaviors
Various types of Japanese rice producers

- part-time family farms
- large-scale family farms
- agricultural corporate firms
- group farming organizations based on rural communities
- farm contractors
- rural agricultural public corporations
- agricultural cooperatives
Major rice producers Types

- part-time family farms
- group farming organizations based on rural communities
- large-scale family farms
- agricultural corporate firms
Part-time family farms and their behaviors

- They are major rice producers in Japan
- Work on rice production during days off
- Earn main income from non-agricultural jobs
- The first priority of part-time family farm is to maintain the paddy field
- Not so consider the profit from rice production
- they might increase rice crop areas corresponding to the abolishment of the set-aside program
- even if the rice prices fall, some of them will continue rice production
• The number of part-time family farm is gradually decreasing
• Aging of farmers is progressing, and young generations hesitate to join the rice crop works

**Figure 7** Trend of the Population mainly engaged in own farming on each generation

Source: Agricultural census, Statistics Bureau, Ministry of Agriculture, Forestry and Fisheries
Common features of group farming

- Collective ownership of machinery and facilities
- Joint works on rice cultivation
- Regional adjustment of land use
Purpose of group farming

- Reduction of production costs and maintain paddy fields
- Rice production costs of group farming organizations are often fewer than the average costs of their prefecture

Table 2  Rice production cost of group farming organization (dollar/ton)

<table>
<thead>
<tr>
<th>item of expenditure</th>
<th>group farming organization</th>
<th>average cost of their prefecture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seeds and seedlings</td>
<td>198</td>
<td>39</td>
</tr>
<tr>
<td>Fertilizers</td>
<td>568</td>
<td>220</td>
</tr>
<tr>
<td>Agricultural chemicals</td>
<td>181</td>
<td>154</td>
</tr>
<tr>
<td>Lighting, heating and power</td>
<td>33</td>
<td>62</td>
</tr>
<tr>
<td>Other materials</td>
<td>7</td>
<td>49</td>
</tr>
<tr>
<td>Irrigation</td>
<td>30</td>
<td>32</td>
</tr>
<tr>
<td>Rents and fees</td>
<td>236</td>
<td>85</td>
</tr>
<tr>
<td>Depreciation, buildings and land improvement</td>
<td>91</td>
<td>90</td>
</tr>
<tr>
<td>Depreciation, farm machines</td>
<td>318</td>
<td>936</td>
</tr>
<tr>
<td>Labor</td>
<td>418</td>
<td>1,156</td>
</tr>
<tr>
<td>Total costs</td>
<td>2,079</td>
<td>2,822</td>
</tr>
<tr>
<td>Yield per ha (ton)</td>
<td>5.47</td>
<td>5.42</td>
</tr>
</tbody>
</table>

Number of group farming organizations

- Only 9,961 in 2000
  - → 7.4% of the total number of agricultural commune

Table 3  Number of the Group Farming Organization

<table>
<thead>
<tr>
<th>Country</th>
<th>Total number of Agricultural Commune</th>
<th>Number of the Group Farming Organization</th>
<th>Ratio of Group Farming Organization(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country</td>
<td>135,163</td>
<td>9,961</td>
<td>7.4</td>
</tr>
<tr>
<td>Hokkaido</td>
<td>6,637</td>
<td>647</td>
<td>9.7</td>
</tr>
<tr>
<td>Tohoku</td>
<td>16,982</td>
<td>990</td>
<td>5.8</td>
</tr>
<tr>
<td>Hokuriku</td>
<td>10,696</td>
<td>2,006</td>
<td>18.8</td>
</tr>
<tr>
<td>Kanto/tozan</td>
<td>25,149</td>
<td>289</td>
<td>1.1</td>
</tr>
<tr>
<td>Tokai</td>
<td>12,007</td>
<td>1,022</td>
<td>8.5</td>
</tr>
<tr>
<td>Kinki</td>
<td>11,347</td>
<td>1,939</td>
<td>17.1</td>
</tr>
<tr>
<td>Chugoku</td>
<td>18,589</td>
<td>1,703</td>
<td>9.2</td>
</tr>
<tr>
<td>Shikoku</td>
<td>10,406</td>
<td>134</td>
<td>1.3</td>
</tr>
<tr>
<td>Kyusyu</td>
<td>22,622</td>
<td>1,232</td>
<td>5.4</td>
</tr>
</tbody>
</table>

Source: Statistics and Information Department, Ministry of Agriculture, Forestry and Fisheries
Large-scale family farms and agricultural corporate firms

- They are interested in increasing farm size.
- They also pursue diversifying their business vertically and/or horizontally.
- Both types are expected as leading rice producers in Japan.
Large-scale family farms

- Mainly managed and carried out by family labor
- Farm-land are 10 to 20 ha
- Labors are two or three family members
- Cultivate rice, wheat, soybean, and feed crops
Agricultural corporate firms

- employ non-family members and assign them some management work
- Farm-land are 50 to 100ha
- investment in machinery and facilities are three to five times as much as those of family farms
Strategies

- Large-scale family farms
  - expansion of rice, wheat, soybean crop area
  - purposes of this strategy are reduce the production costs and increase farm income

- Agricultural corporate firms
  - pursuing both diversified agribusiness and expansion of farm size
  - managing to keep the enough work for full-time employees
A Case of Strategy on Large scale family farm
— Expansion of Farm Size —

Figure 8  Expansion of Farm Size on Large scale family farm

Source: Farming survey from a large scale family farm in Iwate Prefecture. The labor of this farm is 2 persons.
Marketing

- Both are equally reinforcing marketing
- Sell polished rice directly to consumers or retail stores

Farmer directly sell his polished rice for consumer in the department store
Production of organic rice and/or chemically produced rice (smaller amount of fertilizer and agricultural chemicals)

Organic rice production by riding weeding machine. This farmer also use bio-agricultural chemicals.
Consumers’ attention

- Consumers pay attention to food safety as much as labeling (production areas, varieties), taste, price level

**Figure 9** Consumer’s choice criteria on purchase of rice

Source: Consumer monitor questionnaire survey by the Metropolis of

Note: Figure show the ratio of consumer who pay attention to the rice commodity items.
Introducing a traceability system for their product

They invite their customers (consumers, retailers) to their farms for interpersonal contact

Farmers and consumers’ communication events
The future of Japanese rice production
Discussion Points

In order to resolve the previously mentioned issues — decrease in rice demand, conversion from rice to other crops, structural change —

- It is important to foster the large-scale family farms and agricultural corporate firms by supporting their strategies
- How much and how fast those viable producers dominate the production

- But the “Rice Policy Reform” might lead to increase in supply, resulting in falling prices
- Core farmers will be most damaged by falling prices
the “Rice Policy Reform” has prepared for compensation of rice income in the case of falling prices

But the amount which farmers receive is limited to less than 10% of the current rice incomes

Table 4 Rice Income Compensation by Rice Policy Reform

<table>
<thead>
<tr>
<th>Rice price (dollars/kg)</th>
<th>Rice income (Price × Yield) (not participate set-aside program)</th>
<th>Compensated Rice income (dollars/ha)</th>
<th>Amount of Income Compensation (dollars/ha)</th>
<th>Reference: Rice price (thousand yen/60kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.73</td>
<td>13,991</td>
<td>13,396</td>
<td>0</td>
<td>18</td>
</tr>
<tr>
<td>2.58</td>
<td>13,214</td>
<td>12,619</td>
<td>0</td>
<td>17</td>
</tr>
<tr>
<td>2.42</td>
<td>12,436</td>
<td>12,147</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>2.27</td>
<td>11,659</td>
<td>11,758</td>
<td>99</td>
<td>15</td>
</tr>
<tr>
<td>2.12</td>
<td>10,882</td>
<td>11,661</td>
<td>780</td>
<td>14</td>
</tr>
<tr>
<td>1.97</td>
<td>10,105</td>
<td>10,884</td>
<td>780</td>
<td>13</td>
</tr>
<tr>
<td>1.82</td>
<td>9,327</td>
<td>10,107</td>
<td>780</td>
<td>12</td>
</tr>
<tr>
<td>1.67</td>
<td>8,550</td>
<td>9,330</td>
<td>780</td>
<td>11</td>
</tr>
<tr>
<td>1.52</td>
<td>7,773</td>
<td>8,552</td>
<td>780</td>
<td>10</td>
</tr>
</tbody>
</table>

Case of Rice price is 2.12 dollars/kg (14 thousand yen/60kg)

<table>
<thead>
<tr>
<th>Rice crop area</th>
<th>Total amount of Income Compensation (dollars/farm)</th>
<th>Compensated Total Rice Income (thousand dollars/farm)</th>
<th>Share of Income Compensation per Total Farm Income (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3ha</td>
<td>2,339</td>
<td>26</td>
<td>9</td>
</tr>
<tr>
<td>5ha</td>
<td>3,898</td>
<td>43</td>
<td>9</td>
</tr>
<tr>
<td>10ha</td>
<td>7,796</td>
<td>86</td>
<td>9</td>
</tr>
<tr>
<td>15ha</td>
<td>11,695</td>
<td>128</td>
<td>9</td>
</tr>
</tbody>
</table>

Note: A case of Ibaraki prefecture. Rice Yield is 5.13 Ton per ha
Effects of falling Prices

- Even on 20ha farms, if rice prices decline under $2.7, it is difficult to obtain a comparable income with non-agricultural workers.
- Smaller-sized farm (15ha, 10ha), they could not get enough income on each price.

Note: the numerals of this figure were calculated by using linear programming methods. Farm model is as follows: two family labors. Crops are rice, wheat, and soybean. Farmer receives subsidy from the government for the wheat or soybean crop on paddy field.
if the government abolish the financial support for farmers that participate in the set-aside program, the farm incomes decline shapely due to falling prices.
Conclusions
—from the view points of policy adoption—

- It is important to accelerate the accumulation of farm land for farmers which pursue expansion of farm size
- The government needs to prepare the effective direct income compensation policy for core farmers immediately