

**Effects of Trade Liberalization on
Agriculture in Japan:
Institutional and Structural Aspects**

Hiroaki Kobayashi

The CGPRT Centre

The Regional Co-ordination Centre for Research and Development of Coarse Grains, Pulses, Roots and Tuber Crops in the Humid Tropics of Asia and the Pacific (CGPRT Centre) was established in 1981 as a subsidiary body of UN/ESCAP.

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WORKING PAPER 36

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Abbreviations

AA	: Automatic Approval (System)
AFA	: Automatic Fund Allocation (System)
AFF	: Agriculture, Forestry and Fisheries
AIQ	: Automatic Import Quota (System)
ALIC	: Agriculture Livestock Industry Corporation
ASEAN	: Association of Southeast Asian Nations
BMAA	: Beef Market Access Agreement
BSE	: Bovine Sponjiform Encepharopathy
BST	: Bovine Somatotropin
BTN	: Brussels Tariff Nomenclature (the same as CCCN)
CAP	: Common Agricultural Policy (by EU)
CCC	: The Customs Cooperation Council (= WCO)
CCCN	: The Customs Cooperation Council Nomenclature
CIF	: Cost, Insurance and Freight (import price)
CSE	: Consumers Subsidy Equivalent
EC	: European Community
EEC	: European Economic Community
EU	: European Union
FAZ	: Foreign Access Zone
FMD	: Foot and Mouth Disease (for artiodactyla)
GATT	: General Agreement on Tariff and Trade
HS	: International Convention on the Harmonized Commodity Description and Coding System
IMF	: International Monetary Fund
IQ	: Import Quota (System)
JFY	: Japanese Fiscal Year; (beginning on 1st April and ends the following.)
KR	: Kennedy Round
LIPC	: Livestock Industry Promotion Corporation
LLDC	: The Least Less Developed Countries
MAFF	: Ministry of Agriculture, Forestry and Fisheries
MITI	: Ministry of International Trade and Industry
MOF	: Ministry of Finance
NACCS	: Nippon Automated Cargo Clearence System
NRP	: Nominal Rate of Protection (= TE)
OECD	: Organization for Economic Cooperation and Development
PSE	: Producers Subsidy Equivalent
RMA	: Rice Millers Association of the US
SITC	: Standard International Trade Classification
SMP	: Skim Milk Powder
SPS	: Sanitary and Phyto-Sanitary
TE	: Tariff Equivalent (= NRP)
TQ	: Tariff Quota
TR	: Tokyo Round
UNCTAD	: United Nations Conference on Trade and Development
UR	: Uruguay Round
WCO	: World Customs Organization (= CCC)

WMP	:	Whole Milk Powder
WTO	:	World Trade Organization
kg	:	Kilogram
mt	:	Metric ton
ha	:	Hectare
US\$:	Dollar (United States)
¥	:	Yen (Japanese)

Foreword

Responding to the growing concern for the effects of trade liberalization on regional agriculture, the CGPRT Centre implemented a research project “Effects of Trade Liberalization on Agriculture in Selected Asian Countries with Special Focus on CGPRT Crops (TradeLib)” in March 1997, in collaboration with partners from ten countries: China, India, Indonesia, Japan, Malaysia, Pakistan, the Philippines, the Republic of Korea, Thailand and Vietnam. In all these countries, important issues regarding trade liberalization were investigated with an identical research framework by national experts.

The investigation covers major crops which might receive either favorable or unfavorable effects of trade liberalization both in export and import. I believe that readers of the reports can obtain broad and practical knowledge on institutional aspects of the effects of trade liberalization; moreover, the information will be useful for researchers and policy planners in other countries in the region. A volume which includes more commodity and location-oriented study on the same subject will follow. I would like to note that, since this project was conceived and started before the current currency and economic crisis began in the middle of 1997, the analysis handles basically the period before the crisis with possible current information.

I am pleased to publish **Effects of Trade Liberalization on Agriculture in Japan: Institutional and Structural Aspects** as one of the fruits of the project. I certainly hope this report will be fully utilized for the improvement of agricultural trade and the encouragement of regional agriculture.

I thank Dr. Hiroaki Kobayashi of Japan for his intensive research and the Japan International Research Center for Agricultural Sciences for allowing him to work with us and for providing continuous support. Dr Boonjit Titapiwatanakun ably coordinated the various complex steps in the study. I would also like to express appreciation to the Government of Japan for funding the project.

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Director
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This study is an attempt to examine the reality of agricultural trade in the Japanese case. The transition of agricultural policies could be characterized as the process towards trade liberalization and so-called market orientation.

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Executive Summary

The objectives of this report are (i) to give an overview of the history of the trade regime relating to agricultural products, (ii) to clarify some aspects of international trade of agricultural products, and (iii) to discuss the effects of trade liberalization in the past, in the present and in the future.

Looking back at the history of agricultural trade policies since the early 1960s when Japan started to liberalize its economy, we can divide the period into three phases according to how Japan opened its agricultural markets. The first phase started in the early 1960s. The second phase of import liberalization was triggered in 1968 by the Kennedy Round agreement and by bilateral negotiations with the US. Since the early 1980s, Japan has faced greater pressure to open its markets both in international relationships and from public opinion inside (the third phase). Appreciation of the currency since 1985, in particular, increased nominal rates of protection of Japanese products and lowered competitiveness of domestic production. More critical commodities began to be liberalized and the UR round was concluded.

According to the historical review, it is clear that the earlier import liberalization was implemented, the less it was expected to affect domestic production. Among the main items liberalized in the first phase, maize, soybeans, sorghum and coffee are characterized by a relatively low level of domestic production, while domestic consumption of these products was expected to increase strongly due to economic growth. In the context of both government decision making and research activities, the later trade liberalization was considered, the more heated the dispute whether and how liberalization should actually be conducted.

As for the current situation, most agricultural imports are tariffed. However, rice is the exception, because the Japanese government took great care of the rice sector in the post-war period. Trade barriers to some products other than rice seem to be relatively high, even under comprehensive tariffication, especially for wheat, starch, pork, sugar, designated dairy products and vegetable oil. In addition, tariffs applied to some commodities are often very sophisticated and complicated. Examples are the tariff escalation cases of oil seeds and oils, tariff 'de-escalation' cases of wheat and its products, seasonal differential duties on bananas and citrus fruits, application of tariff quotas for many liberalized items, and introduction of a differential duty system for pork.

When facing trade liberalization of a specific commodity, the Japanese government has introduced some schemes as countermeasures to support the corresponding domestic production, when liberalization is expected to cause a serious problem. Typical examples are found in the cases of oil crops such as soybeans and rapeseed, sugar and beef calves. While specific purposes were not declared in law to weaken the effects of the liberalization, Japan is administering a large number of domestic support policies for some important products, such as rice, wheat, meat and dairy products. How and to what extent domestic production and farm incomes would be affected by changes in trade policies are closely linked to the effectiveness of those domestic measures.

A lot of historical surveys and general descriptions are found in the literature and in government statements. Regarding the effects of trade liberalization, whether it has been already implemented, is being implemented or will likely be implemented in the near future, many articles analyze implementation issues, and some of them have conducted evaluations employing econometric analyses. The amount of research focusing on effects of import liberalization on domestic production and consumption has increased since the early 1980s.

In post-war Japan imports dominated exports in the field of international trade of agricultural, forestry and fisheries (AFF) products. In 1963, exports of AFF products amounted to US\$ 564 million, i.e., 10.3% of US\$ 545 billion of total exports, while imports of AFF

products amounted to US\$ 2.9 billion, i.e., 43.4% of the total imports. The percentage share of AFF products in Japanese exports decreased considerably to 1.3% in 1984 and to 0.7% in 1996, while nominal values of AFF product exports increased to US\$ 3.0 billion in 1996. Imports of AFF products in nominal value also increased drastically to US\$ 75.1 billion, but the share in total imports decreased to 21-25% in recent years. Trends in imports by major agricultural product are: (i) while Japan accepted the minimum access commitment of rice according to the UR agreement, the volume of rice imported has been very limited; (ii) self-sufficiency ratios of other crops, such as wheat, soybeans, feed crops, raw sugar and oil crops have been very low since decades ago; and (iii) imports of livestock products have considerably increased since the late 1980s.

The overall decline of Japanese agricultural production in the post-war period has led to a lower rate of food self-sufficiency. It is clear that trade liberalization has played an important part in the above trend in food self-sufficiency, but at the same time we have to take into consideration other basic conditions, such as resource endowment and dietary changes. Japanese agriculture as a whole has lost its comparative advantage in the process of economic development. The self-sufficiency of land using crops such as wheat and pulses is extremely low, while rice is an exception.

In order to identify the effects of trade liberalization, investigation and analysis have to be conducted carefully taking into account the above two considerations, i.e., domestic measures and basic economic conditions.

Other important features clarified in this study could be summarized as follows:

- Equipment for transportation both from abroad and inland has not restricted international trade. Cargo shipments by aircraft also contributed to the development of international trade of perishable products.
- Sanitary and phytosanitary measures are effective to restrict importation of many agricultural products.
- In evaluating the possible effects of market access increase of some foreign products, their quality compared to that of domestic products has to be taken into consideration, because Japanese consumers in general are very sensitive to quality, such as taste, freshness, grade, additives and contaminants, production date, etc.
- To cope with the above two problems, increase in overseas production by Japanese companies and in transfer of technology and know-how are outstanding events since the late 1980s.

1. Introduction

1.1 Background

Japan is known as the world's biggest food importing country in terms of both volume and value. Compared with other countries participating in the TradeLib project, Japan has a longer history of agricultural trade liberalization. In 1964, Japan became one of the countries under Article 8 of the IMF and joined the OECD. In 1963 Japan was declared to be an Article 11 country of GATT just after the proposal by the IMF to be an Article 8 country. Japan faced a large number of requests from abroad to open its economy across the board. In the GATT context, trade negotiations have been held at the same table with earlier developed countries such as the US and several European countries since the period of the Kennedy Round Negotiation.

Table 1.1 Import values of agricultural products in 1994.

Country	US\$ billion	Percentage
Germany	391	9.89%
Japan	377	9.54%
United States	309	7.82%
France	250	6.32%
England	231	5.84%
Rest of world	2,395	60.59%
World total	3,953	100.00%

Source: Japan Tariff Association 1997.

1.2 Objectives

The objectives of this report are three-fold. First we aim to give an overview of the history of the trade regime relating to agricultural products including forestry and fishery products since the moment when Japan started to open its market to the world. Some aspects of infrastructure and institutional development related to agricultural trade will also be considered. The second objective of this report is to clarify some aspects of international trade of agricultural products. We will provide comprehensive data sets on agricultural trade and give analytical descriptions focusing on some selected commodities, including rice, wheat, some feed crops, sugar, beef, pork, poultry meat, dairy products, soybeans and rapeseed. Third, we will discuss the effects of trade liberalization in the past, in the present and in the future. We will give a survey of related studies and indicate some

Table 1.2 Import values of forestry products in 1994.

Country	US\$ billion	Percentage
Japan	137.87	25.97%
The United States	81.74	15.40%
England	31.08	5.85%
Italy	28.75	5.42%
China	25.72	4.84%
Rest of world	225.71	42.52%
World total	530.87	100.00%

Source: Japan Tariff Association (1997).

Chapter 1

important views in evaluation of the effects of trade liberalization in the Japanese case.

Chapter 2 describes the history of trade-related policies from the early 1960s up to the period of implementation of the UR agreement, and features of some important domestic policies, which aimed to support domestic production and some which were employed specifically as countermeasures against corresponding trade liberalization proceeding at the time. The period before 1995 is divided into three phases according to the way of agricultural trade liberalization. The history of the trade regime will be described in these three periods. We also discuss ongoing changes in border measures under the Uruguay Round (UR) agreement.

In Chapter 3, some infrastructure and institutional aspects related to agricultural trade are considered. Improvement of

Table 1.3 Import values of fishery products in 1994.

Country	US\$ billion	Percentage
Japan	161.4	31.33%
United States	70.43	13.67%
France	27.97	5.43%
Spain	26.39	5.12%
Germany	25.8	5.01%
Italy	22.57	4.38%
Rest of world	180.61	35.06%
World total	515.17	100.00%

Source: Japan Tariff Association 1997.

transportation facilities and institutional developments such as customs, coding of imported goods and so-called 'Import Testing Procedures and Standards (ITPS)' will be summarized. The ITPS involves some institutional restrictions of agricultural trade such as sanitary-phytosanitary (SPS) controls, certification of international trade and national standards. Japanese infrastructure for transportation was well developed in the earlier years of the period and the SPS controls have strictly restricted importation of many agricultural products.

Actual trends in agricultural trade and their impacts on the domestic market are described in Chapter 4. First, we will investigate some related studies which apply quantitative analyses. In the earlier period, there are few studies applying quantitative analyses or econometric techniques. Although a comprehensive study organized by the Ministry of International Trade and Industry (MITI) in 1963 and PSE/CSE estimation by OECD are introduced, descriptions in this section focus mainly on recent issues of rice and beef. Actual trends of agricultural trade are shown in Section 4.2, focusing on the food import. In Section 4.2, more detailed investigations are provided on selected important commodities, such as rice, wheat, feedstuffs, sugar, beef, pork, poultry meat, dairy products, oil crops and oil. In this section we take into account not only changes in the trade regime, but also other domestic measures and trends of market situations such as domestic production, world prices, etc. Chapter 5 features some concluding remarks.

With respect to the terminology of 'trade liberalization', a specific commodity is liberalized when only the tariff remains as a border measure to restrict importation. Any importation is automatically approved (AA) under legal procedures. The commodity is not liberalized if any non-tariff barriers such as import quotas (IQs), state trading or foreign currency

allotment still remain, even if the quantity of import is very large. On the other hand, the commodity is liberalized, even if the tariff rate applied is very high. There is some confusion in the case of tariff quotas (TQ) where the secondary duty which is applied to the over-quota quantity is prohibitively high. We have to verify whether the quota under the primary duty, which is generally much lower than the secondary duty, is enough to meet the domestic demand, and then evaluate the effectiveness of restricting agricultural trade. Another important issue is the kind of import levy. An import levy is applied to pork products and sugar, although the imports of pork products and sugar are said to have been liberalized since 1971 and 1963, respectively. Thus, the effectiveness of the market opening has to be assessed carefully taking into consideration this point.

2. Overview of Trade-Related Policies

2.1 History of the trade regime

Looking back at the history of agricultural trade policies since the early 1960s when Japan started to liberalize its economy, we can divide the period before the UR agreement into three phases according to the way Japan opened its agricultural markets. The first phase started when Japan joined a club of developed countries. The second phase of import liberalization was triggered in 1968 by the KR agreement and by bilateral negotiations with the US. Since the early 1980s, Japan has faced increasing pressure to open its markets, both in international relationships and from domestic public opinion. More critical commodities began to be liberalized and the UR round was concluded. In the following part of this section, we show an overview of the history. More details by selected commodity will be discussed in Chapter 4 in the context of actual trends of agricultural trade. Dates of liberalization are summarized by commodity in Table 2.1.

Table 2.1 Schedule of trade liberalization: main agricultural products.

Year	Main Products
Before 1960	maize, natural cheese, poultry meat (frozen)
1960	coffee beans, cocoa beans, suet (beef fat)
1961	fresh vegetables, soybeans, oil meal, wool
1962	poultry meat fresh and chilled, silk
1963	banana, raw sugar, coffee products, honey
1964	fresh lemon, sorghum
1965	live cattle
1966	margarine shortening, lemon juice, potato flour
1967	fresh grape, pasta, fresh apple, frozen pineapple, fresh grapefruit, vegetable oils, rapeseed, hogs, pork, chocolate, cookies, mashed potato, live cattle
1968	ham & bacon, refined sugar, tomato paste and puree, assorted feed
1969	roast groundnut, canned ham and bacon
1970	Malt
1971	preparations of pork (not including beef)
1972	grapefruit juice
1973	processed cheese, tomato ketchup, tomato juice
1974	preparations of beef, fruit paste, pineapple products, fruit juice (apple, grape, pineapple)
1975	beef, fresh orange
1976	orange juice
1977	Uruguay Round Agreement was put into effect

Source: NOURINSUISANBUTSU NO BOUEKI, JETRO, 1959-1997.

2.1.1 The first phase: 1960-1967

The Japanese economy achieved rapid and sustainable growth beginning in 1955 and Japan became one of the countries under Article 8 of the IMF in April 1964. After a short recession in 1957, annual growth rates of GDP in the period 1958-64 were nearly double digit. Japan also became an Article 11 country in GATT in February 1963 and joined the OECD in July 1964. Being both an Article 11 country in GATT and an Article 8 country in IMF means that Japan can not restrict its imports due to problems of international balance of payment. Nevertheless, it was already recognized that opening the economy and trade de-regulations were inevitable for Japan when some European currencies returned to exchangeable status

Chapter 2

in 1958. Due to the scarcity of natural resources, such as petrol, coal and minerals, an improvement of trade through importing natural resources and exporting manufactures was the biggest driving force of economic growth in post-war Japan. Free trade would benefit the Japanese economy as a whole. Japan actually prepared the opening of goods and currency markets in the late 1950s.

Figure 21 Economic growth and trade balance: 1956-1970.

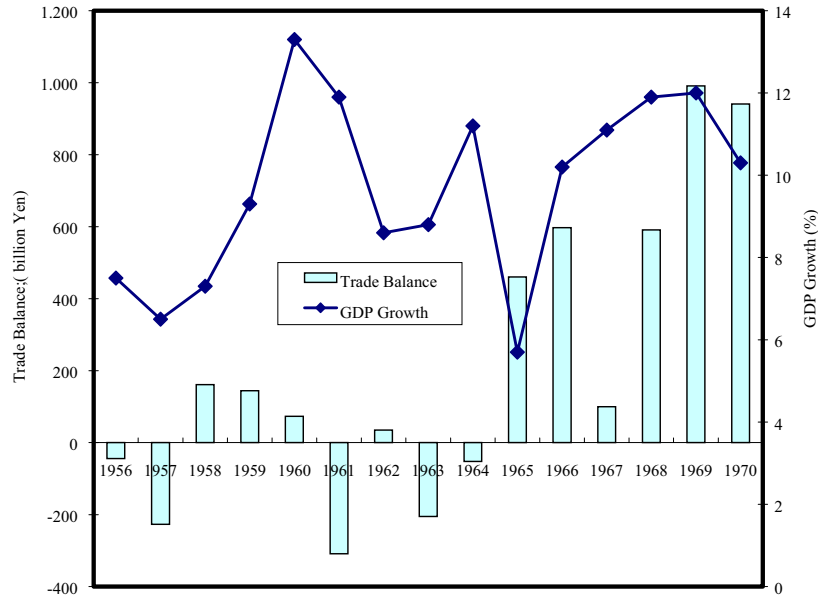


Table 22 Classification of AFF products by the platform.

Category	Items
(i) Commodities to be liberalized immediately	live animals (excluding cattle, horse and hog), fresh and frozen meat (excluding beef, pork), sausage casing, raw leather, shellfish, canned marine products, rye, sorghum noodles, fresh fruit (excluding citrus, banana, apple and grape), dried fruit, fresh vegetables, sea weed, canned and bottled vegetables (excluding tomato, asparagus, soup and juice), coffee and its preparations, cocoa beans, vinegar, soybeans, cotton, wool, silk, veneer (excluding lauan)
(ii) Commodities to be liberalized in several years	poultry eggs, honey, lard, tuna and skipjack, lemon, fresh apple, fresh melon, canned fruit (excluding cherry and banana), fruit juice (excluding raw materials, condensed and powdered), tomato, asparagus, vegetable juice, cocoa powder, tomato products, soft drinks, preparations of wheat flour other than noodles, mayonnaise, sugar, vegetable oil and meal (excluding soybeans and rapeseed), raw beans of peanut, walnut, lauan veneer, mint oil, fertilizer (excluding ammonium)
(iii) Commodities to be liberalized in the future	tea, ammonium fertilizer dairy products, cattle, hogs, meat products, herring, sardine
(iv) Commodities not to be liberalized in near future	other products of coastal fishery, rice, rice powder, wheat, flour, starch, glucose, fresh citrus, banana, canned pineapple, fruit juice, sweet cookies, chocolate cookies, rapeseed, soybeans, rapeseed meal, soybean meal, beans

Source: NOURIN SUISANBUTSU NO BOUEKI, JETRO, 1961, p.33.

In June 1960, the Japanese government released the first concrete plan, the Great Platform to liberalize foreign

exchange and international trade, which aimed to open its economy as a whole in order to respond to strong requests from the IMF. The plan classified commodities, imports of which were to be liberalized, into the following four categories in terms of time schedule: (i) commodities to be liberalized immediately, (ii) commodities to be liberalized in several years, and as soon as possible, (iii) commodities to be liberalized in the future, and (iv) commodities not to be liberalized in the foreseeable future. The product classification in the Platform for agricultural, forestry and fishery products is summarized in Table 2.2. Many agricultural products, critical ones in particular, were classified into the fourth category, including rice, wheat, starch, glucose, dairy products, beef, pork, citrus fruit, banana, canned pineapple, coastal fishes, etc. Major agricultural items classified into the first category were cotton products, silk products, some fishery products, some forestry products, coarse grains, live animals, fresh vegetables, poultry meat, sheep meat, coffee products, cocoa products and some fruit. Pressure from the IMF and GATT strengthened, and another plan, the Promotion Plan for trade liberalization, followed to accelerate the liberalization process. The Plan aimed to reduce the ratio of trade liberalization from 45% in late 1960 to 65% in three years. The ratio of trade liberalization is defined as the ratio of value of imports of liberalized items to the total value of imports. The ratio of trade liberalization of major west European countries was in the range from 80 to 90% by the early 1960s.

The Customs Tariff Law was comprehensively amended in 1961 to cope with the projected increase in imports. The structure of tariff escalation was already involved in the schedule of customs tariff as a key component, i.e., principles of the establishment of the new schedules were:

- (i) Lower rates should be applied on primary goods and materials, and higher rates should be applied according to the extent of processing.
- (ii) Lower rates on capital goods and higher rates on consumer goods.
- (iii) Lower rates on commodities for which domestic production is slight.
- (iv) Higher rates on final products and lower rates on materials related to promising and newly established industries.
- (v) Higher rates on commodities for which domestic production engages a larger number of employees, or if the industry is declining, etc. (Customs Tariff Association 1972). Some headings obviously imply tariff escalation.

In terms of quantity and value consumed domestically, the most important liberalized items are fresh vegetables, soybeans, frozen chicken, raw sugar and grain sorghum. Among these, the most critical item was raw sugar, so the tariff applied was quite high at the moment of import liberalization. Until March 1964 every import was controlled by fund allocation (FA) and automatic fund allocation (AFA) under the foreign exchange allocation system. Actually the implication of AFA was almost the same as import liberalization. The automatic approval system was first introduced in November 1959. According to the liberalization of foreign exchange in April 1964, FA and AFA were changed to import quota (IQ) and automatic import quota (AIQ), respectively. Subject to AFA importers had to submit the application form to MITI, while certification would be issued automatically. Thus, the government could see the trends of a specific commodity very quickly and could have a chance to restrict the importation. AIQ was eliminated in February 1972 and changed to AA.

Although bananas, which were classified in the fourth category, were considered to be competitive with domestically produced fruit such as apple and orange, their import was liberalized in 1963. A higher tariff of 70% (a temporal rate of duty) was applied and scheduled to be reduced to 50% in 1964 and to the general rate, 30%, in 1965. Demand for bananas was very strong, while there is little domestic production in Japan. The government had to pay a lot of attention to benefits of both consumers and fruit producers. Imports of banana increased significantly in spite of the tariff. Discussion in the Committee of Tariffs was very heated every year on the banana tariff. The temporal rate of duty at 70%, which was first applied in 1963, was extended during the 1964-1967 period. While the reduction was much more moderate than that scheduled in 1963, the

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temporal rate was reduced to 60% in 1968. The next reduction was realized in 1971 under an application of the seasonal differential duty, declining to 40% in the period from April 1st to September 31st and the rate remained at 60% in the period from October 1st to March 31st. For definitions of the temporal rate of duty and the general rate of duty, see Chapter 3. The import volume of bananas peaked in 1972 at 1.1 million metric tons and decreased thereafter. Another tariff reduction was attained after a 1977 application of a preferential duty, which is effective because bananas are produced mostly in tropical countries. Changes in tariffs on bananas are shown in Table 2.3.

Sugarcane is one of the main agricultural products in Okinawa Prefecture and several islands in Kagoshima Prefecture, as is the case for sugar beets in Hokkaido Prefecture. Refined sugar imports were not liberalized until 1972, due to a desire to protect the processing industry. Other items liberalized in this period are shown in Table 2.1. In terms of CCCN four digit level, the number of items including some marine products and state trading commodities which were regulated under import quotas (IQs) was reduced from 83 in April 1963 to 77 by May 1966.

Compared to the later period, these decisions in the first phase were more carefully made, taking into consideration the domestic situation as indicated in the case of bananas. The current Agricultural Basic Law, which declared basic directions for Japanese agriculture, was promulgated in 1961. The food problem after the war was solved in the early 1950s and Japanese agriculture faced a problem associated with rapid economic growth. The comparative advantage of agriculture over the industrial sector was reduced. The average income of farmers became much lower than that of non-farm households. The Law promotes domestic production of some promising products, such as livestock products and fruit, as one measure to stimulate agricultural income. In this sense, the reason why the above discussion of banana tariffs was heated is understandable, and the fact that import of feedstuffs, such as maize and sorghum, was liberalized in the earlier period is also consistent with the Law. Import liberalization of agricultural inputs was also attained earlier. Imports of chemicals for agricultural production were liberalized in the earlier period, that is, the number of items under AA (AFA in those days) was 77 in October 1956 and was increased to 107 by October 1960. Customs duties on fuel oil for agricultural, forestry and fishery production have been exempted.

Table 2.3 Import tariffs on bananas.

	General Rate(%)	Temporal Rate(%)		Preferential Rate(%)	
		(Apr. 1 st -Sep.31 st)	(Oct 1 st -Mar.31 st)	(Apr. 1 st -Sep.31 st)	(Oct 1 st -Mar.31 st)
1962 (June.5)*	30	50	-	-	-
1963 (April)	30	70	-	-	-
1968	30	65	-	-	-
1969	30	60	-	-	-
1971	30	40	60	-	-
1973	30	40	55	-	-
1974	30	40	50	-	-
1977	30	40	50	-	45
1980	30	40	50	35	45
1982	30	40	50	25	40
1984	30	40	50	17.5	35
1986	30	40	50	12.5	25
1989	30	40	50	10	20

Source: NOURIN SUISANBUTSUNO BOUEKI, JETRO, 1963-1997.

Note (1) Seasonally differential duty has been applied since April 1971.

(2) A preferential rate has been applied since 1977 according to the MTN.

(3) A special preferential rate, 0%, for LLDC was introduced in 1980.

(4) Temporal rates are bound to be reduced to 30% and 37.5% in the UR Agreement.

Other measures declared by the Law are (i) promoting agricultural productivity by effective usage of natural resources and technological progress, (ii) modernizing agricultural management by means of expansion in farm size, group farming, introduction of livestock and mechanization, (iii) improvement of distribution systems and promotion of processing, (iv) stabilizing agricultural input prices, (v) human capital development, and (vi) investment in rural areas. The gap in terms of productivity between agricultural and non-agricultural sectors still remains in recent years, but the income gap between farm household and non-farm household has been resolved. A new Basic Law is just around the corner in 1998.

Other examples which indicate that the Japanese government achieved agricultural trade liberalization very carefully follow. Imports of canned roasted coffee of less than 400g were liberalized in 1963, although that in cans exceeding 400g was not liberalized. The government aimed to protect the roasting industry which consisted mainly of small-scale companies and to benefit consumers at the same time. Smaller cans of coffee are usually consumed in households, while larger cans are used in restaurants.

Maize and natural cheese were already liberalized before the release of the Platform. Nevertheless, the regulation on import of maize, excluding that used for feed, was strengthened again in April 1965, because imported maize began to compete with potatoes and sweet potatoes in the starch market. Market prices for starch in 1962 and 1963 were high, and the capacity for processing corn starch into syrup (high fructose corn syrup) was expanded. Domestic production of corn starch doubled from 77 thousand mt in 1967 to 158 thousand mt in 1968. Then market prices declined again due to the decline in sugar prices in the world market in 1964 and 1965. Import of raw sugar had already been liberalized in October 1963. The Japanese government applied a tariff quota (TQ) system to the importation of maize for the purpose of protecting domestic production of starch using potato and sweet potato. Customs rates on maize imports over-quota were increased to 25%, while the in-quota rate remained at 10%. It was the first application of a TQ system to agricultural products. In 1968, over-quota tariffs were again increased by the introduction of a specific duty amounting to ¥8.6 per kg, which is equivalent to 35-40% in terms ad valorem. See Sections 4.2.4 and 4.2.5 for a detailed discussion of the sweetener market and related policy measures.

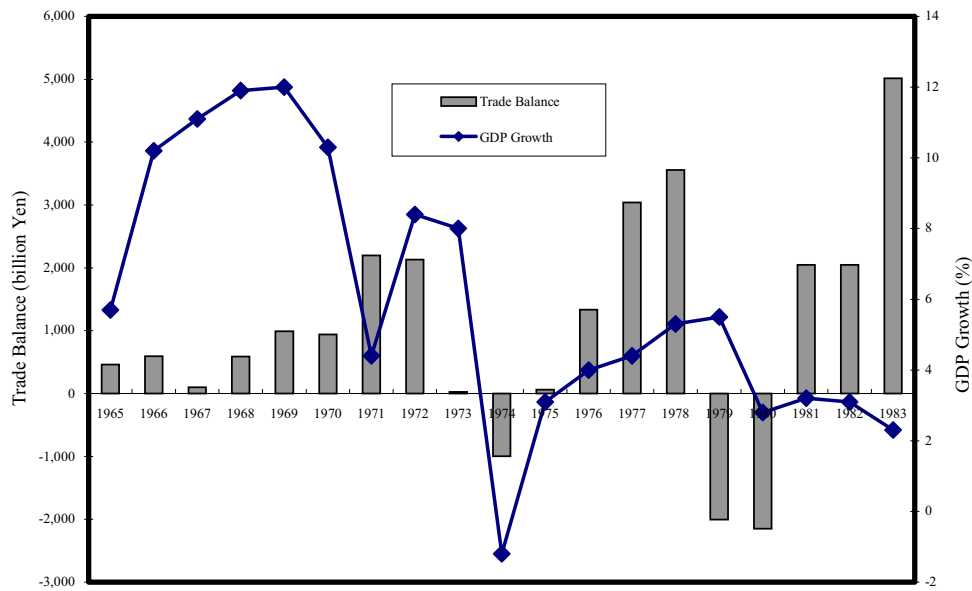
The Kennedy Round (KR) negotiations were held in this period under GATT. In this period some protectionism issues were raised both in the US and the EEC. Negotiation among these countries did not progress in the field of non-tariff barriers over agricultural trade. In April 1964 Japan raised its tariff on poultry meat from 10% to 20% because it expected that imports from the US would increase considerably due to the raising of trade barriers by the EEC. The EEC raised the effective tariff from 18% by an introduction of a variable levy under the Common Agricultural Policy, that was said to be 41% in terms of ad valorem in the case of West Germany. Severe negotiations between EEC and the US were known as the *Chicken War*.

In the late 1960s, the US faced problems in its trade balance. Japan achieved rapid economic growth and a surplus in its trade balance at the same time. Japanese foreign currency reserves accumulated to US\$ 3,200 million in 1968 from US\$ 2,000 million in 1964. The US seemed to be disappointed with the results of conclusions of the KR. The basic stance of the US in trade negotiations against Japan became more progressive in the later part of the first phase. On the other hand, in UNCTAD, discussion on the general preferential duty system was heated. Japan's non-tariff barriers on tropical products such as tea, beans and cassava were also criticized.

2.1.2 The second phase: 1968-1979

As mentioned before, the second phase of import liberalization was triggered in 1968 by the implementation of the KR agreement and by bilateral negotiations with the US. The KR was concluded in June 1967, and the Japanese government offered reductions in tariffs on many agricultural products such as soybeans, groundnut for oil, palm oil, lard, fresh vegetables, coffee beans, cocoa beans, coffee products, cocoa products, fresh marine products, mutton, silk, etc. The implementation period started in 1968 and was scheduled to be completed in 1972. The basic principles were (i) to make no offers relating to important products (rice, sugar, meat products excluding sheep meat, dairy products and orange) and some location-specific products, such as groundnut for food in Chiba prefecture, *komyakai* in Gunma prefecture, and (ii) to consider the countries most seriously concerned to be the US, Australia, New Zealand and developing countries. Nothing was offered concerning coastal fishery products, cookies, vegetable oil and other preparations. The value of imports of bound items in 1964 was US\$ 530 million, which amounted only 23% of the total import of AFF products.

Figure 22 Economic growth and trade balance: 1965-1983.



The US government was not satisfied when the above bilateral negotiations were first held in December 1968. During the period of this negotiation, the GDP growth of Japan reached double digits, and the value of exports increased by 21-24% annually during the period from 1968 to 1971. Imbalances in the current accounts of the US (deficit), Japan, West Germany, etc. (surplus) raised the necessity of adjustment of exchange rates. The Japanese government, however, tried to avoid drastic appreciation of the currency. It was recognized that appreciation of the yen would damage the Japanese economy and would be associated with reduction of competitiveness of the export industry.

On the other hand, pressure to open agricultural markets emerged inside Japan for the purpose of stabilizing consumer prices. The government released a number of schedules to open agricultural markets after December 1968, which was

consistent with the basic stance of the government indicated above. These schedules (i) advanced implementation of the KR agreement, (ii) liberalized many agricultural products, (iii) offered further reductions of tariffs, which were realized in 1972, in addition to those in the KR agreement, and (iv) expanded IQs on some agricultural products. More tariff reductions were realized because a preferential duty system aimed at benefiting developing countries was put into effect since 1971. Before the introduction of the preferential duty system, the Japanese government opened the agricultural market taking into consideration benefit to developing countries, e.g., in 1968 the advanced implementation of the KR agreement was enforced on 19 items which would benefit developing countries.

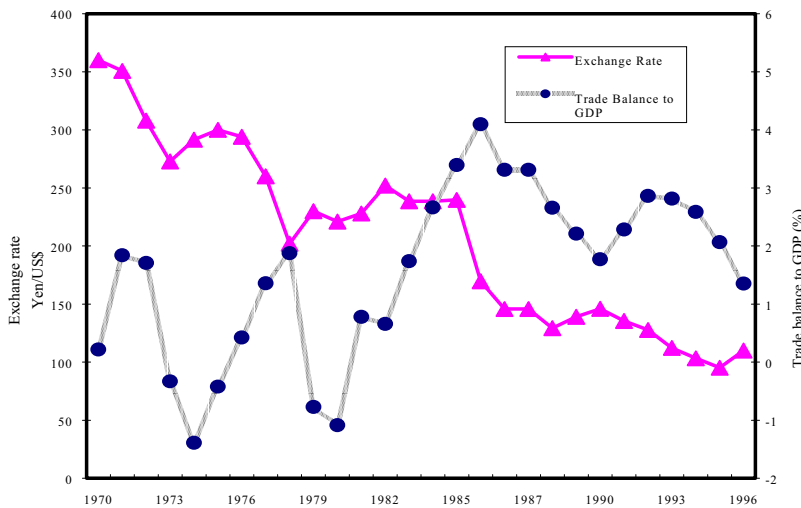


Figure 23 Trend of exchange rate and percentage of trade balance to GDP.

The series of schemes resulted in reduction of the number of items under the IQ system. The number of items on the so-called *negative list*^{*}, was reduced to 19 (CCCN code at four digit level) by 1974 from 73 in 1968. Pork, some fresh fruits, tomato products, some wheat products i.e., cookies and chocolate containing sugar (flour is excluded), vegetable oil, rapeseed, soybean meal and assorted feed are major items for which imports were liberalized. The Tokyo Round (TR) was launched in September 1973. Substantial negotiations only started in 1975 due to delay of approval of the Trade Act 1974 in the US. The

^{*}The negative list excludes some IQ items for which international trade is administered under state trading. Three items, i.e., those relating rice and wheat were excluded in 1968. Then the Japanese government reported state trading of dairy products and butter are excluded from the negative list. The difference between the number of IQ items and that of items in the negative list was four in 1974.

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main subjects in TR were (i) tariffs, (ii) non-tariff barriers (NTB), (iii) the so-called sectoral approach, (iv) the safeguard clause, (v) agriculture, and (vi) tropical products.

The import items liberalized in the second phase can be classified into the following four categories:

- i. Pork and some of its products: Differential duties were applied in the face of trade liberalization. The level of protection remained relatively high, as products could not come into the domestic market at prices below the Standard Import Price established by the government.
- ii. Certain fresh fruits: Seasonal differential duties were applied. In Japan, domestically produced fruits, including apples, *Unsyu* oranges and grapes are distributed mainly in the autumn to spring period. The tariffs applied in the period from autumn to spring are higher, while lower tariffs are applied in summer. This practice aims to protect domestic producers. Seasonal differential duties were first applied in the case of oranges in 1962, although their import was not liberalized until 1991.
- iii. Processed foods such as vegetable oils, pasta, chocolate, cookies, assorted feed of which the main content is skim milk powder, tomato puree, etc. Trade barriers on raw materials for these products (except vegetable oils) were relatively high due to IQs or high tariffs. Importation of tomato has been strictly regulated based on phytosanitary conditions. The main raw materials other than tomato are wheat, sugar and certain dairy products. The Japanese food industry has faced the difficult problem of competing against international markets, while using relatively expensive raw materials, whether imported or domestically produced.
- iv. Rapeseed and soybean meal: These items are similar to soybeans, maize and sorghum, for which import was already liberalized in the first phase.

In the above bilateral negotiations with the US, special emphasis was laid on the issues of beef, oranges and fruit juices. While the Japanese government had rejected requests for import liberalization of these items by the US several times, IQ quantities were gradually increased. Negotiations in 1977 concluded with drastic increases in IQs for oranges and fruit juices, by three times and by four times, respectively. Thereafter the Japanese government agreed to another expansion of IQs after 1980 to be negotiated in 1978 during the ongoing TR.

2.1.3 The third phase: 1980-1994

In July 1979, the TR negotiations came to a conclusion. Offers by the Japanese government to cope with requests by concerned countries were as follows:

- The United States: (a) expansion of IQs on beef, oranges and fruit juices, and (b) reduction of tariffs on other agricultural products.
- EC: reduction of tariffs on agricultural processed goods such as chocolate and cookies.
- Australia: expansion of the IQ on beef.
- Canada: reduction of tariffs on forestry, fishery and agricultural products.
- New Zealand: reduction of tariffs on dairy, forestry and fishery products.
- ASEAN: reduction of tariffs on tropical products.

These offers were provided on a global basis, and the bound rates of duties on major items are summarized in Table 2.4. Implementation was begun in 1980 and scheduled to be completed in 1987. The IQs for oranges and fruit juices (orange

and grapefruit) were bound to be expanded from 68 thousand mt and 8 thousand mt in 1980 to 82 thousand mt and 12.5 thousand mt in 1983, respectively. The IQs after 1983 were left to be negotiated in late 1982. Most tariff reductions bound in the TR were again advanced by 2 years in 1982, because many of the base rates in the TR were not low compared with effective rates in those days. This was due to the overall tariff reduction in 1972 and the prior advanced implementation of TR in 1978, which involved reduction of tariffs on poultry meat, roast coffee, unsweetened lemon juice, vegetable juice other than tomato juice, liquors, etc.

The Japanese government had faced continuous requests to open agricultural product markets, especially by the US. The US conducted an embargo of grain to the Soviet Union in early 1980, then stopped in April 1981. In this short period, Argentina, Canada and Australia increased grain exports to the Soviet Union. The US lost an export market and faced recession at the same time. In addition, the value of the US dollar was lower due to a high interest rate policy. The competitiveness of Japanese products, such as automobiles, was strengthened, and the trade balance between Japan and the US failed to improve. At this time the Japanese surplus in the trade balance against the US increased considerably from US\$ 10.7 billion in 1981 to US\$ 37.0 billion in 1985. The total surplus amounted to US\$ 120 billion in 1985. The US intimated the possibility of appealing problems concerning the negative list in GATT. The US didn't appeal, but in May 1982 the Japanese government agreed to expansion of IQs for preparations of pork and canned pineapple and to reduction of tariffs on turkey meat, lemons and 15 other items. The IQs for beef and for certain citrus products were increased continuously.

The regular revision of tariffs in April 1983 achieved (i) another advanced implementation of the TR agreement, (ii) deeper cuts in tariffs on several items and (iii) reduction of tariffs on items not bound in the TR agreement. The number of items on which tariffs were to be reduced amounted to 64 AFF products. Although the country to benefit most might have been the US, it was not satisfied and brought a suit over 13 items on the negative list at the GATT in July. Japan provided the following schedules for market opening as compensation, and the US postponed the appeal in 1984. The schedules involved (i) expansion of IQs for beef, fresh oranges, orange juice and grape fruit juice, not included in the original 13 items, for the 1984-1987 JFY, (ii) import liberalization for preparations of pig meat in 1985, high-test molasses, fruit puree, some fruit pulp, some fruit juice, some sugar confectionery, (iii) expansion of IQs for the 13 items during 1984 and 1985 JFY, and (iv) reduction of tariffs on 31 items which would be put into effect in April 1985. Another revision of tariffs in 1984 accelerated the advanced implementation of the TR agreement and the deeper cuts in tariffs.

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Figure 24 Economic growth and trade balance: 1981-1995.

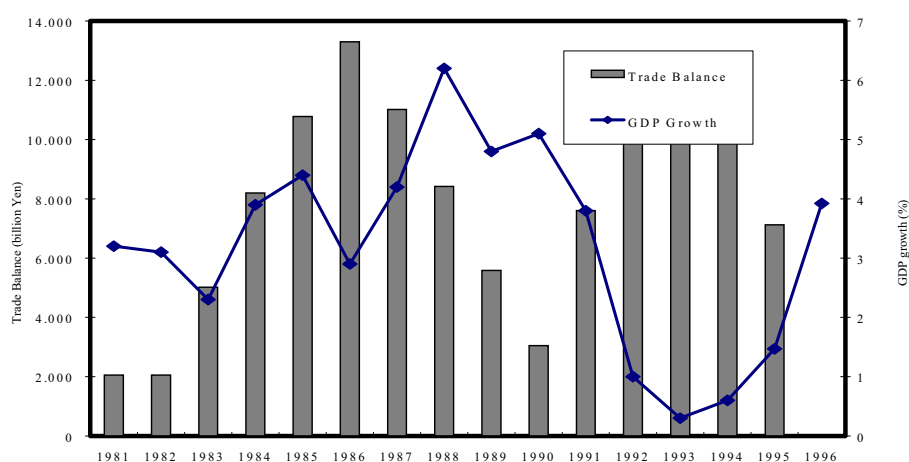


Table 2.4 Tariff reductions in the TR agreement.

Item	Effective Rate(%)	Base Rate(%)	Bound Rate(%)
Lemon and Lime	10	10	5
Grape fruit (June-November)	20	20	12
(December-May)	40	40	25
Grape	20	20	13
Pineapple, canned	72 (¥/kg)	30	30
Peach, canned (less than 2 kg)	20	25	15
(others)	20	25	18
Sheep Meat	0	75	0
Soybeans	0	24 (¥/kg)	0
Soybean Oil, crude	17 (¥/kg)	20 (¥/kg)	17 (¥/kg)
Rapeseed Oil, crude	17 (¥/kg)	20 (¥/kg)	17 (¥/kg)
Palm Oil	8	8	7
Chocolate Cookies	35	35	30
Coffee, instant	20	20	17.5
Biscuit	40	40	34
Wood of Pine, sawn	10	10	6
Eggs of Salmon and Trout	75	75	5
Eggs of Herring	15	15	12
Shrimp	5	5	3
Crab	10	10	6
Squid	10	10	5

Source: NOURIN SUISAN BUTSU NO BOUEKI, JETRO, 1979.

In July 1985, the Japanese government released programs, called the Action Programs, to accelerate an improvement of market access during following three years. The Action Programs consisted of subprograms on (i) tariffs, (ii) non-tariff barriers, (iii) import testing procedures and standards, (iv) government procurement practices, (v) money and financial markets and (vi) services. Of these subprograms, the first three are closely related to AFF products.

According to the program on tariffs, reduction of customs rates of duty on 1,835 items, 194 items of which were AFF products, was decided. The scale of tariff reduction in numerical terms was equal to that in 1972. The basic principles are (i)

reducing the tariff escalation structure in customs duty, (ii) overall reduction of tariffs, i.e., a fixed rate of 20% for 161 items and other rates for 33 items taking into consideration specific situations, and (iii) improvement of preferential duties. Looking at the list of items, we can indicate the following as important: boneless chicken, duck meat, fresh bananas, walnuts, papayas, unsweetened frozen pineapples, palm oil, some insecticides, a large number of final products of wood, a large number of preparations of wheat, rice, vegetables, fruit, and so forth. The revision was put into effect in January 1986. The items with which the US was most concerned were boneless chicken, duck meat, and walnuts.

However, problems of surpluses dominated in the world market of agricultural products, due to good harvests and stagnated demand. Record production of grains occurred in three years straight in 1984-86. The balance in the current account of the US to Japan increased to US\$ 49.7 billion in 1986 in spite of the considerable appreciation of the yen. The US, where the agricultural sector depends heavily on exports, was increasingly frustrated with Japan. For example, the Rice Millers Association (RMA) of the US brought suit, which was ultimately rejected, with the USTR in the case of Japanese rice.

Table 2.5 Items included in the US to suit to GATT in 1986.

Item	CCCN(Code)
1. Condensed milk, unsweetened, etc	04.02
2. Processed cheese	04.04
3. Miscellaneous beans and peas	07.05
4. Starch, etc	11.08
5. Groundnut, excluding for oil	12.01
6. Preparations of pork and beef	16.02
7. Glucose, lactose, etc	17.02
8. Fruit puree and paste	20.05
9. Preparations of pineapple, fruit pulp	20.06
10. Non-citrus fruit juice, tomato juice	20.07
11. Tomato ketchup, sauce	21.04
12. Other preparations	21.07
13. Orange, processed*	08.11

Source: NOURIN SUISANBUTSUNO BOUEKI, JETRO, 1988.

* Processed orange, which was involved in the previous suit in 1983, was dropped in 1986, because it was negotiated with beef and orange.

In July 1986, the US government again brought suit within GATT against 12 items on the negative list (Table 2.5). A panel investigating the claim by the US was held, and concluded in December 1987 that cases of ten items were in violation of Article 23 and that cases of the other two, 'miscellaneous beans and peas' and groundnuts, would be suspect. First, the Japanese government rejected the conclusion, so another investigation was held, and in February 1988 a vote in the Committee reached the same judgement. The Japanese government finally accepted the decision of the GATT with some conditions and concluded:

- For seven items out of the ten, imports would be liberalized by April 1990. Preparations of beef were dropped, because another agreement on those was reached.
- Import restrictions of dairy products and starch under the IQs would be continued, but import liberalization of ice cream would be realized as a compensation scheme.
- IQs for 'miscellaneous beans and peas' and groundnuts would be expanded.

On the other hand, another negotiation with the US on beef and citrus fruit was also concluded in July 1988. The main

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points of the agreement are liberalization of beef and fresh oranges in April 1991 and of orange juice in April 1992. The agreement on beef is called the Beef Market Access Agreement (BMAA), which was also signed with Australia. The agreements prepared transitional periods in which IQs would be expanded gradually for the purpose of easing serious damage to domestic markets possibly induced by the scheduled liberalization. Another important part of the agreement is reduction of tariffs on fresh grapefruit, lemons (to nil), pistachio, macadamia, walnuts, pecan, frozen pears and frozen peaches. Details of the BMAA will be explained in Chapter 4.

Other than the above market opening relating to the 12 items, beef and citrus fruits by means of import liberalization and reduction of tariffs, a large number of schemes followed to improve the market access of agricultural products before the UR concluded in December 1993, e.g., reduction of tariffs on fish meal in 1986, on forestry products such as veneer in 1987, on chocolate cookies in 1988, on 85 tropical product items in 1989 and so forth.

It is noteworthy that the above process of agricultural trade liberalization in the third phase reflected not only strong pressure in the context of international relationships, but also a raising of public opinion inside Japan to open agricultural markets. This occurred because Japanese people became more sensitive to larger price gaps (nominal rates of protection or tariff equivalent) on many products, due mainly to the appreciation of the currency after the Plaza Agreement in September 1985. Another point is that the bilateral relationship with the US has dominated as a driving force in reviewing policies, which is also true even in the UR negotiations.

Table 2.6 Offers for the tariffed items in the UR Agreement.

Item	Border Measure		Current Access ('000mt)		Actual Import in 1994	Tariff Equivalent	Import Price in 1994
	Before	in 2000	Quantity in 2000	Customs Rate of Duty			
Wheat	IQ	State Trading	5,740	free	6,352	¥65/kg → ¥55/kg	¥22/kg
Barley		State Trading	1,369	free	1,525	¥45/kg → ¥39/kg	¥14/kg
SMP & butter	IQ	State Trading	137 (Raw milk basis)	25% (SMP) 35% (butter)	860	¥465/kg + 25% → ¥369/kg + 21.3%	¥60/kg
Starch	IQ	TQ	157	25%	210	¥40/kg → ¥199/kg	¥29/kg
Miscellaneous beans and peas	IQ	TQ	120	10%	184	¥417/kg → ¥354/kg	¥81/kg
Groundnuts	IQ	TQ	75	10%	101	¥726/kg → ¥617/kg	¥119/kg
Root of <i>Koroyaku</i>	IQ	TQ	267mt	40%	24	¥3,289/kg → ¥2,796/kg	¥99/kg
Silk	IQ	State	798mt	75%		¥8,209/kg → ¥6,978/kg	

Source: NOURINSUISANBUTUNOBUUEKI, Japan Tariff Association, 1995.

Note: IQ: import quota, TQ: tariff quota, SMP: skim milk powder.

Exchange rate of ¥103 per US\$ is used.

2.1.4 Current situation under implementation of the UR agreement

The current situation reflects the results of the UR agreement. Key points are that all items under IQ except rice have been tariffed, but that rice has been left as an IQ item with the acceptance of a higher percentage of minimum import access. Offers by the Japanese government for the tariffed items are summarized in Table 2.6. The state trading of wheat, barley and certain dairy products has continued, applying lower rates of customs duty on the TQ and a much higher bound rate on the over-quota (i.e., other than state trading) import. Import quantities of these products in 1994 are well above the Current Access. A large amount of import over-quota is not expected to occur, subject to such high levels of secondary duties. We can not expect drastic changes in agricultural trade due to the UR agreement. Overall tariff reductions up to the year 2000 have also

been bound. The current situation and other aspects of implementation of the UR agreement are summarized in Table 2.7.

Table 2.7 Current situation of import regulations: main products in 1997.

Commodity	Rate of Import Tariff			Note
	Base Rate	Bound Rate	Temporal Rate	
Live animals, sheep meat	Free			Excluding young animal
Bovine meat	50%	50%	44.3	
Swine meat	5%	3.8%		Differential duty
Poultry meat	10-20%	4-13%		
Fishes	0-15%	0-11.4%		Bound rate in dec. 1998
SMP	35%+466yen/kg		35%	Tariff quota Sugar added, fat content less than 1.5%, temporal rate by state trading
Butter	35%+1159yen/kg		35%	Tariff quota Fat content less than 85%, Temporal rate by state trading
Fresh cheese	35%	28.7%		
Processed cheese	40%	40%		
Birds' eggs	Free			In shell, fresh
Natural honey	30%	27.8%		
Vegetables	0-25% or specific duty	0-20%		
Bananas	40%	30%		From 1 st apr. to 30 th sep.
	50%	37.5%		From 1 st oct. to 31 st mar.
Oranges	20%	18%		From 1 st jun. to 30 th nov.
	40%	36%		From 1 st dec. to 31 st may
Apples	20%	18.5%		
Coffee	Free			Not roasted
Wheat	65yen/kg		Free*	Tariff quota temporal rate by state trade
Barley	46yen/kg		Free*	The same as above for feeding purpose
Maize	Free			
Sorghum	Free			
Wheat flour	106yen/kg		Free*	Tariff quota temporal rate by state trade
Corn starch, potato starch	140yen/kg	25%		Tariff quota bound rate to the primary import
Soybeans, rapeseeds, Cotton seeds, palm, sesame	Free			
Gum arabic	Free			
Oils from soybeans, cotton, Sunflower, rapeseed	17yen/kg	Free, 12.75yen/kg, 13.95yen/kg		crude oil, acid value exceeding 0.6%
Sausage and similar products	10%	17.5%		Differential duty applied before 1995
Refined sugar	15yen/kg	78.15yen/kg		Liberalized due to ur agreement
Cocoa beans	Free			
Chocolate	35%	32.4%		Sugar added
Pasta and couscous	40yen/kg	35yen/kg		containing eggs
Orange juice	30%	27.8%		Frozen, containing sucrose less than 10%
Tomato ketchup	25%	23.2%		
Ice cream	28%	24.5%		containing sucrose less than 50%

Source: NOURIN SUISANBUTSUNO BOUEKI, JETRO, 1996.

Note: (1) Based on the HS implemented since 1988.

(2) All commodities are automatic approval (AA) items.

(3)* Tariff free, but profit margins accrue to the MAFF from the state trading.

(4) Rice is not in the table, because it is not tariffed. Please refer to the text.

2.2 Domestic policies as countermeasures

Facing the trade liberalization of specific commodities, the Japanese government introduced some schemes as countermeasures to support corresponding domestic production when the liberalization is expected to cause a serious problem. In the following part of this section, we focus on major commodity-specific measures which involve intervention in the pricing in domestic markets or direct support of farmers' revenue.

2.2.1 Oil crops: soybeans and rapeseed

In the first phase, Japan introduced some deficiency payment schemes for soybeans, rapeseed and sugar. The former two were based on the same law, the Temporary Measures Law Concerning Subsidies for Soybeans and Rapeseed established in July 1961, with regard to minimizing the damage to domestic production caused by the import liberalization of soybeans.

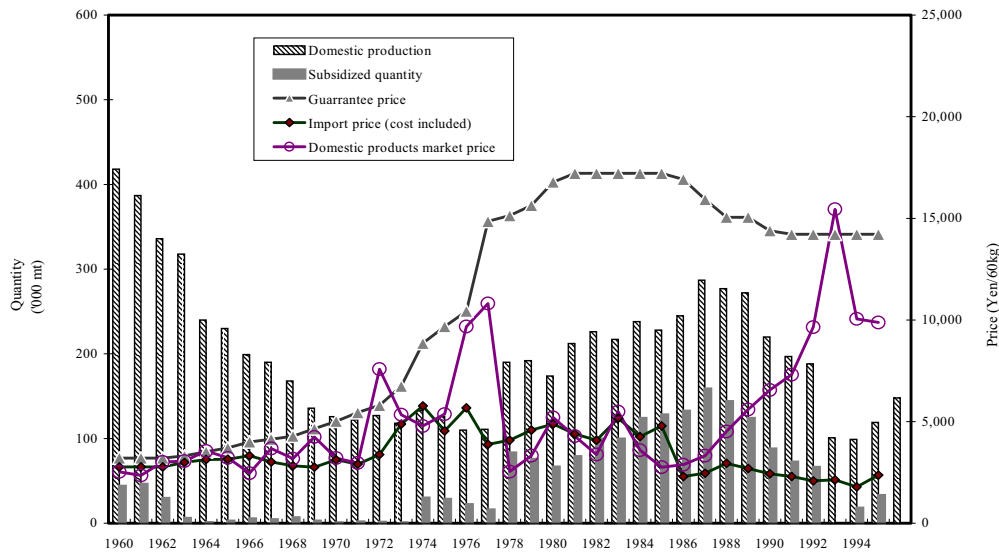


Figure 2.5 Some indicators of soybeans.

Figure 2.5 shows trends in the domestic production of soybeans, the quantity subsidized by deficiency payments, the guaranteed prices administered by the government, market prices of domestic soybeans and the import prices including related costs. Discrepancies between the latter two indicate that domestic soybeans are demanded mainly for direct consumption such as soy cake (*tofu*) and fermented soybeans (*natto*), while imported soybeans are used mainly for oil processing. Figure 2.6 also shows that the subsidized quantity is small compared with the gross production in the period before 1978 in particular. The reason is that self consumption by farmers dominated in those days, and there were some conditions for participation in the deficiency payment scheme. Domestic production of soybeans decreased considerably in the 1960s in spite of the continuous increase in guaranteed prices. That was reflected basically by the overall trend in Japanese agriculture, which

was losing its comparative advantage, and some other factors can be implicated, such as the delay in mechanization of soybean production. Domestic production increased considerably since 1978 due to the increase in diversification under the rice production controls, and again decreased in the 1988-1993 period.

In 1972, soybean prices in the world market jumped due to a poor catch of anchovies and a poor harvest on other oil crops. The US government placed an embargo on oil crops in 1973. The difficulties subsided immediately, but thereafter the Japanese government put more importance on maintaining domestic production for some agricultural products. A new scheme for storing soybeans was introduced to stabilize the market by handling imported soybeans for oil processing. Guaranteed prices for domestic soybeans were increased significantly in the late 1970s. They stagnated in the 1980s and then declined in the late 1980s. Import prices declined in the mid-1980s due to the yen's appreciation.

2.2.2 Sugar

Although, raw sugar imports were liberalized in 1963, a countermeasure was introduced in 1965 under the Sugar Prices Stabilization Law. It was administered by a quasi governmental body, the Raw Silk and Sugar Prices Stabilization Agency, which was merged with the Livestock Industry Promotion Corporation (LIPC) to form the Agriculture and Livestock Industry Corporation (ALIC) in October 1996. Considerable price fluctuations in the world market caused serious damage to the domestic market after 1963, although international prices for sugar were relatively high at the moment of liberalization.

Figure 2.6 Indicators of sugar prices: 1965-1996.

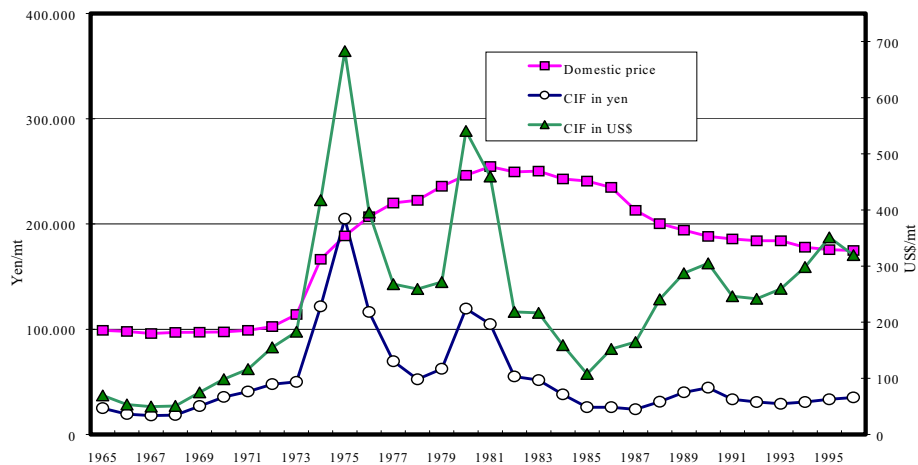
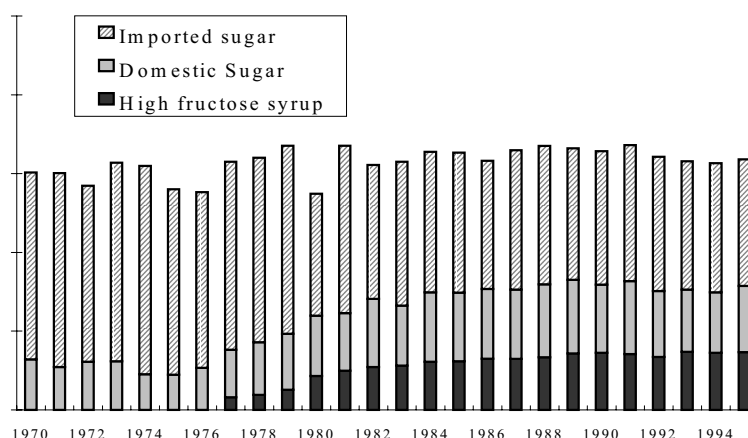


Figure 27 Sweetener supply in Japan: 1970-1995, refined sugar equivalent.



Functions of the program to support the domestic production of sugarcane and sugar beet have been realized indirectly. The ALIC purchases domestically produced sugar from processors to compensate for material costs when processors purchase raw materials, i.e., sugarcane and beet, at prices below the administered price (Minimum Guaranteed Price) from farmers. The guaranteed price and the purchase price offered by the ALIC are determined every October by the government. Resources for this program are obtained by levies on imported sugar and by government expenditures. The program is officially categorized as the Minimum Price Guarantee System, but the actual functions in the domestic market are very similar to those of deficiency payments.

The levies on imported sugar indicated above are determined as follows:

- i. $\{(rationalization\ target\ price) - (imported\ price)\} \times (ratio\ of\ self\ sufficiency)$,
where $(stabilization\ floor\ price) < (import\ price) < (rationalization\ target\ price)$.
- ii. $\{(the\ levy\ calculated\ in\ (i)) + \{(stabilization\ floor\ price) - (import\ price)\}\}$,
where $(import\ price) < (stabilization\ floor\ price)$.

Where the import price exceeds the stabilization floor price which is still lower than the minimum guaranteed price for farmers, the difference is subsidized from the fund. That has happened only once so far.

The domestic policy on sugar, which is actually combined with a kind of import levy, is integrated with market intervention on high fructose syrup. Operations similar to these on sugar were established under ALIC for the purpose of stabilizing the sweetener market as a whole. The system has also covered imported high fructose syrup and other sweeteners since 1990.

2.23 Beef

When the BMAA was concluded in 1988, the government decided that functions of the former Stabilization Fund

System for beef calves would be expanded into a price supporting system consisting mainly of deficiency payments. The new system, named the Compensation Payments Scheme for Beef Calf Producers, started in 1990. The former and the new schemes for calf production have been one of the important price policies for beef. The new scheme is operated quarterly as follows:

- When the market price is less than the guaranteed price and exceeds the rationalization target price, the difference between the former two is paid as a deficiency payment to calf producers based on revenues of customs duty on imported beef;
- Where the market price is less than the rationalization target price, the sum of the above amounts and 90% of the difference between the market price and rationalization target price is paid from the stabilization fund, part of which is contributed by the calf producers themselves.

The administered prices, i.e., standard guaranteed price and rationalization target price, are determined by variety of cattle according to the difference in market prices. The standard guaranteed price for calves of Wagyu variety was ¥300,500 per head, while that of dairy variety (Holstein) was ¥165,000 per head in 1990-1992 and then decreased to ¥156,000 per head in 1997. In the period after 1990, market prices of Wagyu calves have been steady and went below the standard guaranteed price only twice in the first and second quarters of 1993, while those of Holstein have usually been below the standard guaranteed price and have been below the rationalization target price in the period from 1991 to 1995.

For beef, the Stabilization Band System was established in 1975. This system, operated by the ALIC, aims to stabilize fluctuations in price by selling products when the price is high and purchasing products when the price is low. The effectiveness is expected to be realized subject to the existence of cyclical changes, the so-called *beef cycle*, inherent in the market. After the liberalization of beef importation in April 1991, continuous changes, in most cases reductions, became highly probable. The effectiveness of the Stabilization Band System seemed to be reduced and selling-purchasing operations by the ALIC were not actually pursued. Support for domestic beef production by deficiency payments for calves dominated from the moment of liberalization.

One characteristic of the Japanese beef market is the price gaps according to quality, which is caused mainly by difference in variety (see Chapter 4 for more details). There are two minor varieties other than Wagyu and Holstein, i.e., Short Horn Wagyu and Brown Wagyu. In this context, the original Wagyu is called Black Wagyu. Administered prices for Brown Wagyu calves are a little lower than those for Black Wagyu, and those for Short Horn are also lower than those for Black Wagyu by 33%, while still more expensive than those for Holstein.

2.2.4 Other commodities

It was declared officially that each of the above three schemes aimed to ease damage to domestic production. How about domestic measures for the other agricultural products? In fact agricultural production of other sectors is not only protected by border measures, but also by a large number of domestic measures such as deficiency payments, direct purchasing by the government, subsidies, loans with reduced interest rate, etc. How and to what extent domestic production and farmers' income will be affected by changes in trade policies is closely linked to the effectiveness of these domestic measures, whether or not explicit declarations such as in the above three cases are expressed officially. In the following, we discuss briefly other major domestic measures which support domestic production through marketing channels, commodity specific price policies in

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particular:

Rice

Both in terms of government budget and farmers' income, the most important domestic measure is that related to rice. In the post-war period, the production and marketing of rice have been strictly controlled by the government under the Food Control Law of 1942, superceded by the Law for Stabilization of Supply, Demand and Prices of Staple Food in November 1995. Before this new policy, not only international trade, but also both production and prices were actually determined by the government.

Since rice self-sufficiency was reached in the mid-1960s, Japan imported little rice from international markets, except for a limited amount of rice for distilling use imported annually in Okinawa Prefecture. Even in the implementation period of the UR agreement, the minimum access acceptance was administered only by the government under state trading. The Japanese rice market is still isolated from international markets.

Other than trade barriers, the Japanese government subsidized diversification away from rice production in order to maintain domestic prices of rice. The program of rice production control was first introduced in 1970 when Japan faced a serious problem of rice surplus. In recent years roughly 30% of 2.7 million ha of paddy field has been targeted for diversification to other crops or set aside. Rice production control programs in this quarter century seemed to work effectively, because rice prices remained very stable and no major declines in prices occurred so far.

Wheat

Marketing and international trade of wheat are controlled by the government based on the same laws as for rice. Importation is operated under state trading as mentioned before and domestic prices are determined by the government. The government purchases domestically produced wheat at supported prices and sells the wheat together with levied imported wheat. The government resale prices are lower than the producer prices, but higher than import prices. The whole system is operated to meet deficits from handling of domestic wheat with benefits from handling of imported wheat, called the Cost-Pool Method. Domestic production of wheat is also supported indirectly through diversification under rice production control programs which are subsidized by the government.

Milk and dairy products

At one time the Japanese government promoted the dairy sector to meet increasing demand and to support farmers' income. Related measures are operated through a quasi-government organization, the ALIC (LIPC before October 1996). In the period from 1961 to 1965, the LIPC handled selling and purchasing of dairy products to stabilize and to support market prices. The performance was not satisfactory to promote domestic production, so a deficiency payment scheme for processing milk was introduced in 1965. In terms of effectiveness of promoting domestic production, the deficiency payments have a major role besides border measures.

4. The Overall Effects of Agricultural Trade Liberalization

4.1 Review of agricultural trade liberalization

Many historical surveys and general descriptions are found in the literature and in government statements. Many articles analyze trade liberalization implementation issues (whether it has already been implemented, is being implemented or will likely be implemented in the near future) and some have conducted evaluations employing econometric analyses. The amount of research focusing on effects of import liberalization on domestic production and consumption has increased since the early 1980s. Most of the following literature is written in Japanese.

Table 4.1 Wholesale market price gaps of main agricultural products.

Commodity	Domestic Price	Import Price	Price Gap	Source	Year
Rice	76,513 (¥/mt)	42,502	72%	Actual CIF prices	1960
Wheat	36,848 (¥/mt)	23,774	45%	Average CIF from Canada, US & Australia	1960
Barley	33,877 (¥/mt)	20,870	59%	Average CIF from Canada, US & Australia	1959
Soybeans*	3,342 (¥/60kg)	2,530	32%	CIF x 1.22	1959
Rapeseed*	3,678 (¥/60kg)	3,083	19%	CIF x 1.17	1959
Orange	109.99 (¥/kg)**	149***	-	CIF + ¥37	1960
Starch	46 (¥/kg)****	31	40%*****	CIF	na.
Butter*****	593 (¥/kg)	370	60%	CIF x 1.08	1955-60
Cheese*****	579 (¥/kg)	330	75%	CIF x 1.08	1955-60
SMP*****	260 (¥/kg)	137	117%	CIF x 1.08	1955-60
Beef*****	246 (¥/kg)	197	25%	CIF x 1.08	1955-60
Pork*****	253 (¥/kg)	224	13%	CIF x 1.08	1955-60
Poultry egg*****	198 (¥/kg)	108	98%	CIF x 1.08	1959

Source: MITI 1963.

Note: * The import price was estimated taking account of import tariff and other costs after customs.

** Prices in Tokyo and Osaka.

*** Estimated by the author.

**** Administered price of potato starch.

***** Estimated costs other than tariffs are taken into account.

4.1.1 Comprehensive studies

A study group organized by the MITI released a comprehensive study (MITI 1963) to evaluate competitiveness of each commodity and to give an assessment of the possible effects of trade liberalization in the first phase. The method adopted for the AFF products in the study was simply by estimating price gaps, which are equivalent to nominal rates of protection (NRP) and tariff equivalents (TE). The estimated results are shown in Table 4.1 and key conclusions of assessing the effect of

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trade liberalization are as follows:

- A large amount of rice, low quality rice in particular, would be imported.
- Domestic production of wheat and barley would diminish even if some customs duties were applied.
- While the NRPs of fresh products of livestock are not so large, those of processed products such as butter, cheese and SMP are quite high, although the authors found that the price gap of drinking milk at the retail market was not so large.
- The authors suggested that import liberalization would seriously damage domestic producers of most other agricultural products, such as sugar, starch, vegetable oil, bananas, tomato products, cookies involving sugar, etc., and of forestry and fishery products. In these predictions, the authors would have supposed a certain level of customs duty in the absence of specific indications.

Figure 4.1 Estimates of percentage PSEs: crop products.

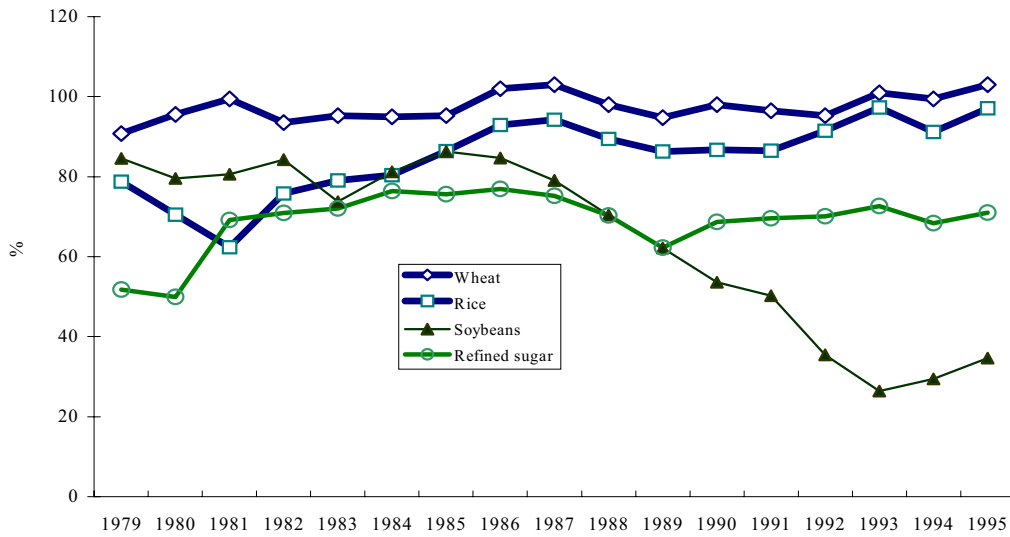
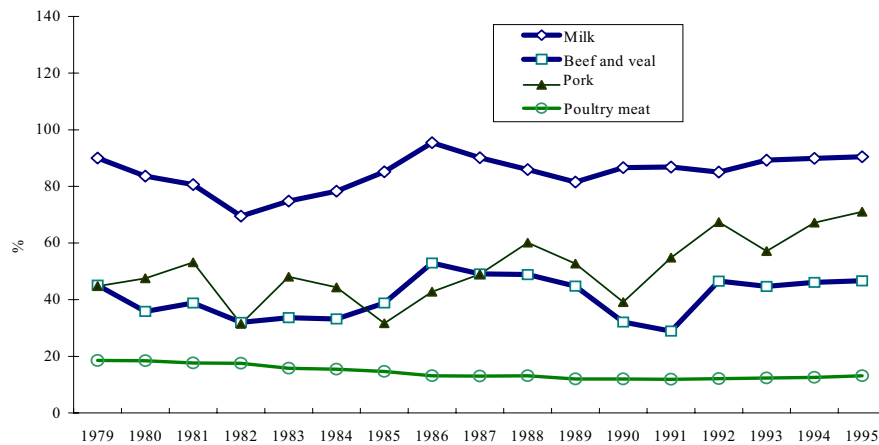


Figure 4.2 Estimates of percentage PSEs: animal products.



Another comprehensive study by OECD has been running since 1987. It releases estimates of producers' subsidy equivalents (PSE) and consumers' subsidy equivalents (CSE) for member countries including Japan in its annual reports, *Agricultural Policies in OECD Countries: Measurement of Support and Background Information*, since 1995, and *Agricultural Policies, Markets and Trade: Monitoring and Outlook*, before 1995. At the beginning of the study, considered the methodology to estimate PSEs and CSEs investigated specific characteristics of the Japanese market, and described details of estimation procedures of the concerned commodities (Figures 4.1 and 4.2).

4.1.2 Beef and orange

Yuize (1982) applied econometric models and assessed limited impacts of trade liberalization of both beef and oranges on domestic production. On the other hand, Takebe (1982) estimated an impact of trade liberalization of oranges based on their own econometric model, and predicted serious damage to farmers' income and domestic production

Ohga and Inaba (1985) criticized the modeling for Japanese beef of Yuize (1979;1982). The problem pointed out by Ohga and Inaba (1985) is that the supply of beef of Wagyu, a Japanese native variety, decreases due to price reduction according to the Yuize model. Yuize (1982) implies a slaughtering of cull cows with a reduction in beef price, although on the other hand, a reduction in slaughtering cows means an investment in the beef production sector, which concludes that a decline in beef price would stimulate supply of beef in the long run.

Ohga and Inaba (1985) developed their own econometric model of Japanese beef and evaluated the impact of expansion of IQs for beef on domestic production. They concluded that considerable expansion of the IQs would cause serious damage to Japanese beef production. The damage would be typically realized in reduction of prices of beef calves. Based on these results, the authors stressed the necessity of an enlargement of beef calf producers' income support to compensate for greater opening of beef markets.

The econometric model by Ohga and Inaba (1985) is characterized as a market segmentation model, i.e., they identified Wagyu beef, dairy steer beef and cull cows as different commodities, and assumed three segments in the domestic beef market according to their quality differences. Imported beef was classified into 'higher quality' and 'lower quality'. The former was assumed to be equivalent to dairy steer and involved in the dairy steer segment. The latter was assumed to be equivalent to cull cows and involved in the cow meat segment. The three segments are related each other through cross price elasticities in demand functions. One of the implications of the above framework is that a specific increase in import of high quality beef should cause the identical effect to the same increase in supply of dairy steer beef in terms of the extent of lowering market prices.

The assumption that high quality imported beef is equivalent to domestic dairy steer beef is problematic. The situation after the increases in beef import according to the BMAA in 1988 indicated that the quality of imported beef is lower than the authors' assumption. This point was considered by Mori and Lin (1990) and is also investigated in the next chapter of this report. Mori and Lin (1990) estimated demand functions of beef by class assuming quality differences, and concluded that even dairy steer beef domestically produced is considered higher quality than imported beef.

The effects of the BMAA were assessed by Wahl et al. (1991). This study developed an econometric model, estimated nominal rates of protection (NRP) of Japanese beef and assessed the impact of the beef import liberalization according to the BMAA. A main result of the forecast is that both consumption and import of beef would increase considerably,

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although the estimated NRPs in Wahl et al. (1991) might be too large. The actual import, i.e., 0.7 million mt was well below the more than 1 million mt of beef import in 1997 according to the authors' forecast. Two major problems of Wahl et al. (1991) were pointed out in the ex-post analysis by Mori (1992) which estimated other NRPs using different base data.

The NRPs estimated by Mori (1992) decreased during the late 1980s and were at similar levels to the actual rates of duties, i.e. 70%, which were applied when the IQ was eliminated in 1991, while the NRPs on which Wahl et al. (1991) based in their forecast were nearly 200%. The difference was caused by Mori (1992) putting more importance on the quality difference between domestic beef and imported beef. On the other hand, the assumption of Wahl et al. (1991) was similar to that of Ohga and Inaba (1985). The other problems in Wahl et al. (1991) were noted as follows: (i) the price elasticity estimate of demand for imported beef was relatively large, i.e., -0.98, at the retail basis; (ii) the estimated NRPs were based on wholesale market prices; (iii) a specific change in the wholesale price of beef caused a smaller change in the retail price; and (iv) in conclusion, a direct application of the above elasticity to final demand must induce an over-estimation when prices go down.

4.1.3 Rice

The Rice Millers Association (RMA) filed suit with the USTR in September 1986 and attached a paper which evaluated the effects of complete liberalization of Japanese rice import. The analysis by Professor Pearson, using very simple comparative statistics, concluded that Japanese rice imports would increase by 4.6 million mt, corresponding to nearly half of the domestic consumption, that the US rice exports to Japan would increase by 2.45 million mt of brown rice, that export prices of US rice would increase by US\$ 203 per mt, and that US\$ 1.7 billion of export sales would accrue to the US rice producers, provided that the Japanese rice market opened completely (0% tariff issued).

A refutation was issued immediately in a more comprehensive study, revised later and published (Ohga et al. 1988). The study comprised partial equilibrium comparative statistics of the world rice market based on some detailed investigations of demand/supply situations in major countries. Conclusions of Ohga et al. (1988) on its baseline are: (i) provided that Japan liberalizes rice markets completely and that the US eliminates support programs on rice, (ii) the domestic price of rice would decrease by 80% to US\$ 391 per mt at the farm gate, (iii) Japanese rice production would decrease from 11.7 million mt to 1.9 million mt, (iv) 9.7 million mt of imported rice would come mainly from China and Thailand, and (v) the US can not expand rice exports unless the support programs are continued.

Reflecting recent circumstances concerning rice problems, discussions have been more heated in this decade. During the UR period, a comprehensive econometric study on Japanese rice was organized by the Rice Policy Study Group (1991). Main objectives and findings of the study are:

- Evaluation of a possibility that Japanese rice production can survive under 100% tariff in the near future: analyses are based on the cost of production. The answer is 'no'.
- Clarifying the problem of estimating NRPs for rice: the importance of quality difference in evaluating the NRPs is pointed out.
- Future prospects of reduction in the cost of production, estimating trans-log cost functions: the growth rate of technological progress seemed to be below 1% per annum.
- Demand function estimation by quality: cross price elasticities are derived.
- Forecast of future outcomes by district after trade liberalization in the long run, applying the estimated demand

functions above: most Japanese rice production would diminish.

- Assessment of the potential of rice production expansion of Japonica rice, i.e., short and medium grain, by the US: it seems to be 1 million mt at the most.

Another econometric study by the Rice Policy Study Group (1992) predicted the short run outcomes of Dunkel's proposition submitted to the Round in 1991. According to the forecast, tariffication of the rice market would increase rice imports, even if the tentatively applied tariff were as high as the nominal rate of protection mainly due to the considerable price variations in the world market.

A major opponent against the Rice Policy Study Group, which was chaired by Professor Morishima, was Professor Yujiro Hayami. According to Professor Hayami, rice market opening with a proper tariff would not cause serious damage to Japanese rice production, and he insisted on the necessity of opening the rice market in order that Japan harmonize international relationships.

Regarding quantitative assessment of the effects of rice market opening, we can point out a methodological problem, i.e., that most of the above studies do not identify the quality difference of rice in terms of applications of econometric techniques. Although, the issues of quality difference in the Japanese rice market and in the Japanese beef market will be discussed again in the next section, quantitative assessments by econometric analyses taking into consideration quality should be undertaken in the future.

4.1.4 Other commodities

Boonekamp (1995) assessed the overall effects of the UR agreement up to the year 2000 in the case of meats and some dairy products. The study applied an econometric model, named AGLINK, which was originally developed by the OECD, and predicted only a small effect. In terms of effectiveness, the UR agreement doesn't involve drastic changes in trade restrictions as indicated before.

Kajikawa (1996) evaluated competitive domestic prices of wheat under the condition that customs rates of duty on some wheat products, such as pasta and noodles, would decline according to the UR agreement.

Saito (1997) provided a survey of developments in sugarcane production and the sugar industry in Okinawa Prefecture. The study indicated that many small-scale sugar factories closed after the import liberalization of raw sugar in 1963.

4.2 Trend of agricultural trade of selected commodities

4.2.1 Overview of agricultural trade

In post-war Japan imports dominated exports in the field of international trade of agricultural, forestry and fishery (AFF) products. The exports of AFF products in 1963 amounted to US\$ 564 million, i.e., 10.3% of US\$ 545 billion total exports, while imports of AFF products amounted to US\$ 2.9 billion, i.e., 43.4% of the total imports. Outstanding characteristics of the AFF product trade by commodity in 1963 are: (i) 50% of AFF exports were fishery products, (ii) silk and silk products were major export commodities, (iii) livestock product exports consisted mainly of leather and its products, (iv) crop exports consisted mainly of fruit, and (v) imports of fishery products were very limited. As for agricultural products, exports were very limited and post-war Japan is characterized as a big food importer.

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The percentage shares of AFF products in Japanese exports decreased considerably to 1.3% in 1984 and to 0.7% in 1996, while nominal values of AFF product exports increased to US\$ 3.0 billion in 1996. Imports of AFF products in nominal value also increased drastically to US\$ 75.1 billion, but the share in total imports decreased to 21-25% in recent years (Tables 4.3-4.8).

The biggest importer of AFF products has been the US through the post-war period, the shares of which in the 1980s and the 1990s fluctuated around 30%. China and Thailand increased exports to Japan in terms of both value and share. Major products that Japan imported in 1996 by country are shown in Table 4.2.

4.2.2 Rice

Japan imported 0.2-1.1 million mt of rice annually by 1968, but imported only a little after reaching rice self-sufficiency. Domestic demand for rice peaked in 1963 and production peaked in 1968. Japan faced a surplus problem and then continued production control programs. Rice markets including importation were strictly controlled by the government, which has taken the greatest care of rice production, as mentioned before. During 1971-1974 and 1979-1983, Japan exported annually 0.3-0.8 million mt of rice as grants under two disposal programs of surplus rice. Surplus rice was used for feed also. The government disbursements to those programs reached more than ¥ 150 billion in each fiscal year.

Table 4.2. Major products imported by Japan in 1996.

Source Country	Products
US	maize, round wood, tobacco, beef, soybeans, pork, sawn wood, wheat, etc.
China	preparations of eels, poultry meat, sawn wood, preparations of vegetables, etc.
Canada	sawn wood, rapeseed, wheat, crabs, pork, etc.
Australia	beef, wood chips, wheat, wool, etc.
Indonesia	veneer, shrimp and prawn, sawn wood, tuna, natural rubber, coffee beans, etc.
Thailand	natural rubber, shrimp and prawn, poultry meat, raw sugar, etc.
Taiwan	pork, tuna, etc.
Malaysia	log, wood based panels, sawn wood, palm oil, etc.
Korea	tuna, pork, etc.
Russia	crabs, log, roe of cod fishes, etc.
New Zealand	log, cheese and curd, etc.
France	brandy, wine, etc.
Chile	wood chips, salmons, fish meal, etc.
Brazil	poultry meat, coffee beans, soybeans, orange juice, etc.
India	shrimps and prawns, etc.
Denmark	pork, etc.
Netherlands	bulbs, etc.
The Philippines	bananas, shrimps and prawns, etc.
England	whisky, etc.
South Africa	wood chips, maize, etc.

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Figure 4.3 Exports of AFF products in value.

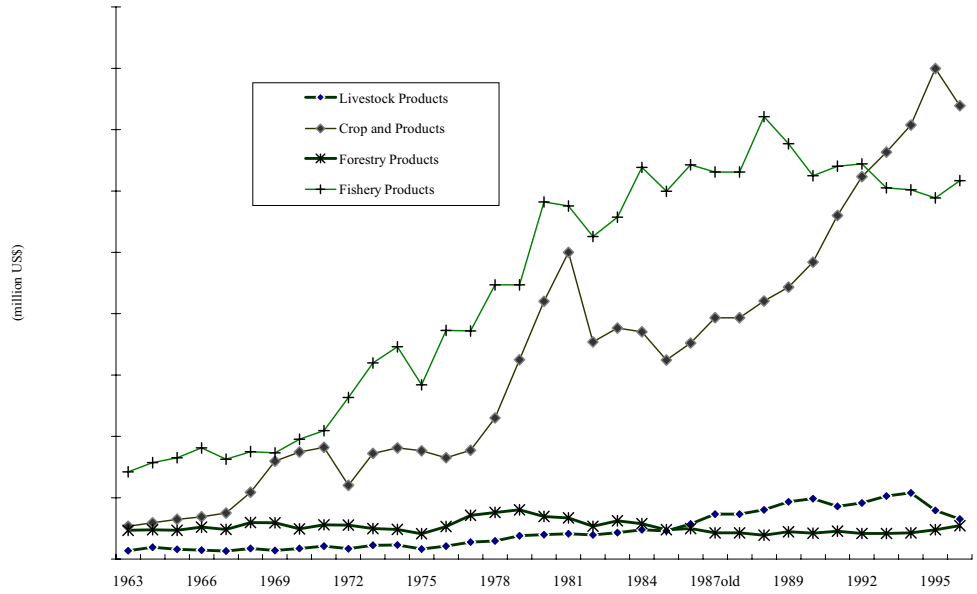


Figure 4.4 Imports of AFF products in value.

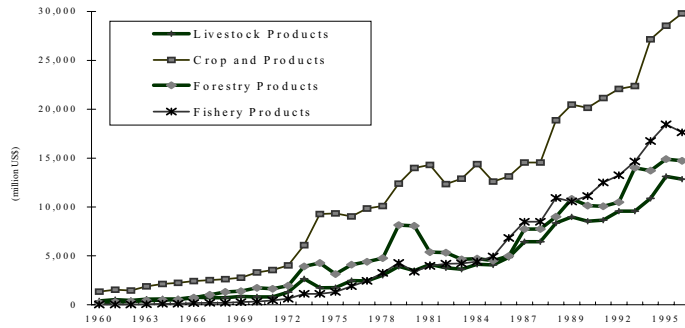


Figure 4.5 Export volume of AFF products: 1955-1996 (1995=1,000).

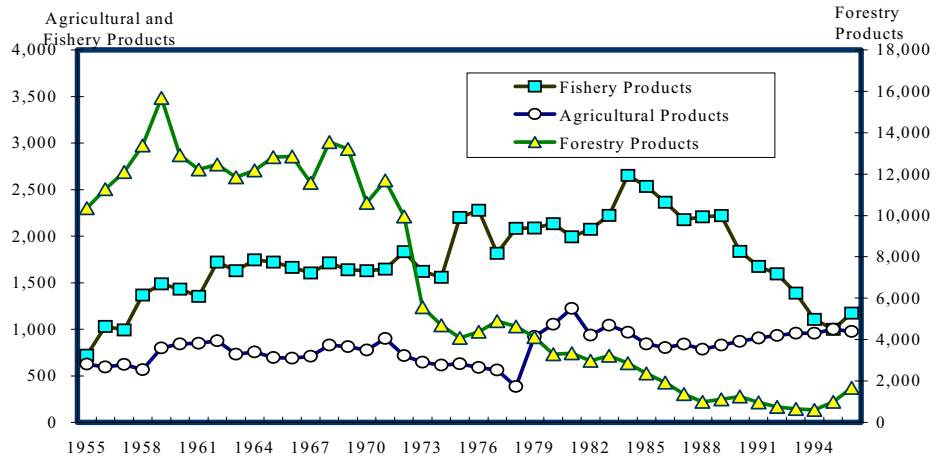
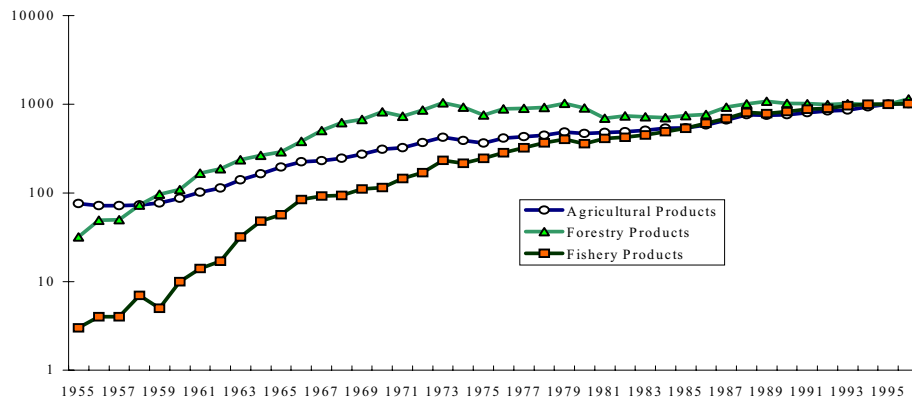


Figure 4.6 Import volume of AFF products: 1955-1996 (1995=1,000).



The Overall Effects of Agricultural Trade Liberalization

Figure 4.7 Import volume of AFF products: 1955-1977 (1995=1,000).

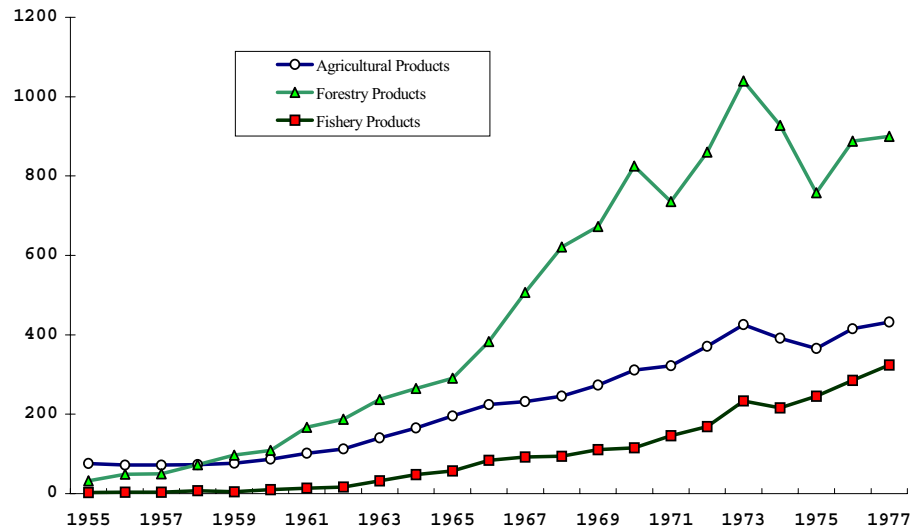
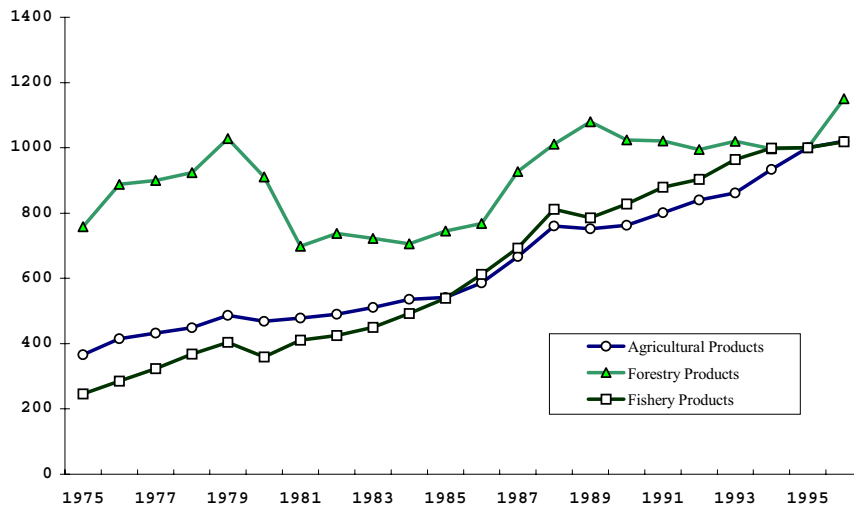


Figure 4.8 Import volume of AFF products: 1975-1996 (1995=1,000).



The volume of rice import reopened in 1993/1994 corresponding to a considerable reduction of yield in 1993 caused by unprecedented cold weather. Mainly due to the strict production controls under the paddy field diversification programs in the succeeding period, the ending stock of rice in 1993 was said to have decreased to only 0.4 million mt. The shortage amounted to roughly 2 million mt. A similar situation also happened in 1984, while the amount of rice imported in that fiscal

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year was only 0.2 million mt. These two cases are regarded as very exceptional under the execution of rice self-sufficient policies. Countries of origin of imports in the 1993-1994 were China, Thailand, the US and Canada. Imports in 1984 were mainly from Korea.

Figure 4.9 Food balance: rice.

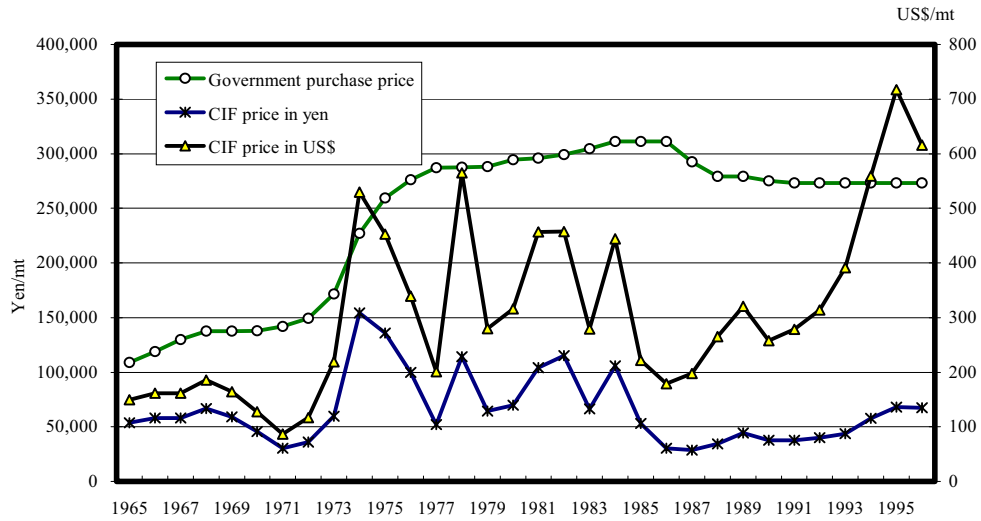
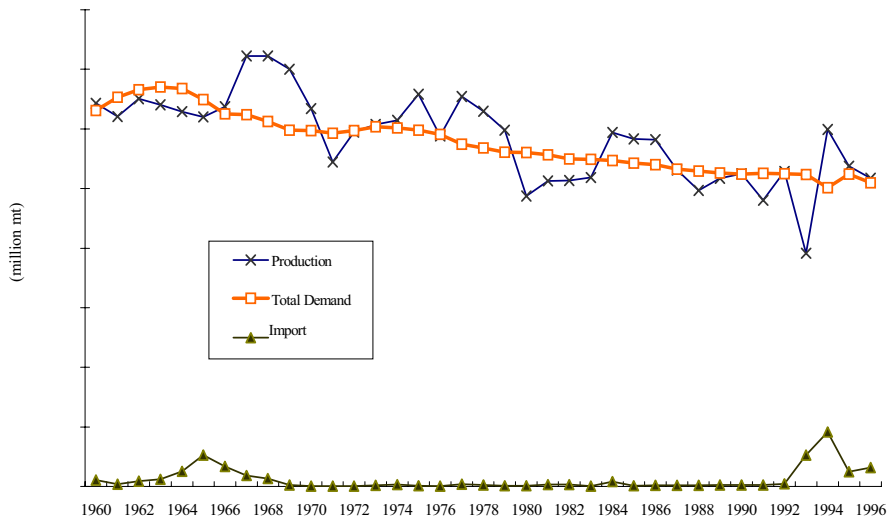


Figure 4.10 Price gaps of Japanese rice.



Regular imports started in the 1995 Japanese fiscal year (JFY) according to the UR agreement. The quantities of Minimum Access Commitment, which increase proportionally during the implementation period, are from 379 thousand mt to 758 thousand mt on polished rice basis, i.e., from 4% to 8% to the total demand in the base period (1986-1988). The Minimum

Access Commitment is also administered by the government under state trading. As for shares in countries of origin, the US had nearly one-half and Thailand one-quarter, Australia one-third and China 8% on average in the 1995-1996 JFY.

4.2.3 Wheat

The per capita consumption of wheat increased gradually mainly due to dietary changes in the 1960s, while domestic production of wheat, which was grown before rice in the cropping cycle, decreased considerably from 1.8 million mt in 1961 to 200 thousand mt in 1972. Generally, domestically produced wheat is not suitable for baking in bread and it is said that the quality is not even as good for noodles as some imported wheat, e.g., the Australian Standard White (ASW). Wheat imports under state trading based on the Food Control Law doubled from 2.7 million mt in 1960 to 5.3 million mt in 1972. The quantity imported became relatively stable at a level of 5.5-5.7 million mt thereafter, except that it decreased to 5.1-5.2 million mt during 1980-1984, corresponding to increases in domestic production, which was promoted partly under the paddy field diversification programs and partly by raising of the government purchase prices. Domestic production decreased again in recent years.

According to the UR agreement, wheat, flour and other wheat products were tariffed. A tariff quota (TQ) is applied to imports of wheat and flour, and the imports corresponding to the Current Access are still handled under state trading. Wheat importation other than by quota, which is equivalent to the Current Access, is liberalized with specific duties which decrease from ¥65 per kg in 1995 to ¥55 per kg in 2000, i.e., decreasing by 15%. The specific duty applied to flour was ¥106 per kg in 1995. As for the Current Access, imported wheat is levied by markup, ceilings of which are bound in the Agreement. Ceilings of the markup also decrease in the implementation period from ¥53 per kg in 1995 to ¥45.2 per kg in 2000, i.e., decreasing by 15% also. The annual amount bound as the Current Access was 5,565 thousand mt in 1995, gradually increasing to 5,740 thousand mt in 2000. Because the actual imports under state trading exceeded the quantity of Current Access in recent years, it is not expected that a great volume of wheat will be imported under the secondary duties.

The imports of other wheat products, which consist of pasta, noodles, cookies and a large number of other 'Preparations of Wheat Flour' categorized in the HS coding, have not been under state trading and were liberalized with decreasing tariffs. For example, specific duties applied to pasta were ¥40 per kg in 1995, decreasing to ¥35 per kg in 2000. These are much lower than the estimated tariff equivalent of wheat. The tariff structure above can be regarded as a tariff 'de-escalation' case, and we can expect increasing incentives to import preparations of wheat flour. That is one of the points considered in Kajikawa (1996).

Figure 4.11 Food balance: wheat.

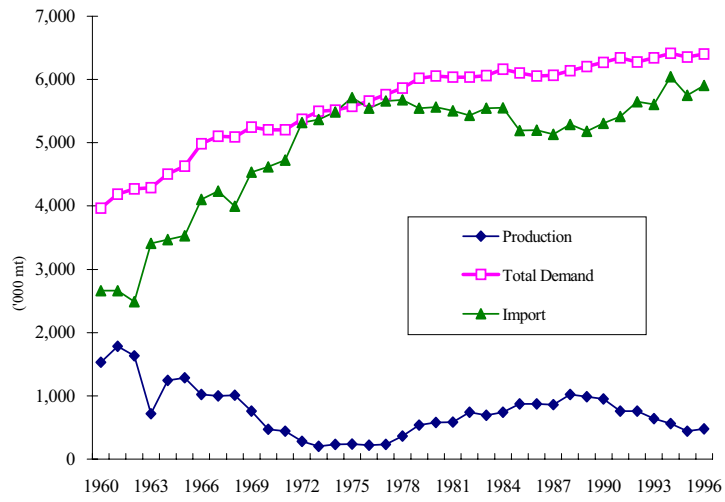
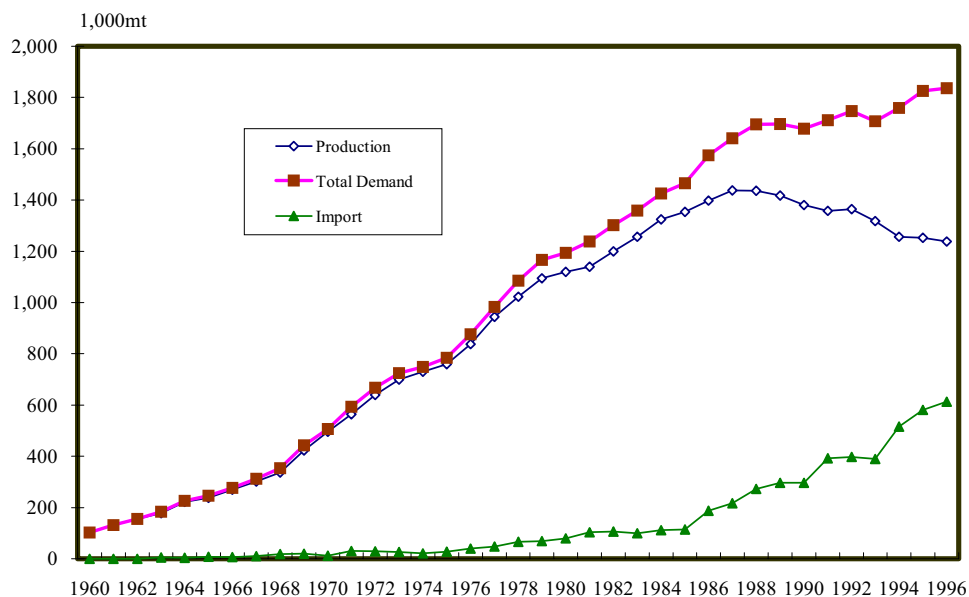


Figure 4.18 Food Balance: Poultry Meat.



4.1.1 Dairy products and eggs

The Japanese dairy sector is one of the most protected ones. Generally, importation of fresh milk is difficult due to its high transportation costs and imports of other products except natural cheese were restricted by IQs until the implementation of the UR agreement. International trade of most products is administered under state trading by the ALIC, which operates other domestic measures such as deficiency payments and selling-buying operations also. The state trading of designated dairy products, such as butter, skimmed milk powder, sweet condensed whole milk and sweet condensed skimmed milk, has still partly remained in the implementation period.

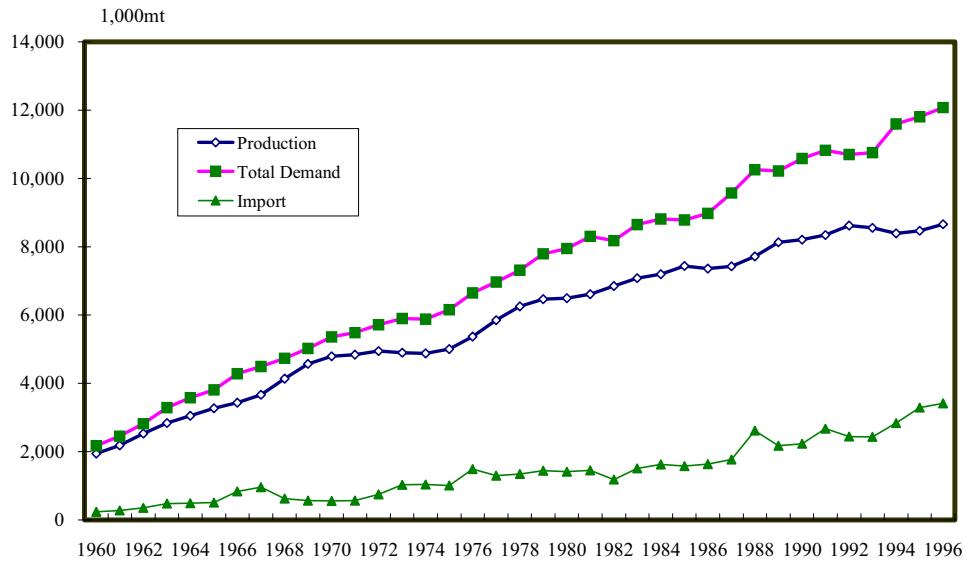
The importation of dairy products except cheese has been managed to meet domestic consumption under the condition that both production and consumption of milk fluctuate in opposite ways depending on weather. However, demand for skimmed milk powder tends to exceed that for butter in terms of fresh milk equivalent. As skimmed milk powder and butter are jointly produced from fresh milk, Japan has imported some amount of skimmed milk powder constantly, as is not the case of butter for which consumption has stagnated from the 1980s. Skimmed milk powder is imported also for feed use.

Historically, processed cheese in Japan was produced mostly from imported natural cheese, of which imports were liberalized in 1953. Imports of processed cheese were liberalized in 1989, when the applied rate of duties was 40% which is a little higher than that on natural cheese, i.e., around 30%. This is another case of tariff escalation. Consumption of cheese increased rapidly according to income growth, while direct consumption of natural cheese was not popular until recent years. Natural cheese imports increased by 15 times from 10 thousand mt in 1965 to 153 thousand mt in 1995. Major exporting countries have been Australia and New Zealand. Processed cheese imports amounted to only 4 thousand mt in 1995.

Trend of Agricultural Trade and the Overall Effects of Trade Liberalization

In liquid milk equivalent, imports of dairy products increased from 237 thousand mt in 1960 JFY to 3.3 million mt in 1995 JFY, while domestic production increased from 1.9 million mt to 8.5 million mt in the same period (both for food use on the Food Balance Sheet basis). The recent imports of skimmed milk powder amount roughly 400-500 thousand mt in liquid milk equivalent.

Figure 4.19 Food Balance: Milk and Dairy Products (Raw Milk Basis).



Price gaps of eggs are relatively small as indicated in Figure 4.20. Imports have been a slight in the forms of frozen or dried eggs. Imported eggs, mostly unshelled, are demanded mainly for processing, such as for ice cream, cakes and liaison, because their quality is usually low. While the quantity of egg imports fluctuates with changes in exchange rates and domestic production, the share of imported eggs is relatively stable. Domestic production of frozen and dried eggs is increasing according to the steady growth of the processing use.

Figure 4.20 Food Balance: Eggs

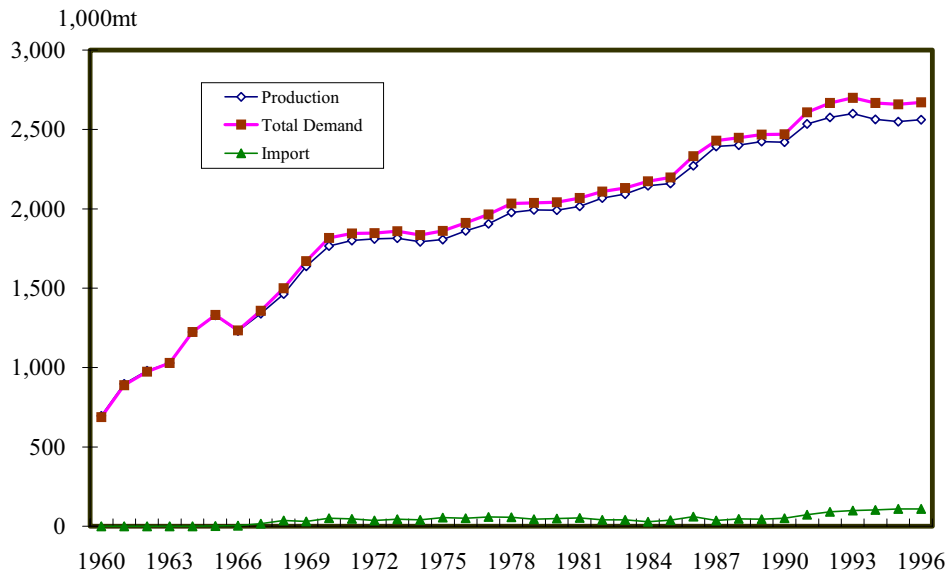
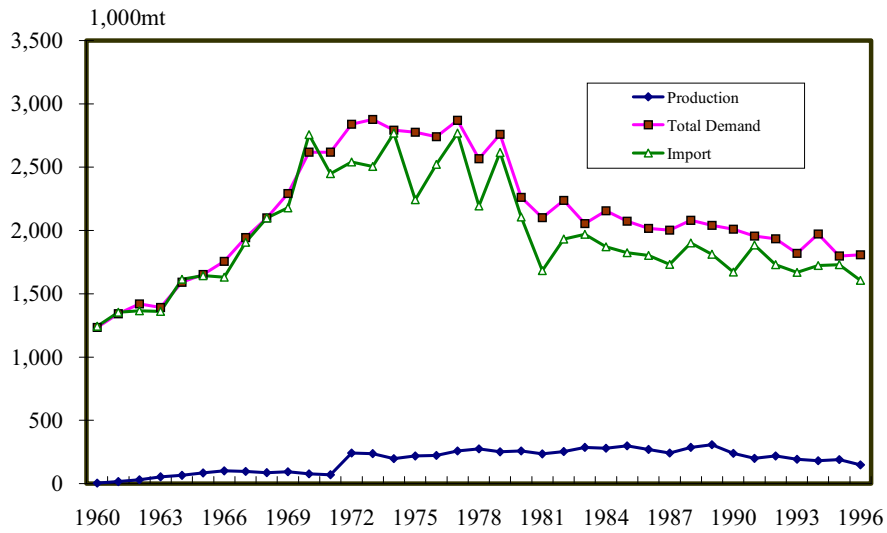
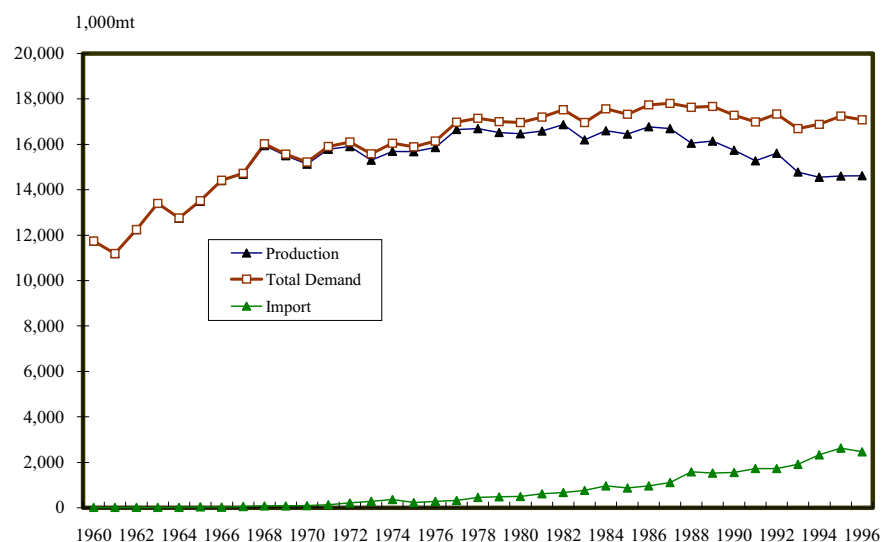


Figure 4.21 Food Balance: Raw Sugar:



Trend of Agricultural Trade and the Overall Effects of Trade Liberalization

Figure 4.22 Food Balance: Vegetables



4.2 The overall effects of trade liberalization

Looking back at the historical review in Chapter 2, it is clear that the less import liberalization was expected to affect domestic production, the earlier it was implemented. Among the main items liberalized in the first phase, the domestic markets for maize, soybeans, sorghum and coffee are characterized by a relatively low level of domestic production while domestic consumption of these products was expected to increase strongly with economic growth. In the context of both government decision making and research activities, the later trade liberalization was considered, the more heated the dispute whether and how liberalization should actually occur.

In Japan agricultural production is not only protected by border measures, but also supported by a large number of domestic measures such as deficiency payments, direct purchasing by the government, subsidies, loans with reduced interest rates, etc. How and to what extent domestic production and farmers' incomes would be affected by changes in trade policies is closely linked to the effectiveness of these domestic measures.

Figure 4.23 Food Balance: Fruit.

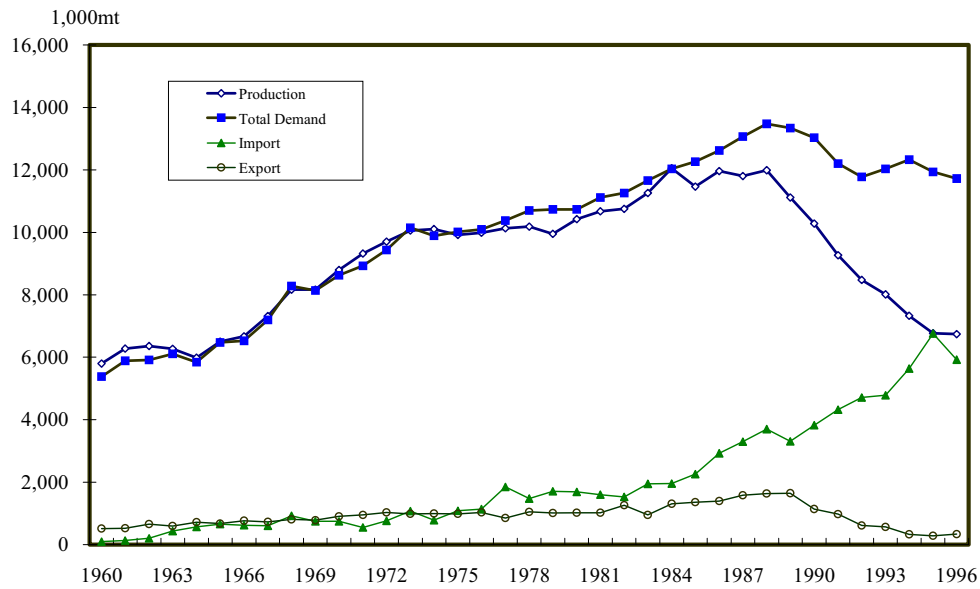
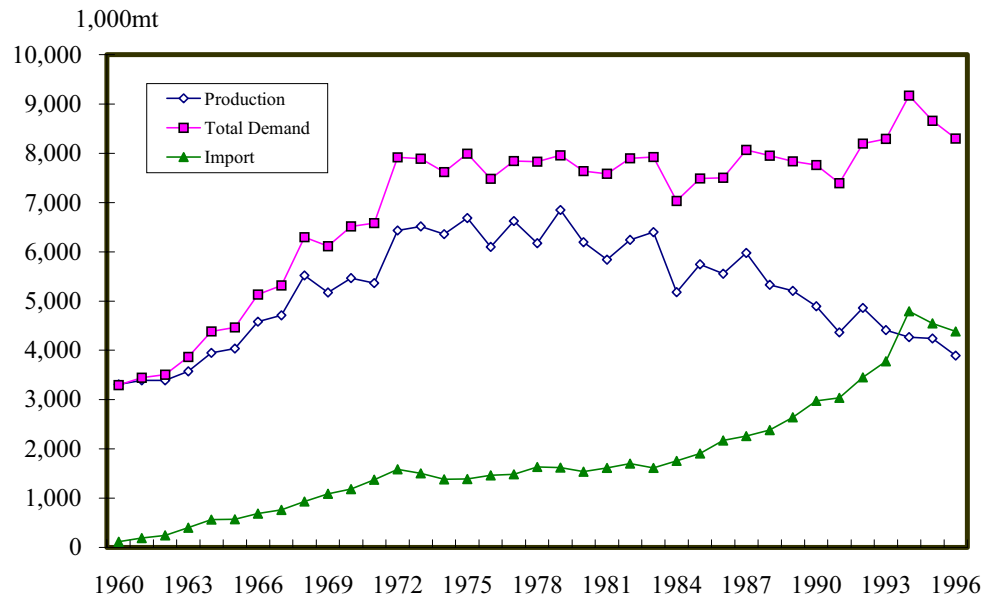


Figure 4.24 Food Balance: Fishery Products.

The overall decline of Japanese agricultural production in the post-war period has led to lower rates of food self-sufficiency as shown in Table 4.3. It is clear that trade liberalization has played an important part in this trend in food self-sufficiency, but at the same time we have to take into consideration other basic conditions, such as resource endowment

Trend of Agricultural Trade and the Overall Effects of Trade Liberalization

and dietary changes. Japanese agriculture as a whole has lost comparative advantage in the process of economic development. Table 4.3 shows that the self-sufficiency of land using crops such as wheat and pulses is extremely low. Rice is an exception because the Japanese government has taken the greatest care of its production and regulated its foreign trade completely.

Table 4.3. Rate of Japanese food self-sufficiency (%).

Items	1965	1975	1980	1991	1992	1993	1994	1995
Main Product								
Rice	95	110	107	100	101	75	120	103
Wheat	28	4	14	12	12	10	9	7
Pulses	25	9	8	7	6	4	5	5
Vegetables	100	99	95	90	90	88	86	85
Fruits	90	84	77	59	59	53	47	49
Poultry eggs	100	97	98	97	97	96	96	96
Milk & dairy products	86	81	85	77	81	80	72	72
Meat products	90	77	81	67	65	64	60	57
Sugar	31	15	33	36	35	33	29	35
Marine products	109	102	96	86	83	76	70	74
Caloric supply	73	54	52	46	46	37	46	42
Staple grains	80	69	69	65	66	50	74	64
Feed products	55	34	27	26	26	24	25	25

Source: Agricultural White Paper: 1996, Japanese fiscal year, MAFF.

In order to identify the effects of trade liberalization, investigation and analysis has to be conducted carefully taking into account the above two considerations, i.e., domestic measures and basic economic conditions.

In the remaining part of this chapter we consider some aspects of outcomes by changes in trade policies including liberalization in the case of beef and acceptance of the minimum access commitment of rice under the UR agreement. Although these issues were also investigated previously, the following discussion shows another aspect of the analyses, which aim to give some assessment on effects of trade liberalization, where the latter would be an ex-ante case and the former, an ex-post case.

4.2.1 Case study: beef

In some sense it could be considered that beef import liberalization in 1991 didn't cause significant damage to domestic production. Increases in beef imports were absorbed by increases in demand and reduction of domestic production was not realized in spite of the decline in domestic prices to some extent. The factors are that both price and income elasticities of demand for beef are relatively high and the Japanese beef market is segmented according to quality. These explanations are partly true, but we can find other implications of the beef import liberalization in 1991.

Figure 4.25 and Figure 4.26 show the trends in the wholesale prices of domestic beef on both carcass and boneless base by grade and variety during the post BMAA period. As mentioned in Chapter 4, we can assume a certain segmentation for the Japanese beef market. In terms of variety, Wagyu beef except that of cull cows, has the highest quality, dairy steer beef has the second and beef from dairy cows has the lowest quality. The grading system also evaluates quality inside each variety.

Figures 4.25 to 4.26 show that carcass prices of dairy steers and dairy cows, 'female' according to the exact definition of the statistics, declined considerably, while those of Wagyu remained stable. The carcass prices of dairy steers and

dairy cows started to decline prior to the import liberalization in April 1991, suggesting that the increase in IQs during 1988-1990 affected the domestic market. The downward trends in prices differed according to the grade and the price level, i.e., the lower the grade the steeper the downward slope. Wagyu prices didn't decline until 1992. It seems to be uncertain that prices of Wagyu beef, even in the case of lower graded Wagyu, were affected by declines in prices of dairy steer beef as well as by increases in beef imports.

Figure 4.25 Wholesale Prices of Beef Carcass: Tokyo Market

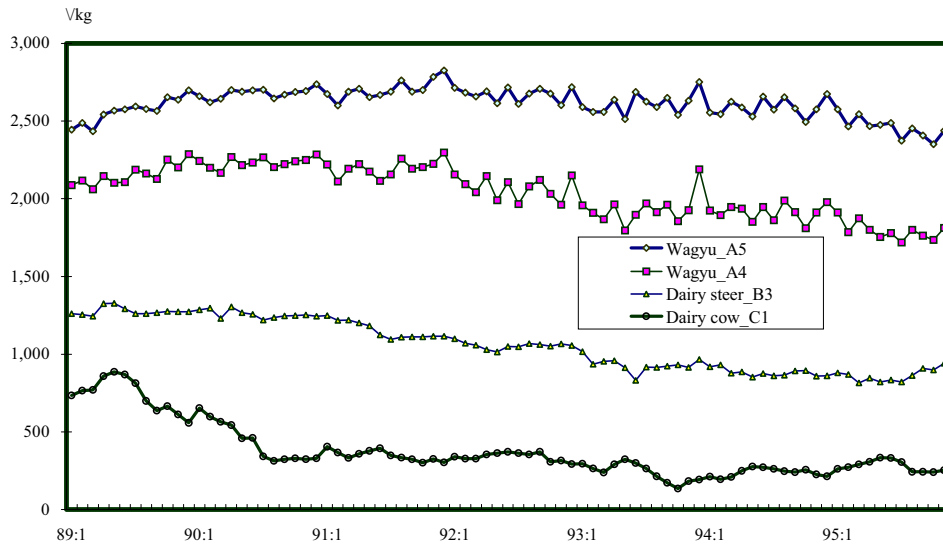
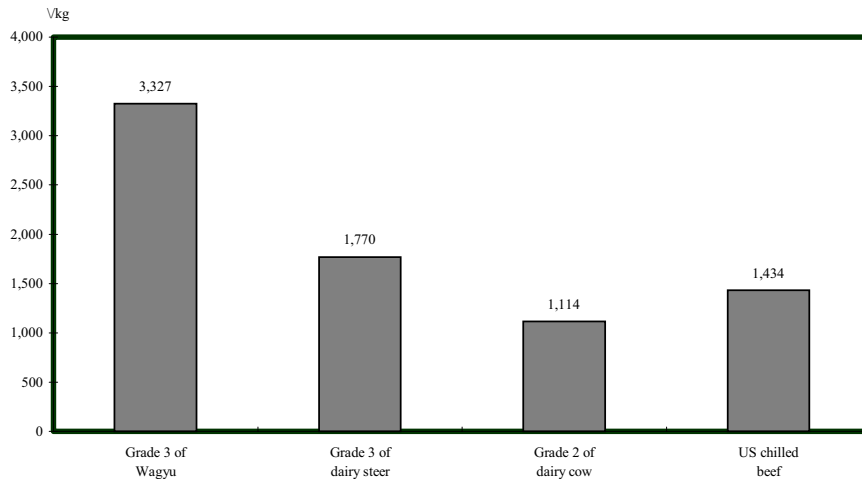


Figure 4.26 Price Wedges of Beef in Wholesale Market Estimated Average on Boneless Basis in May 1992



Trend of Agricultural Trade and the Overall Effects of Trade Liberalization

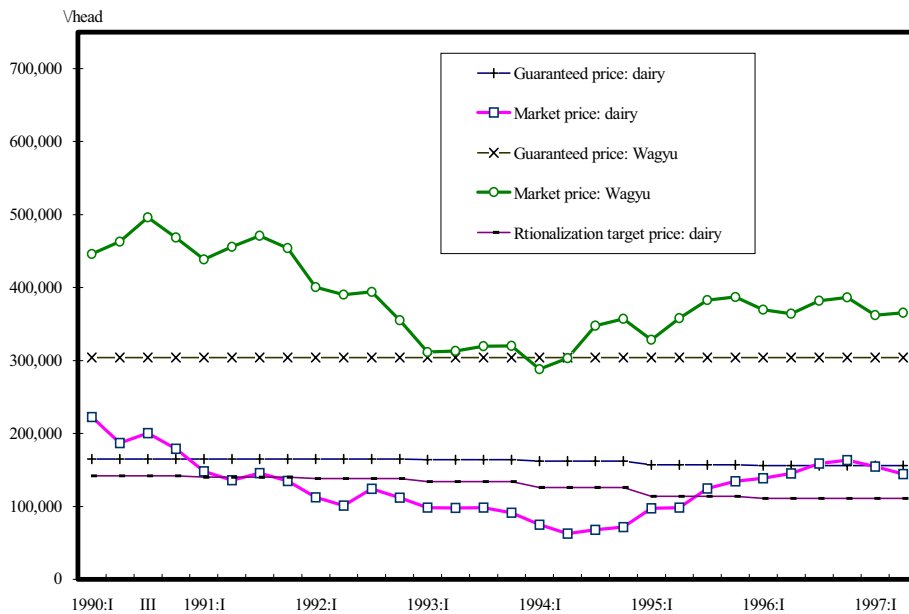
The Japanese economy faced a recession phase since the 1990s, and the income effect of demand for Wagyu beef might be sluggish. Slaughter numbers of Wagyu increased steadily from 1989. The trends in Wagyu beef prices, that of the highest graded Wagyu in particular, can be explained independently of those of beef in the other segments.

The variation of trends in prices among Wagyu beef, dairy steer beef and cow beef shown in the Figures suggests one important points of view in projecting the effects of market openings and trade liberalization. The effect of increases in imported goods would differ due to quality which is revealed by consumers' preference. A main reason why Wahl et al. (1990) overestimated the effects of trade liberalization of beef in 1991 is an overestimation of the nominal rates of protection because these authors failed to evaluate quality differences of beef properly, as indicated in Mori (1992).

On the other hand, the drop in prices of dairy beef induced significant decreases in calf prices, which caused serious damage to dairy farmers as well as to dairy cattle fattening operations. A regression analysis by Professor Chino of the Utsunomiya University indicates that a 1% reduction of dairy steer price at the wholesale market would induce a reduction of calf prices at farm gate by 1.25% in the short run and by 3.8% in the long run, respectively, using the monthly data for the period from April 1988 to January 1992. Prices of both dairy calves and cows for slaughtering dropped rapidly in 1990.

Nevertheless, the supply of beef from the dairy sector didn't decreased at all. The basic reason is that beef from the dairy sector is a byproduct of the milk producing sector, and that supply levels are determined by those of dairy production. Thus, the dairy beef supply does not response directly to declines in beef prices. In addition, the Compensation Payments Scheme put into effect in 1990 supported farm gate prices of calves not to decline to such low levels as to make calf production unprofitable at all. This scheme was actually effective, because market prices of dairy calves were well below the guaranteed prices recently.

Figure 427 Calf Prices under Beef Import Liberalization: Quarterly Data, 1990I-1997:II



Prices of dairy calves, 6-7 months old, at the farm gate were ¥207 thousand per head and ¥229 thousand per head in 1988 and 1989, respectively. The calf prices decreased thereafter and became less than the Standard Guaranteed Price, ¥165 thousand per head, in the first quarter of 1991 JFY. Based on the 1988-1989 prices, calf producers would have lost their revenue by ¥53 thousand per head. Income received for selling calves is very high. An operation which produces 30 calves a year, corresponding to an average number of cows by Japanese dairy farmers in those days, would have lost ¥1.5 million a year even taking into account receipts from the Compensation Payments Scheme.

The above calculations are too simplified to evaluate the effects of the BMAA and the trade liberalization in 1991, although it might be wrong to conclude that the market opening during the post-BMAA period had little effect on domestic farmers.

4.2.2 Case study: rice

According to the UR agreement Japan actually opened rice markets partly through acceptance of the Minimum Access Commitment. In fact imported rice has come into the markets nowadays. Although, whether greater opening will come or not is left to future policy makers, we can find some evidence that acceptance of the Minimum Access affected the domestic policy making and that quality might have a key role to determine the extent of effects on domestic markets.

First, the Minimum Access Rice, named MA Rice, did attribute partly to stockpiles, which accumulated abnormally in 1996, reaching roughly 3 million mt. The government set the target level of rice stock at 1.5 million mt for proper management under the Law for Stabilization of Supply, Demand and Price of Staple Food. However the surplus government stock amounted to 1.5 million mt in 1996 and seems to be increasing more in 1997. While a part of that surplus could be attributed to increases in yield due to weather conditions and decrease in demand, nearly 1 million mt is estimated to be due to the accumulation of stockpiles.

Under the paddy field diversification programs, around 700 thousand ha out of 2.6 million ha paddy were targeted to be diversified or set aside. The targets were always fully achieved in spite of the fact that subsidies paid by the government are usually estimated to be short of compensating farmers' income. The management of those programs depends partly on some informal restrictions originating in Japanese rural societies. In 1998, the targeted area to be diversified or set aside was expanded by nearly 300 thousand ha in order to reduce the above surplus. That area corresponds to about 1.5 million mt of brown rice. A part of this outcome, which affects farmers income also, is attributed to the MA Rice.

Second, issues that relate rice quality and consumers' preference have to be considered when evaluating future outcomes of market opening also in case of rice. Japanese consumers in general are very sensitive to quality of rice, and prefer Japonica varieties but never Indica. Table 4.4 shows price wedges of rice in the market. The upper rows indicate wholesale prices of domestic rice by variety and by producing region, reflecting evaluation by consumers directly. The bottom rows are government selling prices, which correspond to wholesale prices. In 1997, Koshihikari from Uonuma and Akitakomachi from Akita are classified into the 1st grade of government rice and Kirara from Hokkaido is classified into the 5th grade. Medium grains from California and short grains from the North-East China, for example, are classified into the grade 'M3'. Grade 'L' consists of Thai non-glutinous A1 Super, Thai glutinous A1 Special and broken rice from the US.

Table 4.4 clarifies that the quality difference revealed by consumers brings out a large difference in prices also.

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Government selling prices of imported rice indicate clearly that quality of imported rice is lower than that of domestic rice in the Japanese market. In addition, the imported rice tends to be left unsold very often, while the prices of semi-controlled rice, which is marketed by the private sector, can be regarded as similar to market clearing ones. Price wedges in the case of rice in Japanese markets indicate a point to be taken into consideration when we try to estimate nominal rates of protection properly.

Table 4.4 Rice prices by grade and origin (¥1,000/60kg, brown rice basis).

Wholesale Prices (Third Auction in 1997) of Semi-Controlled Rice

Variety	KOSHIIHIKARI		KIRARA		AKITAKOMACHI	
Prefecture	UONUMA		HOKKAIDO		AKITA	
Price	28.1		15.4		17.5	
Government Selling Prices: Domestic Rice						
Grade	1	2	3	4	5	
Price	18.6	17.7	17.2	16.6	16.1	
Government Selling Prices: Imported Rice						
Grade	M1	M2	M3	M4	M5	L (White Rice)
Price	14.9	14.1	13.5	13.0	12.4	10.2

Source: *BEIKANIKANSURUSIRYO* (Files on Rice Prices), MAFF, 1997.

Note: Government selling prices since April 1997.

Excluding tax.

Trend of Agricultural Trade and the Overall Effects of Trade Liberalization

In liquid milk equivalent, imports of dairy products increased from 237 thousand mt in 1960 JFY to 3.3 million mt in 1995 JFY, while domestic production increased from 1.9 million mt to 8.5 million mt in the same period (both for food use on the Food Balance Sheet basis). The recent imports of skimmed milk powder amount roughly 400-500 thousand mt in liquid milk equivalent.

Figure 4.19 Food balance: milk and dairy products (raw milk basis).

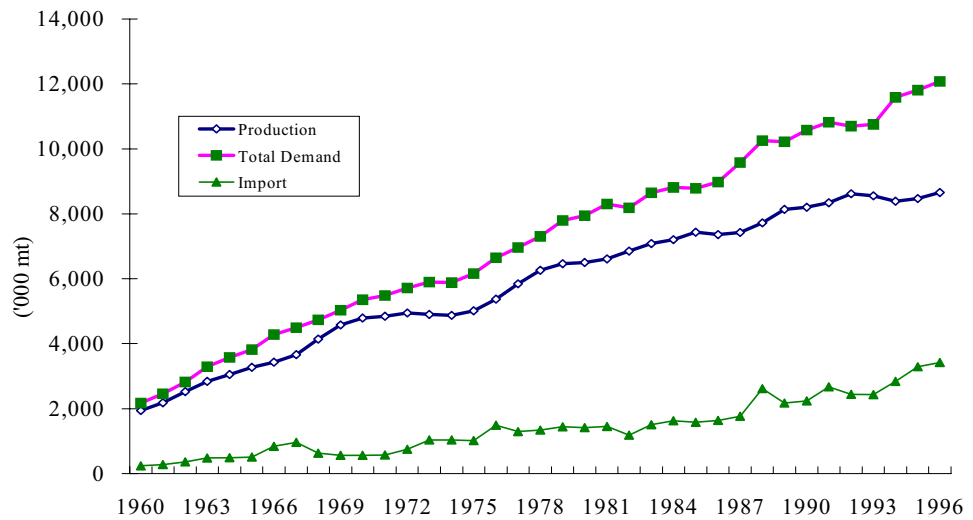


Figure 4.20 Food balance: eggs.

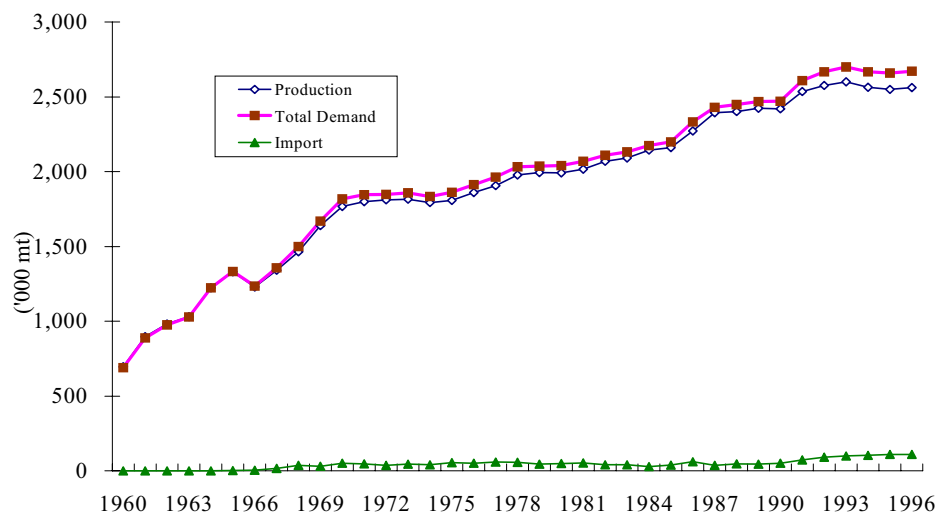
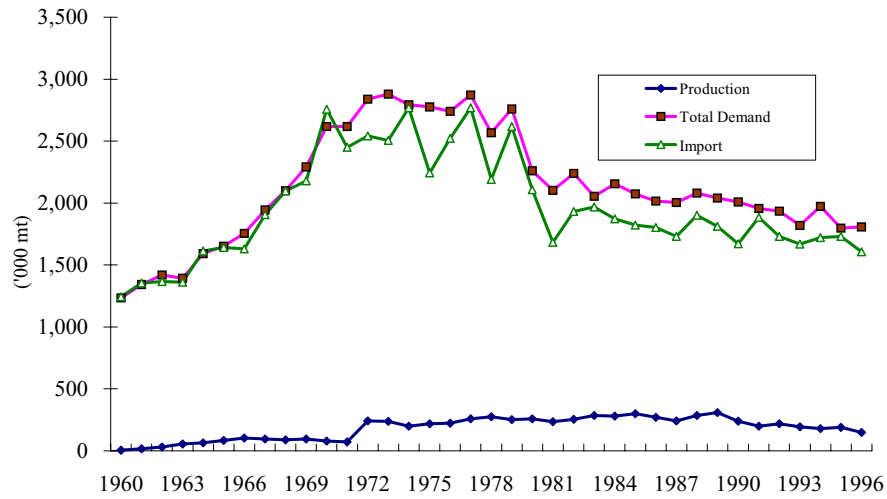


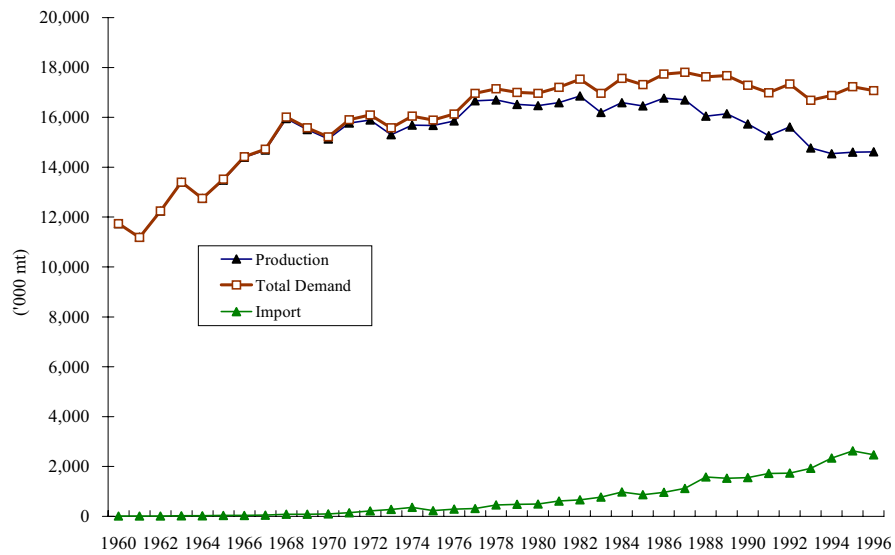
Figure 4.21 Food balance: raw sugar.



Pr

ice gaps of eggs are relatively small as indicated in Figure 4.20. Imports have been slight in the forms of frozen or dried eggs. Imported eggs, mostly unshelled, are demanded mainly for processing, such as for ice cream, cakes and liaison, because their quality is usually low. While the quantity of egg imports fluctuates with changes in exchange rates and domestic production, the share of imported eggs is relatively stable. Domestic production of frozen and dried eggs is increasing according to the steady growth of the processing use. Figure 4.21 Food balance: raw sugar.

Figure 4.22 Food balance: vegetables.

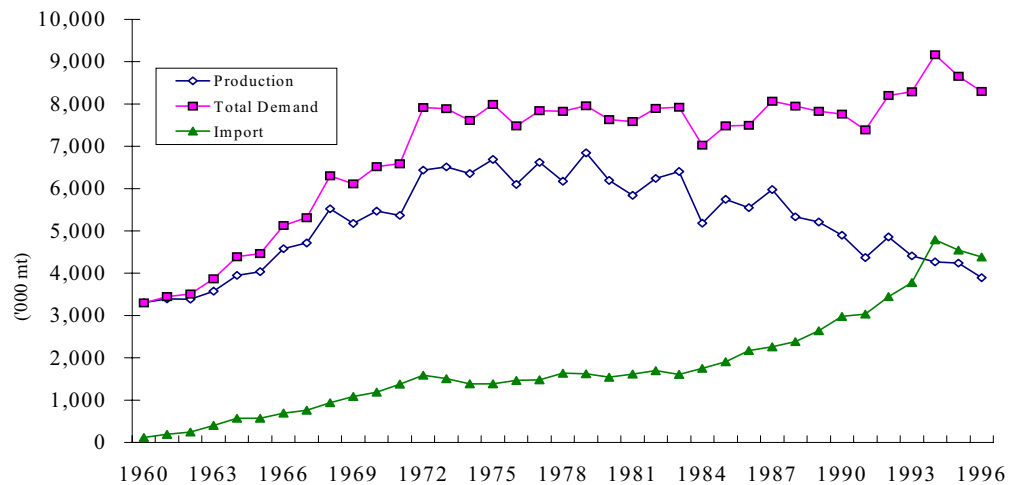


4.2.4 The overall effects of trade liberalization

Looking back at the historical review in Chapter 2, it is clear that the less import liberalization was expected to affect domestic production, the earlier it was implemented. Among the main items liberalized in the first phase, the domestic markets for maize, soybeans, sorghum and coffee are characterized by a relatively low level of domestic production while domestic consumption of these products was expected to increase strongly with economic growth. In the context of both government decision making and research activities, the later trade liberalization was considered, the more heated the dispute whether and how liberalization should actually occur.

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Figure 4.23 Food balance: fruit.



The overall decline of Japanese agricultural production in the post-war period has led to lower rates of food self-sufficiency as shown in Table 4.3. It is clear that trade liberalization has played an important part in this trend in food self-sufficiency, but at the same time we have to take into consideration other basic conditions, such as resource endowment and dietary changes. Japanese agriculture as a whole has lost comparative advantage in the process of economic development. Table 4.3 shows that the self-sufficiency of land using crops such as wheat and pulses is extremely low. Rice is an exception because the Japanese government has taken the greatest care of its production and has regulated its foreign trade completely.

In order to identify the effects of trade liberalization, investigation and analysis have to be conducted carefully taking into account the above two considerations, i.e., domestic measures and basic economic conditions.

In the remaining part of this chapter we consider some aspects of outcomes of changes in trade policies including

Chapter 4

liberalization in the case of beef and acceptance of the minimum access commitment of rice under the UR agreement. Although these issues were also investigated previously, the following discussion shows another aspect of the analyses, which aim to give some assessment on effects of trade liberalization, where the latter would be an ex-ante case and the former, an ex-post case.

Figure 4.24 Food balance: fishery products.

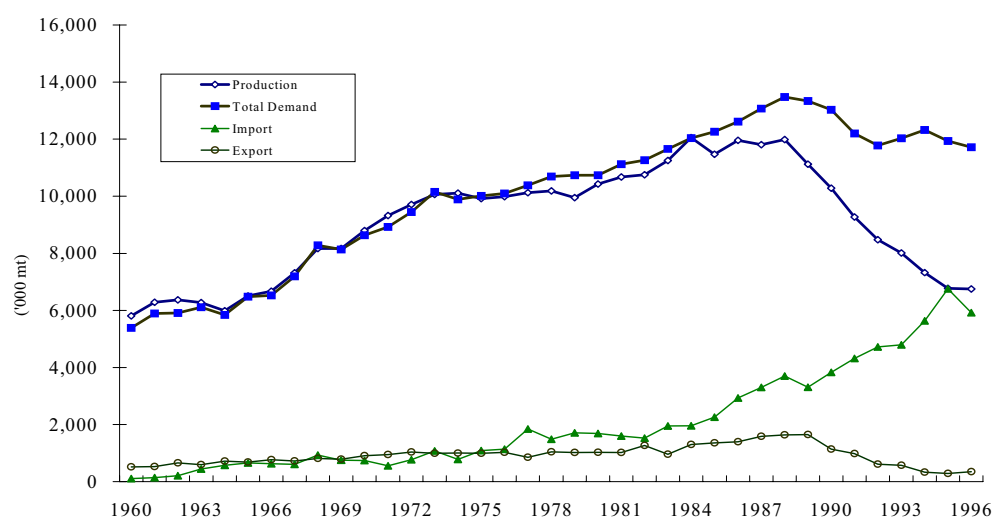


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Vegetables	100	99	95	90	90	88	86	85
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Staple grains	80	69	69	65	66	50	74	64
Feed products	55	34	27	26	26	24	25	25

Source: Agricultural White Paper: 1996 Japanese fiscal year, MAFF.

4.2.5 Case study: beef

In some sense it could be considered that beef import liberalization in 1991 didn't cause significant damage to domestic production. Increases in beef imports were absorbed by increases in demand, and reduction of domestic production

was not realized in spite of the decline in domestic prices to some extent. The factors are that both price and income elasticities of demand for beef are relatively high and the Japanese beef market is segmented according to quality. These explanations are partly true, but we can find other implications of the beef import liberalization in 1991.

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Figure 4.25 Wholesale prices of beef carcass: Tokyo market.

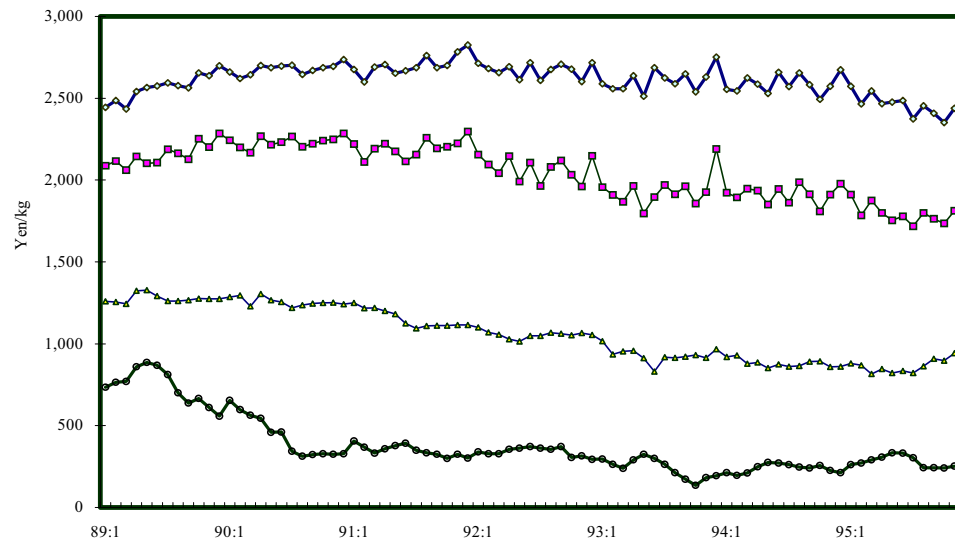
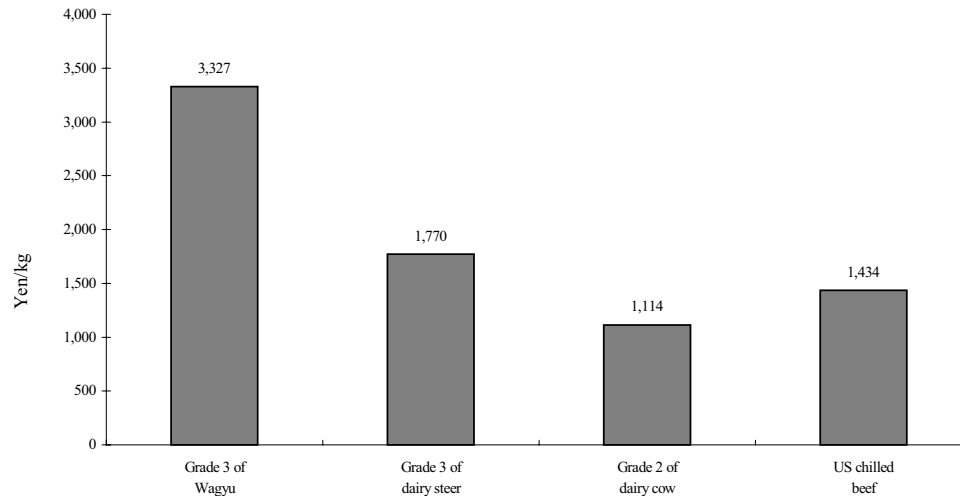


Figure 4.26 Price wedges of beef in wholesale market estimated average on boneless basis in May 1992.



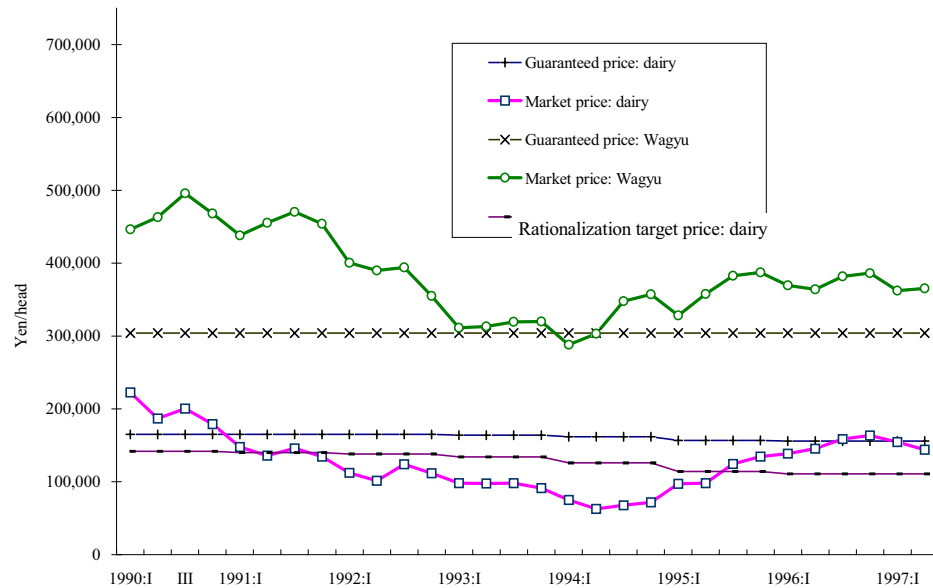
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Figure 4.27 Calf prices under beef import liberalization: quarterly data, 1990i-1997.



Prices of dairy calves, 6-7 months old, at the farm gate were ¥207 thousand per head and ¥229 thousand per head in 1988 and 1989, respectively. The calf prices decreased thereafter and became less than the Standard Guaranteed Price, ¥165 thousand per head, in the first quarter of 1991 JFY. Based on the 1988-1989 prices, calf producers would have lost ¥53 thousand per head. Income received for selling calves is very high. An operation which produces 30 calves a year, corresponding to an average number of cows for Japanese dairy farmers in those days, would have lost ¥1.5 million a year, even taking into account receipts from the Compensation Payments Scheme.

The above calculations are too simplified to evaluate the effects of the BMAA and the trade liberalization in 1991, although it might be wrong to conclude that the market opening during the post-BMAA period had little effect on domestic farmers.

4.2.6 Case study: rice

According to the UR agreement Japan actually opened rice markets partly through acceptance of the Minimum Access Commitment. In fact imported rice has come into the markets nowadays. Although, whether greater opening will come or not is left to future policy makers, we can find some evidence that acceptance of the Minimum Access affected domestic policy making and that quality might have a key role to determine the extent of effects on domestic markets.

First, the Minimum Access Rice, named MA Rice, did attribute partly to stockpiles, which accumulated abnormally in 1996, reaching roughly 3 million mt. The government set the target level of the rice stock at 1.5 million mt for

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proper management under the Law for Stabilization of Supply, Demand and Price of Staple Food. However, the surplus government stock amounted to 1.5 million mt in 1996 and seems to be increasing more in 1997. While a part of that surplus could be attributed to increases in yield due to weather conditions and decrease in demand, nearly 1 million mt is estimated to be due to the accumulation of stockpiles.

Under the paddy field diversification programs, around 700 thousand ha out of 2.6 million ha paddy were targeted to be diversified or set aside. The targets were always fully achieved in spite of the fact that subsidies paid by the government are usually estimated to be short of compensating farmers' income. The management of those programs depends partly on some informal restrictions originating in Japanese rural societies. In 1998, the targeted area to be diversified or set aside was expanded by nearly 300 thousand ha in order to reduce the above surplus. That area corresponds to about 1.5 million mt of brown rice. A part of this outcome, which affects farmers income also, is attributed to the MA Rice.

Table 4.4 Rice prices by grade and origin (¥1,000/60kg, brown rice basis).

Wholesale Prices (Third Auction in 1997) of Semi-Controlled Rice						
Variety	KOSHIIKARI		KIRARA		AKITAKOMACHI	
Prefecture Origin	UONUMA		HOKKAIDO		AKITA	
Price	28.1		15.4		17.5	
Government Selling Prices: Domestic Rice						
Grade	1	2	3	4	5	
Price	18.6	17.7	17.2	16.6	16.1	
Government Selling Prices: Imported Rice						
Grade	M1	M2	M3	M4	M5	L (whiterice)
Price	14.9	14.1	13.5	13.0	12.4	10.2

Source: BEIKANIKANSURU SIRYO (Files on Rice Prices), MAFF, 1997.

Note: Government selling prices since April 1997.

Excluding tax.

Second, issues that relate rice quality and consumers' preference have to be considered when evaluating future outcomes of market opening also in case of rice. Japanese consumers in general are very sensitive to quality of rice, and prefer Japonica varieties but never Indica. Table 4.4 shows price wedges of rice in the market. The upper rows indicate wholesale prices of domestic rice by variety and by producing region, reflecting evaluation by consumers directly. The bottom rows are government selling prices, which correspond to wholesale prices. In 1997, Koshihikari from Uonuma and Akitakomachi from Akita are classified into the 1st grade of government rice and Kirara from Hokkaido is classified into the 5th grade. Medium grains from California and short grains from the North-East China, for example, are classified into the grade 'M3'. Grade 'L' consists of Thai non-glutinous A1 Super, Thai glutinous A1 Special and broken rice from the US.

Table 4.4 clarifies that the quality difference revealed by consumers brings out a large difference in prices also. Government selling prices of imported rice indicate clearly that quality of imported rice is lower than that of domestic rice in the Japanese market. In addition, the imported rice tends to be left unsold very often, while the prices of semi-controlled rice, which is marketed by the private sector, can be regarded as similar to market clearing prices. Price wedges in the case of rice in Japanese markets indicate a point to be taken into consideration when we try to estimate nominal rates of protection properly.

5. Conclusions

It is valuable to summarize the following characteristics of Japanese agricultural trade liberalization in order to make clear the important conclusions of the study:

- Japan started to open its markets of agricultural products in the 1960s when its economy was taking off. The process was partly involved in a series of policy changes when Japan was becoming a developed country.
- Exports of agricultural products, food in particular, are very limited. Japan has been a net food importer for a long time, reflecting its basic economic condition, i.e. that land is scarce.
- From the late 1960s, political pressure from the US became a major driving force to open Japanese agricultural markets, although the latest situation is induced through implementation of the UR agreement.
- Commodities for which domestic production is limited tended to be liberalized earlier. The livestock sector in Japan could import a large amount of feed at lower prices, which promoted domestic production of this sector. Trade barriers on imports of livestock products have been relatively high on the other hand.
- Agricultural products on the negative list were tariffed, but rice is the exception. The Japanese government has taken great care of the rice sector in the post-war period.
- Trade barriers besides the SPS controls seem to be relatively high even under comprehensive tariffication, in cases of wheat, starch, pork, sugar, the designated dairy products and vegetable oils in particular. In addition, tariffs applied to some commodities are often very sophisticated and complicated, such as tariff escalation cases, tariff 'de-escalation' cases, seasonally different duties on some fruits, applications of TQs to liberalized items, and introduction of the differential duty system on pork products.
- Many measures other than trade policies have played important roles in market openings of some commodities especially those which affect domestic production.
- The SPS controls are fairly effective for restricting importation of many agricultural products, animal products, vegetables and fruits in particular.
- When evaluating the possible effects of improving the market access of some foreign products, their quality compared with that of domestic products has to be taken into consideration, because Japanese consumers are very sensitive to quality components, such as taste, freshness, grade, additive uses, the date of production and so on.

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Appendix Table 1. Main economic indicators.

Year	GDP	Per Capita Agricultural		Value Product	Export	Current Account		AFF Product Trade	Trade
	Constant Price in 1990	Value Added in Agricultural Sector*	National Income in US\$			Import	Balance	Export	Import
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	(¥ billion)	(¥100 million)	(US\$)	(¥100 million)		(million US\$)		(million US\$)	
1960	71,683	12,387	386	19,148					1,933
1961	80,180	13,292	461	21,081					2,340
1962	87,073	15,204	511	24,381					2,263
1963	94,724	15,572	586	25,760	5,452	6,736	-1,284	564	2,925
1964	105,320	16,980	669	28,761	6,673	7,938	-1,265	597	3,278
1965	111,294	18,982	739	31,769	8,452	8,169	283	602	3,451
1966	122,700	21,349	856	35,713	9,776	9,523	253	644	4,097
1967	136,300	25,138	1 003	41,661	10,442	11,663	-1,221	606	4,471
1968	152,532	25,694	1,169	43,846	12,972	12,987	-15	687	4,872
1969	170,765	26,466	1,358	46,587	15,990	15,024	966	818	5,293
1970	188,323	26,293	1,586	46,643	19,318	18,881	437	877	6,249
1971	196,589	25,251	1,745	45,745	24,019	19,712	4,307	940	6,508
1972	213,129	28,836	2,260	50,794	28,591	23,471	5,120	914	8,091
1973	230,249	35,145	3,097	61,120	36,930	38,314	-1,384	1,136	14,104
1974	227,428	42,293	3,396	76,438	55,536	62,110	-6,575	1,202	16,570
1975	234,459	52,054	3,617	90,517	55,753	57,863	-2,110	1,039	15,640
1976	243,779	51,294	4,136	92,946	67,225	64,799	2,427	1,228	17,595
1977	254,481	51,677	5,115	101,140	80,495	70,809	9,686	1,301	19,283
1978	267,898	54,206	7,223	103,476	97,543	79,343	18,200	1,576	21,402
1979	282,589	51,208	6,783	105,390	103,032	110,672	-7,641	1,788	28,927
1980	290,551	45,839	7,561	102,625	129,807	140,528	-10,721	2,227	29,055
1981	299,763	44,532	7,728	107,154	152,030	143,290	8,741	2,372	27,826
1982	308,927	42,579	7,298	106,725	138,831	131,931	6,900	1,950	25,779
1983	316,101	43,683	7,974	110,027	146,927	126,393	20,534	2,088	25,523
1984	328,484	45,223	8,416	117,171	170,114	136,503	33,611	2,246	27,781
1985	342,950	43,800	8,864	116,295	175,638	129,539	46,099	2,046	26,222
1986	352,880	42,018	13,046	114,232	209,151	126,408	82,743	2,210	29,865
1987	367,556	38,352	15,693	105,814	229,221	149,515	79,706	2,291	37,299
1988	390,325	40,009	18,794	105,165	264,917	187,354	77,563	2,530	47,349
1989	409,184	46,145	18,511	110,526	275,175	210,847	64,328	2,526	51,045
1990	429,986	48,172	18,844	114,927	286,948	234,799	52,149	2,504	50,149
1991	446,315	50,274	21,576	114,869	314,525	236,737	77,789	2,670	52,574
1992	450,924	49,309	23,240	112,418	339,650	233,021	106,628	2,808	55,519
1993	452,282	47,694	26,557	104,472	360,911	240,670	120,241	2,830	60,738
1994	455,197	51,084	28,879	113,103	395,600	274,742	120,858	2,927	68,651
1995	461,894	46,186	31,493	104,341	442,937	336,094	106,843	3,035	75,111
1996	480,013	44,138		102,489	412,433	350,654	61,779	2,954	75,146

Source: (1): Economic Planning Agency (EPA).

(2), (4): Statistics of Agricultural Income, Ministry of Agriculture, Forestry and Fisheries, MAFF, in Japanese Fiscal Year (JFY).

(3): SENGO NIHON KEIZAI NO KISEKI (The Economic History of Post-War Japan), EPA, 1998, converted to US\$ using exchange rates in Appendix Table 13.

(5)-(9): Japan Import and Export, MOF. (Summarized and transcribed in Japan Tariff Association (1964-1997)).

Appendix Table 2. Indicators of rice.

Year	Food Balance				Domestic Supply* (5)	Prices			Areas	
	Domestic Production (1)	Import (2)	Export (3) (*000 mt)	Stock Changes (4)		Government Purchase Price (6) (¥/60kg)	Government Selling Price (7)	CIF Price (8) (US\$/mt)	Planted Area: Paddy (9) (*000 ha)	Diversified Area (10)
1960	12,858	219	0	459	12,618	4,162	4,326		3,124	-
1961	12,419	77	0	-566	13,062	4,421	4,314		3,134	-
1962	13,009	182	0	-124	13,315	4,866	4,819		3,134	-
1963	12,812	239	0	-359	13,410	5,268	4,783		3,133	-
1964	12,584	502	0	-275	13,361	5,985	5,570		3,126	-
1965	12,409	1,052	0	468	12,993	6,538	6,063	150	3,123	-
1966	12,745	679	0	921	12,503	7,140	6,063	162	3,129	-
1967	14,453	364	0	2,334	12,483	7,797	6,937	161	3,149	-
1968	14,449	265	35	2,428	12,251	8,256	7,497	185	3,171	-
1969	14,003	48	440	1,646	11,965	8,256	7,442	164	3,173	5
1970	12,689	15	785	-29	11,948	8,272	7,377	127	2,836	337
1971	10,887	10	859	-1,821	11,859	8,522	7,317	87	2,626	541
1972	11,897	12	376	-415	11,948	8,954	7,806	117	2,581	566
1973	12,149	38	430	-321	12,078	10,301	7,770	219	2,568	562
1974	12,292	63	271	51	12,033	13,615	10,256	529	2,675	313
1975	13,165	29	2	1,228	11,964	15,570	12,205	453	2,719	264
1976	11,772	18	3	-32	11,819	16,572	13,451	339	2,741	194
1977	13,095	71	100	1,583	11,483	17,232	14,771	201	2,723	212
1978	12,589	45	1	1,269	11,364	17,251	15,391	565	2,516	438
1979	11,958	20	868	-108	11,218	17,279	15,891	280	2,468	472
1980	9,751	27	754	-2,185	11,209	17,674	16,391	316	2,350	585
1981	10,259	67	716	-1,520	11,130	17,756	17,033	457	2,251	668
1982	10,270	61	348	-1,005	10,988	17,951	17,033	457	2,230	672
1983	10,366	18	384	-979	10,979	18,266	17,673	279	2,246	639
1984	11,878	165	0	1,105	10,938	18,668	18,327	444	2,290	620
1985	11,662	30	0	843	10,849	18,668	18,598	222	2,318	594
1986	11,647	41	0	892	10,796	18,668	18,598	179	2,280	618
1987	10,627	39	0	19	10,647	17,557	18,130	198	2,123	791
1988	9,935	43	0	-606	10,584	16,743	18,396	265	2,087	843
1989	10,347	50	0	-130	10,527	16,743	18,396	320	2,076	846
1990	10,499	50	0	65	10,484	16,500	18,203	258	2,055	849
1991	9,604	57	0	-852	10,513	16,392	18,123	278	2,033	852
1992	10,573	92	0	163	10,502	16,392	18,123	314	2,092	751
1993	7,834	1,049	0	-1,593	10,476	16,392	18,123	391	2,127	713
1994	11,981	1,835	0	3,794	10,022	16,392	18,123	559	2,200	588
1995	10,748	495	581	177	10,485	16,392	18,123	717	2,106	663
1996	10,344	634	6	783	10,189	16,392	18,101	615	1,967	673

Source: (1)-(5) Food Balance Sheet, Ministry of Agriculture, Forestry and Fisheries (MAFF), in JFY.

(6), (7) Agricultural Statistical Yearbook, MAFF.

(7) Japan Import and Export, MOF.

(9) Crop Statistics, MAFF, in harvest year.

(10) MAFF, in JFY. Diversified area in, 1996 is not consistent with before.

Note: (1) * excludes quantities for feed use under disposal programs on surplus rice, during the period of 1970-1973 and 1981-1986.

(2) Brown rice basis for food balance and government purchase price.

Appendix Table 3. Indicators of wheat.

Year	Food Balance				Domestic Supply	for Feed	(Domestic) Government Purchase Price	Prices		(Imported) Government Purchase Price
	Domestic Production	Import	Export	Stock Changes				Government Selling Price	(Imported) Government Purchase Price	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
			('000 mt)					(¥/mt)		
1960	1,531	2,660	47	179	3,965	468	35,817	33,400	26,119	
1961	1,781	2,660	71	180	4,190	616	38,050	32,933		
1962	1,631	2,490	93	-244	4,272	646	40,067	32,600		
1963	716	3,412	73	-235	4,290	520	41,217	32,600		
1964	1,244	3,471	68	142	4,505	534	43,183	32,600		
1965	1,287	3,532	88	100	4,631	530	45,217	32,600	27,252	
1966	1,024	4,103	79	65	4,983	543	48,367	32,317		
1967	997	4,238	87	42	5,106	592	50,567	32,100		
1968	1,012	3,996	114	-198	5,092	567	52,833	32,100		
1969	758	4,537	81	-31	5,245	667	54,450	31,917		
1970	474	4,621	47	-159	5,207	701	57,183	31,917	27,385	
1971	440	4,726	55	-95	5,206	632	61,117	31,983		
1972	284	5,317	56	173	5,372	713	63,500	31,167		
1973	202	5,369	38	35	5,498	708	72,417	31,167		
1974	232	5,485	26	174	5,517	619	92,733	42,733		
1975	241	5,715	34	344	5,578	590	102,150	49,233	61,506	
1976	222	5,545	44	63	5,660	576	109,567	54,533		
1977	236	5,662	4	133	5,761	637	158,250	54,533	38,190	
1978	367	5,679	2	183	5,861	669	161,533	54,133	35,320	
1979	541	5,544	4	61	6,020	683	165,383	60,367	46,468	
1980	583	5,564	5	88	6,054	647	178,400	60,367	54,032	
1981	587	5,504	11	46	6,034	663	184,117	63,533	51,931	
1982	742	5,432	10	129	6,035	627	184,117	68,733	51,609	
1983	695	5,544	0	180	6,059	644	184,867	68,917	49,056	
1984	741	5,553	0	130	6,164	650	184,867	68,917	47,690	
1985	874	5,194	0	-33	6,101	563	184,867	68,917	45,741	
1986	876	5,200	0	22	6,054	512	182,717	64,767	28,770	
1987	864	5,133	0	-72	6,069	500	173,750	60,433	24,320	
1988	1,021	5,290	0	171	6,140	530	165,750	60,433	28,320	
1989	985	5,182	0	-37	6,204	561	159,950	57,200	33,305	
1990	952	5,307	0	-11	6,270	613	153,717	51,300	29,391	
1991	759	5,413	0	-168	6,340	674	151,833	49,450	27,119	
1992	759	5,650	0	135	6,274	615	151,833	49,450	29,294	
1993	638	5,607	0	-99	6,344	595	151,833	44,367	27,308	
1994	565	6,044	0	194	6,415	509	151,833	41,933	26,097	
1995	444	5,750	0	-161	6,355	486	151,833	41,050	26,556	
1996	478	5,907	0	-16	6,401	473	151,833	41,050	32,148	

Source: (1)-(6) Food Balance Sheet, MAFF, in JFY.

(7)-(9) Annual Statistics of Food, Food Agency, MAFF, in JFY.

Note: Prices of domestic products are not necessarily consistent according to changes in grading system.

Appendix Table 4. Food balance of maize and barley.

Year	Maize					Barley				
	Domestic Production	Import	Stock Changes	Domestic Supply	for Feed	Domestic Production	Import	Export	Stock Changes	Domestic Supply
1960	113	1,514	30	1,597	1,503	2,301	30	1	189	2,141
1961	116	1,914	20	2,010	1,897	1,976	0	0	-254	2,230
1962	104	2,425	40	2,489	2,312	1,726	0	1	-251	1,976
1963	104	2,894	113	2,885	2,616	759	414	1	-317	1,489
1964	84	3,139	-187	3,410	3,040	1,202	580	0	64	1,718
1965	75	3,558	221	3,412	2,894	1,234	512	0	58	1,688
1966	63	3,696	-107	3,866	3,243	1,105	598	0	-4	1,707
1967	61	4,191	192	4,060	3,293	1,032	666	2	-43	1,739
1968	51	5,270	229	5,092	4,164	1,021	777	2	84	1,712
1969	40	5,728	-20	5,785	4,789	812	806	2	-93	1,709
1970	33	5,647	104	5,575	4,440	573	1,072	2	-42	1,685
1971	25	5,248	134	5,139	3,966	503	1,138	0	-105	1,746
1972	23	6,439	-62	6,524	5,310	324	1,488	0	-30	1,842
1973	17	8,021	362	7,676	6,345	216	1,817	0	-93	2,126
1974	14	7,719	232	7,501	6,121	233	2,038	0	139	2,132
1975	14	7,568	80	7,502	6,272	221	2,117	0	143	2,195
1976	12	8,612	134	8,490	6,841	210	2,258	0	215	2,253
1977	8	9,313	-29	9,350	7,578	206	2,238	0	92	2,352
1978	7	10,736	464	10,279	8,485	326	2,052	0	-2	2,380
1979	5	11,707	466	11,246	9,256	407	2,132	0	77	2,462
1980	4	13,331	384	12,951	10,615	385	2,087	0	-104	2,576
1981	3	13,248	-32	13,283	10,753	383	2,225	0	49	2,559
1982	2	14,206	574	13,634	11,019	390	1,833	0	-261	2,484
1983	1	14,649	295	14,355	11,478	379	2,275	0	69	2,585
1984	2	13,976	217	13,761	10,821	396	2,284	0	209	2,471
1985	2	14,449	447	14,004	11,018	378	2,071	0	-6	2,455
1986	1	14,868	37	14,832	11,709	344	1,942	0	-40	2,326
1987	1	16,602	193	16,410	13,065	353	1,988	0	12	2,329
1988	1	16,481	327	16,155	12,550	399	2,120	0	81	2,438
1989	1	15,907	-9	15,917	12,326	371	2,087	0	-49	2,507
1990	1	16,074	55	16,020	12,304	346	2,211	0	-58	2,615
1991	1	16,655	353	16,303	12,519	283	2,478	0	34	2,727
1992	1	16,435	-114	16,550	12,639	286	2,550	0	89	2,747
1993	1	16,864	251	16,614	12,791	283	2,369	0	-111	2,763
1994	0	16,198	149	16,049	12,320	225	2,619	0	23	2,821
1995	0	15,983	37	15,946	12,353	219	2,640	0	115	2,744
1996	0	16,258	402	15,856	11,970	234	2,455	0	-30	2,719

Source: Food Balance Sheet, MAFF, in JFY.

Note: Maize export is rare in this period.

Appendix Table 5. Indicators of soybeans and rapeseed.

Year	Food Balance: Soybeans				Soybean Prices		Rapeseed			
	Domestic Production	Import	Export	Stock Changes	Domestic Supply	Domestic Soybeans Guaranteed Price	Domestic Soybeans Market Price	Imported CIF Price	Domestic Production	CIF Price
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
			('000mt)			(¥/60kg)		(US\$/mt)	('000 mt)	(US\$/mt)
1960	418	1,081	0	-18	1,517	3,200	2,526	95	264	130
1961	387	1,176	0	-5	1,568	3,200	2,347	111	274	121
1962	336	1,284	0	19	1,601	3,200	3,012	103	247	109
1963	318	1,617	0	56	1,879	3,310	3,053	109	109	109
1964	240	1,607	0	-34	1,881	3,510	3,550	115	135	120
1965	230	1,847	0	47	2,030	3,700	3,215	122	126	129
1966	199	2,168	4	74	2,289	4,000	2,456	125	95	118
1967	190	2,170	1	-66	2,425	4,130	3,671	125	79	122
1968	168	2,421	1	5	2,583	4,290	3,181	113	68	103
1969	136	2,591	0	-52	2,779	4,650	4,247	108	48	102
1970	126	3,244	0	75	3,295	5,010	3,202	113	30	123
1971	122	3,212	0	-2	3,336	5,440	2,960	131	23	136
1972	127	3,399	0	30	3,496	5,800	7,579	140	16	126
1973	118	3,635	0	133	3,620	6,750	5,336	212	13	182
1974	133	3,244	0	-237	3,614	8,850	4,785	272	9	326
1975	126	3,334	0	-42	3,502	9,672	5,364	282	7	367
1976	110	3,554	0	112	3,552	10,433	9,669	237	6	263
1977	111	3,602	0	-21	3,734	14,846	10,813	303	5	298
1978	190	4,260	0	260	4,190	15,133	2,542	265	5	289
1979	192	4,132	20	-28	4,332	15,638	3,320	308	5	297
1980	174	4,401	30	159	4,386	16,780	5,199	298	4	296
1981	212	4,197	40	-57	4,426	17,210	4,284	333	4	316
1982	226	4,344	13	7	4,550	17,210	3,373	266	4	294
1983	217	4,995	3	249	4,960	17,210	5,490	275	3	289
1984	238	4,515	0	-61	4,814	17,210	3,600	321	3	365
1985	228	4,910	0	113	5,025	17,210	2,754	246	3	296
1986	245	4,817	0	45	5,017	16,925	2,875	223	2	210
1987	287	4,797	0	98	4,986	15,935	3,324	226	2	198
1988	277	4,685	0	95	4,867	15,060	4,520	304	2	298
1989	272	4,346	0	-130	4,748	15,060	5,592	311	2	293
1990	220	4,681	0	80	4,821	14,397	6,555	269	2	291
1991	197	4,331	0	-100	4,628	14,218	7,308	265	2	278
1992	188	4,725	0	91	4,822	14,218	9,646	261	2	269
1993	101	5,031	0	133	4,999	14,218	15,448	273	1	288
1994	99	4,731	0	-51	4,881	14,218	10,060	295	2	327
1995	119	4,813	0	13	4,919	14,218	9,881	285	1	336
1996	148	4,870	0	51	4,967	14,218		341		352

Source: (1)-(5) Food Balance Sheet, MAFF, in JFY.

(6), (7) DAIZZU NI KANSURU SIRYO (Files on Soybeans), MAFF.

(8), (10) Japan Import and Export, MOF.

(9) Crop Statistics, MAFF.

Appendix Table 6. Indicators of sugar and sweetener.

Year	Balance of Raw Sugar				Domestic Supply (5)	Guaranteed Price		Prices		Demand for Fructose Syrup (10) ('000 mt)
	Domestic Production (1)	Import (2)	Export (3) ('000 mt)	Stock Changes (4)		Sugar Beet (6) (¥/mt)	Sugarcane (7)	Purchase Price of Beet Sugar (8) (¥/mt)	CIF Price Raw Sugar (9) (US\$/mt)	
1960	5	1,244	0	15	1,234	5,250				
1961	17	1,354	0	28	1,343	5,250				
1962	31	1,366	0	-22	1,419	5,400				
1963	55	1,362	0	25	1,392	6,450				
1964	65	1,614	4	84	1,591	6,450	5,750			
1965	85	1,642	1	74	1,652	6,550	5,850	99,000	70	
1966	102	1,631	2	-24	1,755	6,710	5,990	98,000	54	
1967	97	1,907	0	61	1,943	6,970	6,120	96,000	50	
1968	88	2,098	0	87	2,099	7,260	6,260	97,000	51	
1969	95	2,179	0	-18	2,292	7,500	6,410	97,100	75	
1970	78	2,758	0	217	2,619	7,760	6,570	97,500	99	
1971	71	2,449	0	-98	2,618	8,000	6,750	99,000	116	
1972	243	2,542	0	-54	2,839	8,250	6,950	102,600	155	
1973	237	2,506	0	-135	2,878	8,560	10,000	114,000	183	
1974	198	2,768	0	173	2,793	15,000	15,000	166,500	418	
1975	219	2,243	0	-314	2,776	16,000	16,100	188,600	683	
1976	223	2,523	0	6	2,740	17,000	17,100	206,900	395	
1977	259	2,769	0	157	2,871	18,120	18,370	219,900	268	161
1978	275	2,192	0	-100	2,567	18,470	18,730	222,600	259	192
1979	252	2,617	0	110	2,759	19,090	19,350	235,800	272	257
1980	258	2,106	0	103	2,261	20,480	20,820	246,300	541	432
1981	236	1,683	0	-183	2,102	21,020	21,410	254,500	460	498
1982	255	1,932	0	-51	2,238	21,020	21,450	249,500	218	544
1983	286	1,969	0	200	2,055	21,020	21,470	250,200	217	561
1984	280	1,872	0	-3	2,155	21,020	21,470	242,700	159	613
1985	299	1,823	0	49	2,074	21,020	21,470	240,750	108	617
1986	270	1,802	0	56	2,016	20,710	21,470	234,860	152	650
1987	243	1,732	0	-28	2,003	19,660	20,960	213,080	165	649
1988	286	1,902	0	109	2,080	18,720	20,540	200,280	241	668
1989	309	1,812	0	80	2,041	18,450	20,540	194,176	287	718
1990	239	1,672	0	-98	2,009	17,720	20,540	188,222	305	725
1991	200	1,884	0	129	1,955	17,500	20,540	185,822	246	710
1992	218	1,730	0	14	1,934	17,500	20,540	184,061	242	672
1993	193	1,668	0	42	1,819	17,500	20,540	184,061	259	738
1994	180	1,722	0	-71	1,973	17,500	20,540	177,963	298	727
1995	190	1,730	0	121	1,799	17,500	20,540	175,646	351	733
1996	149	1,605	0	-54	1,808	17,500	20,540	174,832	320	

Source: (1)-(5) Food Balance Sheet, MAFF, in JFY.

(6)-(7) MAFF.

(9) Japan Import and Export, MOF.

(10) KANMI SIGEN SAKUMOTU NI KANSURU SIRYO (Files for Sweeteners), MAFF.

Note: (1) Quantity of fructose syrup is standardized in terms of solids with 55% fructose syrup content.

Appendix Table 7. Food balance of fruit and vegetables.

Year	Fruit				Vegetables				
	Domestic Production (1)	Import (2)	Export (3)	Stock Changes (4)	Domestic Supply (5)	Domestic Production (6)	Import (7)	Export (8)	Domestic Supply (9)
1960	3,307	118	129	0	3,296	11,742	16	19	11,739
1961	3,393	191	137	0	3,447	11,195	14	20	11,189
1962	3,387	245	126	0	3,506	12,245	16	13	12,248
1963	3,573	403	111	0	3,865	13,397	19	12	13,404
1964	3,950	567	130	0	4,387	12,748	19	15	12,752
1965	4,034	573	141	0	4,466	13,490	42	16	13,516
1966	4,578	689	137	0	5,130	14,406	32	15	14,423
1967	4,714	763	162	0	5,315	14,689	53	15	14,727
1968	5,520	934	154	0	6,300	15,950	85	17	16,018
1969	5,174	1,086	148	0	6,112	15,507	85	17	15,575
1970	5,467	1,186	136	0	6,517	15,131	98	12	15,217
1971	5,364	1,375	154	0	6,585	15,777	139	12	15,904
1972	6,435	1,589	110	0	7,914	15,899	211	7	16,103
1973	6,515	1,503	131	0	7,887	15,307	276	5	15,578
1974	6,356	1,385	126	0	7,615	15,690	360	1	16,049
1975	6,686	1,387	80	0	7,993	15,674	230	8	15,896
1976	6,096	1,464	79	0	7,481	15,861	283	4	16,140
1977	6,621	1,481	83	179	7,840	16,659	316	4	16,971
1978	6,173	1,634	78	-99	7,828	16,700	453	3	17,150
1979	6,848	1,621	98	415	7,956	16,522	482	2	17,002
1980	6,196	1,539	97	4	7,635	16,470	495	1	16,964
1981	5,843	1,614	94	-218	7,582	16,593	613	2	17,204
1982	6,239	1,699	100	-61	7,899	16,863	666	3	17,526
1983	6,402	1,611	118	-34	7,926	16,200	768	2	16,966
1984	5,183	1,753	100	-191	7,030	16,597	970	1	17,566
1985	5,747	1,904	90	76	7,486	16,455	866	1	17,320
1986	5,552	2,174	57	170	7,500	16,775	962	1	17,736
1987	5,974	2,260	48	118	8,068	16,695	1,114	4	17,805
1988	5,331	2,383	55	-295	7,954	16,048	1,580	2	17,626
1989	5,210	2,641	46	-27	7,832	16,146	1,527	2	17,671
1990	4,895	2,978	29	81	7,763	15,740	1,551	2	17,289
1991	4,366	3,033	29	-21	7,391	15,269	1,724	2	16,991
1992	4,858	3,449	27	81	8,199	15,612	1,731	4	17,339
1993	4,411	3,776	27	-133	8,293	14,773	1,921	1	16,693
1994	4,267	4,792	19	-127	9,167	14,546	2,331	0	16,877
1995	4,242	4,524	16	117	8,638	14,608	2,628	0	17,236
1996	3,892	4,386	14	-34	8,298	14,615	2,464	1	17,078

Source: Food Balance Sheet, MAFF, in JFY.

Note: (1) Stock changes of fruit are not estimated during the 1960-1976 period.

(2) Balances of $\{(1) + (2) - (3) + (4)\}$ and (5) don't necessarily hold.

(3) Stock changes are not estimated for vegetable.

Appendix Table 8. Indicators of beef.

Year	Domestic Production	Balance		Domestic Supply	Farmgate Price of Live Animal				Market Price of Beef	CIF Price of Beef
		Import	Stock Change		Steer Wagyu	Calf		Dairy Male		
						Dairy	Wagyu Male			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
	('000 mt)			(¥/10kg)	(¥/10kg)	(¥/head)	(¥/head)	(¥/kg)	(US\$/mt)	
1960	141	6	0	147	1,780				555	
1961	141	6	0	147	1,936				569	
1962	153	4	0	157	2,028				529	
1963	198	5	0	203	2,022				504	
1964	229	6	0	235	2,125				592	
1965	196	11	0	207	2,794		90,560		640	
1966	153	14	0	167	3,392		84,440		782	
1967	160	20	0	180	3,880		93,320		984	
1968	188	19	0	207	4,065		88,940		971	
1969	250	23	0	273	3,925		69,829		847	
1970	282	33	0	315	4,328		87,325	636	960	
1971	302	62	0	364	4,659		114,861		1,118	
1972	310	77	0	387	5,326		147,786		1,378	
1973	236	170	28	378	8,113		27,200		2,330	
1974	354	40	-18	412	7,485		173,300		2,542	
1975	335	91	11	415	8,757	6,568	179,300	1,330	1,654	
1976	309	134	-7	450	9,614	7,339	233,000		1,772	
1977	371	132	6	497	9,528	6,944	250,600		1,605	
1978	406	146	-3	555	9,795	7,171	261,400		2,202	
1979	400	189	13	576	11,500	8,661	329,300	159,000	3,130	
1980	431	172	6	597	11,540	7,965	347,200	148,200	1,274	
1981	476	172	16	632	10,960	7,232	300,200	135,200	1,263	
1982	483	198	0	681	10,570	7,356	245,700	138,600	1,313	
1983	505	208	-11	724	10,140	7,389	225,200	143,800	1,288	
1984	539	213	0	752	10,020	7,353	238,900	140,600	1,280	
1985	556	225	7	774	10,620	7,465	269,500	147,800	1,323	
1986	563	268	14	817	11,160	7,780	322,100	171,700	1,326	
1987	568	319	-6	893	11,780	7,557	397,200	185,100	1,283	
1988	569	408	4	973	12,120	7,395	441,700	193,800	1,222	
1989	539	520	63	996	12,650	7,921	473,400	212,900	1,252	
1990	555	549	9	1,095	12,820	7,194	459,700	177,900	1,256	
1991	581	467	-79	1,127	12,810	6,265	454,100	127,500	1,174	
1992	596	605	-14	1,215	12,150	5,682	399,400	99,120	1,030	
1993	595	810	51	1,354	11,430	5,328	334,000	88,450	1,061	
1994	605	834	-15	1,454	10,970	4,974	330,400	72,680	1,007	
1995	590	941	5	1,526	10,960	4,786	357,800	72,530	999	
1996	547	873	5	1,415				1,132	4,340	

Source: (1)-(4); Food Balance Sheet, MAFF, in JFY. Carcass basis.

(5)-(8); Statistics of Prices in Rural Area, MAFF, in JFY.

(9); MAFF.

(10); Japan import and Export, MOF. Boneless basis.

Note: (3); Stock changes are zero in the above period.

(5); Not consistent before 1964.

(7),(8); Age of 6-7 months old.

(9); Tokyo Market. Designated grade for the Stabilization Band System. Grading system was changed since 1988. Carcass Basis.

Appendix Table 9. Indicators of pig meat.

Year	Food Balance			Domestic Supply (4)	Stabilization Standard Price of Pork (5) (¥/kg)	Market Price of Pork (6)	Farmgate Price of Live Hog (7) (¥/10kg)	Farmgate Price of Piglet (8) (¥/head)	CIF Price of Pork (9) (US\$/kg)
	Domestic Production (1)	Import (2) (’000 mt)	Stock Changes (3)						
1960	149	6	0	155	-		2,067		
1961	240	1	0	241	245		1,627		
1962	322	0	0	322	250		1,669		
1963	271	8	0	279	260		2,318		
1964	314	2	0	316	290		2,141		
1965	431	0	0	431	310	367	2,158	6,313	
1966	603	0	32	571	320		1,895	4,797	
1967	597	0	-23	620	320		2,173	5,731	
1968	582	18	-11	611	320		2,771	8,713	1.09
1969	609	36	0	645	335		2,861	10,818	1.21
1970	779	17	0	796	345	387	2,368	8,984	1.22
1971	849	29	0	878	355		2,689	11,108	1.22
1972	917	90	0	1,007	360		2,851	13,623	1.46
1973	1,012	128	0	1,140	380		3,008	13,690	1.90
1974	1,095	71	0	1,166	507		3,823	16,520	2.18
1975	1,023	208	41	1,190	556	788	4,982	27,650	2.47
1976	1,096	187	15	1,268	601		4,547	25,090	2.72
1977	1,189	161	-23	1,373	627		4,584	24,390	3.00
1978	1,324	155	10	1,469	627		4,272	24,600	3.97
1979	1,465	176	15	1,626	601		3,728	20,220	3.89
1980	1,430	207	-9	1,646	588	661	4,166	21,800	3.77
1981	1,409	232	-1	1,642	600	674	4,338	22,750	3.90
1982	1,427	199	-21	1,647	600	721	4,503	24,970	3.84
1983	1,430	271	23	1,678	600	708	4,396	24,080	3.88
1984	1,433	262	-2	1,697	600	685	4,318	23,390	3.65
1985	1,559	272	18	1,813	600	586	3,619	17,610	3.70
1986	1,558	292	-40	1,890	540	538	3,417	17,680	5.01
1987	1,592	415	13	1,994	455	497	3,118	16,480	5.05
1988	1,577	484	20	2,041	410	482	3,058	15,770	5.05
1989	1,597	523	54	2,066	400	472	3,006	14,880	4.68
1990	1,536	488	-42	2,066	400	495	3,124	15,910	4.83
1991	1,466	631	13	2,084	400	536	3,422	17,080	4.76
1992	1,432	667	7	2,092	400	499	3,279	17,150	4.93
1993	1,438	650	6	2,082	400	450	2,905	14,410	5.53
1994	1,377	724	-2	2,103	400	451	2,894	14,570	5.86
1995	1,299	772	-24	2,095	400	475	3,091	15,790	6.35
1996	1,263	962	95	2,130	390	486			5.79

Source: (1)-(4); Food Balance Sheet, MAFF.

(5), (7), (8); Statistics of Prices in Rural Area, MAFF.

(6); MAFF.

(9); Japan import and Export, MOF.

Note: 1. Carcass basis for (1)-(6), live weight for (7) and boneless basis for (8).

2. Conversion ratio from carcass to boneless is 0.70.

3. (8); Age of 90-100 days old. F1 of Landrace by 1981, and hybrid since 1982.

Appendix Table 10. Balance of poultry meat and eggs ('000mt).

Year	Poultry Meat					Eggs				
	Domestic Production (1)	Import (2)	Export (3)	Stock Changes (4)	Domestic Supply (5)	Domestic Production (6)	Import (7)	Export (8)	Stock Changes (9)	Domestic Supply (10)
1960	103	0	0	0	103	696	0	7	0	689
1961	132	0	0	0	132	897	0	8	0	889
1962	155	0	0	0	155	981	0	6	0	975
1963	178	5	0	0	183	1,030	0	1	0	1,029
1964	222	4	0	0	226	1,224	0	0	1	1,223
1965	238	8	0	0	246	1,330	2	0	0	1,332
1966	270	7	0	0	277	1,230	5	0	0	1,235
1967	302	10	0	0	312	1,340	17	0	0	1,357
1968	336	18	0	0	354	1,464	36	0	0	1,500
1969	423	20	0	0	443	1,639	31	0	0	1 670
1970	496	12	1	0	507	1,766	51	0	0	1,817
1971	564	30	1	0	593	1,800	46	0	0	1,846
1972	640	29	1	0	668	1,811	37	0	0	1,848
1973	700	26	1	0	725	1,815	44	0	0	1,859
1974	730	21	2	0	749	1,793	41	0	0	1,834
1975	759	28	3	0	784	1,807	55	0	0	1,862
1976	838	40	2	0	876	1,861	51	0	0	1,912
1977	944	48	3	6	983	1,906	58	0	0	1,964
1978	1,022	66	3	0	1,085	1,977	56	0	0	2,033
1979	1,095	69	3	-5	1,166	1,993	44	0	0	2,037
1980	1,120	80	4	2	1,194	1,992	49	0	0	2,041
1981	1,140	104	3	3	1,238	2,016	52	0	0	2,068
1982	1,200	107	3	2	1,302	2,068	41	0	0	2,109
1983	1,257	100	2	-4	1,359	2,092	40	0	0	2,132
1984	1,325	112	2	10	1,425	2,145	29	0	0	2,174
1985	1,354	115	3	0	1,466	2,160	39	0	0	2,199
1986	1,398	187	3	8	1,574	2,272	61	0	0	2,333
1987	1,437	217	4	9	1,641	2,394	36	0	0	2,430
1988	1,436	272	5	8	1,695	2,402	46	0	0	2,448
1989	1,417	296	6	10	1,697	2,423	45	0	0	2,468
1990	1,380	297	8	-9	1,678	2,420	50	0	0	2,470
1991	1,358	392	9	29	1,712	2,536	73	0	0	2 609
1992	1,365	398	7	8	1,748	2,576	92	0	0	2 668
1993	1,318	390	5	-4	1,707	2 601	99	0	0	2,700
1994	1,256	516	3	10	1,759	2,563	104	0	0	2,667
1995	1,252	581	3	10	1,820	2,549	110	0	0	2,659
1996	1,238	613	3	11	1,837	2,562	110	0	0	2,672

Source: Food Balance Sheet, MAFF, in JFY.

Appendix Table 11. Indicators of milk and dairy products.

Year	Domestic Production	Balance in Raw Milk Equivalent			Domestic Supply	Domestic Supply (in Product Weights)			Guaranteed Price of Manufactured Milk
		Import	Export	Stock Changes		Butter	Skimmed Milk Powder	Cheese	
	(1)	(2)	(3) (‘000 mt)	(4)	(5)	(6)	(7) (‘000 mt)	(8)	(9) (¥/kg)
1960	1,939	237	0	0	2,176	13	41	5	-
1961	2,180	276	0	0	2,456	14	46	7	-
1962	2,526	357	0	60	2,823	20	56	9	-
1963	2,837	481	0	30	3,288	21	81	13	-
1964	3,053	486	0	-41	3,580	24	84	13	-
1965	3,271	506	0	-38	3,815	26	80	17	-
1966	3,431	841	0	-5	4,277	34	89	29	37.03
1967	3,663	964	0	135	4,492	34	87	30	40.39
1968	4,140	629	0	39	4,730	39	77	35	42.52
1969	4,575	568	0	117	5,026	39	82	40	43.52
1970	4,789	561	0	-5	5,355	42	85	43	43.73
1971	4,841	569	0	-77	5,487	57	68	43	44.48
1972	4,944	746	0	-29	5,719	54	86	44	45.48
1973	4,898	1,032	0	27	5,903	61	96	51	48.51
1974	4,876	1,038	0	36	5,878	53	104	57	70.02
1975	5,008	1,013	0	-139	6,160	56	109	58	80.29
1976	5,369	1,491	0	208	6,652	57	99	68	86.41
1977	5,846	1,295	0	178	6,963	55	106	76	88.87
1978	6,256	1,343	0	290	7,309	58	117	81	88.87
1979	6,464	1,439	0	106	7,797	63	133	86	88.87
1980	6,498	1,411	8	-42	7,943	68	142	81	88.87
1981	6,612	1,455	5	-241	8,303	72	155	87	86.41
1982	6,848	1,186	6	-151	8,179	74	168	88	88.87
1983	7,086	1,508	0	-54	8,648	74	182	94	88.87
1984	7,200	1,627	0	13	8,814	79	184	99	88.87
1985	7,436	1,579	0	230	8,785	82	185	99	88.87
1986	7,360	1,637	0	21	8,976	82	178	109	88.87
1987	7,428	1,767	0	-381	9,576	87	187	122	89.37
1988	7,717	2,613	1	77	10,253	89	194	143	90.07
1989	8,134	2,175	1	91	10,218	87	188	137	90.07
1990	8,203	2,237	3	-145	10,583	87	204	142	90.07
1991	8,343	2,675	3	195	10,820	87	217	151	87.57
1992	8,617	2,444	2	364	10,695	85	213	162	82.75
1993	8,550	2,434	4	227	10,753	89	216	170	79.83
1994	8,388	2,841	4	-366	11,591	90	230	176	79.83
1995	8,467	3,286	4	-51	11,800	93	231	190	77.75
1996	8,658	3,418	4	-2	12,074	89	231	201	76.75

Source: (1)-(5); Food Balance Sheet, MAFF, in JFY.

(6); MAFF.

Note: (2); Imported dairy products for feed are excluded.

Appendix Table 12. Food balance of vegetable oil and fishery products ('000 mt).

Year	Vegetable Oil					Fishery Products				
	Domestic Production (1)	Import (2)	Export (3)	Stock Changes (4)	Domestic Supply (5)	Domestic Production (6)	Import (7)	Export (8)	Stock Changes (9)	Domestic Supply (10)
1960	426	19	29	-7	423	5,803	100	29	0	5,383
1961	453	19	24	-13	461	6,281	135	24	0	5,892
1962	491	22	9	0	504	6,363	205	9	0	5,914
1963	559	26	12	8	565	6,273	438	12	0	6,113
1964	600	36	8	20	608	5,989	572	8	0	5,845
1965	598	22	17	-10	613	6,502	655	17	0	6,477
1966	679	27	26	-9	689	6,666	625	26	0	6,524
1967	752	27	25	-2	756	7,316	605	25	0	7,194
1968	786	33	25	-8	802	8,164	927	25	0	8,280
1969	815	51	28	-13	851	8,168	750	28	0	8,135
1970	918	53	41	2	928	8,794	745	41	0	8,631
1971	955	45	61	-7	946	9,323	551	64	0	8,925
1972	1,034	85	29	37	1,053	9,707	765	29	0	9,440
1973	1,063	177	36	63	1,141	10,063	1,079	36	0	10,151
1974	1,026	185	27	-27	1,211	10,106	779	27	0	9,889
1975	991	173	12	-60	1,212	9,918	1,088	12	0	10,016
1976	1,049	231	11	-14	1,283	9,990	1,136	11	0	10,097
1977	1,119	223	11	-9	1,340	10,126	1,848	11	742	10,380
1978	1,224	227	15	20	1,416	10,186	1,479	15	-76	10,695
1979	1,309	257	25	63	1,478	9,948	1,707	25	-96	10,736
1980	1,298	247	32	-25	1,538	10,425	1,689	32	357	10,734
1981	1,398	312	7	45	1,658	10,671	1,597	7	128	11,121
1982	1,407	319	11	2	1,713	10,753	1,527	11	-248	11,264
1983	1,459	313	14	-6	1,764	11,256	1,944	14	588	11,658
1984	1,501	270	16	-12	1,767	12,055	1,955	16	671	12,035
1985	1,598	276	11	26	1,837	11,464	2,257	11	101	12,263
1986	1,615	308	15	-33	1,941	11,959	2,928	15	872	12,617
1987	1,644	343	10	38	1,939	11,800	3,299	10	448	13,068
1988	1,658	377	12	16	2,007	11,985	3,699	12	569	13,475
1989	1,636	379	9	-19	2,025	11,120	3,310	9	-558	13,341
1990	1,677	443	5	15	2,100	10,278	3,823	5	-67	13,028
1991	1,671	478	5	14	2,130	9,268	4,320	5	406	12,202
1992	1,693	507	5	18	2,177	8,477	4,718	5	804	11,777
1993	1,706	528	6	-31	2,259	8,013	4,788	6	199	12,030
1994	1,710	545	7	-15	2,263	7,325	5,635	7	312	12,323
1995	1,726	546	6	3	2,263	6,768	6,755	6	1,334	11,906
1996	1,741	540	5	-12	2,288	6,743	5,921	5	600	11,722

Source: Food Balance Sheet, MAFF, in JFY.

Note: (9) Stock changes are not estimated before 1977.

Appendix Table 13. Price indices.

Year	Exchange Rate (1) (¥/US\$)	Consumer Price Index (2) (1995=100)	Agricultural Input Price Index (3) (1990=100)	Total (4)	Agricultural Product Price Indices			
					Semi- Controlled Rice (5)	Wheat and Barley (6)	Pulses (7)	Potato and Sweet Potato (8)
1960	360		33.9	21.9	0.0	23.6	19.9	16.4
1961	360		35.3	23.8	0.0	23.7	20.7	18.2
1962	360		35.8	26.2	0.0	24.7	23.2	22.1
1963	360		37.0	27.9	0.0	24.9	26.5	22.8
1964	360		37.4	29.2	0.0	27.6	29.9	17.0
1965	360		39.2	32.5	0.0	29.7	35.6	24.3
1966	360		41.0	34.9	0.0	31.8	40.1	27.4
1967	360		42.7	38.1	0.0	33.1	34.0	27.5
1968	360		43.9	38.6	0.0	34.7	40.3	24.8
1969	360		44.0	41.4	0.0	35.5	46.2	26.6
1970	360	32.3	45.4	42.6	43.5	37.4	45.0	30.5
1971	351	34.4	47.1	43.4	44.6	39.8	55.4	30.1
1972	308	36.0	49.2	45.7	47.0	41.3	44.6	29.6
1973	273	40.2	62.0	56.3	56.0	46.4	66.7	46.4
1974	292	49.6	77.9	68.3	72.4	60.3	76.6	78.7
1975	300	55.3	82.6	77.2	81.7	68.1	87.2	75.4
1976	294	60.6	86.3	84.5	90.0	73.5	139.1	79.4
1977	260	65.5	88.4	83.8	96.2	103.7	105.7	76.9
1978	202	68.3	86.1	87.4	99.2	106.2	105.7	75.5
1979	230	70.8	91.3	91.0	97.9	108.8	109.7	80.1
1980	221	76.3	101.9	94.4	101.2	116.8	152.7	105.1
1981	228	80.0	105.2	97.1	104.9	119.0	167.6	125.8
1982	252	82.3	104.9	95.0	104.9	118.7	156.0	89.3
1983	239	83.8	104.4	97.1	106.7	119.0	164.2	100.5
1984	239	85.7	104.7	97.5	109.0	118.7	136.9	104.4
1985	240	87.4	102.8	97.5	108.2	118.5	126.4	91.5
1986	170	88.0	97.4	92.6	106.8	117.1	138.6	97.4
1987	146	88.0	95.4	91.1	104.0	112.0	132.4	100.7
1988	129	88.6	95.4	93.9	103.3	107.7	137.8	97.3
1989	139	90.7	98.8	96.5	105.2	104.0	129.1	97.9
1990	146	93.5	100.0	100.0	100.0	100.0	100.0	100.0
1991	136	96.5	101.3	104.4	103.6	99.1	108.2	140.0
1992	128	98.1	101.4	98.1	106.0	99.1	164.9	110.1
1993	112	99.4	101.1	104.9	112.6	100.5	228.0	128.0
1994	103	100.1	100.5	99.9	102.0	101.1	127.0	110.2
1995	95	100.0	100.1	95.7	93.9	101.2	110.7	117.6
1996	110	100.1						

Source: (1); TTS rate by Bank of Tokyo after 1975, Smithsonian rate in 1972, monthly averages by Japan Import and Export, Ministry of Finance (MOF) in 1971, 1973-1974, and fixed rate before September 1971.

(2); Consumer Price Index, National Statistical Office.

(3)-(8); Statistics of Prices in Rural Area, MAFF, in JFY.

Appendix Table 14. Price indices (continued).

Year	Agricultural Product Price Indices (1990=100)					
	Vegetables	Fruit	Eggs	Milk and Dairy Products	Meat	Calf and Piglet
	(1)	(2)	(3)	(4)	(5)	(6)
1960	10.5	21.1	79.2	27.8	44.6	15.9
1961	13.3	26.6	78.0	31.8	42.1	16.1
1962	16.2	32.1	81.0	35.0	43.2	13.7
1963	16.6	31.4	84.4	35.5	49.2	14.9
1964	19.9	29.1	73.3	37.5	47.8	14.7
1965	21.5	32.3	83.4	39.1	53.5	20.7
1966	22.4	32.5	83.0	43.1	54.6	22.2
1967	24.9	35.7	83.4	48.9	61.1	25.8
1968	21.1	30.6	78.9	50.8	69.4	31.6
1969	28.6	44.0	81.4	52.3	67.7	31.1
1970	33.5	49.0	75.6	53.1	63.6	26.0
1971	29.1	48.9	77.2	57.0	69.3	32.0
1972	32.0	41.0	85.2	58.8	73.5	39.9
1973	45.8	44.9	95.5	67.1	89.9	56.6
1974	54.3	56.7	122.2	90.2	99.4	51.8
1975	57.1	61.9	119.4	101.0	123.9	69.5
1976	63.7	77.3	122.0	110.4	122.1	70.6
1977	57.1	67.9	117.4	112.2	120.2	71.1
1978	59.8	77.9	101.3	113.7	115.3	75.0
1979	75.2	66.5	111.6	112.6	115.1	90.1
1980	70.8	73.1	137.7	111.8	119.6	97.3
1981	73.7	85.4	131.9	111.1	119.7	92.1
1982	70.6	75.0	109.9	111.8	121.3	89.9
1983	81.8	66.3	107.6	112.4	118.4	84.3
1984	69.9	95.6	103.1	112.2	116.2	83.0
1985	78.3	84.5	119.5	111.1	106.4	78.3
1986	66.1	75.3	103.6	106.6	104.6	88.4
1987	77.1	68.1	66.1	100.7	99.5	98.2
1988	86.5	74.9	67.7	101.0	98.4	103.8
1989	86.1	84.5	80.5	102.1	100.5	110.4
1990	100.0	100.0	100.0	100.0	100.0	100.0
1991	105.6	119.0	90.0	100.5	101.0	87.4
1992	91.1	102.8	65.4	100.9	95.8	76.9
1993	112.3	91.1	64.7	98.8	88.0	66.2
1994	100.5	117.8	67.6	97.2	85.7	64.9
1995	94.9	103.9	77.2	96.6	87.3	70.3
1996						

Source: Statistics of Prices in Rural Area, MAFF, in JFY.

Appendix Table 15. Indices of AFF import by volume (1995=100).

Year	Agricultural Products				Forestry Products	Fishery Products
	Total	Crop Products	Livestock Products	Silk Products		
1955	7.6	9.9	2.8	5.9	3.2	0.3
1956	7.2	9.1	3.2	11.9	4.9	0.4
1957	7.2	8.9	3.8	8.7	5.0	0.4
1958	7.3	9.3	3.5	3.6	7.3	0.7
1959	7.7	9.6	4.3	5.0	9.7	0.5
1960	8.7	10.6	5.3	3.6	10.9	1.0
1961	10.2	12.1	6.7	6.9	16.7	1.4
1962	11.3	13.5	6.6	3.9	18.7	1.7
1963	14.0	16.2	10.0	7.7	23.7	3.2
1964	16.5	18.7	11.3	8.7	26.5	4.8
1965	19.6	22.3	11.1	28.3	29.1	5.7
1966	22.4	25.2	13.8	73.9	38.3	8.4
1967	23.2	25.6	15.4	86.9	50.7	9.2
1968	24.6	27.1	17.5	61.1	62.1	9.4
1969	27.3	29.5	21.0	117.7	67.3	11.1
1970	31.1	34.9	18.8	177.8	82.5	11.5
1971	32.2	35.3	20.7	250.8	73.6	14.6
1972	37.1	39.3	25.4	405.3	86.0	16.9
1973	42.6	43.8	34.5	352.7	103.9	23.4
1974	39.1	44.0	22.4	239.7	92.8	21.6
1975	36.6	40.1	26.8	156.1	75.8	24.6
1976	41.5	44.3	34.9	161.4	88.8	28.5
1977	43.2	46.6	33.9	194.9	90.0	32.4
1978	44.9	48.1	35.5	281.6	92.4	36.8
1979	48.7	52.6	38.4	207.2	102.8	40.4
1980	46.9	51.7	34.9	135.2	91.1	36.0
1981	47.8	51.0	41.1	79.8	69.8	41.1
1982	49.0	53.3	38.3	142.3	73.8	42.5
1983	51.1	55.5	40.3	142.2	72.2	45.0
1984	53.6	58.1	42.9	117.2	70.6	49.2
1985	54.1	58.8	43.2	117.3	74.5	53.9
1986	58.6	63.4	47.5	119.5	76.8	61.2
1987	66.7	71.5	55.6	104.5	92.7	69.3
1988	76.1	81.3	63.6	139.0	101.1	81.2
1989	75.2	78.2	68.1	130.0	108.0	78.6
1990	76.3	79.4	69.1	124.5	102.4	82.8
1991	80.1	82.5	74.1	132.9	102.1	87.9
1992	84.0	85.6	80.2	98.4	99.5	90.3
1993	86.2	88.1	82.0	95.9	102.0	96.4
1994	93.4	95.1	89.4	124.5	99.7	99.9
1995	100.0	100.0	100.0	100.0	100.0	100.0
1996	102.0	101.4	103.0	151.3	115.1	101.9

Source: NOURINSUISANBUTU YUSYUTUNYU NO SUURYO-KAKAKU SISUU
 (Volume and Price Indices of Import and Export for Agricultural, Forestry and
 Fishery Products), MAFF.

Appendix Table 16. Indices of AFF import by price (1995=100).

Year	Total	Agricultural Products			Forestry Products	Fishery Products
		Crop Products	Livestock Products	Silk Products		
1955	115.4	120.3	79.4	67.8	67.6	42.0
1956	112.6	117.1	81.0	48.3	54.0	46.0
1957	118.0	122.1	89.6	70.2	51.6	43.7
1958	106.4	109.9	78.0	66.2	39.8	28.6
1959	104.4	106.7	82.0	79.4	43.0	31.7
1960	102.0	104.5	78.3	86.0	49.4	35.7
1961	102.4	106.9	75.8	76.8	47.6	35.9
1962	97.7	104.1	70.9	75.2	50.5	38.4
1963	108.8	121.4	60.2	123.5	50.8	41.1
1964	109.6	125.1	61.6	136.7	49.1	42.2
1965	99.5	112.1	67.6	115.3	50.8	41.2
1966	101.2	111.0	79.8	124.6	52.6	44.9
1967	101.6	113.6	70.9	154.1	55.6	46.8
1968	97.9	110.2	64.1	169.7	56.7	47.9
1969	98.9	109.7	68.2	155.7	58.0	52.9
1970	104.4	115.1	75.0	168.9	59.6	62.4
1971	107.2	118.8	74.9	169.4	60.6	65.4
1972	100.4	106.7	86.6	156.0	55.1	70.3
1973	125.5	131.8	108.7	243.3	80.9	80.2
1974	194.3	217.1	133.9	245.4	105.3	93.5
1975	218.0	252.8	120.4	205.1	96.5	98.0
1976	194.7	217.1	133.0	202.2	107.4	123.6
1977	182.0	201.1	128.4	222.5	104.0	126.9
1978	148.2	156.3	124.3	207.4	85.3	114.8
1979	175.0	181.6	157.3	247.0	136.6	143.8
1980	201.1	216.4	157.9	263.9	159.8	132.6
1981	202.3	218.4	159.4	176.8	133.1	133.6
1982	195.5	204.3	172.9	222.0	141.3	153.8
1983	187.0	198.0	157.6	220.6	120.0	139.5
1984	197.7	209.5	166.3	208.5	124.6	133.2
1985	180.2	187.0	163.6	189.0	114.6	136.3
1986	129.7	130.9	128.3	134.0	86.5	117.4
1987	111.3	107.7	122.7	110.0	95.4	112.3
1988	111.4	107.8	122.3	146.4	89.5	112.9
1989	132.5	131.8	133.4	238.8	108.5	118.2
1990	135.9	135.5	136.1	234.7	113.0	117.1
1991	125.9	127.1	122.8	187.2	104.3	117.4
1992	121.4	122.1	119.9	147.1	105.1	114.2
1993	105.6	105.9	105.1	116.4	120.0	99.9
1994	101.9	102.8	100.0	111.0	109.7	101.1
1995	100.0	100.0	100.0	100.0	100.0	100.0
1996	116.6	119.6	110.6	90.2	101.9	109.1

Source: NOURINSUISANBUTU YUSYUTUNYU NO SUURYO-KAKAKU SISUU
(Volume and Price Indices of Import and Export for Agricultural, Forestry and
Fishery Products), MAFF. CIF basis in yen.

Appendix Table 17. Indices of AFF export by volume (1995=100).

Year	Agricultural Products				Forestry Products	Fishery Products
	Total	Crop Products	Livestock Products	Silk Products		
1955	62.5	33.4	50.4	37,488.9	1,036.0	72.1
1956	59.4	32.2	61.6	34,002.6	1,127.4	103.0
1957	62.1	35.6	55.2	33,280.1	1,210.2	99.2
1958	56.6	36.6	78.5	20,802.3	1,337.5	136.7
1959	80.0	46.1	106.1	38,631.3	1,567.7	148.7
1960	84.2	51.0	101.6	38,668.2	1,291.0	143.1
1961	84.8	55.8	101.5	32,505.7	1,221.7	135.4
1962	87.5	57.3	88.0	34,820.2	1,246.1	172.3
1963	73.2	49.9	88.3	25,746.5	1,183.8	162.8
1964	75.7	57.9	93.8	17,624.1	1,217.4	174.7
1965	69.5	58.2	98.9	8,572.8	1,282.4	172.3
1966	68.8	60.6	101.7	4,993.3	1,285.7	166.6
1967	70.8	66.0	92.3	2,753.9	1,158.0	160.4
1968	83.0	73.5	121.7	5,427.0	1,354.6	171.1
1969	81.4	74.2	125.1	2,425.5	1,320.7	164.0
1970	77.6	71.0	134.9	1,701.7	1,061.4	163.0
1971	89.8	82.2	171.1	1,149.6	1,169.9	164.7
1972	71.6	65.2	138.7	963.5	994.5	183.4
1973	64.6	60.2	95.3	1,445.5	557.1	162.1
1974	61.4	58.7	73.2	1,150.3	469.0	155.9
1975	63.0	63.1	40.7	1,198.7	407.7	219.9
1976	58.8	57.0	54.5	1,433.3	438.0	227.6
1977	56.3	52.9	75.6	1,395.0	489.8	181.7
1978	38.6	36.0	74.2	1,692.3	463.4	208.4
1979	92.4	89.9	89.8	1,104.2	412.6	208.6
1980	105.5	103.8	97.9	721.6	329.8	213.3
1981	122.4	122.0	97.8	681.2	333.5	199.4
1982	93.6	90.9	98.1	788.1	297.8	207.5
1983	104.5	102.3	96.6	1,291.8	322.6	222.5
1984	96.5	92.4	105.5	1,511.9	285.3	265.1
1985	84.2	79.2	110.4	1,138.1	236.5	253.4
1986	80.4	75.9	105.9	780.6	193.0	236.5
1987	84.1	75.5	133.6	1,136.1	137.7	217.8
1988	78.5	73.6	106.1	676.8	99.4	220.6
1989	83.1	73.5	141.7	827.3	111.6	222.0
1990	86.8	76.9	148.4	1,020.4	124.7	183.5
1991	90.8	83.0	138.3	1,654.1	95.8	167.5
1992	93.4	105.2	130.0	1,244.9	75.2	159.4
1993	95.8	89.8	135.8	125.5	64.5	138.7
1994	95.6	91.6	123.1	0.0	59.9	110.8
1995	100.0	100.0	100.0	100.0	100.0	100.0
1996	97.5	98.6	86.2	97.8	166.8	117.5

Source: *NOURINSUISANBUTU YUSYUTUNYU NO SUURYO-KAKAKU SISUU*
(Volume and Price Indices of Import and Export for Agricultural, Forestry and Fishery Products), MAFF.

Appendix Table 18. Indices of AFF export by price (1995=10).

Year	Agricultural Products				Forestry Products	Fishery Products
	Total	Crop Products	Livestock Products	Silk Products		
1955	40.6	43.4	31.3	385.6	29.6	51.0
1956	40.2	42.6	32.3	379.6	29.5	54.6
1957	41.5	45.6	28.0	384.5	30.3	58.1
1958	36.7	43.0	20.6	321.0	30.0	55.9
1959	37.4	42.1	26.0	335.4	32.1	54.2
1960	40.4	43.8	28.8	377.3	32.6	56.3
1961	42.1	44.9	28.7	425.4	32.2	58.3
1962	41.9	43.6	26.6	455.2	34.1	63.0
1963	46.8	47.1	28.0	550.3	34.7	60.4
1964	42.4	44.2	29.3	468.0	34.7	62.1
1965	45.9	48.3	32.1	508.8	32.2	66.2
1966	47.3	49.7	30.2	585.6	35.5	74.9
1967	47.9	49.6	30.7	671.3	36.5	70.3
1968	47.9	51.0	27.5	612.7	38.5	70.6
1969	49.8	52.6	31.6	629.3	39.3	72.9
1970	54.1	57.2	30.9	748.6	40.7	82.8
1971	56.4	59.3	34.0	701.7	41.6	85.4
1972	56.5	59.5	34.4	575.1	42.0	84.8
1973	63.2	65.5	41.2	942.0	59.4	102.7
1974	86.0	89.3	59.1	1,000.6	73.1	124.2
1975	98.5	100.0	100.6	550.3	73.7	73.5
1976	100.5	102.1	101.2	619.9	87.3	93.1
1977	106.5	108.2	99.1	711.0	95.0	105.8
1978	159.4	164.0	93.2	1,017.1	85.1	86.9
1979	98.1	98.2	103.0	1,355.8	104.4	89.8
1980	109.0	111.1	99.5	1,042.5	118.2	118.8
1981	107.9	109.5	103.4	1,028.7	108.8	121.6
1982	116.3	117.8	111.6	1,300.0	109.1	120.9
1983	106.0	105.8	116.1	1,426.0	112.6	114.0
1984	115.1	115.0	119.0	1,953.0	116.4	109.2
1985	116.4	117.8	111.0	1,533.1	118.8	108.3
1986	94.9	92.8	107.3	986.7	107.0	87.6
1987	88.1	85.9	99.1	1,011.6	110.3	80.3
1988	90.2	84.1	119.7	1,368.5	100.8	80.6
1989	98.9	97.0	106.7	1,266.3	113.3	80.0
1990	107.0	105.4	115.7	552.5	105.5	92.9
1991	103.5	103.5	106.8	411.1	116.9	96.4
1992	103.8	102.3	112.7	347.0	125.6	96.0
1993	94.5	93.2	101.9	292.2	126.5	89.7
1994	94.2	92.0	105.7	-	119.2	101.5
1995	100.0	100.0	100.0	100.0	100.0	100.0
1996	107.7	107.9	105.9	99.2	78.9	102.9

Source: NOURINSUISANBUTU YUSYUTUNYU NO SUURYO-KAKAKU SISUU (Volume and Price Indices of Import and Export for Agricultural, Forestry and Fishery Products), MAFF. FOB basis in yen.