RIETI Discussion Paper Series 04-E-015

How to Measure Non-tariff Barriers?
A Critical Examination of the Price-Differential Approach

FUKAO Kyoji
RIETI

KATAOKA Goushi
UFJ Institute

KUNO Arata
UFJ Institute

RIETI
Research Institute of Economy, Trade & Industry, IAA

The Research Institute of Economy, Trade and Industry
http://www.rieti.go.jp/en/

RIETI Discussion Paper Series 04-E-015

How to Measure Non-tariff Barriers?

A Critical Examination of the Price-Differential Approach

Paper prepared for the TCER Conference

Economic Analysis of the Japan-Korea FTA

September 21-22, 2003, Sapporo

Kyoji Fukao*

Hitotsubashi University and RIETI

Goushi Kataoka

UFJ Institute

Arata Kuno

UFJ Institute

Revised Version: December 2003

---

* Correspondence: Kyoji Fukao, Institute of Economic Research, Hitotsubashi University, Naka 2-1, Kunitachi, Tokyo 186 JAPAN. Tel.: +81-42-580-8359, Fax: +81-42-580 -8333, e-mail: k.fukao@srv.cc.hit-u.ac.jp

1. Introduction

Research on a prospective free trade agreement (FTA) between Japan and the Republic of Korea often emphasizes that, when considering such an agreement, it is important that not only tariff barriers but also non-tariff barriers (NTBs) – which are high in both countries – be eliminated (e.g. JETRO, 2000; KIEP, 2000; Kim et. al., 2003).

In the political background of such discussions there is the fact that with regard to tariff barriers, Korea has higher tariff rates in place against Japan than Japan has against Korea (in the GTAP Version 4 Database the figures are 7.9% against 2.9%, respectively). Accordingly, in the event that tariffs are abolished through a Japan-KOREA FTA, it is thought that Korea would have to make greater concessions to Japan. It has been argued that given the pervasiveness of *non-tariff* barriers in Japan, Korean can increase its exports to Japan if reductions of NTBs are included in a prospective FTA agreement.

In order to study NTBs, the Japan-Korea FTA Study Group launched a Non-tariff Measures (NTM) Cooperation Committee in May 2003.[1] However, so far, neither the study group nor other researchers have come up with a consensus concerning the size of NTBs in Japan and Korea.

This paper attempts to address this issue by critically examining the methods used by preceding studies to measure NTBs. These methods can be classified into the following four categories:[2]

1. The first approach calculates the differential between the import price and the domestic price of each commodity at a disaggregated level and subtracts the tariff rate on the commodity from this

[1] The NTM Cooperation Committee studies only regulatory non-tariff measures imposed by the two governments. In this paper, we use a broader definition of non-tariff barriers and take account of other trade barriers, such as impediments to imports caused by regional business practices.

[2] In addition, in research on barriers relating to trade in services, estimates are also made based on information of the price-costs margins and the profitability of multinational enterprises.

differential. The result is treated as a non-tariff barrier. This approach was developed by Hufbauer and Elliott (1994) in their study on the US. Using a similar method, Sazanami, Urata, and Kawai (1995) estimated the size of tariff and non-tariff barriers in Japan for 1989. This method was applied again for Japan using data for the year 1999 by Kataoka and Kuno (2003). Kim (1995) applied this method to examine the case of Korea for 1994. We call this method the "price-differential approach."

2. The second approach studies the disparity between domestic and foreign prices. See, for example, JETRO (2000).
3. The third approach estimates gravity models and regards the residual error that cannot be explained by the models as tariff and non-tariff barriers. Sohn and Yoon (2001) used this method for Korea and Harrigan (2003) applied it to barriers in Japan, while Wall (1999) used it to discuss the foreign barriers faced by the United States.
4. In the fourth approach, scholars produce a list of individual cases of NTBs and use a frequency measure based on the number of cases as the basis for an international comparison. The Organization for Economic Co-operation and Development (OECD) (various years) and KITA (various years) have compiled lists of NTBs. KIEP (2000), KIET (2002) and Kim (2003) also applied this method.

All of these approaches have their advantages and disadvantages. The fourth approach, for example, has the following drawback: because it is based on qualitative, not quantitative, information on NTBs, it is difficult to estimate either the tariff equivalent size of NTBs or the welfare gain from liberalization.

As for the third method, because there are a variety of factors other than NTBs that are responsible for residual errors (such as imports from overseas affiliates), doubts remain concerning

the estimated results. In addition, although there are many estimates of gravity models at the macro-level, the number of estimates at the disaggregated commodity level is very limited.

In the case of the second method, many estimates concerning absolute purchasing power parity are on an expenditure basis. This results in various problems, including the fact that it is not easy to create data on an industry-by-industry basis and to take account of differences in distribution margins and trade costs among countries. With this approach, it is also difficult to treat tariff barriers and NTBs separately.

It is perhaps for such reasons that the first method, the price-differential approach, is the most widespread as a means of quantitatively measuring NTBs. Thus, it has been widely applied not only in research on the US, Japan and Korea, but also in recent studies on China (Shuguang et. al., 1999) and the European Union (EU) (Messerlin, 2001). However, this approach, too, is not without its problems: as Komiya and Negishi (1998) have pointed out, in order to obtain reliable results, it is necessary to ensure that the quality and the detailed commodity composition of the imports and the domestic demand that are the subject of the comparison is in fact identical. Another drawback is that although subsidies for domestic production impede imports we can not measure such effects using this approach.[3]

Bearing the above in mind, this paper critically examines measurements of Japan's NTBs based on the first method. Four major products are considered, taking fully into account the detailed composition and quality of imported and domestic goods. We will also take account of domestic measures that can affect imports, such as subsidies to domestic production of these products, or price support schemes through market interventions by the government.

The paper is organized as follows: in the succeeding section, we survey preceding studies on

[3] For details, see Baldwin (1970), who classified "selective domestic subsidies" as a NTB.

NTBs. In section 3, we examine the causes of the large price differentials between products made in Japan and imported products for four commodities: beef, rice, steel and petroleum products.

2. A Survey of Preceding Studies on NTBs

In this chapter we will survey preceding studies which tried to measure the size and the quantitative effects of non-tariff barriers in Japan and other countries. We mainly focus on the price differential approach. We also review how NTBs are treated in the GTAP (Global Trade Analysis Project) Database (version 5).

Hufbauer and Elliott (1994) selected 21 items on which the US had imposed tariffs in excess of 9% and, using a partial equilibrium approach, measured the impact on consumers, producers and employment if such tariff rates were reduced to zero. They estimated that assuming the abolition of tariffs on the selected 21 items, the increase in the consumer surplus in 1990 would have been US$32 billion; with the concomitant fall in import prices, domestic production would contract by US$16.7 billion; and approximately 190,000 job opportunities would be lost.

Using the same framework as Hufbauer and Elliott (1994), Sazanami, Urata, and Kawai (1995) measured structural and non-structural non-tariff barriers in 1989 in Japan and analyzed the impact that their abolition would have on consumers, producers and employment. They based their research on the most detailed statistics that were publicly available to compare producer and import prices, and concluded that, on average, the size of tariff and non-tariff barriers on the goods in question amounted to 178.2% (tariff-equivalent), and calculated that if barriers were to be eliminated, this would result in a consumer surplus of 15 trillion yen (approximately 3.8% of 1989 GDP).

Kataoka and Kuno (2003) applied the same methodology as Sazanami, Urata, and Kawai (1995), and found that as of 1999, tariff and non-tariff barriers in Japan on the goods examined in the analysis amounted to 141.0% (tariff equivalent) and that, if these barriers were abolished, the

resulting consumer surplus would increase by 6 trillion yen (approximately 1.3% of 1999 GDP). They concluded that with regard to the goods that Sazanami, Urata, and Kawai (1995) had focused on in their analysis, tariff and non-tariff barriers had fallen by approximately 30 percentage points over ten years.

Kim (1996) analyzed tariff and non-tariff barriers in Korea for 1994. The estimated size of trade barriers was 38.6% for all tradable goods, with tariffs accounting for 7.9 percentage points. In the case of agricultural products, the average trade barrier was 160%, with tariffs accounting for 17 percentage points.

In contrast to the price differential approach described above, another methodology to measure NTBs relies on the international comparison of the retail price of the same product in different countries. We can use the disparity between domestic and foreign prices as an indicator of tariff and non-tariff barriers. For example, the Ministry of Agriculture, Forestry and Fisheries (2003), the Cabinet Office (2003) and the Ministry of Economy, Trade and Industry (2003a) report such statistics. Table 2.1 compares these statistics. The results of these studies clearly show that the domestic/foreign price disparity in Japan has substantially declined in the last ten years.[4]

INSERT Table 2.1

Finally, mention should be made of the Global Trade Analysis Project (GTAP) which is frequently used to evaluate the impact of FTAs. The Version 5 Database of GTAP, which is the most up-to-date version, classifies data on protection and support measures into the following three categories: measures on imports, measures on exports and measures on domestic subsidiaries (see Table 2.2).

INSERT Table 2.2

[4] We should note that in the short run this gap is influenced by exchange rate fluctuations .

In the case of import-related protection, measures are broken down into two categories, ordinary import tariff and anti-dumping duties. Ordinary import tariff rates for goods other than agricultural products are obtained from the World Integrated Trade Solution System (WITS System) provided by the World Bank and UNCTAD; ordinary import tariff rates for agricultural products are obtained from the Agricultural Market Access Database (AMAD); and GTAP uses input-output tables in each country as supplementary information. Because most-favored nation (MFN) status is reflected in the WITS System, it is also reflected in the database. However, non-tariff barriers as defined in the TRAINS database that forms the basis for the WITS System are not reflected in the GTAP database.[5] Although anti-dumping duties are separately treated, values for all the countries are presumed to be zero.

With regard to export data, measures are broken down into the following four categories: ordinary export subsidy rates, export tax rates of the quota under the ATC, voluntary price undertakings, and voluntary export restraints. In the case of the latter two categories, values are presumed to be zero for all countries.

Finally, three categories are incorporated for domestic support measures: ordinary output subsidies, intermediate input subsidies, and factor-based subsidies.

Judging from the above characteristics of the GTAP database on protection and support measures, it is clear that the coverage of GTAP database on NTBs is very limited.

3. Critical Examination of the Price-Differential Approach

In this section, we will examine the causes of the large price differentials between products made

[5] The TRAINS database provides the information on the following NTBs: price control measures, finance measures, automatic licensing measures, quantity control measures, monopolistic measures, and technical measures.

in Japan and imported products for several commodities. Given the size of NTBs and the expected welfare effects of liberalization estimated by Kataoka and Kuno (2003), we have chosen beef, rice, steel and petroleum products.

How Price Differentials Were Calculated by Kataoka and Kuno (2000)

Before we begin our examination, let us summarize the method adopted by Kataoka and Kuno (2003) for their analysis of NTBs. Following Sazanami, Urata, and Kawai (1995), they compared the unit prices of domestic goods with the unit prices of imports for the year 1995. Prices of domestic goods were obtained from the *Japan Input-Output Tables*, *1995* (1999) published by the Management and Coordination Agency, which lists 341 manufacturing industries. Prices of imported goods were obtained from Japan's Customs data provided by the Ministry of Finance (MOF), which are recorded at the 9-digit HS88 level. In order to derive tariff and non-tariff barriers for 1999, Kataoka and Kuno extrapolated the tariff and non-tariff barriers from 1995, using the deflator for domestic and imported goods reported in the *1999 Extended Input-Output Tables* published by MITI.

Their results on tariff and non-tariff barriers for beef, rice, steel and petroleum products are reported in Table 3.1. Based on this data, the authors estimate that beef is subject to NTBs that are equivalent to a 36.1% tariff rate, while the corresponding value for rice is 262.7%, that for steel is 48.5%, and that for petroleum products is 112.2%. They conclude that these products are characterized by high NTBs.

INSERT Table 3.1

Table 3.2 shows the correspondence between the basic industry classification of the I-O tables and the commodity classification (HS 9-digit) of the Customs statistics. This illustrates that each industry of the I-O tables usually contains quite a large number of commodities in the HS classification.

INSERT Table 3.2

In the remainder of this section we shall study in detail the characteristics of the trade structure and domestic markets for each product and try to determine whether the estimated "NTBs" are genuine or just the result of differences either in quality or the composition of imported and domestic products.

(1) Beef

(a) Trade structure

Japan's self-sufficiency rate for beef production[6] has fallen dramatically in recent decades, dropping from 90% in the 1960s to 36% in FY2001 (see Fig. 3.1). This development is a reflection, on the one hand, of the liberalization of beef imports following a series of US-Japan bilateral negotiation on beef since 1978 and, on the other hand, changes in dietary patterns in Japan.

INSERT Fig 3.1

Against this background, Japan's beef imports in 2002 stood at about 189.6 billion yen,[7] a 32% drop from the year before (279 billion yen), when BSE (Bovine Spongiform Encephalopathy)-infected cattle were first detected in Japan.[8] In addition, imports of beef offal (including tongues and innards) amounted to around 40.9 billion yen in 2002. Looking at the value of Japan's imports by country, Australia and the US took the overwhelming share of imports. They were the source of 97% of fresh or chilled beef, while the two accounted for 91% of frozen beef

---

[6] Self-sufficiency rate = domestic production volume/domestic consumption volume x 100. (Ministry of Agriculture, Forestry and Fisheries, 2002). The same formula is used for calculating the self-sufficiency rate for rice in the following section.

[7] Aggregation of fresh or chilled beef (HS code 0201) and frozen beef (HS code 0202). It should be noted that the statistics of the Ministry of Finance are made on a calendar-year basis, while the previously mentioned statistics of the Ministry of Agriculture Forestry and Fisheries are made on a fiscal-year basis.

[8] Ministry of Finance, various years.

imports (see Table 3.3).

INSERT Table 3.3

(b) Study of disparities in the domestic beef distribution structure and quality/item composition

Before we compare prices, let us briefly mention the distribution and market structures for domestic beef. Meat distribution has four stages: livestock distribution, butchery, wholesale and retail. Livestock distribution is the trading of live cattle, with the trade taking place among agricultural cooperatives and other bulk shipping organizations, the livestock market and bulk shippers (livestock dealers). Cattle that is traded as livestock is slaughtered and dressed (and butchered), then sold through wholesale meat market auctions or face-to-face transactions at meat centers between producers, producer groups, wholesalers and retailers (wholesale stage). Japan has set national standards for beef trading whereby livestock is graded at meat markets (central wholesale markets and regional wholesale markets) and meat centers by yield grade[9] and meat quality grade,[10] gradings which are applied as a standard when forming prices. Finally, restaurants, bulk stores and butcheries supply the consumer (retail stage).

Table 3.4 shows the retail prices of domestic and imported beef in 2000. The table shows that there is a huge price differential between domestic and imported beef. It seems that consumers have a strong preference for domestic beef.

INSERT Table 3.4

[9] Yield is based on four criteria: cut surface, thickness of cut, chilled left half and body weight, and subcutaneous fat thickness. Based on these, the animal is graded A (better than standard), B (standard) or C (below standard).

[10] After meat quality grading based on the four criteria of fat mixing, meat color and gloss, meat toughness and texture, and fat color, gloss and quality, it is finally evaluated on a scale of 1-5.

Regarding the origin of this price differential, it is possible that there is a difference in the quality of Japanese and imported beef. According to the results of grading made by the Japan Meat Grading Association (Table 3.5) which is the basis for wholesale prices in Japan, over 50% of Japanese beef (Japanese cow, Japanese steer) is graded between A-2 and A-5, but for other beef (other cows, other steers – foreign cattle breeds and mixed Japanese-foreign cattle breeds), a high proportion of animals is graded B-2 in the overall grading, with under 5% of animals graded from A-2 to A-5. This suggests that there is a quality differential between domestically produced beef and imported beef and this difference causes retail price gaps.

INSERT Table 3.5

Another reason here may be that the grading system that is applied in Japan and sets wholesale price criteria is not harmonized with those grading systems adopted in the US and Australia. The third possible explanation might be that apart from brand names, there is not enough information available to consumers to allow them to compare the quality and safety of domestic and imported beef, possibly giving consumers a mistaken image of the products.[11]

Table 3.6 compares beef price between the US and Japan. This table implicitly shows the cost structure of imported beef sold to Japanese consumers. We can explain the price differential between the US wholesale price and the trade price in Japan by a tariff of 36 % and additional transportation and distribution costs. If we use the bargain sale price as the retail price, the distribution margins between trade prices and retail prices are not so large. Judging from these facts, it seems that we can explain the price differential between imported and domestic beef by the difference in the commodity composition, duties, and consumer preferences. We can conclude that there are no substantial NTBs in the case of beef except the grading-system and the information issue.

INSERT Table 3.6

[11] There are two possible explanations for the mistaken product image. One is the possibility that while the quality and safety of domestic beef is higher than that of imported beef, that is not fully understood. Another is the possibility that consumers are not sufficiently informed of the high quality and safety of imported beef.

(c) Measures that can affect trade

Before 1991, Japan imposed an import quota on beef, and imports were monopolized by a state-trading entity, namely the Agriculture and Livestock Industries Corporation. The US repeatedly requested Japan to liberalize beef imports at the first round (1978) and the second round (1984) of US-Japan bilateral negotiations on beef, but the talks became bogged down and, finally, in 1986, the US requested the GATT secretariat to establish a panel on the grounds that Japan's import restrictions on 12 agricultural products, including processed beef products, violated GATT Article 11 (general elimination of quantitative restrictions).[12] Moreover, the US filed a similar GATT petition regarding import restrictions on beef and citrus fruits in 1988. In June 1988, Japan finally agreed to eliminate its import quota on beef, and the quota was tariffficated in April 1991.[13]

The applied tariff rate on beef in 1991 was 70%, but Japan then reduced the rate on the basis of an agreement during the Uruguay Round negotiations. Although the tariff rate is now 38.5% (concession rate: 50%) - almost half of what it was when tariff was first set in 1991 - the rate is still at a relatively high level[14] when compared with the simple average applied rate on all imports into Japan (6.9%) and the simple average applied rate on agricultural products (18.6%).[15]

On August 1, 2003, Japan imposed safeguard measures on imported fresh and chilled beef, lifting the tariff rate from 38.5% to the WTO concession rate of 50%.[16] The safeguard measure on

---

[12] Matsushita, Shimizu and Nakagawa (2003).

[13] It is important to note that fishery products were not covered by the tariffication process of GATT and Japan still keeps import quotas for a broad variety of fishery products.

[14] The US government is also looking at the issue of the high-tariff regime on beef and has indicated that it will raise the reduction of the beef tariff rate as a high priority negotiating item at the next WTO agriculture negotiations (USTR, 2003).

[15] WTO (2002a).

[16] In effect until March 31, 2004. Emergency beef tariffs were also imposed in 1995 and 1996,

beef was negotiated during the Uruguay Round as a payoff for the tariff reduction, but the US government has made the criticism that the "recent growth in imports was simply a recovery to normal levels from depressed ones caused by the year 2001 BSE crisis, and not a true import surge that the safeguard measures were designed for."[17]

Unlike other tariff revenues, those from beef imports in Japan are utilized as a part of beef-related subsidies, such as funding for the rationalization of beef production and meat distribution.[18]

Measures to support domestic beef producers in Japan include a beef price support scheme through market interventions by the Agriculture and Livestock Industries Corporation,[19] production subsidies and income supports for beef producers,[20] measures to rationalize distribution[21] and measures to increase the consumption of domestic beef,[22] with total beef and calf subsidization amounting to 168 billion yen annually.[23] These beef-related measures are not illegal measures

---

making this the third time (Ministry of Agriculture, Forestry and Fisheries, 2003a).

[17] USTR (2003).

[18] This is based on the Law Concerning the Stabilization of Livestock Prices (Ministry of Agriculture, Forestry and Fisheries, 2003a).

[19] Based on the Livestock Products Price Stabilization Law, the Agriculture and Livestock Industries Corporation intervenes in the market through buying or selling if wholesale prices diverge from the standard price set by the Minister of Agriculture, Forests and Fisheries. See http://alic.lin.go.jp/alic/gyoumu01.htm for details.

[20] For example, Beef Cattle Management Stabilizing Measures Project (17.2 billion yen), established to support family wages when the profitability of beef producers drops and Calf Production Promotion Measures Project (6.3 billion yen) which aims to maintain or expand cow breeding when calf prices are low (Ministry of Agriculture, Forestry and Fisheries, 2003b).

[21] Such as the General Measures to Rationalize Meat Distribution Project (1.1 billion yen) and the Project to Strengthen the Local Meat Processing System (800 million yen).

[22] General Measures to Promote Consumption of Japanese Meat Project (1 billion yen).

[23] WTO (2002a). The values are for FY1999.

within the WTO regime, but if we look at them from the perspective of allocative efficiency rather than legality, they may distort the market by promoting domestic beef production and consumption.

(2) Rice

(a) Trade structure

With changes in diet, rice consumption in Japan has been on a downward trend, declining from 13 million tons in the 1960s to just over 9 million tons in FY2001. Yet, even though rice over the long term has been the only agricultural produce in which Japan achieved a self-sufficiency ratio of around 100%, as of FY1997, this has fallen short of 100% and in FY2001 was down to 94% (see Fig. 3.2).

INSERT Fig 3.2

Japan imported 27.7 billion yen worth of rice in 2002,[24] a 17% jump on the 23.8 billion yen in the previous year.[25] As for the breakdown of import values by product, milled rice represented the lion's share of imports with 23.6 billion yen, followed by broken rice (3.8 billion yen) and brown rice (approximately 400 million yen).

Looking at import values by country, the US accounted for 54% of milled rice imports, with the remainder imported from China, Australia, Thailand, etc. These four countries accounted for over 98% of Japan's imports of all rice products (see Table 3.7).

INSERT Table 3.7

[24] Sum total of unhusked rice (HS code 1006.10), brown rice (HS code 1006.20), semi-milled or wholly milled rice (HS code 1006.30) and broken rice (HS code 1006.40). However, no unhusked rice was imported in 2002 at all.

[25] Ministry of Finance trade statistics.

(b) Study of disparities in the domestic rice distribution structure and quality/item composition

With regard to the minimum access imports (8% of domestic consumption since 2000), the government has levied a mark-up on the disparity between domestic and foreign prices following the switch to tariffs in 1999, and because of the prohibitively high tariffs (above-quota duties were 341 yen/kg), almost no rice is imported beyond the minimum access volume.[26] Under these circumstances, even though no revenues are collected from tariffs, a large disparity is created between import and domestic prices. Therefore, when analyzing the rice market, we might mistakenly identify the presence of a very high non-tariff barrier if we were to use the price differential approach.

Let us evaluate the size of trade barriers in Japan's rice imports caused by this system. Table 3.8 is the outline of the results of the second round of the SBS (simultaneous buying and selling) system in FY2002.[27] The mark-up averaged 137 yen/kg (average transfer price of 224,056 yen/ton, minus the purchase price of 87,147 yen/ton), which is considerably lower than the above-quota duties of 341 yen/kg on rice in Japan or the in-quota duties (maximum permitted mark-up) of 292 yen/kg.

INSERT Table 3.8

The height of the actual trade barrier to importing rice into Japan is lower than the tariff rate, but may be higher than this mark-up. As we will explain later, most of the minimum access rice is processed or used in aid provision. With basically only Thai rice distributed for use as staple food, distribution is extremely limited, and such restrictions may serve to push down the sales price.

Highly regulated distribution channels seem to give rise to higher transportation and distribution margins for imported rice. For example, in their detailed study of distribution margins and shipping costs at the 1995 SBS tender, Godo and Owens (1998) report that the retail margin for SBS imported

---

[26] We will explain the minimum access system in the next subsection.

[27] We will explain the SBS system in the next subsection.

rice was 30%, much higher than the usual 9% margin (Table 3.9).

INSERT Table 3.9

In order to measure the actual trade barrier, it would be necessary to know how much Japanese consumers would pay for high-quality imported table rice, but as California Akitakomachi rice and other high-value varieties are not distributed as table food, the retail price is unclear, making this kind of estimate difficult. A poor harvest is expected in 2003, which continues to push up domestic rice prices. The disparity between domestic and import prices is widening, and if it were possible to import rice under competitive conditions with above-quota duties, we would be able to observe a very interesting phenomenon whereby the inefficiency of the current minimum access system was made clear. However, in contrast with the 1993 rice year when the harvest last failed, Japan now has a large national stockpile. The international market is also stretched, reflecting the poor harvests in South Korea and Japan. Therefore, international rice prices continue to rise, meaning that such a scenario is unlikely.

(c) Measures that can affect trade[28]

Prior to the Uruguay Round agreement, rice imports were handled exclusively by the Food Agency exclusively as a state-trading item, and Japan hardly imported any rice except in years of poor rice harvests due to cold weather. Although "tariffication without exceptions" was the initially proposed principal for trade in agriculture during the Uruguay Round negotiations, exceptional measures were applied to Japan's rice in order to conclude the long series of negotiations. For the six years covered by the agreement (1995-2000), Japan was allowed to introduce an import quota system and to maintain the state-trading system by the Food Agency. Meanwhile, it was determined that Japan

[28] For the history of rice liberalization, refer to Okuno and Honma (eds) (1998), Hayami and Godo (2002), JETRO (2002), and Godo (2003).

would guarantee "Minimum Access" of rice, with the obligation of importing a certain volume of rice every year.[29] In April 1999, Japan introduced a tariff–rate quota system, a year earlier than initially agreed, maintaining minimum access rice imports under the state-trading system.[30] The current tariff rates are zero for minimum access rice, and 341 yen/kg for above-quota imports.[31]

Two systems exist for the import and sale of minimum access rice: the General Importing System in which the Food Agency imports the rice and sells it to domestic wholesalers through designated importers who participate in a tender, and the simultaneous buying and selling (SBS) system in which importers and wholesalers with buying and selling contracts participate in tenders, with the Food Agency handing the volume of rice to the wholesaler at the moment of importation.[32] In both cases, when the imported rice purchased by the government is sold to the domestic wholesaler, the maximum mark-up of 292 yen/kg is added to offset the domestic-import price differential. In addition, a minimum sales price (non-disclosed) is set by the Food Agency chiefly at SBS rice tenders for table rice,[33] meaning that in reality, consumers are unable to buy imported eating rice at international prices.[34]

---

[29] The minimum access volume in the first fiscal year (1995) was set at 4% of domestic consumption for the standard period (1986-88) and at 8% in 2000. While 680,000 tons of minimum access rice were imported in 2000, only 457 tons of rice were imported under above-quota duties (WTO, 2002).

[30] The current minimum access rice volume is 682,200 tons (JETRO, 2002).

[31] According to USTR estimates, if this were converted to an ad valorem tax, the rate would be 400-1,000% (USTR, 2003).

[32] Hayami and Godo (2002). As of March 2003, 21 companies were accredited general importers, and 43 companies were accredited SBS importers (Food Agency, 2003). 100,000 tons of rice were imported under the SBS system in the rice year 2001 (Research Council on Production Adjustment, 2002).

[33] Study Group on Production Adjustment (2002).

[34] ibid.

Regarding the uses of minimum access rice, in addition to being used in processed foods (37.5% of minimum access rice), in which it is difficult to use high quality domestic rice, the rest is allocated to government stockpiles (32.6%) and foreign aid (20.2%) (Table 3.10).

INSERT Table 3.10

Although a part of the short-grain rice imported under the SBS system is consumed as a staple food, the effect of imported rice on the domestic market is minimized as the government releases a greater amount of government-owned domestic rice for foreign aid, in order to maintain the price level of domestic rice.[35]

In May 2002, Japan took special safeguard (SSG) actions on rice imports, which are applicable only to above-quota imports.[36]

As for other domestic measures related to rice, various kinds of subsidies are being applied and over 300 billion yen have been set aside for a rice policy reform budget for FY2004.[37]

(3) Steel

(a) Trade structure

Japan depends on imports for almost 100% of its iron ores and coking coal, the raw materials and fuel for steel production.[38] However, it was also the second biggest producer of steel in the world by volume (177 million tons) in 2002, with China in first place (181.6 million tons).[39] Looking at trade

---

[35] ibid.

[36] WTO (2002b)G/AG/N/JPN/75.

[37] Ministry of Agriculture, Forestry and Fisheries (2003c). Includes the local production measures, the rice cultivation income base protection measures, leading management stability measures, freight mobility measures, consumer promotion and export promotion.

[38] 126.49 million tons of iron ore and 62.77 million tons of coking coal were imported in FY2001. (Japan Iron and Steel Federation, 2003).

[39] Crude steel production value (IISI, 2003).

in steel,[40] recent years have seen exports consistently outstrip imports, and the gap between exports and imports has been growing steadily since 1999 (see Fig. 3.3). Steel exports in 2002 amounted to 1.6 trillion yen and imports were 273.4 billion yen. Over 40% of all imports were ferro-alloys (HS7202) required in steel production (Table 3.11). [41]

INSERT Fig.3.3, Table 3.11

Looking at steel trade by partner-country, Korea accounted for the highest trade value for both imports and exports, followed by the major trade partners China and Taiwan. Intra-industry trade is proceeding briskly, judging from the fact that trade with these three countries accounts for around 60% of overall imports and approximately 50% of overall exports (Table 3.12).

INSERT Table 3.12

(b) Study of disparities in the domestic steel distribution structure and quality/item composition

Kataoka and Kuno (2003) argue that there is a non-tariff barrier in the steel sector of 48.5% (tariff equivalent).[42] Let us now examine the difference between import and export unit price, and confirm that the price differential approach has various problems.

---

[40] Regarding trends in trade, if not specified otherwise, HS code type 72 (steel) is defined as "steel." Therefore, it would not include iron ores (HS2601) or steel products (HS73) such as those made from steel, for example bridges or railings.

[41] "Ferro-alloys" contain at least one or two metals other than steel or carbon, and are used to remove impurities that damage the quality of the steel in the process of steel production such as oxides, sulfates, and as alloy element additive agents in special steel production. (Japan Metal Daily ed., 2001, pp. 325).

[42] This value is the price differential for each of the basic types in the 1995 inter-industry relations table – ordinary steel sheets, ordinary steel bands, other ordinary steel hot-rolled materials, ordinary steel pipes, plated steel and iron casting – calculated for their import price and domestic price weighting.

Table 3.13 shows Japan's export/import structure on an HS 9-digit basis in the steel sector for ordinary steel sheets, ordinary steel bands, ordinary steel pipes and iron casting, items for which particularly high levels of trade protection were found.

INSERT Table 3.13

Firstly, comparing the average unit price of ordinary steel sheets, ordinary steel bands, ordinary steel pipes and iron casting imports and exports, the average unit prices for every product category are higher for exports than for imports, from which the conclusion is reached that there is a price disparity between domestic and foreign prices.

However, if we look at the structure of import products and export products, only for two types of ordinary steel sheets and ordinary steel bands are the exported and imported goods the same, just one type of iron casting was both imported and exported, and no matching ordinary steel pipes were found in either imports or exports. Distribution ratios for import and export values are also presented in the figure, but the distribution ratios for export and import items are completely different. This would suggest that the steel product profiles for domestic and imported products differ significantly. For example, among commodities classified as ordinary steel pipes, HS 7304 are seamless pipes and HS 7305 and HS 7306 are pipes with a seam. Seamless pipes are generally more expensive and Japan tends to exports seamless pipes while it imports pipes with a seam. This difference in product compositions makes the unit value of Japan's exports of ordinary steel pipes higher than the unit value of Japan's imports.

Judging from these results, it seems possible that the estimated non-tariff barriers in Kataoka and Kuno (2003) derive from the difference of quality and structure between imported and domestic goods.

(c) Measures that can affect trade

While the current steel tariff rates in Japan vary for each product, a glance reveals that very few products are tariff-free indeed, and many items are subject to taxation below 1% (see previous Table 3.11). High-tariff items include relatively unprocessed products such as "ferro-alloys" (a maximum rate of 6.3%), "ferrous waste and scrap, remelting scrap ingots of iron or steel" (a maximum of 4.7%), "iron and non-alloy steel in ingots or other primary forms (excluding iron of heading 7203)" (a maximum of 3.9%).

Unlike agricultural products, no import quotas, tariff-rate quotas or state-trading systems are applied to steel trade, and neither does the WTO Trade Policy Review comment on any other non-tariff barriers.[43]

(4) Petroleum Products

(a) Trade structure

Japan is the world's second largest oil consumer after the US, but its dependence on imported crude oil is over 100%. Meanwhile, its reliance on imports for petroleum products such as fuel oils is just 16%,[44] as most of them are produced domestically by refining imported crude oil. The most heavily-consumed petroleum products in Japan are gasoline, naphtha, and diesel. Looking at Japan's trade in fuel oils, naphtha was a product for which Japan is highly reliant on imports, and products with high export ratios were jet fuel and C-grade heavy oil (see Table 3.14)

INSERT Table 3.14

Looking at trade in petroleum products as a whole, the import amount in 2002 was 800 billion yen, while the export amount was 115 billion yen (see Fig. 3.4). As for Japan's petroleum products

[43] WTO (2002a). However, USTR (2003) points out that major Japanese steel makers implement cooperative actions regarding production, process and market share on the domestic market.

[44] Based on fuel oils.

imports, Korea was the biggest supplier for both "Light petroleum oils and preparations (HS271011)"[45] and "other (HS271019)"[46] (see Table 3.15).

INSERT Fig 3.4, Table 3.15

(b) Study of disparities in the domestic petroleum product distribution structure and quality/item composition

Kataoka and Kuno (2003) argue that the non-tariff barrier for the petroleum products sector is 111.2% (tariff equivalent).[47] Here, let us analyze where the price disparity they have measured comes from by examining in more detail the contrasted products.

Table 3.16 shows Japan's petroleum products sector import/export structure on an HS 9-digit basis for diesel, B- and C-grade heavy oil, kerosene and liquefied petroleum gas (LPG). Due to the lack of appropriate data on domestic wholesale prices, export prices are used instead.

INSERT Table 3.16

Comparing import and export prices for diesel, B- and C-grade heavy oil, kerosene and LPG, all products recorded almost similar prices for exports and for imports, bringing us to the conclusion that we cannot explain the price disparity between domestic and foreign prices by either the difference in quality or structure between imported and domestic goods. Until 1997, imports of specific kinds of petroleum refined products were regulated through a system of registration of importers by law, the Provisional Measures Law on the Importation of Specific Kinds of Petroleum

---

[45] Includes gasoline and kerosene/diesel (light oils).

[46] Includes heavy oils, lubrication oils as well as kerosene/diesel (light oils).

[47] These are aggregate values representing the price difference between import and domestic prices for each of the items in the 1995 inter-industry relations table – jet fuel, kerosene, diesel, A-grade heavy oil, B- and C-grade heavy oil and LPG – weighted according to the total value of domestic production and imports for each item.

Refined Products. It seems that there existed substantial NTBs at least for the period before 1996.

(c) Measures that can affect trade

The importation of specified petroleum products (gasoline, kerosene, diesel), that previously was subject to notification and allowed only to those who fulfill some conditions such as stockpiling capacity, was liberalized in 1996 with the abolition of the Provisional Measures Law on the Importation of Specific Kinds of Petroleum Refined Products. While the current tariff rates on crude oil is 170 yen/kl, tariffs are in principle set at a higher rate for petroleum products than for crude oil in order to promote domestic oil refining (Table 3.17).

INSERT Table 3.17

Revenues from tariffs on crude oil and petroleum products are incorporated in the Special Account for Petroleum. Although such revenues used to fund coal industry structural adjustment programs and coal workers employment programs, they are now used as funds to pay off a public debt.[48]

In addition, crude oil and petroleum products are all subject to a petroleum tax of 2,040 yen/kl on importation, which is used for a range of oil policy programs including oil industry structural adjustment, stockpiling, oil development, energy and environmental measures. Gasoline, aviation fuel and diesel are also subject to indirect taxation when traded domestically.

4. Conclusions

In this paper we critically examined the methods used by preceding studies to measure NTBs. Among the four major categories of NTB measure, we mainly focused on the price differential

[48] Sekiyu Tsushinsha (2002).

approach, which is the one that has been most frequently used in resent researches. This approach calculates the differential between the import price and the domestic price of each commodity at a disaggregated level and subtracts the tariff rate on the commodity from this differential. The result is treated as a non-tariff barrier. We critically examined measurements of Japan's NTBs based on the price differential approach. Four major commodities, beef, rice, steel, and petroleum, were considered, taking fully into account the detailed composition and quality of imported and domestic goods. We also took account of domestic measures that can affect imports, such as subsidies to domestic production of these products, or price support schemes through market interventions by the government.

We found that in the cases of beef, rice, and steel the differential between the import price and the domestic price seems to be explained by other factors than NTBs.

In the case of beef there is a huge price differential between domestic and imported beef in the retail market despite of the existence of domestic subsidies. It seems that consumers have a strong preference for domestic beef and that we can explain the price differential between imported and domestic beef by the difference in the commodity composition, duties, and consumer preferences.

In the case of rice, because of the prohibitively high tariffs, almost no rice is imported beyond minimum access imports. In the process of minimum access imports, the revenue from the price differential between domestic and imported rice accrues to the Japanese government, but this is not treated as tariff revenue. The import and sale of minimum access rice is strictly regulated and Japan imports mainly milled rice and broken rice, which is much cheaper than ordinary table rice. Because of this system, we observe a huge price differential between domestic and imported rice and there is almost no tariff revenue. Since the price differential approach measures NTBs by comparing the price differentials and the tariff revenue per unit of imports, Kataoka and Kuno (2003) concluded that Japan has high NTBs against rice imports. But actually the price differential is less than the

prohibitively high tariffs on rice.

In the case of steel, it seems that the estimated non-tariff barriers in Kataoka and Kuno (2003) derive from the difference of quality and structure between imported and domestic goods. For example, among commodities classified as ordinary steel pipes, seamless pipes are generally more expensive and Japan tends to produce and export seamless pipes while it imports pipes with a seam. It appears that this difference in product composition makes Japan's domestic price of ordinary steel pipes higher than Japan's import price.

In the case of petroleum products, we can not explain the price disparity between domestic and foreign prices by either the difference in quality or structure between imported and domestic goods. Until 1996, imports of specific kinds of petroleum refined products were regulated through a system of registration of importers by law, the Provisional Measures Law on the Importation of Specific Kinds of Petroleum Refined Products. Probably because of the history of strict regulations, it seems that there exist substantial NTBs against petroleum product imports.

A major snag of the price differential approach is that the commodity classification of domestic price statistics (in the case of Japan, the row sector classification of an I-O table is used) is not sufficiently disaggregated. Milled rice, broken rice and table rice are classified as "rice" in the I-O classification. Both seamless steel pipes and steel pipes with a seam are classified as "ordinary steel pipes." When the commodity composition of imports is different from the commodity composition of domestic demand, the price differential approach suffers a serious bias.

Although this paper demonstrates that measures of Japan's NTBs derived by the price differential approach suffers a serious bias in the case of the three commodities out of the four, we do not argue that Japan has abolished all NTBs against imports of these commodities and that there is no need for further studies on Japan's NTBs. Rather, we suggest that a careful analysis of the import and distribution system of each product is indispensable for reliable estimation of NTBs. We

find that the Japanese government subsidizes the production of rice, beef, and petroleum products. In the case of beef, consumer preferences might be distorted by advertisement based on a government fund to promote the consumption of domestic beef and a grading system of beef which is not harmonized with those adopted in the US and Australia. In the case of rice, Japan continues to maintain a highly regulated and inefficient import and distribution system of minimum access imports. However, it seems that as a result of crafty government regulations, Japanese consumers do not realize the burden this system imposes on because it prevents them from gaining access to imported table rice.

References

Baldwin, Richard (1970), *Non-tariff Distortions of International Trade*, the Brookings Institution, Washington, D.C.

Cabinet Office, Government of Japan (GOJ) (2002), *Shuyo na shohizai oyobi sa-bisu ni kakaru naigai kakakusa chosa kekka [Results of the Survey on Disparities between Domestic and Foreign Prices of Major Consumer Products and Services: 2001]*, Cabinet Office, Tokyo.

Dimaranan and McDougall (2002), *Global Trade, Assistance, and Production: The GTAP5 Data Base*, Center for Global Trade Analysis, Purdue University.

Food Agency, Government of Japan (GOJ) (2003), *Heisei 15-nendo ni okeru kome mugi yunyu gyosha no shikaku shinsa kekka ni tsuite [Results of the Examination of the Qualifications of Rice and Oat Importers for FY2003]*, Press Release, available at: http://www.syokuryo.maff.go.jp/archives/data/importt030328.htm.

Godo, Yoshihisa, and Lincoln Owens (1998), 'An Estimation of the Border Price Ratio of Rice in Japan', *Keizai Kenkyu* (Economic Studies), no. 110, pp. 23-35, Meiji Gakuin University.

Godo, Yoshihisa (2003), "Reforming Japan's Agricultural Policies," Robert M. Stern ed., *Issues and Options for U.S.-Japan Trade Policies*, The University of Michigan Press, Michigan.

Harrigan, James, and Rohit Vanjani Inkyo, Cheong (2003), 'Is Japan's Trade (Still) Different?' *Journal of the Japanese and International Economies*, forthcoming, December 2003.

Hayami, Yujiro and Yoshihisa Godo (2002), *Nogyo Keizai Ron [Agricultural Economy – New Edition]*, Iwanami Shoten, Tokyo.

Hufbauer and Elliott (1994), *Measuring the Costs of Protection in the United States*, Institute for International Economics, Washington DC.

Inkyo, Cheong (2003), *Economic Effects of a Korea-Japan FTA*, Korean Institute for International Economic Policy, Seoul.

International Iron and Steel Institute (IISI) (2003), *World Steel in Figures: 2003 Edition*, available at: http://www.worldsteel.org/wsif.php.

Japan External Trade Organization (JETRO) (2000), *21-seiki no nikkan kankei wa ika ni aru beki ka? [How Should the Japan-Korea Economic Relationship in the 21st century Be?]*, Japan External Trade Organization, Tokyo.

Japan External Trade Organization (JETRO) (2002), *Agro-Trade Handbook 2002*. Japan External Trade Organization, Tokyo.

Japan Metal Daily, Ltd. (2001), *Iron and Steel Yearbook 2001 Edition*, Japan Metal Daily, Ltd, Tokyo.

Japan Tariff Association (2003), *Customs Tariff Schedules of Japan 2003*, Japan Tariff Association, Tokyo.

The Japan Iron and Steel Federation (2003), *Tekko no hitokuchi chishiki [Concise Information on the Iron and Steel Industry],* available at: http://www.jisf.or.jp/column/column1.htm.

Kataoka, Goushi and Arata Kuno (2003), 'Boeki hogo no kosuto shisan' ['Measuring the Costs of Trade Protection'], *UFJ Institute Report*, 2003 Vol.8 No.2, UFJ Institute, Tokyo.

Korea Institute for Industrial Economics and Trade (KIET) (2002), *Addressing NTB Problems in the Korea-Japan Free Trade Agreement*, Korea Institute for Industrial Economics and Trade, Seoul.

Korea Institute for International Economic Policy (KIEP) (2000), *Economic Effects of and Policy Directions for a Korea-Japan FTA*, Korean Institute for International Economic Policy, Seoul.

Kim, Namdoo (1996), *Measuring the Costs of Protection in Korea*, Institute for International Economics, Washington DC.

Kim, Yang-Hee (2003), *Korea-Japan FTA and Japan's Distribution Barriers*, Korean Institute for International Economic Policy, Seoul.

KITA (Korea International Trade Association) (various years), *The Present Status of Japan's Non-tariff Barriers against Korea*, Korea International Trade Association, Seoul.

Komiya, Ryutaro and Hiroshi Negishi (1998), 'Boeki shoheki: 6-tsu (I'd suggest muttsu) no gokai' ['Trade Barriers – Six Misconceptions'], *Research Institute of International Trade and Industry Research Series* 32, MITI Research Institute, Tokyo.

Messerlin, Patrick A. (2001), *Measuring the Costs of Protection in Europe, European Commercial Policy in the 2000s*, Institute for International Economics, Washington D.C.

Ministry of Agriculture, Forestry and Fisheries (MAFF), Government of Japan (GOJ) (2002), *Heisei 13-nendo shokuryo jukyu hyo (FY2001 Tables of Food Demand and Supply)*, Released on December 13, 2003, available at: http://www.kanbou.maff.go.jp/www/anpo/sub67.htm.

Ministry of Agriculture, Forestry and Fisheries (MAFF), Government of Japan (GOJ) (2003), *Tokyo oyobi kaigai shuyo 5 toshi ni okeru shokuryohin no kori kakaku chosa kekka [Results of the Survey on Retail Prices of Foods in Tokyo and Five Major Foreign Cities]*, Ministry of Agriculture, Forestry and Fisheries, Tokyo.

Ministry of Agriculture, Forestry and Fisheries (MAFF), Government of Japan (GOJ) (2003a), *Gyuniku kanzei no kinkyu kanzei ni tsuite [Concerning Emergency Tariffs on Beef Imports],* available at: http://www.maff.go.jp/beef/top.htm.

Ministry of Agriculture, Forestry and Fisheries (MAFF), Government of Japan (GOJ) (2003b), *Heisei 15-nendo chikusanbutsu kakaku kanren taisaku no gaiyo [Overview of Measures Related to Livestock Prices in FY2003]*, available at: http://lin.lin.go.jp/maff/frame10.html.

Ministry of Agriculture, Forestry and Fisheries (MAFF), Government of Japan (GOJ) (2003c), *Kome kaikaku kankei yosan ni tsuite [Concerning Rice Policy Reform-Related Budget]*, available at: http://www.syokuryo.maff.go.jp/notice/data/sonota/zenkoku158-2.pdf.

Ministry of Economy, Trade and Industry (METI), Government of Japan (GOJ) (2003a), *Shohi zai*

shohisha muke sa-bisu ni kakaru naigai kakaku chosa hokokusho [Report on Disparities between Domestic and Foreign Prices of Consumer Products and Consumer Oriented Services], Ministry of Economy, Trade and Industry, Tokyo.

Ministry of Economy, Trade and Industry (METI), Government of Japan (GOJ) (2003b), *Heisei 14-nen shigen enerugi- tokei nenpo [Resources and Energy Statistics Annual Report, 2002 edition]*, Research Institute of Economy, Trade and Industry, Tokyo.

Mitsuo Matsushita, Akio Shimizu and Atsushi Nakagawa (edit.) (2000), *Ke-su bukku gatto WTO ho [GATT and WTO Laws – Casebook]*, Yuhikaku Publishing Co., Ltd., Tokyo.

Motoshige Ito (2003), *Tsusho masatsu wa naze okoru no ka: hogo shugi no seiji keizai gaku [Why do Trade Frictions Occur: The Political Economy of Protectionism)*, NTT Publishing Co., Ltd.

Organisation for Economic Co-operation and Development (OECD) (2002), *Purchasing Power Parities and Real Expenditures: 1999 Benchmark Year (2002 Edition)*, OECD, Paris..

Okuno, Masahiro and Masayoshi Honma (1998), *Nogyo mondai no keizai bunseki [Economic Analysis of Agricultural Issues]*, Nihon Keizai Shimbun Inc.

Sazanami, Yoko, Shujiro Urata, and Hiroki Kawai (1995), *Measuring the Costs of Protection in Japan*, Institute for International Economics, Washington D.C.

Sekiyu Tsushinsha, Ltd (2002), *Petroleum-related Materials for 2002*, Sekiyu Tsushinsha, Ltd, Tokyo.

Shuguang, Zhang, Zhang Yansheng, and Wan Zhongxin (1999), *Measuring the Costs of Protection in China*, Institute for International Economics, Washington D.C.

Sohn, Chan-hyun, and Jinna Yoon (2001), *Does the Gravity Model Fit Korea's Trade Patterns?*, Korean Institute for International Economic Policy, Seoul.

Study Group on Production Adjustment (2002), *Evaluation of the Impact of Minimum-Access Rice – Evaluation of the Council (Draft)*, available at: http://www.syokuryo.maff.go.jp/notice/data/

kikaku /kikaku62.pdf.

United States Trade Representative (USTR) (2003), *National Trade Estimate Report on Foreign Trade Barriers*, available at: http://www.ustr.gov/reports/nte/2003/japan.pdf.

Wall, Howard, J. (1999), 'Using the Gravity Model to Estimate the Costs of Protection', *Federal Reserve Bank of St. Louis Review*, Federal Reserve Bank of St. Louis.

World Trade Organization（2002a）,*TRADE POLICY REVIEW: JAPAN I wouldn't put this in capitals. Hence: Trade Policy Review: Japan*, Report by the Secretariat, WT/TPR/S/107, World Trade Organization, Geneva.

World Trade Organization（2002b）, J*apan's Notification under Article 5 of the Agreement: Special Safeguard: Price-Based*, WT/TPR/S/107, World Trade Organization, Geneva.

Table 2.1 Major Statistics on Disparities between Domestic and Foreign Prices

	Cabinet office (2002)	MAFF (2003)	METI (2003)
Period covered in the survey	November 2001	November 2002	January 2003
Products included in the survey	Food items, clothing and footwear, other products, four fields of services, 38 products.	42 food items (including 29 common food items and 13 Japanese food items).	A total of 90 products, including consumer products and consumer-oriented services (73 consumer products and 17 consumer-oriented services).
Countries/cities included in the survey	Tokyo, New York, London, Paris, Berlin, Geneva, Hong Kong, Singapore.	Tokyo, New York, London, Paris, Geneva, Singapore.	Tokyo, New York, London, Paris, Frankfurt, Singapore.
Summary of survey results	Tokyo is relatively expensive for most items, and especially food items. But also for items is Tokyo relatively expensive,such as cinema admission fees.	Although the disparity between domestic and foreign prices in New York is expanding, the disparity between domestic and foreign prices in London and Paris is shrinking. Singapore, which was included in this survey for the first time, has the greatest disparity between domestic and foreign prices.And then the rest was cut off, it seems.	The disparity between domestic and foreign prices has been shrinking ever since 2000, partially due to the depreciation of the yen. The disparity between domestic and foreign prices decreased for the European cities and increased for New York when compared with the previous year. Singapore from the previous year's levels.

Table 2.2 Protection and support data in the GTAP version 5 database

Types of Protection Data	Sources	Database Covering
Import side	Ordinary import tariff rates	Covered
	Anti－dumping duties	Not Covered
Export side	Ordinary export subsidy rates	Covered
	Export tax rates of the quota under the Agreement on Textiles and Clothing	Covered
	Voluntary price undertakings	Not Covered
	Voluntary export restraints	Not Covered
Domestic support instruments	Ordinary output subsidies	Covered
	Intermediate input subsidies	Covered
	Factor-based subsidies	Covered

Note: Notation "covered" indicates that the source is considered in the GTAP Data Base, Notation "Not covered" indicates that the source is not considered in the GTAP Data Base.

Table 3.1 Results of measuring of tariff and non-tariff barriers for beef, rice, steel, and petroleum products (Kataoka and Kuno (2003))

(% except for import amounts and domestic production amounts)

Japanese 1995 benchmark Input-Output table Sector codes	Items included in the survey	Level of trade protection (①+②)	Tariff ratio (①)	Non-tariff barrier (②)	1999 import amount (billion yen)	1999 domestic production amount (billion yen)	Degree of transparency of imports
1111011	Beef (dressed carcass)	63.7	27.6	36.1	411.9	608.1	40.4
0111011	Rice	262.7	0.0	262.7	16.0	2338.9	0.7
(iron and steel)		49.7	1.2	48.5	145.6	5033.2	2.8
2621012	Ordinary steel sheets	75.8	0.9	74.9	28.9	439.8	6.2
2621013	Ordinary steel bands	35.8	1.3	34.4	63.8	1755.4	3.5
2621015	Other ordinary steel hot rolled materials	15.5	1.0	14.5	6.5	278.6	2.3
2622011	Ordinary steel pipes	39.9	1.1	38.8	8.2	507.7	1.6
2623021	Plated steel materials	15.6	1.7	13.9	27.9	1239.9	2.2
2631031	Iron casting	136.1	0.0	136.1	10.3	811.9	1.3
(Petroleum products)		112.2	0.9	111.2	804.0	4569.2	15.0
2111012	Jet fuel	12.3	0.1	12.3	180.3	187.2	49.1
2111013	Kerosene	26.1	2.7	23.4	80.3	563.8	12.5
2111014	Diesel fuel	206.3	5.4	200.9	38.2	2470.6	1.5
2111015	A-grade heavy oil	45.8	3.4	42.4	27.9	572.4	4.7
2111016	B-grade heavy oil and C-grade heavy oil	42.1	2.6	39.5	86.6	638.8	11.9
2111018	Liquified petroleum gas (LPG)	11.2	0.0	11.2	390.7	136.4	74.1

Note 1: The tariff rate is calculated on the basis of the annual table as follows: (tariff amount/import amount) x 100.

Note 2: The degree of transparency of imports is calculated as follows: Import amount//(domestic production amount + import amount) x 100.

Note 3: The import amount and domestic production amount data is from the 1999 annual table (1995 Standards).

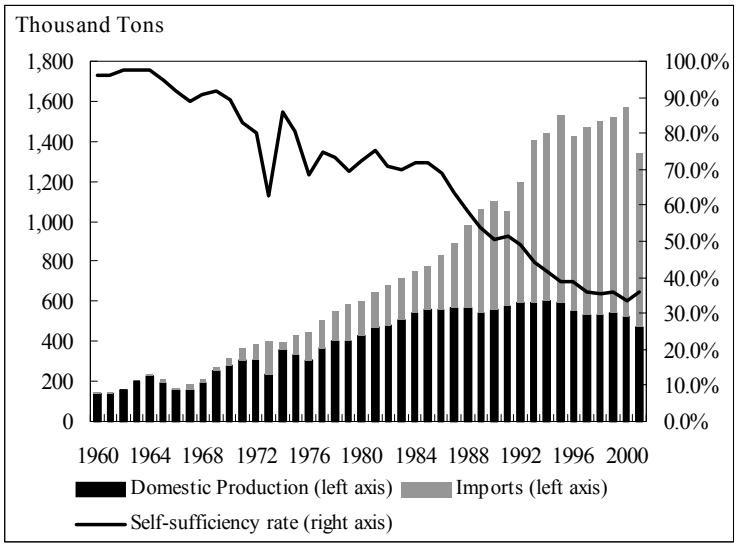
Note 4: The values for the sectors in parentheses and the total values indicate the aggregate calculation of the results of estimates for the covered items against the domestic production amount and import amount.

Table 3.2 Row sector code of benchmark 1995 I-O table –HS 9 digit, correspondences

Row sector codes of 1995 benchmark I-O table	Description	HS 9 digit codes
1111011	Beef (dressed carcass)	0201.10-000、0201.20-010、0201.20-090、0201.30-010、0201.30-020、0201.30-030、0201.30-090、0202.10-000、0202.20-010、0202.20-090、0202.30-010、0202.30-020、0202.30-030、0202.30-090
0111011	Rice	1006.10-000、1006.20-000
2621012	Ordinary steel sheets	7208.32-011、7208.32-019、7208.33-010、7208.34-010、7208.35-010、7208.42-010、7208.42-090、7208.43-010、7208.43-090、7208.44-000、7208.45-000、7208.90-000
2621013	Ordinary steel bands	7208.11-010、7208.12-011、7208.12-019、7208.13-010、7208.14-010、7208.21-000、7208.22-010、7208.22-090、7208.23-000、7208.24-000、7211.12-010、7211.19-010、7211.22-000、7211.29-000
2621015	Other ordinary steel hot rolled materials	7207.11-010、7207.11-090、7207.12-010、7207.12-090、7207.19-000、7207.20-011、7207.20-012、7207.20-019、7213.10-000、7213.31-010、7213.31-090、7213.39-000、7213.41-000、7213.49-000、7215.90-010、7217.11-000、7217.19-000、7217.21-000、7217.29-000、7217.31-000、7217.33-000、7217.39-000、7225.10-010、7225.10-090、7226.10-010、7226.10-090、7302.10-000、7302.20-000、7302.30-000、7302.40-000、
2622011	Ordinary steel pipes	7304.10-020、7304.20-020、7304.20-040、7304.31-010、7304.31-020、7304.39-010、7304.39-020、7304.90-040、7305.12-020、7305.31-020、7305.39-020、7306.10-020、7306.30-011、7306.30-019、7306.30-021、7306.30-029、7306.30-090、7306.60-021、7306.60-029、7306.90-020
2623021	Plated steel materials	7210.11-000、7210.12-000、7210.20-000、7210.31-010、7210.31-020、7210.39-000、7210.41-000、7210.49-000、7210.50-000、7210.60-000、7210.70-000、7210.90-010、7210.90-020、7212.10-000、7212.21-010、7212.21-020、7212.29-000、7212.30-000、7212.40-000、721250-000、7212.60-010、7212.60-020、7217.12-010、7217.12-090、7217.13-010、
2631031	Iron casting	7325.10-000、7325.91-000、7325.99-000
2111012	Jet fuel	2710.00-143
2111013	Kerosene	2710.00-149
2111014	Diesel fuel	2710.00-150
2111015	A-grade heavy oil	2710.00-161、2710.00-163、2710.00-164、2710.00-165、2710.00-166、2710.00-167、2710.00-169
2111016	B-grade heavy oil and C-grade heavy oil	2710.00-171、2710.00-173、2700.10-175、2710.00-179
2111018	Liquified petroleum gas (LPG)	2711.12-010、2711.12-020、2711.13-010、2711.13-020、2711.14-021、2711.14-022、2711.19-012

Source: 1995 Benchmark Input-Output table

Fig. 3.1 Trends in the production and imports of and self-sufficiency rate for beef in Japan



Source: Ministry of Agriculture, Forestry and Fisheries (2002).

Table 3.3 Japan's imports of beef by country (Year 2002, Thousand JPY)

Fresh or chilled beef			**Frozen beef**		
Country	Value	Share	Country	Value	Share
Australia	63,516,097	51.2%	USA	37,976,353	57.9%
USA	56,575,053	45.6%	Australia	21,449,272	32.7%
Canada	2,197,113	1.8%	Canada	3,634,432	5.5%
New Zealand	1,661,117	1.3%	New Zealand	2,479,774	3.8%
Iceland	15,771	0.0%	Vanuatu	89,807	0.1%
Ukraine	3,754	0.0%	Ukraine	5,787	0.0%
Mexico	1,068	0.0%	Mexico	4,955	0.0%
Yugoslavia	694	0.0%	Chile	2,388	0.0%
Costa Rica	297	0.0%	Total	**65,642,768**	**100.0%**
Total	**123,970,964**	**100.0%**			

Source: Ministry of Finance, *Japan Exports & Imports: Commodity by Country.*

Table 3.4 Retail Prices of Imported Beef and Japanese Beef: 2000 (yen/kg)

	Ordinary retail price				Bargain sale price			
	Shoulder	**Brisket**	**Sirloin**	**Round**	**Chuck**	**Brisket**	**Sirloin**	**Round**
Japanese beef cattle	530	478	1129	550	400	371	854	400
Domestic beef others	339	301	641	376	241	224	479	256
Imported beef (US)	220	272	398	218	144	193	264	128
Imported beef (Australia)	175	159	350	173	111	111	232	103

Source: Agriculture & Livestock Industries Corporation.

Table 3.5 The result of beef grading in Japanese beef market (Year 2000)

(Unit:%)

	Japanese beef cattle(cow)	Japanese beef cattle(castrated)	Dairy cattle(cow)	Dairy cattle(fattening dariy male cattle)	Crosses between beef cattle and dairy cattle(cow)	Crosses between beef cattle and dairy cattle(castrated)	Other beef cattle(cow)	Other beef cattle(castrated)	Total
A-5	8.0	12.9	0.0	0.0	0.3	0.4	0.0	0.1	5.6
A-4	16.6	25.1	0.0	0.0	2.0	2.1	0.0	0.3	11.3
A-3	22.0	25.3	0.0	0.1	4.0	3.7	0.3	2.0	13.0
A-2	17.7	14.3	0.0	0.3	2.4	1.8	1.8	2.6	8.6
A-1	0.2	0.1	0.0	0.0	0.0	0.0	1.1	0.1	0.1
B-5	0.7	0.7	0.0	0.0	0.5	0.6	0.0	0.2	0.5
B-4	3.1	3.3	0.1	0.2	6.2	8.1	0.3	1.3	3.1
B-3	9.0	7.8	1.5	12.2	32.4	35.9	8.2	20.1	13.7
B-2	17.4	9.4	12.3	57.6	39.1	34.7	50.3	54.9	27.0
B-1	1.4	0.2	4.5	1.3	0.2	0.2	5.9	1.5	1.1
C-5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C-4	0.1	0.0	0.0	0.0	0.4	0.4	0.0	0.1	0.1
C-3	0.3	0.1	0.6	3.8	3.9	4.1	1.2	2.8	1.7
C-2	1.2	0.4	23.3	21.8	7.8	7.1	11.8	12.9	8.2
C-1	2.3	0.4	57.6	2.8	0.7	0.9	19.2	1.0	6.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Sources: Japan Meat Grading Association homepage (http://group.lin.go.jp/kakuduke/saisin.htm)

Note: The ratio is calculated as (number of beef cattle graded/total number of beef cattle graded)×

100.

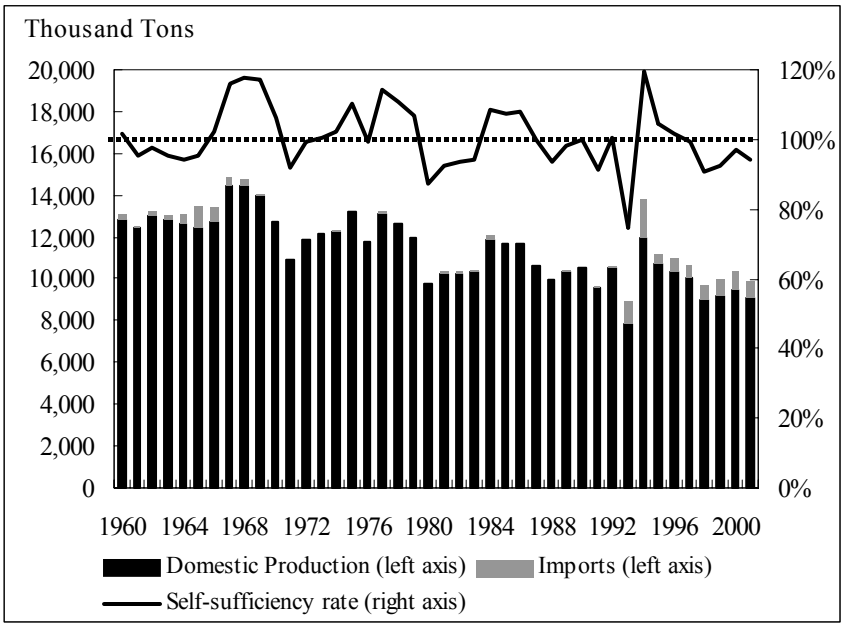
Table 3.6 Comparison of Beef Prices between U.S. and Japan (yen/kg)

	US Omaha fob base price, strip loin chilled	**Trade price in Japan, strip loin chilled imported from US**	**Ordinary retail price, sirloin**	**Bargain sale price, sirloin**
2003 March	1152.4	1,914	3,840	2,700
2003 April	1440.1	2,030	3,900	2,730
2003 May	1656.9	2,175	3,920	2,620
2003 June	1673.1	2,413	3,950	2,620
2003 July	1274.8	2,534	3,870	2,690

2003 August	1192.5	2,367	n.a.	n.a.

Source: USDA, *National Carlot Meat Report*, Livestock-industry information network, Agriculture & Livestock Industries Corporation

Fig. 3.2 Trends in the production and import of and self-sufficiency rate for rice in Japan



Source: Ministry of Agriculture, Forestry and Fisheries (2002).

Table 3.7 Japan's imports of rice by country（Year 2002, Thousand JPY）

Brown rice			**Broken rice**		
Country	Value	Share	Country	Value	Share
Australia	302,796	80.7%	USA	1,854,075	48.9%
USA	44,221	11.8%	Thailand	907,431	23.9%
China	27,673	7.4%	Australia	888,651	23.4%
Thailand	336	0.1%	China	144,189	3.8%
Total	**375,026**	**100.0%**	Total	**3,794,346**	**100.0%**
Milled rice					
Country	Value	Share			
USA	12,824,170	54.4%			
China	4,373,408	18.6%			
Australia	3,557,669	15.1%			
Thailand	2,655,657	11.3%			
Vietnam	130,973	0.6%			
Italia	23,211	0.1%			
ROW	5,790	0.0%			
Total	**23,570,878**	**100.00%**			

Source: Ministry of Finance, *Japan Exports & Imports:Commodity by Country*.

Table 3.8 The results of the second round of SBS bidding in 2002

Exporting country	Type	Volume of imports	Price*		Markup	Modified border piece ratio
			Government purchase	Government sales		
		(1)	(2)	(3)	(3)-(2)=(4)	(3)÷(2)=(5)
		(ton)	(yen/ton)	(yen/ton)	(yen/ton)	
U.S.A.						
	non-glutinous short grain, brown rice	126	86,000	228,457	142,457	2.66
	non-glutinous short grain, milled rice	2,867	94,836	219,359	124,523	2.31
	non-glutinous medium grain, milled rice	100	61,190	216,901	155,711	3.54
	glutinous short grain, brown rice	18	78,000	238,200	160,200	3.05
	glutinous short grain, milled rice	1,440	85,509	213,203	127,694	2.49
	subtotal	3,634	80,166	235,547	155,381	2.94
Australia						
	non-glutinous short grain, brown rice	22	89,000	233,300	144,300	2.62
	non-glutinous short grain, milled rice	435	94,121	247,128	153,007	2.63
	subtotal	457	93,874	246,462	152,588	2.63
Thailand						
	non-glutinous long grain, milled rice	60	69,667	228,333	158,666	3.28
	glutinous long grain, milled rice	40	72,000	231,000	159,000	3.21
	subtotal	100	70,600	229,400	158,800	3.25
China						
	non-glutinous short grain, milled rice	2,200	80,450	228,831	148,381	2.84
	glutinous short grain, milled rice	788	82,755	233,858	151,103	2.83
	subtotal	2,988	81,058	230,157	149,099	2.84
Total		8,096	87,147	224,056	136,909	2.57

Note: The second round of SBS bidding took place on August 30, 2002.
The total volume offered was 20,278 tons.
* Weighted average price of the accepted offers.
Source: Shokuhin Sangyo Shinbun-sha, *Easy to Understand Handbook of Rice* , *2002/2003* , 2003.

Table3.9 Estimated Cost Structure of Minimum Access Rice: 1995 (yen/ton)

Description	U.S. California rice	Australian rice	China Dongbe rice
Port of loading	Oakland	Melbourne	Dalian
Port of entry	Yokohama	Yokohama	Yokohama
Quantity	360 tons	320 tons	360 tons
(1) F.O.B. price	55,000	45,000	55,000
Items Domestic transportation cost	2,000	2,000	2,000
Price of milled rice	53,000	43,000	53,000
(2) Shipping cost[a)]	10,500	30,000	6,000
(3) Marine insurance[b)]	364	417	288
(4) C.I.F. price = (1)+(2)+(3)	65,864	75,417	61,288
(5) Port of shipment inspection fee (quality standards, quantities, etc.)	3,150	3,483	2,970
(6) Port of entry quarantine fee and custom clearance fee	455	495	382
(7) Transportation cost to bonded warehouse and storage fee[c)]	6,825	7,038	6,825
(8) =(5)+(6)+(7)	10,430	11,016	10,177
(9) L/C opening charge	30	300	344
(10) Usance interest fee[d)]	1,720	1,969	1,449
(11) =(9)+(10)	1,750	2,269	1,793
(12) Trading company commission	10,000	10,000	10,000
(13) C.I.F. price +charges=(4)+(8)+(11)+(12)	88,044	98,702	83,258
(14) 〃 (calculation for brown rice)[e)]	84,439	94,724	79,906
(15) Markup	150,000	150,000	150,000
(16) =(14)+(15)	234,439	244,724	229,906
(17) Wholesale margin	8,124	8,510	8,038
(18) Retail margin	93,776	97,890	91,962
(19) Retail price	336,339	351,124	329,906
(20) Conventional border price ratio =(16)÷(4)	3.56	3.24	3.75
(21) Modified border price ratio =(16)÷(14)	2.78	2.58	2.88

Source: Godo and Owen (1998)

Notes 1. Exchange rate is assumed to be 100 yen per dollar.

2. Delivery terms of rice imports are ex warehouse.

3. In addition, the following costs may be incurred. Inspection costs for safety standards at port of entry, preceding sample inspection costs and disposal costs for failure to pass quarantine.

a) For Australian rice shipments, reefer containers are used to cross the equator. All others use dry cargo containers.

b) Marine insurance of WA, including the risk of war, 10% over the invoice amount.

c) 45 days allowed for custody.

d) Interest rate of 9%, 15 days allowed for shipping, 75 days allowed for sales credit payments.

e) Calculation rate is 0.9591 for U.S. California rice, 0.9598 for others.

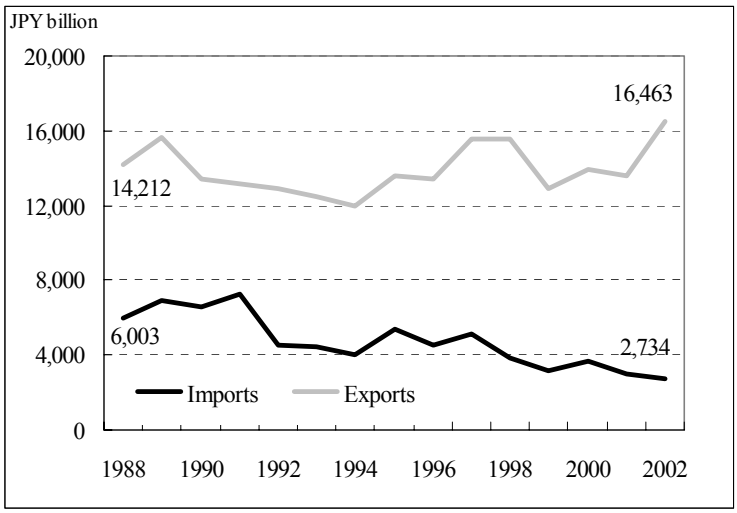
Table 3.10 Breakdown of uses of minimum-access rice

Uses	Import volume (Millions of tons)	%
Staple food	0.36	9.7%
Processed food	1.39	37.5%

Foreign aid	1.21	32.6%
Government Stockpile	0.75	20.2%
Total	**3.71**	**100.0%**

Source: Study Group on Production Adjustment (2002).

Fig. 3.3 Trends in Japan's steel trade



Source: Ministry of Finance, *Japan Exports & Imports: Commodity by Country*, various years.

Table 3.11 Breakdown of Japan's steel trade and applied MFN tariff rates（Year 2002, Thousand JPY）

HS 4-digit	Commodity	Tariff rates	Import Value	Share	Export Value	Share
7201	PIG IRON AND SPIEGELEISEN IN PIGS, BLOCKS OR OTHER PRIMARY FORMS	0.0%	3,166,449	1.2%	9,661,691	0.6%
7202	FERRO-ALLOYS	0～6.3%	114,116,219	**41.7%**	20,694,239	1.3%
7203	FERROUS PRODUCTS OBTAINED BY DIRECT REDUCTION OF IRON ORE AND OTHER SPONGY FERROUS PRODUCTS, IN LUMPS, PELLETS OR SIMILAR FORMS; IRON HAVING A MINIMUM PURITY BY WEIGHT OF 99.94%, IN LUMPS, PELLETS, OR SIMILAR FORMS	0.0%	167,754	0.1%	32,410	0.0%
7204	FERROUS WASTE AND SCRAP; REMELTING SCRAP INGOTS OF IRON OR STEEL	0～4.7%	14,394,825	5.3%	91,920,629	5.6%
7205	GRANULES AND POWDERS, OF PIG IRON, SPIEGELEISEN, IRON OR STEEL	0.0%	9,770,470	3.6%	7,355,328	0.4%
7206	IRON AND NON-ALLOY STEEL IN INGOTS OR OTHER PRIMARY FORMS (EXCLUDING IRON OF HEADING 7203)	0～3.9%	165,311	0.1%	144,882	0.0%
7207	SEMI-FINISHED PRODUCTS OF IRON OR NON-ALLOY STEEL	0～0.5%	363,789	0.1%	87,978,933	5.3%
7208	FLAT-ROLLED PRODUCTS OF IRON OR NON-ALLOY STEEL, OF A WIDTH OF 600 MM OR MORE, HOT-ROLLED, NOT CLAD, PLATED OR COATED	0.4～0.5%	50,404,235	**18.4%**	336,745,011	**20.5%**
7209	FLAT-ROLLED PRODUCTS OF IRON OR NON-ALLOY STEEL, OF A WIDTH OF 600 MM OR MORE, COLD-ROLLED (COLD-REDUCED), NOT CLAD, PLATED OR COATED	0.4～0.5%	21,002,302	**7.7%**	145,932,148	8.9%
7210	FLAT-ROLLED PRODUCTS OF IRON OR NON-ALLOY STEEL, OF A WIDTH OF 600 MM OR MORE, CLAD, PLATED OR COATED	0.4～0.5%	16,244,481	**5.9%**	257,968,586	**15.7%**
7211	FLAT-ROLLED PRODUCTS OF IRON OR NON-ALLOY STEEL, OF A WIDTH OF LESS THAN 600 MM, NOT CLAD, PLATED OR COATED	0.4～0.5%	1,491,439	0.5%	15,119,704	0.9%
7212	FLAT-ROLLED PRODUCTS OF IRON OR NON-ALLOY STEEL, OF A WIDTH OF LESS THAN 600 MM, CLAD, PLATED OR COATED	0.4～0.5%	1,056,584	0.4%	22,940,292	1.4%
7213	BARS AND RODS, HOT-ROLLED, IN IRREGULARLY WOUND COILS, OF IRON OR NON-ALLOY STEEL	0.4～0.5%	879,128	0.3%	43,632,123	2.7%
7214	OTHER BARS AND RODS OF IRON OR NON-ALLOY STEEL, NOT FURTHER WORKED THAN FORGED, HOT-ROLLED, HOT-DRAWN OR HOT-EXTRUDED, BUT INCLUDING THOSE TWISTED AFTER ROLLING	0.4～0.5%	661,228	0.2%	27,645,650	1.7%
7215	OTHER BARS AND RODS OF IRON OR NON-ALLOY STEEL	0.4～0.5%	326,921	0.1%	5,117,501	0.3%
7216	ANGLES, SHAPES AND SECTIONS OF IRON OR NON-ALLOY STEEL	0.4%	666,281	0.2%	35,533,899	2.2%
7217	WIRE OF IRON OR NON-ALLOY STEEL	0.4～0.5%	8,078,282	3.0%	12,049,428	0.7%
7218	STAINLESS STEEL IN INGOTS OR OTHER PRIMARY FORMS; SEMI- FINISHED PRODUCTS OF STAINLESS STEEL	0.5%	341,471	0.1%	219,499	0.0%
7219	FLAT-ROLLED PRODUCTS OF STAINLESS STEEL, OF A WIDTH OF 600 MM OR MORE	0.5%	10,727,147	3.9%	148,167,314	**9.0%**
7220	FLAT-ROLLED PRODUCTS OF STAINLESS STEEL, OF A WIDTH OF LESSTHAN 600 MM	0.5%	1,251,008	0.5%	37,171,536	2.3%
7221	BARS AND RODS, HOT-ROLLED, IN IRREGULARLY WOUND COILS, OF STAINLESS STEEL	0.5%	1,302,200	0.5%	16,303,103	1.0%
7222	OTHER BARS AND RODS OF STAINLESS STEEL; ANGLES, SHAPES AND SECTIONS OF STAINLESS STEEL	0.5%	1,862,491	0.7%	22,467,891	1.4%
7223	WIRE OF STAINLESS STEEL	0.5%	5,517,529	2.0%	9,180,576	0.6%
7224	OTHER ALLOY STEEL IN INGOTS OR OTHER PRIMARY FORMS; SEMI- FINISHED PRODUCTS OF OTHER ALLOY STEEL	0.5～0.7%	508,703	0.2%	2,492,878	0.2%
7225	FLAT-ROLLED PRODUCTS OF OTHER ALLOY STEEL, OF A WIDTH OF 600 MM OR MORE	0.5～0.7%	1,598,882	0.6%	200,853,098	**12.2%**
7226	FLAT-ROLLED PRODUCTS OF OTHER ALLOY STEEL, OF A WIDTH OF LESS THAN 600 MM	0.5～0.7%	1,681,470	0.6%	30,556,349	1.9%
7227	BARS AND RODS, HOT-ROLLED, IN IRREGULARLY WOUND COILS, OF OTHER ALLOY STEEL	0.5～0.7%	131,778	0.0%	18,612,712	1.1%
7228	OTHER BARS AND RODS OF OTHER ALLOY STEEL; ANGLES, SHAPES AND SECTIONS, OF OTHER ALLOY STEEL; HOLLOW DRILL BARS AND RODS, OF ALLOY OR NON-ALLOY STEEL	0.5～0.7%	1,832,498	0.7%	28,247,864	1.7%
7229	WIRE OF OTHER ALLOY STEEL	0.5～0.7%	3,653,415	1.3%	11,591,928	0.7%
	Total		**273,364,290**	**100.0%**	**1,646,337,202**	**100.0%**

Source: Ministry of Finance, *Japan Exports & Imports: Commodity by Country*.

Table. 3.12 Japan's imports and exports of steel by country（Year 2002, Thousand JPY）

Imports			**Exports**		
Country	Import value	Share	Country	Export value	Share
R Korea	81,716,443	29.9%	R Korea	379,639,789	23.1%
China	46,132,554	16.9%	China	336,176,569	20.4%
Taiwan	34,944,445	12.8%	Taiwan	152,225,250	9.2%
South Africa	22,311,996	8.2%	Thailand	149,492,858	9.1%
Brazil	13,887,392	5.1%	Hong Kong	96,249,162	5.8%
Russian Federation	8,052,964	2.9%	Malaysia	61,609,843	3.7%
Kazakhstan	7,766,041	2.8%	USA	61,561,994	3.7%
ROW	58,552,455	21.4%	ROW	409,381,737	24.9%
Total	**273,364,290**		Total	**1,646,337,202**	

Source: Ministry of Finance, *Japan Exports & Imports: Commodity by Country*.

Table 3.13 Comparison between import unit price and export unit price (Steel products)

（Ordinary steel sheets）

Imports of commodity	Quantity (metric tons)	Value (1000yen)	Unit price (1000yen/metric tons)	Value shares (%)
720832011	59,442	2,448,274	41	4.96
720832019	1,960	106,930	55	0.22
720833010	19,601	781,658	40	1.58
720834010	179	15,221	85	0.03
720835010	1,212	56,914	47	0.12
720842010	1,005,261	36,577,962	36	74.09
720842090	51,508	2,201,235	43	4.46
720843010	6,294	252,525	40	0.51
720843090	165,910	6,310,920	38	12.78
720844000	7,418	338,371	46	0.69
720845000	5,442	257,487	47	0.52
720890000	21	22,983	1,094	0.05
Total	1,324,248	49,370,480	37	100.00

Exports of commodity	Quantity (metric tons)	Value (1000yen)	Unit price (1000yen/metric tons)	Value shares (%)
720831110	1,114	76,879	69	0.11
720832100	425,341	21,877,742	51	32.39
720833110	94,243	4,878,686	52	7.22
720833120	7,224	379,674	53	0.56
720834100	13,292	679,101	51	1.01
720835110	13,602	566,389	42	0.84
720835120	1,009	39,054	39	0.06
720841100	80	3,118	39	0.00
720841200	7	1,172	167	0.00
720842000	571,853	28,373,291	50	42.00
720843100	170,144	8,322,191	49	12.32
720843200	10,538	540,802	51	0.80
720844000	22,115	1,021,157	46	1.51
720845100	5,670	255,752	45	0.38
720845200	1,844	79,736	43	0.12
720890000	2,760	119,442	43	0.18
721111100	5,664	338,049	60	0.50
Total	1,346,500	67,552,235	50	100.00

（Ordinary steel bands）

Imports of commodity	Quantity (metric tons)	Value (1000yen)	Unit price (1000yen/metric tons)	Value shares (%)
720811010	28,829	1,362,068	47	1.33
720812011	8,633	339,326	39	0.33
720812019	6,298	241,518	38	0.24
720813010	40,630	1,639,745	40	1.61
720814010	548,325	22,308,423	41	21.85
720821000	173,765	6,912,090	40	6.77
720822010	226,978	8,461,027	37	8.29
720822090	155,744	5,886,540	38	5.77
720823000	582,592	23,210,765	40	22.73
720824000	752,911	31,637,256	42	30.99
721112010	86	6,026	70	0.01
721119010	253	24,467	97	0.02
721122000	313	13,006	42	0.01
721129000	361	53,956	149	0.05
Total	2,525,718	102,096,213	40	100.00

Exports of commodity	Quantity (metric tons)	Value (1000yen)	Unit price (1000yen/metric tons)	Value shares (%)
720811100	12,591	696,004	55	0.65
720812110	110,489	4,933,375	45	4.61
720813100	174,146	6,857,604	39	6.40
720814110	458,246	18,000,878	39	16.80
720814120	72,125	3,072,677	43	2.87
720821000	39,372	1,511,162	38	1.41
720822100	94,794	3,774,256	40	3.52
720822200	41,233	1,602,716	39	1.50
720823000	467,233	24,369,275	52	22.75
720824100	712,530	28,185,565	40	26.31
720824200	213,205	9,382,625	44	8.76
721112110	21,058	1,204,288	57	1.12
721112120	468	31,140	67	0.03
721119110	5,255	274,483	52	0.26
721119120	25,211	1,146,836	45	1.07
721122100	11,508	685,135	60	0.64
721122200	1,427	59,931	42	0.06
721129100	7,262	347,027	48	0.32
721129200	19,906	988,755	50	0.92
Total	2,488,059	107,123,732	43	100.00

（Ordinary steel pipes）

Imports of commodity	Quantity (metric tons)	Value (1000yen)	Unit price (1000yen/metric tons)	Value shares (%)
730410020	565	33,788	60	0.24
730420020	106	25,616	242	0.18
730420040	124	15,362	124	0.11
730431010	966	199,316	206	1.39
730431020	763	175,018	229	1.22
730439010	97	20,991	216	0.15
730439020	2,760	366,465	133	2.56
730490040	628	57,964	92	0.40
730512020	2	1,841	921	0.01
730531020	1,921	111,664	58	0.78
730539020	3,054	266,878	87	1.86
730610020	19	792	42	0.01
730630011	7,493	449,904	60	3.14
730630019	46,297	2,130,797	46	14.87
730630021	66,052	3,805,078	58	26.55
730630029	58,965	2,843,688	48	19.84
730630090	23,636	1,862,781	79	13.00
730660021	20,204	914,683	45	6.38
730660029	15,725	800,550	51	5.58
730690020	3,643	250,822	69	1.75
Total	253,020	14,333,998	57	100.00

Exports of commodity	Quantity (metric tons)	Value (1000yen)	Unit price (1000yen/metric tons)	Value shares (%)
730410900	267,202	17,129,249	64	11.46
730420900	373,512	29,894,483	80	20.00
730431100	8,301	1,430,105	172	0.96
730431900	26,649	5,761,084	216	3.85
730439100	25,274	2,274,887	90	1.52
730439900	281,960	19,736,092	70	13.20
730490100	59	32,215	546	0.02
730490900	1,455	435,129	299	0.29
730511900	470,132	30,552,902	65	20.44
730512900	83,905	4,651,098	55	3.11
730519900	12	1,947	162	0.00
730520290	11,721	802,783	68	0.54
730531900	60,267	4,862,683	81	3.25
730539900	21,542	1,585,591	74	1.06
730590900	73	42,490	582	0.03
730610900	125,414	8,204,734	65	5.49
730620900	61,606	3,439,005	56	2.30
730630100	4,908	439,182	89	0.29
730630200	20,264	1,725,255	85	1.15
730630900	104,655	14,116,108	135	9.44
730660900	27,209	1,975,082	73	1.32
730690900	1,260	408,924	325	0.27
Total	1,977,380	149,501,028	76	100.00

（Iron casting）

Imports of commodity	Quantity (metric tons)	Value (1000yen)	Unit price (1000yen/metric tons)	Value shares (%)
732510000	59,209	4,351,390	73	57.72
732591000	1,833	214,899	117	2.85
732599000	26,707	2,971,855	111	39.42
Total	87,749	7,538,144	86	100.00

Exports of commodity	Quantity (metric tons)	Value (1000yen)	Unit price (1000yen/metric tons)	Value shares (%)
732510100	56	29,481	526	2.66
732510900	45	70,003	1,556	6.32
732591000	63	11,670	185	1.05
732599100	656	330,360	504	29.84
732599900	1,886	665,559	353	60.12
Total	2,706	1,107,073	409	100.00

Source: Ministry of Finance, *Japan Exports & Imports*

Table 3.14 Demand for and supply of crude oil and fuel oils (Year 2002, Thousand kl)

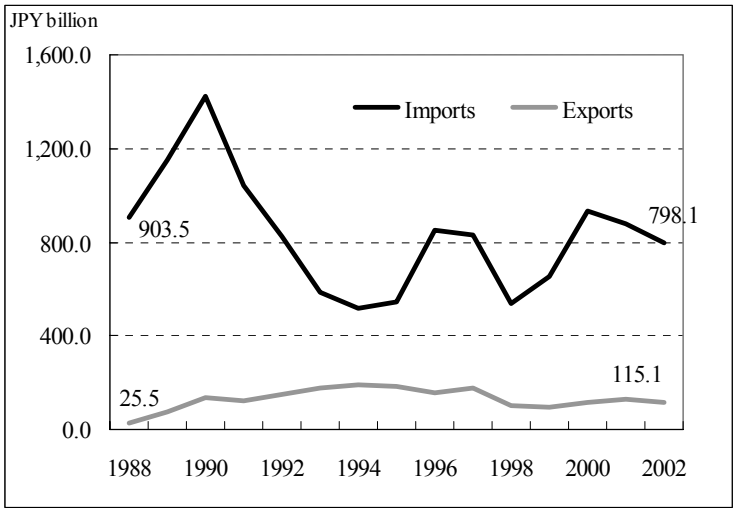
	Production volume	Import volume	Consumption (crude oil) and domestic sales (fuel oils)	Export volume	Dependency on import	Export ratio
Crude oil	723	235649	231631	0	101.7%	0.0%
Fuel oils – total	217,463	37,044	237,714	13,986	15.6%	6.4%
Benzene (Gasoline)	57,897	1,687	**59,605**	224	2.8%	0.4%
Naphtha	18,967	29,919	47,691	125	**62.7%**	0.7%
Jet fuel	10,376	102	4,693	5,979	2.2%	**57.6%**
Kerosene	26,944	2,515	29,287	247	8.6%	0.9%

Diesel oil	39,895	1,173	39,800	1,496	2.9%	3.7%
Heavy oil A	28,767	883	29,669	100	3.0%	0.3%
Heavy oil C	34,617	765	26,970	5,814	2.8%	16.8%

Source: Based on figures from Ministry of Economy, Trade and Industry (2003), pp. 24-25.

Note: Although the definition of "fuel oils" in the METI statistics generally matches the definition of "Petroleum oils, other than crude (HS2710)" in the HS code, attention should be paid to the fact that they do not necessarily mean exactly one and the same thing.

Fig. 3.4 Trends in Japan's trade in petroleum products



Source: Ministry of Finance, *Japan Exports & Imports: Commodity by Country*, various years.

Table 3.15 Japan's imports of petroleum products by country（Year 2002, Thousand JPY）

Light petroleum oils and preparations			**Other**		
Country	Value	Share	Country	Value	Share
Republic of Korea	159,268,143	26.2%	Republic of Korea	100,890,894	53.1%
Kuwait	101,537,706	16.7%	Indonesia	25,861,326	13.6%
United Arab Emirates	69,801,818	11.5%	Singapore	12,023,746	6.3%

Saudi Arabia	61,880,913	10.2%	Russian Federation	8,042,086	4.2%
Indonesia	36,752,775	6.0%	Taiwan	6,828,375	3.6%
ROW	178,920,071	29.4%	ROW	36,276,036	19.1%
Total	**608,161,426**	**100.0%**	Total	**189,922,463**	**100.0%**

Source: Ministry of Finance, *Japan Exports & Imports: Commodity by Country.*

Table 3.16 Comparison between import unit price and export unit price (Petroleum products)

（Gasoline）

Imports of commodity	Quantity (kilo-litre)	Value (1000yen)	Unit price (1000yen/kilo-litre)
271000150	1,398,445	19,895,391	14

Exports of commodity	Quantity (kilo-litre)	Value (1000yen)	Unit price (1000yen/kilo-litre)
271000300	3,590,008	59,804,202	17

（B-grade heavy oil and C-grade heavy oil）

Imports of commodity	Quantity (kilo-litre)	Value (1000yen)	Unit price (1000yen/kilo-litre)
271000171	470,324	5,022,939	11
271000173	2,217,954	22,722,820	10
270010175	1,054,291	10,316,436	10
271000179	7,218	99,260	14
Total	3,749,787	38,161,455	10

Exports of commodity	Quantity (kilo-litre)	Value (1000yen)	Unit price (1000yen/kilo-litre)
271000400	4,269,365	45,961,781	11

（Kerosene）

Imports of commodity	Quantity (kilo-litre)	Value (1000yen)	Unit price (1000yen/kilo-litre)
271000149	2,118,612	33,237,235	16

Exports of commodity	Quantity (kilo-litre)	Value (1000yen)	Unit price (1000yen/kilo-litre)
271000200	547,489	9,840,314	18

（Liquified petroleum gas (LPG)）

Imports of commodity	Quantity (kilo-litre)	Value (1000yen)	Unit price (1000yen/kilo-litre)
271112010	67,934	1,361,718	20
271112020	9,212,398	190,152,653	21
271113010	416,109	8,323,256	20
271113020	5,274,524	113,960,959	22
271114021	15,689	381,837	24
271114022	1,202	27,721	23
271119012	1	3,935	3,935
合計	14,987,857	314,212,079	21

Exports of commodity	Quantity (kilo-litre)	Value (1000yen)	Unit price (1000yen/kilo-litre)
271112000	1,440	58,491	41
271113000	7,731	222,057	29
271114000	17,415	331,741	19
271119000	26	7,730	297
合計	26,612	620,019	23

Source: Ministry of Finance, *Japan Exports & Imports*

Table 3.17 Tariffs and other taxes on petroleum products (unit: JPY/kl)

			Tariffs	Petroleum tax (for imports)	Other domestic indirect taxes (Reference)
Crude oil (reference)		For petroleum refining	**¥170**	**¥2,040** (utilized for petroleum-related projects)	
		For petroleum chemicals	**¥50**		
		For other uses	**¥170**		
Petroleum products	Gasoline	Aviation fuel (specific gravity below 0.8017)	**¥2,069**		¥26,000 (Aviation fuel tax: utilized for airport development projects)
		Aviation fuel (specific gravity above 0.8017)	**¥2,336**		
		For petroleum chemicals	**¥9**		
		For other uses (automobile fuel, etc)	**¥1,386**		¥53,800 (Gasoline tax + local road tax): utilized for projects for road maintenance and improvement)
	Kerosene		**¥564**		
	Diesel oil		**¥1,257**		¥32,100 (light oil delivery tax: utilized for projects for road maintenance and improvement)
	Heavy oils	Crude for petroleum refining	**¥170**		
		For use in agriculture, forestry and fisheries	**¥0**		
		Heavy oil A (primary)	**¥2,593**		
		Heavy oil A (secondary)	**¥3,306**		
		Low sulfur	**¥2,376**		
		High sulfur	**¥3,202**		

Source: Japan Tariff Association (2003) and Sekiyu Tsushinsha (2002).