

Global Focus on Knowledge/Winter Semester 2008

Globalization of Food and Agriculture
—Japan, Asia, and Global Society—

The University of Tokyo
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- In the wake of price hikes in foodstuffs in a rapid succession caused by a steep rise in food prices in international markets, coupled with the case of toxic frozen *gyoza* made in China, food problems of the world, problems of our daily dining tables, and Japanese agricultural problems appear to have been linked all of a sudden.
 - The underlying tendency of the world food market is toward a tighter situation for medium to long term. Economic growths of Asian countries centering around China and India continue to bring about increases in the demand for food due to their mass consumption of feed grains and oilseeds.
 - In the WTO negotiations that started off aiming at agreements, Japan will be pressurized for certain to provide greater access to its markets of agricultural produce. It's a new structure of international negotiations over trades that have undergone a sea change along with growing influence of developing countries.

Lecture's Concept and Composition

- Having broadly grasped the structure of the world's food and agriculture, it is important to confirm the position of Japan with equanimity. The lecture's key word is food security; broadening field of vision on food and agriculture, from Japan to Asia, from Asia to the global society.

Part I Food Security

Part II Japan's Food Self-sufficiency Rate

Part III Aided Agriculture of Developed Nations,
Levied Agriculture of Developing Nations

Part IV Trade Rules and International Cooperation Over Food and
Agriculture

Part I

Food Security

Food Security (Guarantee of Food Security)

- Food security that is ordinarily translated as guarantee of food safety. Guarantee of food security is a state of being prepared against unanticipated situations like major disasters and international disputes, and a state in which food necessary for people's survival is always secured.
- Amid today's Japanese society that has started lacking a sense of stability, guarantee of security in food is growing increasingly important. It's a kind of infrastructure to support people's calm judgment and unruffled behavior: guarantee of food security as an insurance that brings about moral stability, not exactly identical with moral hazard.

Food Security (Food Security)

- Food security as a concept referring to a state in which daily food requirement is secured for all people primarily taking stratum of impoverished people into account. An appropriate translation of food security in this meaning is food assurance. It is not that food as the gross volume is in short supply, but the root of the problem lies in the maldistribution of purchasing power.
- Food for satiating Japan is highly selective goods. On the other hand food is absolute necessities in the sense that one cannot sustain life without it. One of the characteristics of a steep hike in the world's food markets in this time is that measures on export restriction prioritizing own countries accelerated price increases.

Undernourished Population of 860 Million

Distribution of World's Undernourished Population

(Unit: 100 Million Persons)

| | 2002- 04 |
|--------------------|--------------|
| Total world | 8. 61 |
| Developed nations | 0. 11 |
| CIS nations | 0. 19 |
| Developing nations | 8. 34 |
| Sub-Saharan Africa | 2. 16 |
| East Asia | 1. 63 |
| South Asia | 3. 14 |
| Southeast Asia | 0. 64 |
| Other | 0. 76 |

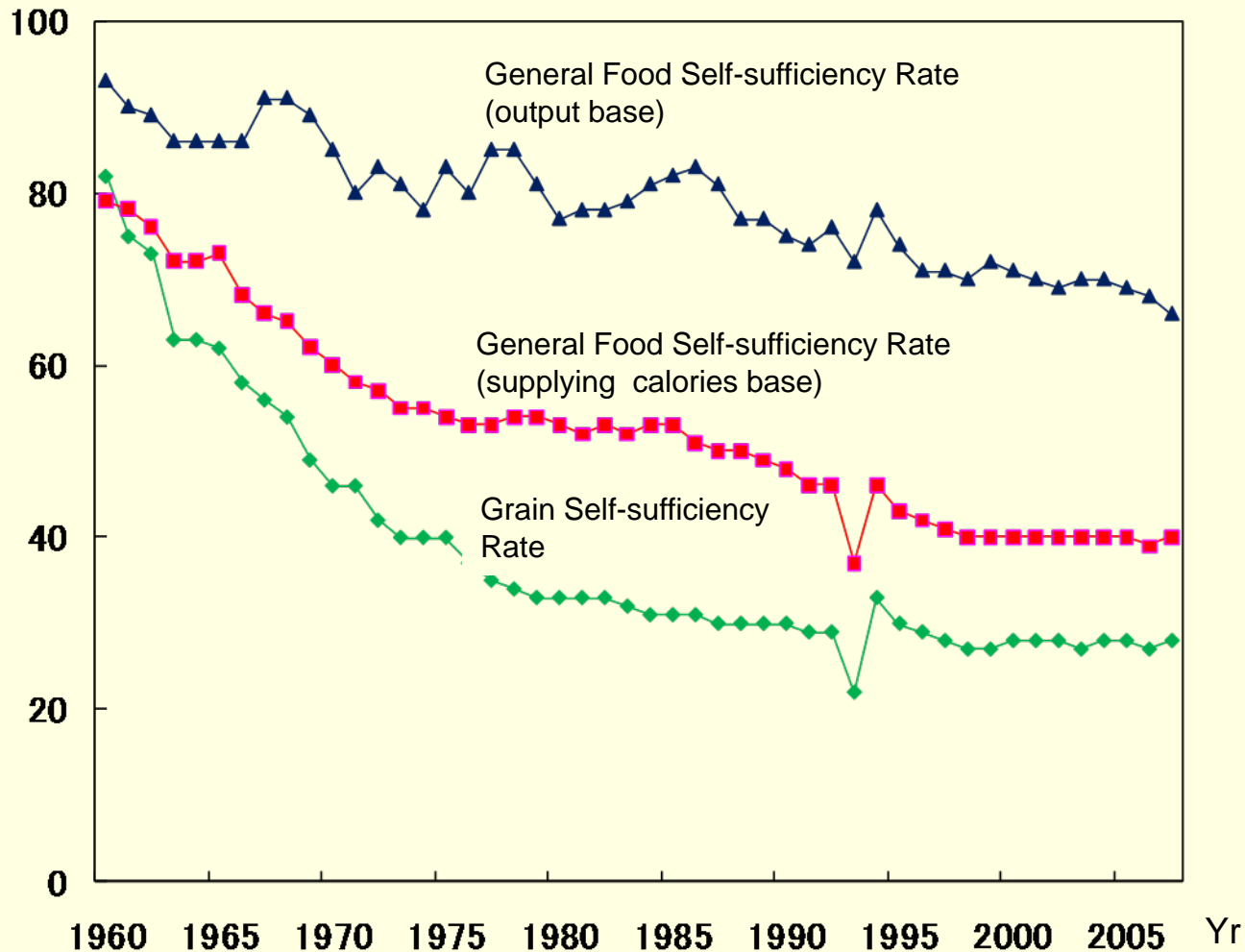
Data : FAO 「Food Security Statistics」

Part II

Japan's Food Self-sufficiency Rate

Transition of Food Self-sufficiency Rate

(Unit: %)



Data: Ministry of Agriculture, Forestry and Fisheries, *Chart of Food Supply and Demand*

Japan's Food Heavily Relying on Overseas Resources

- Japan's food self-sufficiency rate is extremely low by international standards as well. Its grain self-sufficiency rate of 27% ranks the 26th among 29 member states of OECD in 2003. (Only Portugal, Holland and Iceland scored lower than Japan.) And the same 27% was the lowest rate among 11 states with the population over 100 million. (Next to Japan was Nigeria with 84%.)
- Overseas farmland necessary to produce the imported agricultural produce is 12.45 hectares, which are 2.7 times as much as the domestic farmland of 4.65 hectares (in 2007). Japan is the largest net importer of food in the world.

Lowering Factors of Food Self-sufficiency Rate that Changed with Times

- The fall in food self-sufficiency rate until the mid 1980s was a phenomenon mainly caused by the change of diet and mass imports of feedstuff and soybeans that supported such change. Along with income increase accompanying economic growth, consumption of livestock products and fats and oils went up; the sources of supply of feed grains and oilseeds (soybeans) are primarily the American Continents and Oceania. As a whole, Japanese agricultural production maintained an expansive trend till the mid 1980s.
- Since then, the growth in food consumption became blunt and agricultural production obviously took a declining trend. The primary factor of a drop in food self-sufficiency rate during the past 20 years was a backdown in agricultural production. As for the livestock industry and fruit trees/vegetables that made strenuous efforts under the economic growth, the trend of their production turned from stagnation to decline attributable to a sluggish growth in demand coupled with increasing imported agricultural produce in recent years.

Japanese Diet that Changed Significantly

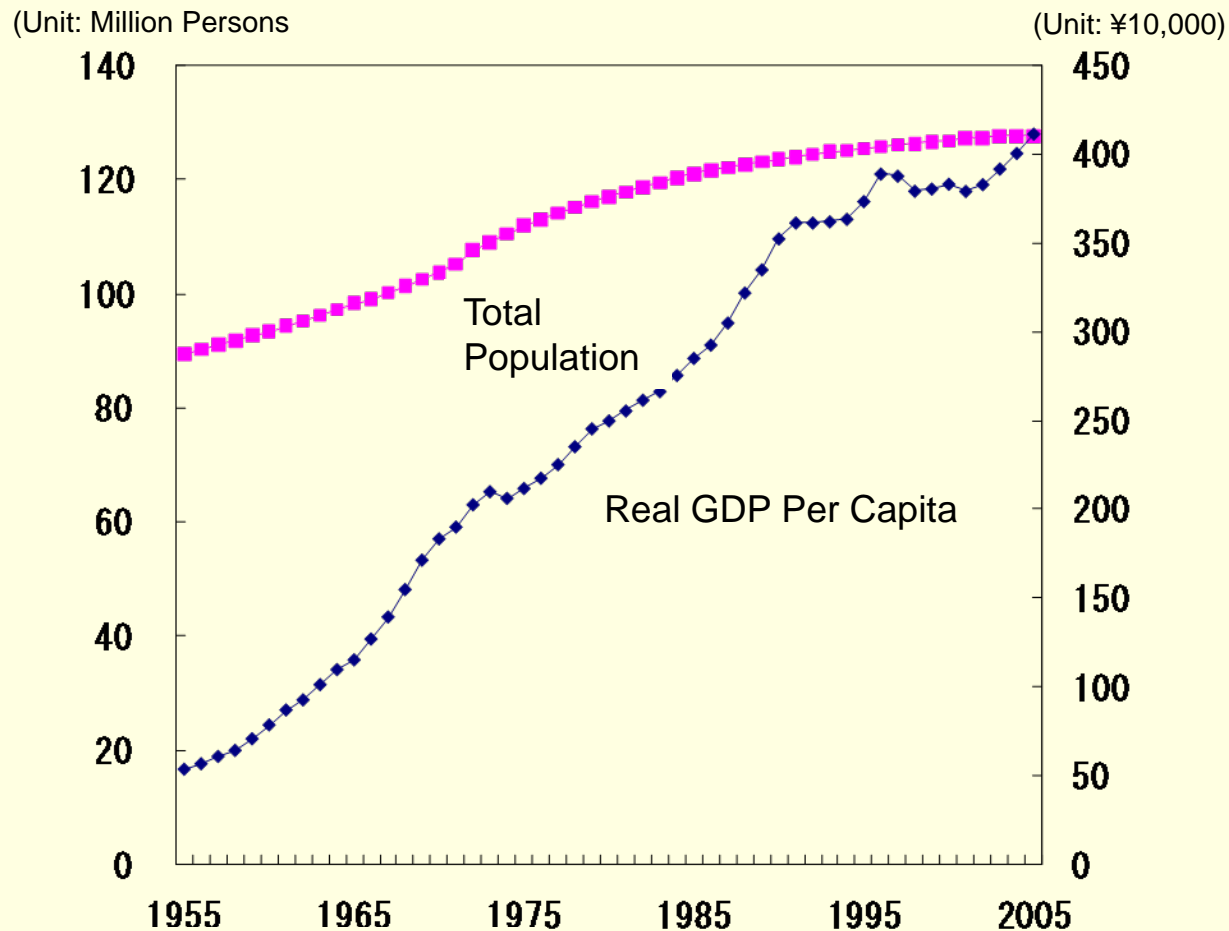
Transition of Supplied Pure Food per Capita per Annum

(Unit: kg)

| Year | 1955 | 1965 | 1975 | 1985 | 1995 | 2005 | $\frac{2005}{1955}$ |
|---------------------|-------|-------|-------|-------|-------|------|---------------------|
| Rice | 110.7 | 111.7 | 88.0 | 74.6 | 67.8 | 61.4 | 0.55 |
| Wheat | 25.1 | 29.0 | 31.5 | 31.7 | 32.8 | 31.7 | 1.26 |
| Potatoes | 43.6 | 21.3 | 16.0 | 18.6 | 20.7 | 19.7 | 0.45 |
| Starch | 4.6 | 8.3 | 7.5 | 14.1 | 15.6 | 17.5 | 3.80 |
| Pulse | 9.4 | 9.5 | 9.4 | 9.0 | 8.8 | 9.3 | 0.99 |
| Vegetable | 82.3 | 108.2 | 109.4 | 110.8 | 105.8 | 96.3 | 1.17 |
| Fruitage | 12.3 | 28.5 | 42.5 | 38.2 | 42.2 | 43.1 | 3.50 |
| Meat | 3.2 | 9.2 | 17.9 | 22.9 | 28.5 | 28.5 | 8.91 |
| Hen's eggs | 3.7 | 11.3 | 13.7 | 14.5 | 17.2 | 16.6 | 4.49 |
| Milk/dairy products | 2.1 | 37.5 | 53.6 | 70.6 | 91.2 | 91.8 | 7.59 |
| Sea food | 26.3 | 28.1 | 34.9 | 35.3 | 39.3 | 34.6 | 1.32 |
| Sugar | 12.3 | 18.7 | 25.1 | 22.0 | 21.2 | 19.9 | 1.62 |
| Oils and fats | 2.7 | 6.3 | 10.9 | 14.0 | 14.6 | 14.6 | 5.41 |

Economic Growth and Adaptation of Japanese Agriculture

Real GDP Per Capita and Total Population



Note: Real GDP in 1990 fixed price

Japan that Takes Future of Monsoon Asia's Food in Advance

- Another reason for the low rate of food self-sufficiency is a phenomenon brought about by a significant transformation of diet that resulted from the realization of high—almost prefixed with ultra— income level in the densely populated society. As for the era when the society's fundamental structure was shaped, rice cultivation in a given area had 4 times as much as other grain produce in terms of supporting power of population, one estimate maintains. The attributes of rice's superior population-supporting power are its excellent yield and stability, high edible rate of seeds, the spread of double cropping, and a food containing a variety of nourishments.
- Japan was the first in Asia to have joined in developed nations. Classifying Europe and the nations having their origins in Europe as the first group, the second group includes ones that continue to grow centering around Monsoon Asia. To date, Japan has been the front runner of this second group. In terms of huge changes in diet and lowering rates of food self-sufficiency, Korea and Taiwan have been almost traveling side by side with Japan. Limited to the coast area, “Japanization phenomenon in food and agriculture” is expanding in China too.

Real Possibility in Formation of Food Network in East Asia

- In East Asia where the countries have much dietary culture in common, along with an upturn in purchasing power thanks to economic growths, there has appeared a touch of real possibility in forming a food network that allows foodstuffs each country is strong in to be exchanged among each other. China's wealthy class is keenly interested in the quality and safety of food as well.
- In the wake of upswing in wages and land prices due to economic growths, agricultural competitiveness has become close between Japan and other Asian countries. It was cheap wages that used to support competitiveness in agriculture of Asian countries at the developing stage. China's farmland area of a household is a third of that in Japan. In the background of expanding intra-industry trade and horizontal trade surrounding food lies a move toward closer competitiveness in agriculture.

Japanese Agricultural and Marine Products Bound for Asia

Transition of Exports of Agricultural/Marine Products in Recent Years

(Unit: ¥100 Million)

| | Agricultural produce | Forest products | Fishery products | Total |
|-------------|----------------------|-----------------|------------------|--------------|
| 2000 | 1,363 | 79 | 909 | 2,351 |
| 2001 | 1,466 | 70 | 978 | 2,514 |
| 2002 | 1,646 | 80 | 1,033 | 2,759 |
| 2003 | 1,588 | 90 | 1,111 | 2,789 |
| 2004 | 1,658 | 88 | 1,207 | 2,954 |
| 2005 | 1,772 | 92 | 1,448 | 3,310 |
| 2006 | 1,946 | 90 | 1,703 | 3,739 |
| 2007 | 2,220 | 104 | 2,013 | 4,337 |

Data : Ministry of Finance, *Trade Statistics*

Destinations of Exports of Agricultural/Marine Products (2007)

| | |
|-----------|------------|
| Hong Kong | 18% |
| USA | 16% |
| China | 13% |
| Korea | 13% |
| Taiwan | 11% |
| EU | 5% |
| Thai | 5% |
| Singapore | 2% |
| Other | 15% |

Data : Ministry of Finance, *Trade Statistics*

Asian Challenges Over Food and Agriculture

- By moving away from small and bread-and-butter-type traditional agriculture, is it possible to grow into a modern agriculture that generates high earnings? Some of hardships held by the agriculture and farming villages in the postwar Japan preempt problems of ones that countries of Monsoon Asia are going to face with in the near future.
- Inside Asia there will be a stronger rivalry over food procurement attributed to sustained economic growths. A part of the reasons for Japan to have enjoyed mass imports of low-priced grains and soybeans to date is that Japan is a small country with 2% of the world population. What is a reproducible scale of “Japanization phenomenon in food and agriculture”? What influences the shape of a map of the world’s food and agriculture is depth and expanse of the dietary change in Asia.

Part III

Aided Agriculture of Developed Nations
Levied Agriculture of Developing Nations

Transition of Grains' Net Export Volume by Region

(Unit: Million Tons)

| | 1966-68: | 76-78 | 86-88 | 96-98 |
|---------------|-----------------|--------------|--------------|--------------|
| North America | 55 | 101 | 105 | 99 |
| South America | 4 | 6 | 2 | 2 |
| EU | ▲25 | ▲25 | 17 | 15 |
| Russia | 1 | ▲16 | ▲30 | ▲3 |
| Oceania | 7 | 12 | 18 | 20 |
| Africa | ▲4 | ▲12 | ▲24 | ▲33 |
| Japan | ▲12 | ▲22 | ▲27 | ▲27 |
| Asia | ▲21 | ▲26 | ▲45 | ▲55 |
| Other | ▲5 | ▲15 | ▲13 | ▲17 |

Data: FAO, *FAOSTAT*

Developed Nations' Agricultural Production that Strengthens Superiority

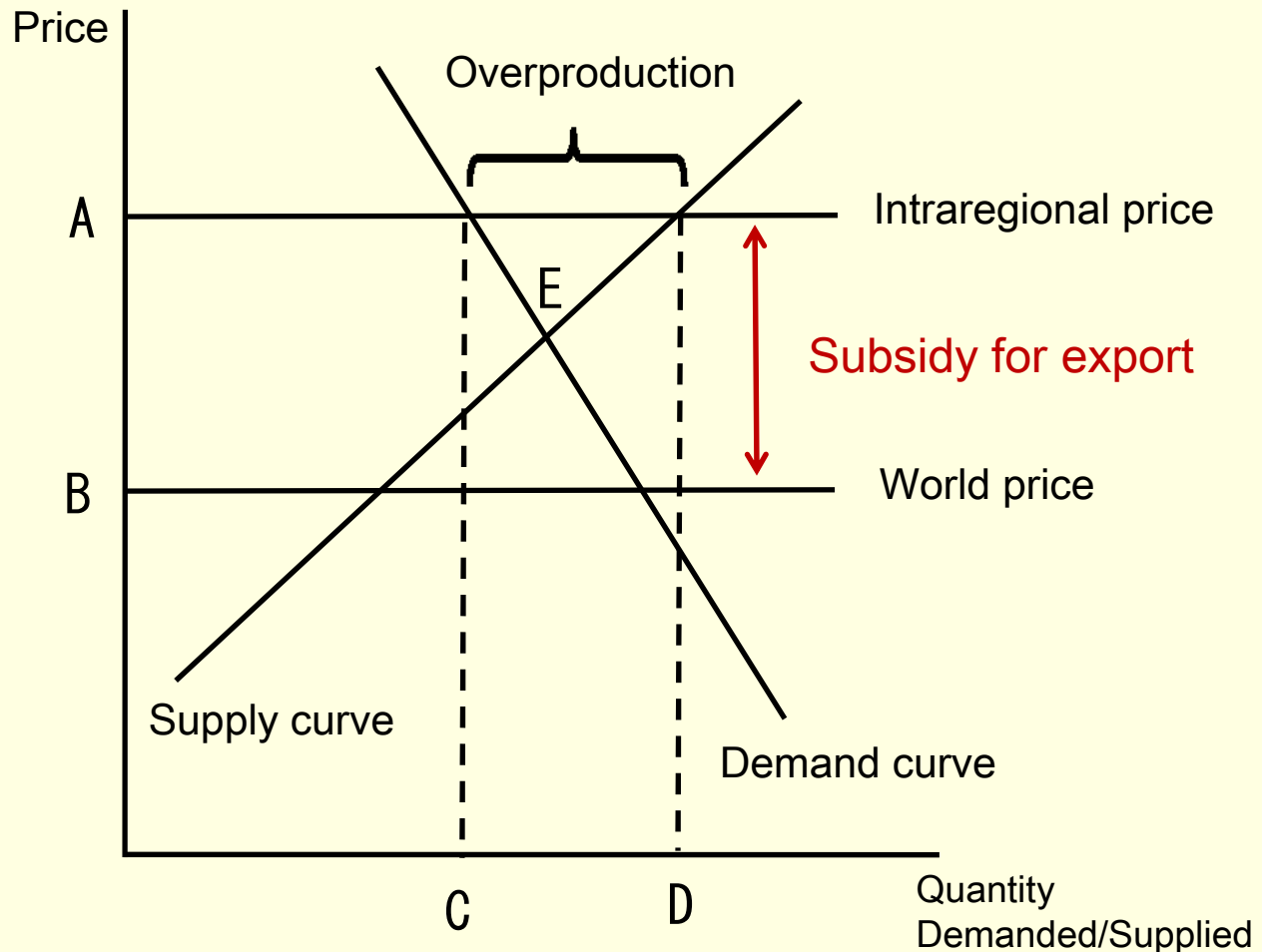
- While the schemata of developed nations = industrial nations, and developing nations = agricultural nations work out in terms an industrial structure of nations, they need to be modified when it comes to exports and imports of agricultural produce. As for grains, in particular, the flow from developed nations to developing ones intensified at large in the latter half of the 20th century.
- Also in the aspect of agricultural productivity, developed nations outdistanced developing ones both in its absolute standards and growth rates. The problem is that the agricultural superiority of developed nations' camp has been amplified by their policy of agricultural protection and developing ones' policy of agricultural exploitation.

Aided Agriculture of Developed Nations

- The policy of agricultural protection is not limited to Japan. It's only Oceania in recent years that can be proud of no subsidy to agriculture among developed nations. Many developed nations have introduced protective policies in the form of filling handicaps in agricultural productivity of own nations.
- There are various types of protective policies; tariffs to block or compress influence of offshore agricultural produce, price supports for domestic agricultural produce, subsidy devices for farmers, and such. In every case, these policies function toward expanding domestic agricultural production as compared to situations without them. Not a few developed nations faced the problem of overproduction in the latter half of the 20th century.

“Butter Mountain and Wine Lake”: EU’s Policy of Agricultural Protection till Mid-90s

EU’s Agricultural Market and Overproduction



To Estimate Size of Subsidy...

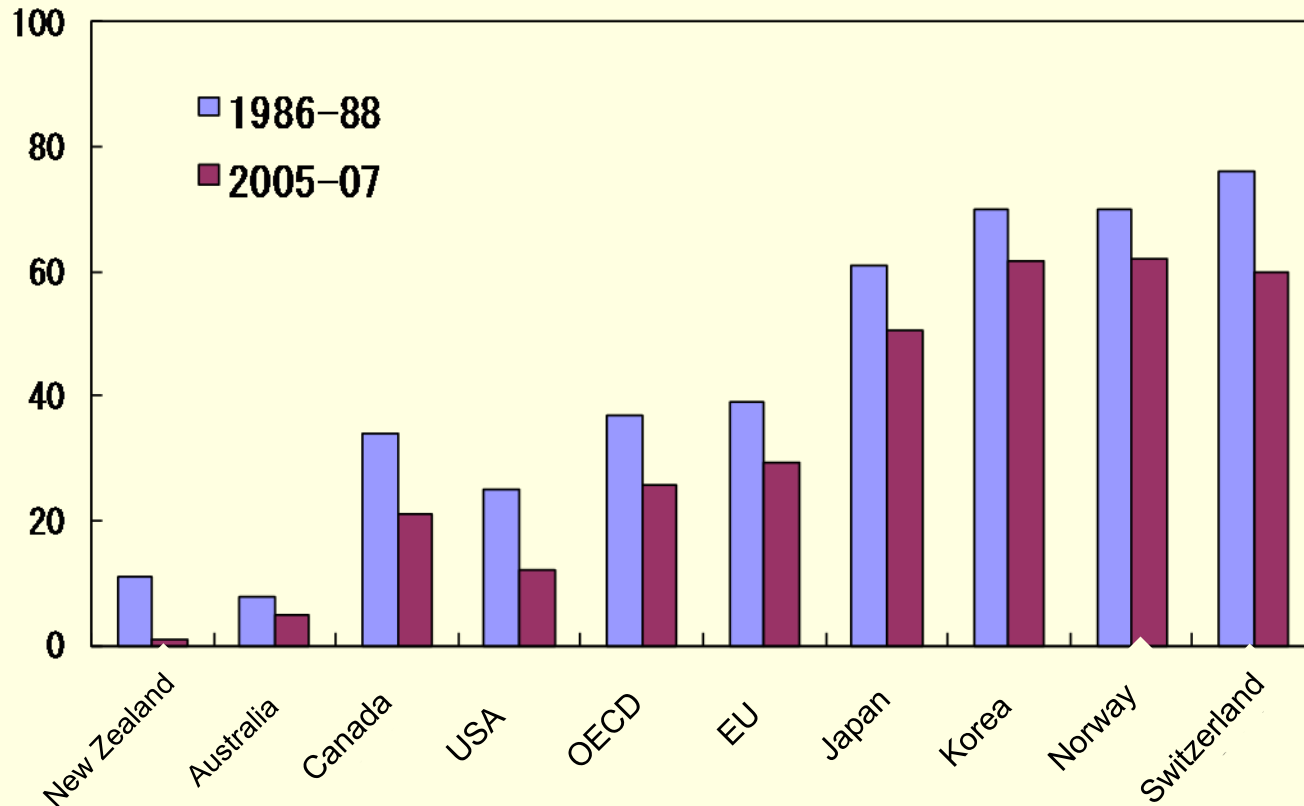
- Producer Support Estimate by OECD that quantitatively evaluates the size of protective policies for agriculture of each nations; a barometer that estimates difference in agricultural earnings between the case under protective policy and the one without it.

$$\text{PSE Rate} = \frac{\text{Agricultural earnings under protective policy} - \text{Agricultural earnings without protective policy}}{\text{Agricultural earnings under protective policy}}$$

PSE Rate of Each Nation

Transition of PSE Rates of OECD Member Nations

(Unit: %)



Levied Agriculture of Developing Nations

- In many developing nations, farmhouses engage in agricultural production under a lower standard of agricultural prices than international prices. In contrast to developed nations, agricultural produce is taxed in developing nations, for the purposes to secure government funds for industrialization policies to substitute imported products, and to subdue domestic food prices.
- Such exploitation in excess would bring about stagnation of the domestic agricultural production, leading the nation into an exhausted situation of sources to generate a surplus to be appropriated to industrialization, and to instability in food supplies.

Concrete Methods of Agricultural Levy

- Export tax on agricultural produce: e.g., Thai's export tax on rice (rice premium) that lasted from 1955 through '86.
- National Treasury receipts of the price difference between domestic and overseas markets through the purchase at lower prices by the agricultural-produce collection agency of the governmental monopoly: e.g., Ghana's cocoa marketing board that once purveyed more than 30% of the government's annual revenue.
- A direct levy on agriculture: e.g., Japan's tax-burden structure at the stage of its development.

Also in Japan at Stage of Development

Tax Burden Ratio of Agriculture and Nonagriculture

| Year | Tax burden composition (%) | | Tax/Income ratio (%) | |
|-------------|----------------------------|----------------|----------------------|----------------|
| | Agriculture | Nonagriculture | Agriculture | Nonagriculture |
| 1880 | 91 | 9 | 16.9 | 2.2 |
| 1885 | 87 | 13 | 22.1 | 3.0 |
| 1890 | 86 | 14 | 15.5 | 2.3 |
| 1895 | 83 | 17 | 12.4 | 2.0 |
| 1900 | 74 | 26 | 12.1 | 3.2 |
| 1905 | 59 | 41 | 11.2 | 5.4 |
| 1910 | 54 | 46 | 12.5 | 6.4 |
| 1915 | 53 | 47 | 12.9 | 4.5 |
| 1920 | 41 | 59 | 9.2 | 5.4 |
| 1925 | 37 | 63 | 10.5 | 5.2 |
| 1930 | 33 | 67 | 9.7 | 4.3 |
| 1935 | 26 | 74 | 7.8 | 4.2 |

Data: Seichi Tohata & Kazushi Ohkawa, *Japanese Economy and Agriculture*

Part IV

Trade Rules and International Cooperation over Food and Agriculture

Once Again, Two Types of Food Security

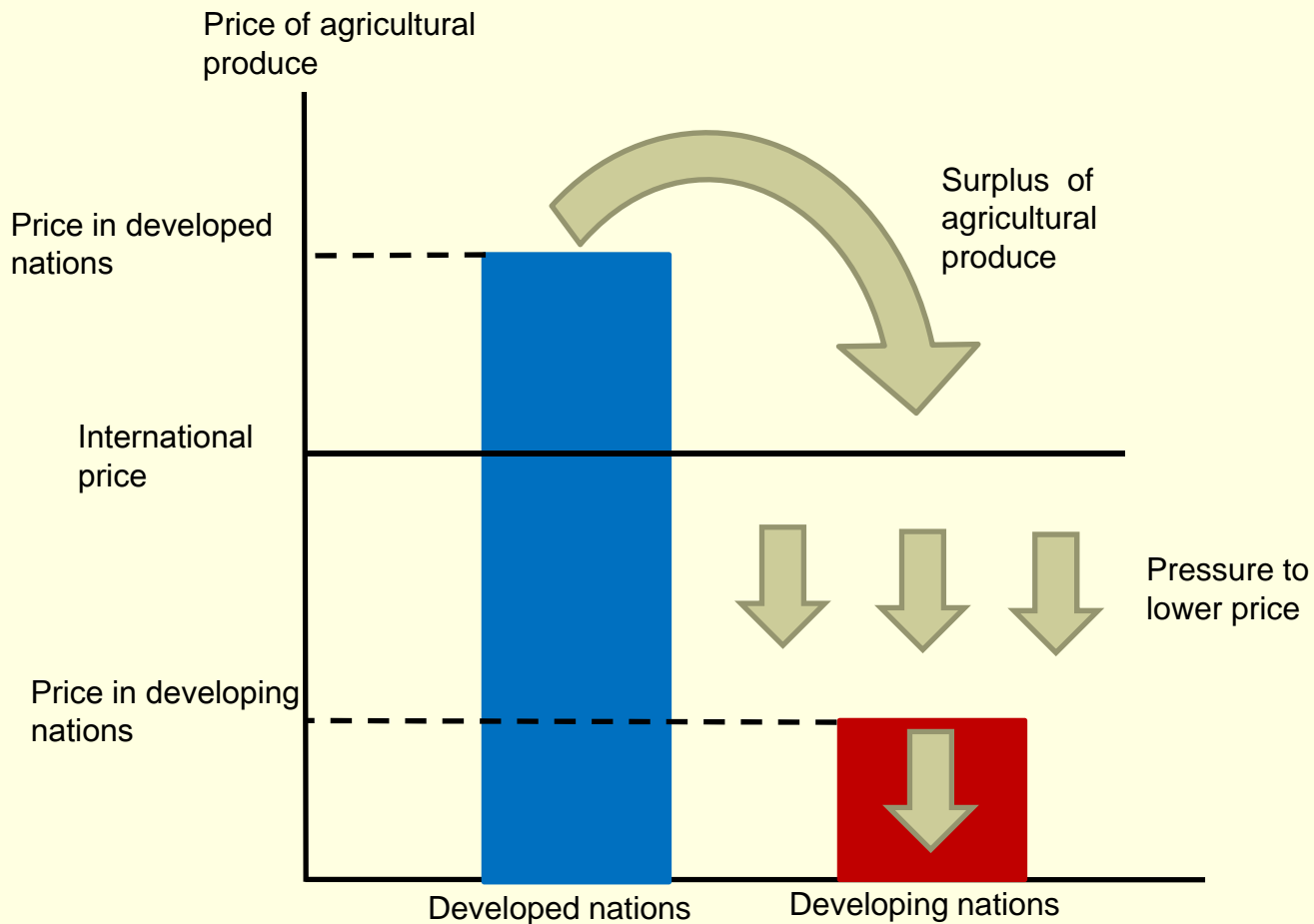
- In the face of the world's large structure of food and agriculture, is it harmonious to pursue the two types of food security? Will the policy of agricultural protection in developed nations make contributions to improving food issues of developing nations?
- Is the international cooperation over agriculture effective in improving food issues of developing nations? What kind of meaning does the international cooperation have for developed nations?

Consequences of Agricultural Protection Policy and WTO Agricultural Negotiations

- It has been the dumping exports of surplus agricultural produce by developed nations that has still more oppressed developing nations' agriculture being taxed. There is a comment that delay in the agricultural market liberalization in developed nations ruins the growth potential of agricultural production of developing nations.

“It is requested that an essential and innovative deduction be conducted in aids and protections, including export subsidies, for agriculture. This is to avoid causing huge losses particularly to more efficient producers of developing nations.” (‘Agendum 21’ adopted in “the United Nations Congress Regarding Environment and Development” in 1992)

Schematic Depiction of Dumping



Continued Fighting Each Other in WTO Agricultural Negotiations

- It is a more cogent assessment that developed nations' expansion in agricultural production under their policy of agricultural protection does not bring about the improvement of food security for developing nations, but that it rather leads that to deterioration. Guarantee of food security in developed nations and food security in developing nations appear to be in opposition to each other: the real issue is the policy of agricultural protection that is much excessive beyond the level necessary for guarantee of food security.
- Because of an explosive increase of population, coupled with the domestic agricultural policy of taxation and the dumping of agricultural produce by developed nations, supply capability of many developing nations have weakened in relative terms. When stringency of food market due to increase in demand in like China and India coincides on top of these situations, food security in sluggish developing nations becomes yet more severe.

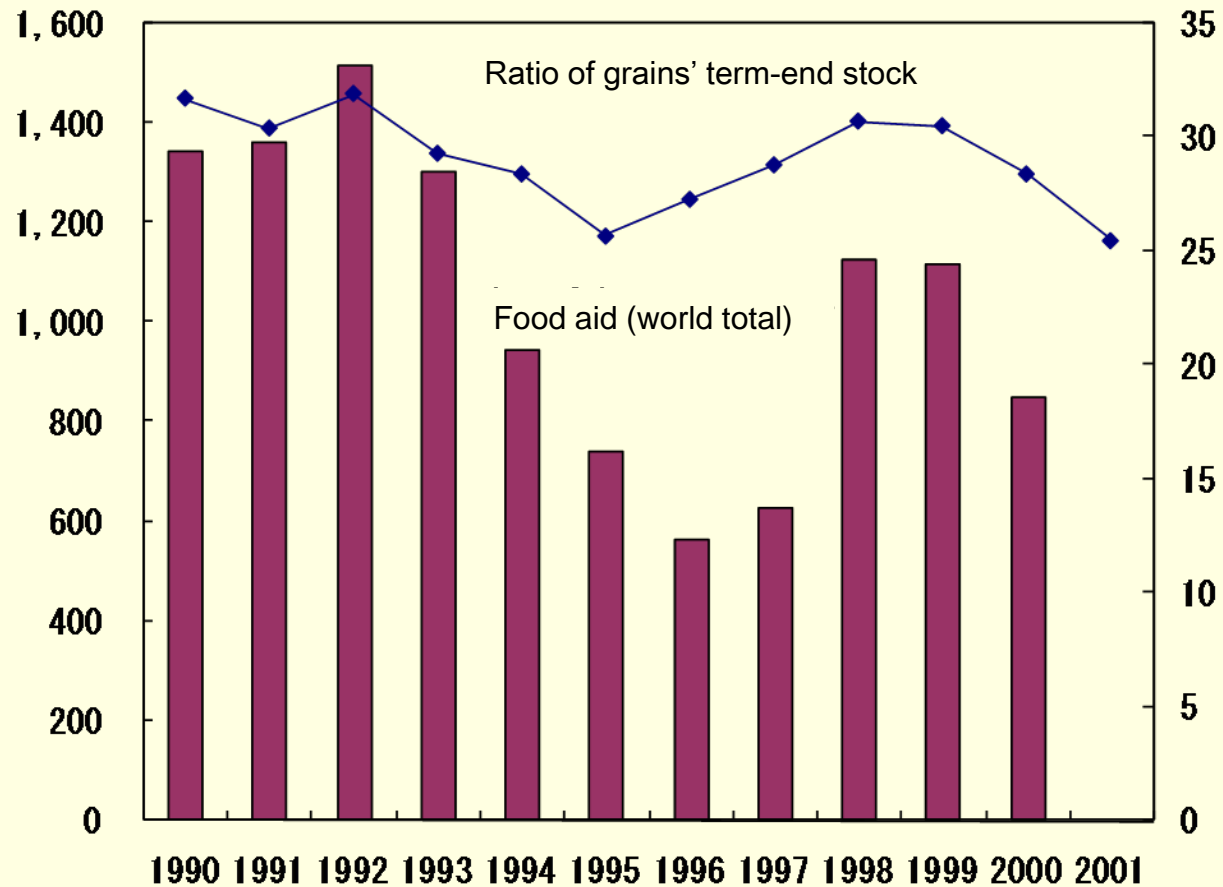
International Cooperation that Increases Importance in Strengthening Food Security Capability

- There are three dimensions in aids regarding food: an aid of food per se, one to generate a buildup of food supply capability, and another to develop human resources who support a buildup of food supply capability.
- An aid of food per se cannot be praised without reserve. It is necessary to pay attention to a negative influence on agricultural produce markets of developing nations as well. Food aid by nature is affected by a selfish motive on the assisting party.

Correlation Between Food Aid and Ratio of Grains' Term-end Stock

(Unit: 10,000 Tons)

(Unit: %)



Data: FAO, FAOSTAT, etc.

Giving is Good for the Giver, Too.

- In the background of stagnant conditions of food supply capability of developing nations there is the paralysis in investments for technology transfer and ones in agricultural infrastructure like water-use facilities. The world food market based on low prices has partly diminished interests in agricultural investments.
- Aids on food to developing nations, particularly ones that will bring forth the reinforcement of food-supply capability and develop human resources, contribute to stabilizing the international society through the improvement of problems with poverty. And which does much for reducing developed nations' burden surrounding guarantee of food security.

Two books of reference

Shinichi Shogenji, *Agricultural Reconstruction*, Iwanami Shoten

Keiji Ohga, *Food and Environment*, Iwanami Shoten