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Chapter Author: Yujiro Hayami, Yoshihisa Godo

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Economics and Politics of Rice Policy in Japan: A Perspective on the Uruguay Round

Yujiro Hayami and Yoshihisa Godo

13.1 Introduction

Throughout the seven-year duration of the GATT Uruguay Round (UR), agricultural negotiation continued to be a major stumbling block. Because of domestic resistance to these negotiations, the Japanese and Korean governments were unable to play a sufficiently positive role in the Round despite the large benefits they are expected to receive from the successful conclusion of the Round.¹ Their dilemma was clearly demonstrated by their evasion of the “tariffication” of rice, effectively violating of the principles of the GATT/WTO.

Tariffication, by which all existing nontariff barriers are converted into bound duties, is a key element regarding market access in the Agreement on Agriculture embodied in the Final Act of the Uruguay Round. Yet Japan managed to make rice exempt from tariffication for a six-year grace period from 1995 to 2000 by giving compensation in the form of increased “minimum access” import quotas, from 4 percent of its domestic rice consumption in 1995 to 8 percent by 2000; the minimum access obligation under tariffication is graduated only from 3 percent to 5 percent within the six-year period. Likewise, Korea agreed to increase minimum access imports from 1 percent of

Yujiro Hayami is professor of international economics at Aoyama Gakuin University. Yoshihisa Godo is associate professor of economics at Meiji Gakuin University.

1. The Japanese government prohibited rice imports during the last quarter-century with a few notable exceptions. This import prohibition has occasionally been criticized as a violation of GATT rules at international talks. To take an outstanding example, the Rice Millers' Association (RMA) of the United States filed complaints under Section 301 of the U.S. Trade Act calling for the opening of the Japanese rice market in 1986 and 1988. The U.S. Trade Representative (USTR) substantially dismissed the claims by the RMA, presupposing that the rice issue would be resolved at the UR negotiations. Although there was great pressure on the rice market, the Japanese Diet adopted resolutions requiring the government to firmly maintain rice import prohibitions in 1980, 1984, and 1988.

Table 13.1 **Producer Subsidies and Consumer Burdens by Agricultural Protection Policies in Selected Economies, 1991–93**

Economy	PSE/Agricultural Output (1)	-CSE/PSE (2)	Grain Self-Sufficiency Rate (%)	
			1974–76 (3)	1984–86 (4)
Japan (Rice)	69 (92)	112 (97)	40	33
European Union	48	74	86	114
United States	22	45	157	159
Australia	10	29	348	426

Sources: Organisation for Economic Co-operation and Development, *Agricultural Policies, Market and Trade* (Paris, 1985, 1991), and *Food Consumption Statistics* (Paris, 1985, 1991).

Note: PSE, producer subsidy equivalent; CSE, consumer subsidy equivalent; Grain self-sufficiency rate, total grain output/total grain consumption.

base-period domestic consumption to 4 percent during the 1995–2004 period with a 10-year postponement of rice market tariffication. Indeed, this experience in Japan and Korea demonstrated that rice in East Asia is not simply an economic good but a cultural heritage, and therefore, is easily influenced by political forces.

The question to be addressed in this paper is: What political forces oppose the acceptance of the general agreements on agriculture of the Uruguay Round? We will try to find an answer mainly in reference to the case of rice in Japan, but the substance of this study is expected to apply to Korea, as well. The answer to this question will become a basis for projection to agricultural policies and trade regimes in northeast Asia for a decade following the Uruguay Round.

13.2 A Perspective on the Uruguay Round Agricultural Negotiations

In order to understand the unique response of Japan (and Korea) to the UR agricultural negotiations, it is useful to compare its position in regard to agricultural protection with those of the European Union, the United States, and Australia (table 13.1).

13.2.1 Stylized Facts of Agricultural Protection

Column (1) in table 13.1 compares the levels of agricultural protection in terms of the ratio of producer subsidy equivalent (PSE) to total agricultural output for 1991–93. PSE measures the increase in producers' income owing to all protective policies, including both border protection and domestic subsidy payments. According to this measure, agricultural protection in Japan is very high, with the PSE ratio amounting to about 70 percent, as compared with

about 50 percent in the European Union, 20 percent in the United States, and 10 percent in Australia. Especially high is the protection for rice, with PSE amounting to nearly 90 percent of output value. Note that these ratios use agricultural output values as denominators. If we assume value added from agriculture to be 60 percent of output value, Japan's PSE for 1991–93 amounted to 115 percent of agricultural GDP, implying that the national income of Japan would have increased by 15 percent with the elimination of the agricultural sector.²

In table 13.1, strong inverse correlation can be observed between the PSE ratio in column (1) and the grain self-sufficiency ratios in columns (3) and (4). This inverse association seems to reflect the general tendency for countries with lower comparative advantage in agriculture to undertake higher protection. It is noteworthy, however, that both the United States and Australia, which obviously have high comparative advantage in agriculture, are engaging in agricultural protection to a significant degree. Again, assuming value added to be 60 percent of output value, the ratio of PSE to agricultural GDP is nearly 40 percent in the United States and 15 percent even in Australia. Thus, Japan's high protection on agriculture is but one example of the stylized facts that (1) developed countries exercise high protection on agriculture and (2) the degree of protection is higher for countries with lower comparative advantage in agriculture.³

13.2.2 The Common Interest of the European Union and the United States

Another important observation in table 13.1 is the inverse correlation between the ratio of negative consumer subsidy equivalent –CSE to PSE in column (2) and the grain self-sufficiency ratios in columns (3) and (4). Income support for farmers as measured by PSE is considered to consist of income transfers from both consumers and taxpayers. Border protection increases the purchase price of agricultural commodities, and thus consumers experience a decrease in purchasing power or real income. CSE is therefore a measure of the extent to which consumers support protection via income reduction. On the other hand, the transfer from taxpayers takes the form of government subsidy payments. Thus, the ratio of –CSE to PSE measures how much agricultural protection is obtained at the expense of consumers relative to that from the government budget.

2. The ratio of gross value added to output value in rice is estimated to be a little less than 70 percent, using annual surveys by the Japanese Ministry of Agriculture, Forestry, and Fisheries on rice production cost (*Kome Seisanhi Chosa*). The sample of farmers in this survey is said to be biased toward high-yield farmers, and the profitability of rice exceeds the average level for other agricultural products. If we consider these points, the real ratio of gross value added in Japanese agriculture may be below 60 percent of total output value. Thus, the value added of Japanese agriculture is somewhat overestimated in the text. Nevertheless, it is concluded that GDP would increase if the agricultural sector were eliminated.

3. Such relations are also confirmed by econometric analysis in Honma and Hayami (1986a, 1986b, 1991).

The high ratio of -CSE for Japan and the low ratios for the United States and Australia reflect the fact that in a major food-importing country like Japan, a high protection rate can be achieved mainly through border protection with relatively little pressure on the government budget, while major food exporters must rely on the treasury if they want to support the income of farmers. From this perspective, the critically important factor underlying the adoption of agricultural policy reform as an issue in the Uruguay Round could be identified as the change in position of the European Union from a net grain importer in the 1970s to a net exporter in the 1980s, as shown in columns (3) and (4).

Since the formation of the European Community in 1957 until the 1970s, the European Union was a world-leading importer of grains and many other agricultural commodities. As long as import margins remained large, the Union could protect farmers at a target level mainly by means of the variable levies that produced revenue instead of cost to the EU government. However, as domestic agricultural production grew under heavy protection from the Common Agricultural Policy (CAP), imports progressively declined, resulting in a growing shortage of variable levy revenue relative to the needs of maintaining the CAP program. This shortage became more acute in the 1980s, when the Union became a net exporter. Because surplus commodities above domestic consumption were created by the heavy protection, producers could not find commercial outlets in the international market. Inadvertently, through export subsidies the European Union began overseas dumping activities. Under the pressure of surplus products, the budget cost of CAP loomed large and became politically intolerable, especially in the mid-1980s when the world food market was dampened.

This was the reason why the European Union and the United States agreed to put agricultural policy reform on the agenda of the UR negotiations. In other words, once the European Union became a net exporter, it was in the same boat as the United States. It was no longer possible for the EU and U.S. governments to finance agricultural protection at the expense of consumers. Given the high political cost of raising taxes, it became an absolute necessity to reduce agricultural protection or, at least, to stop further growth of protection. If they had not shared this problem, it is difficult to envisage that negotiations on agricultural policy reform would ever have been undertaken.

Surplus production due to excessive protection was the basic cause of looming budget costs in exporting countries. Thus, the UR agricultural negotiations could not be limited to the issue of trade rules and market access but had to be expanded to cover domestic agricultural policy and export subsidies.

From this perspective, CAP reform in 1992 under the lead of EC Commissioner Ray McSharry would have been undertaken even in the absence of UR negotiations, although there is little doubt that the reform was facilitated by the Round.⁴ CAP reform was essentially a shift from the traditional EC policy

4. For more detail, see International Agricultural Trade Research Consortium (1994, 46-51).

of supporting farm prices by means of border protection to a protection structure similar to that of the United States, consisting of acreage control and subsidy payments to farmers. This policy shift has already demonstrated its effectiveness in curbing farm production, so export surpluses are likely to decrease in the future.

13.2.3 The Unique Position of Japan

It is important to recognize that Japan has not been in the same situation as the European Union and the United States. As indicated in table 13.1, the import margin of grains has been widening, and the cost of agricultural protection has been almost completely covered by consumers. With increasing affluence, consumers are becoming more tolerant of high food prices, although most of them do not realize how high prices actually are. Their tolerance is especially high for rice, mainly because it has turned out to be an inferior good, whereby demand shrinks in response to increases in income level. As the share of rice in consumer expenditure is now less than 2 percent (compared with about 3 percent for vegetables), its effect on the cost of living has become insignificant. As a result, neither business employers nor labor unions are concerned about the price of rice. Thus, the countervailing force against agricultural protection has disappeared from Japanese society.⁵

Consumer tolerance of agricultural protection is common in affluent societies. What makes Japan unique relative to the European Union and the United States is the relative absence of countervailing pressure from the Ministry of Finance; this is because Japan as a major food importer is able to charge consumers for the costs of protection. Under this unique condition Japan has had little political incentive to promote agricultural policy reform in the arena of the Uruguay Round. While the expected benefit from a freer trade regime is obviously very large, the benefit would be distributed widely but thinly among consumers, business concerns, and organized laborers. No interest group has sufficient incentive to exercise countervailing power against the strong political pressure of the farm bloc. Thus, it appears reasonable to hypothesize that Japan remained very passive in the UR agricultural negotiations and tried to evade as much as possible any agreement that would have provoked the anger of the farm bloc partly because the farm bloc is politically very powerful as it is disproportionately represented in the national Diet, but more importantly because no other political bloc dared to undertake the countermeasure of promoting the negotiations.

Under such conditions, Japanese negotiators, who first tried to take the lead in advancing the Round when it began in 1986, failed to make active contributions as the negotiations dragged on. Instead, they were forced to adopt the usual Japanese stance of waiting for other nations to work out a solution and then accepting the agreement, making as few concessions as possible.

5. For more detail, see Hayami (1988, chaps. 1 and 3).

13.3 Evasion of Rice Tariffication

Now, the relevant question to ask is: Why was rice market tariffication so strongly opposed by the Japanese government? Would tariffication destroy Japanese agriculture and result in an unbearable burden on Japanese farmers as well as the demise of an agricultural heritage? In fact, this scenario seems unlikely from any calculations based on sound knowledge.

13.3.1 Possible Impact of Tariffication

The tariffication plan outlined in the UR agreement is the following: replace in 1995 all nontariff barriers by tariffs at rates equivalent to the differences between domestic (wholesale) and international (import c.i.f.) prices and, then, reduce tariff rates by 36 percent on the average with a minimum of 15 percent reduction for individual commodities within the six-year period from 1995 to 2000. How would this scheme affect Japanese rice farmers? It is more than reasonable to assume that upon acceptance of this plan, the Japanese government would seek approval for the application of the minimum 15 percent tariff reduction on rice. This implies that the average reduction in rice tariff rates per year would be only 2.7 percent. The effect of the tariff reduction in lowering the domestic price of rice in the following six years can be calculated as follows.

The average rate of reduction in the tariff rate ($a \times 100$ percent) needed to reduce the tariff rate by 15 percent within the six-year period is calculated as 2.7 percent ($a = 0.027$) per year from following relation:

$$(1 - a)^6 = 0.85.$$

If rice is allowed to be imported freely from abroad at the tariff rate of $t \times 100$ percent, the relation between the domestic price (P) and the import c.i.f. price (R) of rice is established as

$$P = R (1 + t).$$

If t is reduced by $a \times 100$ percent, the new domestic price (P') becomes

$$P' = R [1 + t (1 - a)].$$

The rate of reduction in the domestic price (c) corresponding to this tariff reduction is calculated as

$$c = \frac{(P - P')}{P} = \frac{at}{(1 + t)}.$$

In general, for a given value of a , the larger the value of t , the larger the value of c . However, even if the initial tariff rate is set at 700 percent ($t = 7$), based on the rather high estimate of the tariff equivalent for rice in Japan made by the U.S. International Trade Commission (USITC 1990), and this rate is cut by 15 percent in six years or 2.7 percent ($a = 0.027$) per year, the domestic

price is expected to fall only by 2.3 percent per year. Even if an unrealistically high rate of 1,200 percent ($t = 12$) is assumed for the tariff equivalent, the rate of corresponding reduction in the domestic price is just 2.5 percent. On the other hand, if the tariff equivalent is determined to be 300 percent ($t = 3$), according to the estimate by the Forum for Policy Innovation (1990), which seems to be a more reasonable estimate, as discussed in appendix A, the rate of decline in the domestic price corresponding to a 2.7 percent reduction in the tariff rate is only 2.0 percent per year.

This means that, if rice farmers in Japan were able to reduce their production costs at the speed of 2.5 percent per year, they would incur no damage from the UR tariffication. Considering the fact that the producer price of rice under government controls was lowered on average by 2.5 percent per year during 1986–91, it is reasonable to expect that Japanese farmers would be able to withstand the UR tariffication.

It must be noted that the above calculation is based on the assumption of “clean” tariffication, in which the initial tariff rate is set exactly equal to the domestic-border price difference. In fact, because it is technically difficult to determine the relevant prices for the domestic and international markets, it is relatively easy to set the initial tariff rate significantly higher than necessary to prevent imports from occurring, as the EU example seems to demonstrate.⁶

13.3.2 The Experience of Beef Tariffication

Tariffication in itself would not cause imports to grow. The height of initial tariff rates and the speed of their reduction determine how well imports do. This is clear from the previous experience with the tariffications of beef.

A quota system for imported beef was replaced by tariffication in 1991 through U.S.-Japan bilateral negotiation.⁷ Has this resulted in rapid growth of beef imports? The answer is no. As shown in table 13.2, while beef imports grew at an average annual rate of 20.4 percent over the five years that quotas were in effect, their annual growth averaged only 12.5 percent over the four years following the shift to tariffication. Meanwhile, annual domestic production remained almost constant at about 400 thousand tons.⁸ If the level of initial

6. See International Agricultural Trade Research Consortium (1994, 40–46). Under the UR agreement the Food Agency of Japan is allowed to mark up the price of minimum access import rice to as high as 332 yen/kg, which is eight times higher than the border price of Thai rice. Therefore, it is likely that if Japan were to have accepted tariffication, the tariff rate of 700 percent would have applied to rice. This rate is far higher than the real tariff equivalent, as discussed in appendix A.

7. The Japanese government imposed quotas on beef imports before 1990. The Livestock Industry Promotion Corporation (Chikusan Shinko Jigyodan), which is an extradepartmental organization of the Japanese Ministry of Agriculture, Forestry, and Fisheries, controlled beef imports. Beef and oranges have been treated as symbols of the closed nature of Japanese market in U.S.-Japan trade talks, which became especially heated in the 1980s. The Japanese government withstood increasing import quotas at first but finally agreed to undertake beef tariffication (beginning in 1991) in 1988.

8. For a discussion of the influence of beef tariffication on domestic beef production, see Mori and Gorman (1995).

Table 13.2 Imports of Beef to Japan, 1985-94

Year	Tariff Rate (%)	Import Quantity (thousand metric tons)	Rate of Increase from Previous Year (%)	
1985	-	150.6	-	
1986	-	179.1	18.9	} Average 20.4
1987	-	220.0	22.9	
1988	-	263.5	19.8	
1989	-	348.7	32.8	
1990	-	376.1	7.9	
1991	70	353.1	-6.1	} Average 12.5
1992	60	411.6	16.5	
1993	50	511.6	24.3	
1994	50	588.6	15.1	

Source: Japan Ministry of Agriculture, Forestry, and Fisheries, *Monthly Statistics of Agriculture, Forestry, and Fisheries* (Tokyo, various issues).

tariffs and the speed of tariff cuts are set appropriately, it can be argued that tariffication can be more effective in curbing imports than are quantitative import restrictions.

In the case of beef, the tariff rate was reduced by about 30 percent within the two years from 1991 to 1993, which was six times faster than the minimum allowable rate of reduction of 15 percent over six years (equivalent to 5 percent over two years) in the UR agreement. If the tariff rate reduction for beef had been as small as 5 percent, the tariff rate in 1993 would have been 66 percent instead of the actual level of 50 percent. In this case, judging from the decrease in beef imports in the first years of tariffication under the tariff rate of 70 percent, it is unlikely that any significant increase in beef imports would have occurred after tariffication if the conditions of tariffication applied to beef were the same as those of the UR tariffication applicable to rice.

13.3.3 Effectiveness of Safeguards

Often cited by opponents of tariffication was the danger of increases in rice imports due to sharp declines in border prices, which might arise from such factors as foreign exchange rate appreciation, changes in overseas supply conditions, and dumping by exporters.

However, the UR agreement includes strong safeguard measures. One is the "special safeguards" provision that allows the importer to increase the tariff rate corresponding to the decline in border price or import quantity increase. Another could be the use of a specific duty instead of an ad valorem tariff. The safeguard power will be extremely strong for a commodity like rice in Japan, characterized by a large domestic-border price difference, if the price-trigger safeguard and the specific duty are combined. This is illustrated in table 13.3,

Table 13.3 Illustration of Safeguard Measures

	Ad Valorem Tariff			Specific Duty		
	No Safeguard	Price- Trigger Safeguard	Quantity- Trigger Safeguard	No Safeguard	Price- Trigger Safeguard	Quantity- Trigger Safeguard
Border price	50 yen/kg			50 yen/kg		
Tariff (300%)	150			150		
Domestic price (A)	200			200		
↓						
Border price	10	10	10	10	10	10
Tariff (300%)	30	46 ^a	39 ^b	150	166 ^a	195 ^c
Domestic price (B)	40	56	79	160	176	205
Rate of domestic price decrease (%) = (B - A)/A	-80	-72	-40	-20	-12	3

^aInitial tariff plus 16.4 yen/kg:

$$16.4 = \frac{5 \times 0}{10\%} + \frac{(20 - 5)}{10\% - 40\%} \times 0.3 + \frac{(30 - 20)}{40\% - 60\%} \times 0.5 + \frac{(37 - 39)}{60\% - 75\%} \times 0.6 + \frac{(40 - 37)}{\text{above } 75\%} \times 0.9.$$

^b30 × 1.3 (increase in the tariff rate by 30 percent when import quantity increases by 26 percent from the previous three-year average).

^c150 × 1.3 (as in note b).

in which as an extreme case the border price declines from 50 yen/kg to only 10 yen/kg, under the assumption of an initial tariff rate of 300 percent.

Initially, the domestic price is assumed to be 200 yen/kg through the addition of a 300 percent tariff (150 yen/kg) to the border price of 50 yen/kg. If the ad valorem tariff is applied, corresponding to the reduction in the border price from 50 to 10 yen/kg, the domestic price will decline sharply from 200 to 40 yen/kg. Special safeguards will be of little help in this situation. However, if the specific duty is fixed at 150 yen/kg, the domestic price will decrease only slightly from 200 to 160 yen/kg despite the border price decrease from 50 to 10 yen/kg. If the price-trigger safeguard is applied in addition, the domestic price of imported rice will decrease only to 176 yen/kg. If the quantity-trigger safeguard is applied instead, the new domestic price of imported rice will be higher than the prior domestic price level, with no possibility of further increase in rice imports.

13.3.4 Vested Interests against Tariffication

Thus, if the initial tariff rate is appropriately set to cover the domestic-border price difference and the safeguard measures are adequately combined, rice imports under tariffication can be kept much lower than the level of imports under increased minimum access. This is an easy conclusion to draw, about which capable government officials in Japan could hardly be ignorant. So why did

Japan endeavor to make rice an exception to the general principle of the UR agreement?

The answer appears to be because tariffication threatens to damage the vested interests that are protected by the nation's food control system.⁹ In particular, it would eventually destroy the monopolistic control over rice marketing enjoyed by the Food Agency and agricultural cooperatives. Under the Food Control Law, all rice is supposed to be collected by village agricultural cooperatives and is sold either to the Food Agency (the "government rice" channel) or to licensed wholesalers (the "voluntary rice" channel) for further distribution at the retail level, even though some rice is, in practice, distributed illegally through the black market ("free rice"; see fig. 13.1). In order to establish rice-selling rights through legal channels, rice farmers have to divert a certain portion of their paddy field area away from rice production; this acreage control program was created to maintain domestic rice prices far above the market equilibrium level under autarky. This system has been the major source of institutional rent for both agricultural cooperatives and the Food Agency. The rent partly goes to farmers through price increases. But it mainly goes to the Food Agency and the agricultural cooperatives in order to continually expand the size of these institutions. It should be noted that almost all farmers are members of agricultural cooperatives, yet there are cases in which the benefits received by individuals differ from the benefits received by cooperatives. Agricultural cooperatives, through their strong political power, oppose tariffication, although certain members within the cooperatives have different opinions on the issue.

Introducing tariffication would be like drilling a hole in this food control system, in which all rice is controlled by the Food Agency. It is a step toward the market-oriented reform of the rice distribution system. In contrast, the minimum access import quota system, in which rice imports are all controlled by the Food Agency, presents no opportunity for such reform. It is conceivable that windfall profits from the mark-up sale of minimum access foreign rice at the high domestic price will be used in order to strengthen the present food control system.

Under the present system, rice production in Japan is controlled by paying farmers subsidies to reduce the amount of farmland dedicated to growing the crop. This helps maintain high prices that far exceed the levels that would prevail under free market conditions. Also, acreage control is allocated almost equally among farmers, with the effect of preventing the concentration of rice production among more efficient growers. This is a major obstacle to exploiting in scale economies that have emerged in the agricultural industry since

9. Corresponding to the acceptance of the UR agreement, the government enacted in 1994 the so-called New Food Law to replace the Food Control Law. (The new law comes into effect 1 November 1995.) Similar to the old law, the new law is very general and abstract so that it is hard to judge how the rice distribution system will be changed. The future depends much on ministerial orders and administrative guidance. For details, see Godo and Honma (1997).

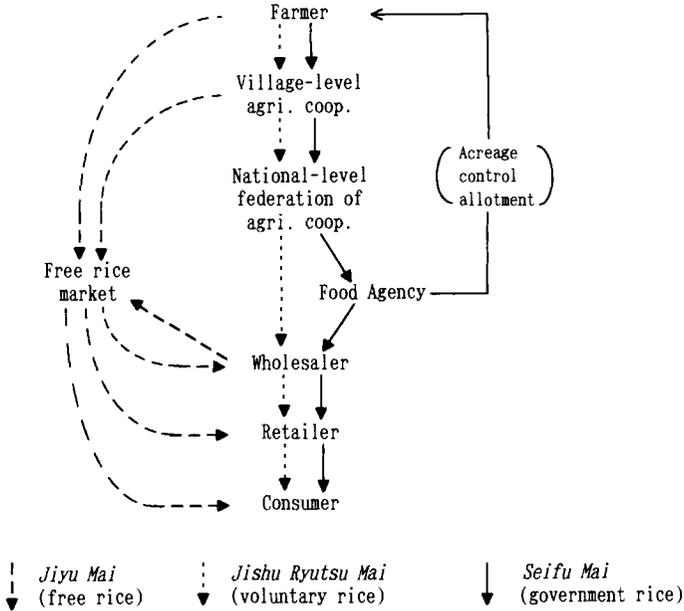


Fig. 13.1 System of rice marketing under the Food Control Law

Note: Wholesalers and retailers are licensed by region.

the large-scale progress in mechanization induced by sharp increases in wage rates in the 1970s. And because rice prices and marketing systems are inflexible, this prevents farmers from making the most of their entrepreneurial abilities (see Hayami 1988, chaps. 3 and 6). One way of enhancing these abilities would be to remove government controls on rice marketing and to promote cost reduction by gradual reduction of domestic prices. By evading tariffication while keeping rice prices high by reducing rice acreage at a rate equivalent to the increase in minimum access imports, perhaps the incentive for reforms will be weakened.

Indeed, the maintenance of high domestic prices by means of acreage control in response to shrinking domestic demand has been the continual policy mix in Japan and has consistently hindered the growth of Japanese agriculture. This policy mix is likely to continue in an accentuated manner with increased minimum access imports. If the evasion of tariffication is harmful rather than beneficial to agriculture, one could maintain that it has been adopted because it protects the vested interests of the Food Agency and agricultural cooperatives.

In order to support the arguments above we will try to show, by means of a simple simulation analysis, the likely course of the rice sector after the Uruguay Round under the traditional policy mix in contrast with possible other courses under alternative policy mixes.

13.4 The Political Economy Dynamics of the Rice Market

As a background to the simulation analysis, this section tries to identify the goals and means of traditional rice policy in Japan in terms of the policy's consequences.

13.4.1 Policy-Induced Cycles¹⁰

The revealed objective of Japan's rice policy since the 1960s, when Japan joined the group of high-income countries, appears to be the support of domestic producer prices within the constraints of the government budget. Various policy means designed to achieve this goal, when interacted with market forces, have created major fluctuations in the rice market as shown in figure 13.2.

Government efforts to increase the producer price of rice were intensified especially in the early 1960s when high economic growth (*kodo keizai seicho*) widened rural-urban income disparity. Because all rice was then procured by the Food Agency through agricultural cooperatives, the producer price could be increased by raising the government purchase price. Corresponding rapid rises in the purchase price created a deficit for the Food Agency because the government sale price increase had a time lag of a few years.

However, the extremely rapid increase in the government deficit during the 1960s resulted more from the response of the market to the increased price than from the increase in the negative government marketing margin. The increased producer price stimulated production and market supply. From 1960 to 1968, total rice output increased by 14 percent (from 12.5 to 14.2 million tons), while total sales to the Food Agency rose faster, by as much as 67 percent (from 6.0 to 10.0 million tons). Given the negative marketing margin, the deficit from the food control program increased in proportion to the increase in rice procurement by the Food Agency.

More serious was the accumulating surplus in government storage. During the 1960s, rice became an inferior good with respect to per capita income rises; average per capita rice consumption per year declined steadily from a peak of 118 kilograms in 1962 to 100 kilograms in 1970. In addition to negative income elasticity of demand, the increased price probably also contributed to the decline in rice consumption to some extent. With the bumper crop in 1967, the excess supply of rice became especially evident in the form of a sharp increase in the quantities of old rice in government stocks.

The multiplying financial burden arising from excess supply forced the government to introduce three simultaneous measures in 1968: (1) restraint on the price of rice, (2) acreage control, and (3) disposal of surplus rice.¹¹ For the subsequent three years, the producer price was kept the same.

10. This section draws heavily on Hayami (1988, chap. 3, sec. 2).

11. The first disposal of surplus rice occurred in 1971–74, with government expenditure reaching 1 trillion yen (for the second instance, see n. 12). About 7.4 million metric tons were exported at low prices or crushed and used for feed or food processing.

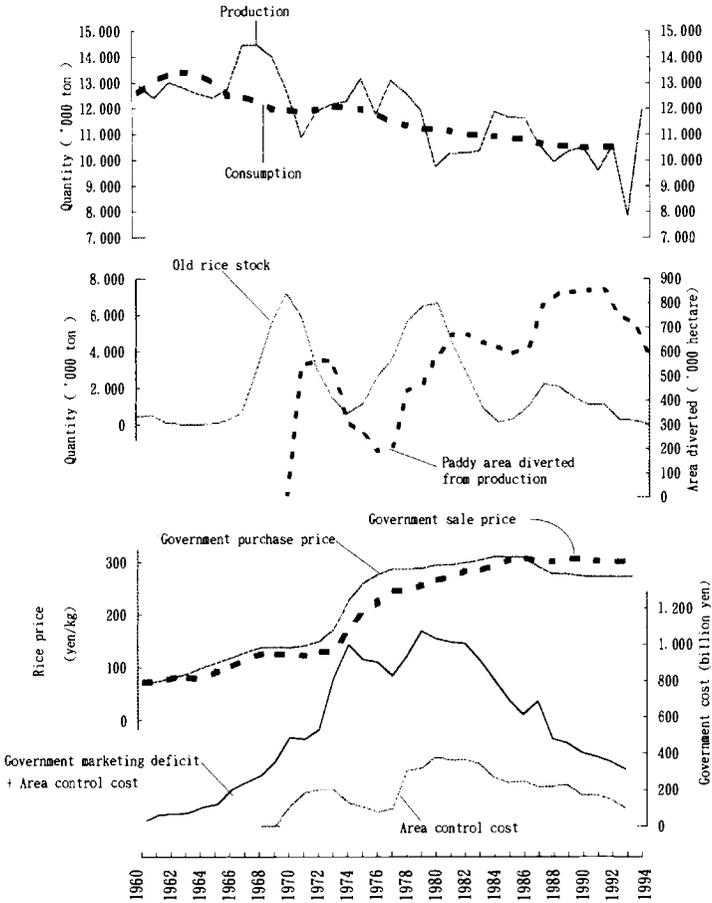


Fig. 13.2 Policy-induced cycles in the rice market
 Sources: Japan Ministry of Agriculture, Forestry, and Fisheries (JMAFF), *Shokuryo Kanri Tokei Nenpo* (Annual report of food control statistics), *Norin Suisan Sho Tokeihyo* (Statistical yearbook of JMAFF), *Shokuryo Jikyu Hyo* (Food balance sheets), *Nogyo Hakusho Fuzoku Tokei Hyo* (Statistical appendix to the Agricultural White Paper) (Tokyo, various years).

In the short run, demand remains relatively price inelastic because rice is still culturally the staple food of the Japanese diet. Furthermore, the short-term supply of rice is mostly influenced by weather conditions and may not necessarily increase in response to price rises. Therefore, excess supply does not become especially significant even if the price is raised above the market equilibrium. In such a situation, irrespective of how much the producer price is raised, it would not cause much financial burden to the government if the consumer price were raised in parallel even with a few years' time lag.

In the long run, however, an excess supply of rice becomes inevitable as long as the government continues to support the price of rice. On the supply

side, the increased price stimulates the application of fertilizers and other inputs, and as a result, supply increases. Furthermore, on the demand side, consumers over time gradually substitute toward relatively cheaper, wheat-based products such as bread. When excess supply is created as the result of long-run adjustments to the price support in demand and supply, the resulting extra costs, such as storage and surplus disposal costs, can no longer be passed on to consumers.

During the 1960s, average per capita income rose very rapidly, to the extent that it doubled in a decade in real terms, and rice consumption declined gradually both absolutely and relative to total household consumption expenditure. The increase in the consumer price of rice was therefore not strongly resisted, and in particular, there was no substantial political movement against the increase in rice prices. In the short run, since it was possible to pass on a large part to consumers, the rice price support was raised without too much stress on the treasury. But over the long run, due to the response of the market, it became an increasingly unbearable burden on the government.

It may seem strange that the rice price began to be raised again in 1973, as soon as the disposal of surplus rice was completed and demand-supply equilibrium was restored by the success of the acreage control program.¹² This was partly due to the outbreak of the so-called world food crisis of 1973–74. Sharp increases in world food prices, coupled with the U.S. soybean embargo, stirred up anxiety in the public.¹³ The farm bloc took advantage of this situation in their lobbying for a price increase by advocating greater food self-sufficiency and security.

However, another factor underlying the second surge of rice price support was perhaps that policymakers were slow to predict the creation by market forces of a large surplus in response to further price increases. Even if they foresaw this, it might have been difficult for them to present sufficiently strong reasons to counter the pressure for the price increase. Or it might have been the case that, given politicians' high rate of discount on future costs and benefits balanced against their immediate need to stay in office, it was to their advantage to yield to pressure from the farm bloc.

At any rate, the price support was raised, and the acreage control program was relaxed. There followed a repetition of the experience of the 1960s. With increasing excess supply, surplus stock was accumulated, and the government deficit escalated, forcing a price freeze and a strengthening of acreage control in the late 1970s.

The policy-induced cycles thus created have involved a large waste of re-

12. The second disposal of surplus rice occurred in 1979–86. A volume of about 6 million metric tons was exported or sold for feed or food processing in just the same way as in the first disposal. In this instance, government expenditure was 2 trillion yen.

13. During the world food crisis, the United States invoked a soybean embargo from 27 June to 8 September 1973 as a measure to counter inflation. As Japan is a major soybean importer, this created considerable turmoil and placed pressure on food prices.

sources. An obvious example is the accumulation of surplus rice and its disposal at huge cost. Another example is that paddy fields that, in response to high prices, had been converted from upland fields through large investments for the installation of irrigation systems were diverted from rice production back to upland crops just when construction was completed. This suggests that social losses may result from state intervention when decisions are made without appropriate consideration of market forces.

13.4.2 Emergency Rice Imports in 1993–94

Emergency rice imports in 1993–94 in Japan, the first in two decades and ironically coinciding with the conclusion of the Uruguay Round, can be understood as an extension of the policy-induced cycle.

When the second surplus had somehow subsided by 1984, the government rice stock began to rise again, partly because production was stimulated by high prices and partly because domestic consumption continued to shrink. A third surplus did emerge in 1986–89, but on a much smaller scale than in the previous two instances because the government was quick to strengthen acreage control based on its experiences with the previous failures, with the reduced area amounting to nearly one-quarter of the total paddy field area.

In retrospect, it is clear that the government became overly cautious about the possibility of another major surplus. Acreage control was maintained at such a high level that the government rice stock was below the normal operational inventory level when the rice crop was severely affected by adverse weather conditions in 1993. (The official rice yield index declined by 26 percent.) Thus, the Food Agency had no option but to organize large-scale import activities.

The shortfall of the 1993 rice crop was quickly replaced by a bumper crop in the next year. The 1994 crop was stimulated by both high prices in the previous year (especially in the black market) and relaxation of acreage control. By the end of the 1994 rice year (October 1995) the government rice stock reached a level of 1.6 million tons, nearly three-quarters of the 1987 level, which was the peak of the previous surplus era. Yet, it will not be easy for the government to curtail production for the next few years. A reduction in producer prices does not seem politically feasible because the farm bloc is demanding instead price hikes as compensation for the acceptance of the UR agreement. The same argument applies to acreage control.

A likely course in the short run will be for the government to hold the surplus in stock. Financial constraints on increasing the inventory carryover can be mitigated to some extent by Food Agency profits from the mark-up of minimum access import rice. Thus, it is not improbable that the government's inventory accumulation will reach the levels of the previous two surpluses of the 1970s and 1980s and that the government will thereafter return to the normal policy mix of high price support and increasing acreage reduction. If this happens, a large waste of government resources in the form of stock-carrying cost

and capital loss from surplus disposal will be inevitable, and productive investments, such as agricultural research and extension, that are necessary for the revitalization of agriculture in the post-UR regime will have to be curtailed.

13.5 A Simulation Analysis

This section contrasts the economic implications of Japan's postponement of tariffication on rice with those of other policy options by means of a simple simulation analysis.

13.5.1 Alternative Scenarios

The three options to be compared are:

- A. Evade tariffication by increasing minimum access import quotas gradually from 4 percent of domestic consumption in 1995 to 8 percent in 2000; this external commitment is coupled with the domestic policy of strengthening acreage control to reduce rice production by the amount of minimum access imports so as to maintain the domestic price at the baseline level. The three variants of this scenario after 2000 are:
 - A-a. Continue to exempt rice from tariffication by increasing minimum access to 12 percent in 2006.
 - A-b. Shift to tariffication in 2001 and thereafter follow scenario B.
 - A-c. Shift to tariffication in 2001 and thereafter follow scenario C.
- B. Start tariffication in 1995 with a pledged reduction in the tariff rate by 15 percent until 2000, and gradually increase minimum access import quotas from 3 percent to 5 percent of domestic consumption within the six-year period; this external commitment is coupled with the domestic policy of strengthening acreage control to reduce rice production by the amount of minimum access imports so as to prevent the domestic price from falling faster than the decrease resulting from the tariff cut. After 2000, the tariff rate will be reduced by another 15 percent within the next six years, while minimum access imports will be increased to 7 percent of domestic consumption, which will be counteracted by an equivalent increase in acreage reduction.
- C. Start tariffication in 1995 with the same external commitment as in scenario B, coupled with the domestic policy of relaxing acreage control by 1 percent per year of total paddy field area throughout the period until 2006.

In all three scenarios it is assumed that all the losses in producer surplus will be compensated by direct government payments to individual producers in a "decoupled" manner proportional to either their operational landholdings or their marketing volumes in the base period. Participants in acreage control programs also will be compensated so as to maintain their welfare position.

Scenario A represents the likely course of the rice sector in Japan because the external commitment explained is the actual situation and the domestic

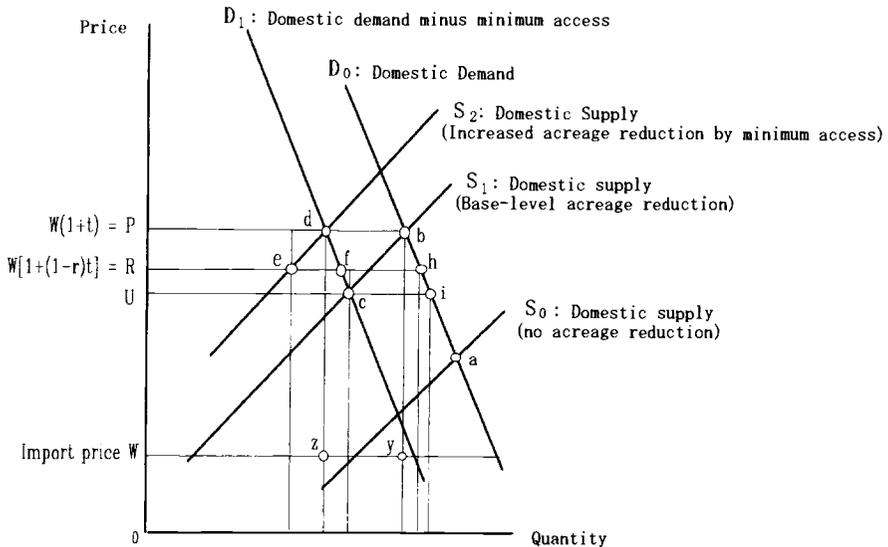


Fig. 13.3 Effects of rice market opening in Japan

policy outlined is the one most likely to be pursued in the medium run, even though in the short run a build-up of government inventory may precede the strengthening of acreage control.

Scenario B would have been the likely course had tariffication been chosen because, judging from the revealed preference of the government to support domestic producer prices as much as possible within budgetary constraints, it seems reasonable to expect that domestic policy will be designed so as to minimize the price decline after tariffication.

For that reason, scenario C is unrealistic because its policy mix is unlikely to be chosen. It may, nevertheless, be a policy direction that would promote the survival and revitalization of Japanese agriculture in the international market.

The simulation analysis traces changes in the domestic price and output of rice as well as government costs and producer and consumer welfare under three alternative policies.

13.5.2 Model and Parameters

Our analysis is based on a simple Marshallian partial equilibrium framework under a small-country assumption. The model of the rice market in Japan is shown in figure 13.3, with the vertical axis representing price and the horizontal axis representing quantity.¹⁴

D_0 represents the domestic demand schedule and S_0 represents domestic

14. The model used here is a revision of the model developed by Y. Hayami and K. Otuska in Forum for Policy Innovation (1993).

supply in the absence of acreage control, implying that a is the point of free market equilibrium under autarky. Rice policy in Japan for the past three decades has aimed at raising the domestic price above a . The resulting excess supply has been avoided by shifting the supply curve to the left by means of acreage control.

The baseline (pre-market-opening) equilibrium is considered to be at point b , at which domestic demand (D_0) and domestic supply under acreage reduction (S_1) intersect.

If minimum access imports are enforced in this situation and if the imported rice is discharged to the market, demand for domestic rice will shift from D_0 to D_1 with the price lowered to U , which corresponds to equilibrium point c . The price can be maintained at P , however, if acreage control is strengthened so as to shift domestic supply from S_1 to S_2 . This is the policy response assumed in scenario A. In this case there is little need for compensation to producers since their welfare position decreases only slightly, while there is no increase in consumer surplus. The government (Food Agency) gains by area $bdzy$, the mark-up margin of minimum access rice.

If tariffication is introduced instead, there is no immediate impact on the domestic price because the difference between the domestic price (P) and the import price (W) will be levied as a tariff (t percent of W). Minimum access imports will have the same effect as in scenario A, although their impact is quantitatively smaller. However, even if acreage control is strengthened so as to shift domestic supply from S_1 to S_2 , as assumed in scenario B, the domestic price cannot be maintained at level P for long, as the tariff rate will be reduced at the rate of 15 percent over six years. As the initial tariff rate (t) is reduced by r ($\times 100$) percent, the domestic price is bound to decline from P to R and imports to increase by ef above the minimum access quota (fh).

In contrast, if acreage control is not strengthened while minimum access imports are undertaken, market equilibrium is established at c . At this point, if the market price of domestic rice (U) is lower than the price of imported rice after tariff payment (R), as illustrated in figure 13.3, no additional imports will emerge beyond the minimum access amounts. Scenario C represents the case in which acreage control is relaxed instead of being left unchanged. Therefore, the likelihood of no additional imports occurring is higher than in the case of no changes in acreage control, represented by equilibrium point c . For simplicity of presentation, we represent scenario C as the case of no change in acreage control.

Gains in consumer welfare measured by consumer surplus can be calculated by taking integrals of D_0 with respect to price over the range from P to R for scenario B and from P to U for scenario C. Corresponding changes in producer surplus can be calculated by taking integrals of S_2 (for scenario B) and of S_1 (for scenario C). For specific computational formulas, see appendix B.

As for basic parameters, we use 0.4 for the price elasticity of domestic supply and -0.2 for the price elasticity of domestic demand. These are commonly

used values for the analysis of the rice market (see Otsuka and Hayami 1985).

For the sake of simplicity, we assume the baseline level of domestic consumption before the UR market opening to be 10 million tons of brown rice (which can be converted to milled rice by applying a factor of 0.9). The baseline price of domestic rice at the wholesale level is assumed to be 329 yen/kg of brown rice, which is the 1992 average of free market (black market) rice prices based on the survey by the Ministry of Agriculture, Forestry, and Fisheries (1994). The baseline ratio between domestic and import c.i.f. prices is assumed to be 4 to 1, for the reasons discussed in appendix A.

13.5.3 Findings

Results of the simulation analysis are summarized in table 13.4 and figure 13.4. It must be remembered that the three alternative scenarios for which the simulation analysis is carried out are equivalent in terms of producer welfare because any welfare loss is supposed to be compensated for by government payment in a decoupled manner.

Scenario A: No Tariffication + Increased Minimum Access + Increased Acreage Control

Scenario A is the current situation, and it is likely to continue in the future. According to this scenario, although the domestic price can be maintained at the baseline level, domestic output will continue to shrink. Under high price support and strengthened acreage control, no momentum can possibly arise for structural adjustment geared toward improving farm efficiency. Possible gains in social welfare from this market-opening scheme will be negligible unless tariffication is accepted after 2000, since consumers receive no benefit because of the maintenance of high prices.

Nevertheless, this is an attractive scenario for the government. Food Agency revenue from the mark-up of minimum access import rice will amount to nearly 200 billion yen in 2000 and reach as much as 400 billion yen in 2006 if tariffication is avoided after 2000. The increased revenue, along with a corresponding expansion in the organization and power of the Food Agency in the area of rice trading, will be a bonanza for bureaucrats in the Ministry of Agriculture, Forestry, and Fisheries. For the Ministry of Finance, which is so concerned about balancing budgets, this scenario is highly attractive because the compensation payment to farmers can be more than fully financed by the mark-up revenue with no danger of increasing transfers from the general account to the Food Control Special Account under the administration of the Food Agency. It is also attractive for politicians because they can easily present the maintenance of high prices with the rejection of tariffication as their success in working strongly for the protection of farmers.

Because of the preferences of bureaucrats and politicians, it is highly probable that this scenario will continue even after 2000 (scenario A-a) instead of shifting to tariffication (scenario A-b or A-c). In short, scenario A implies the

Table 13.4 Results of the Simulation Analysis

Scenario ^a	Domestic Price ^b		Domestic Output ^c	Imports ^c			Increase In ^c						
	(1)	(2)		Total (4)	Minimum Access (5)	Over Secondary Tariff (6)	Additional Acreage Reduction ^d (7)	Tariff/Mark-up Revenue (8)	Producer Surplus (9)	Consumer Surplus (10)	Budget Cost (11)	Social Welfare (12)	
Baseline level	329	(100)	10,000	0	0	0	0	0	0	0	0	0	
A	1995	329	(100)	9,867	400	400	0	1.33	33	-31	0	-2	2
	2000	329	(100)	9,200	800	800	0	8	197	-188	0	-9	9
A-a	2006	329	(100)	8,800	1,200	1,200	0	12	296	-282	0	-14	14
A-b	2006	255	(78)	8,128	2,395	1,000	1,395	10	413	-869	758	456	302
A-c	2006	255	(78)	8,850	1,673	1,000	673	2	289	-737	758	449	309
B	1995	323	(98)	9,842	413	300	113	0.83	47	-80	62	33	28
	2000	292	(89)	9,057	1,184	500	684	5	248	-461	374	212	162
	2006	255	(78)	8,399	2,124	700	1,424	7	367	-820	758	453	305
C	1995	319	(97)	9,978	300	300	0	-1	20	-75	99	56	43
	2000	275	(84)	9,866	500	500	0	-6	96	-412	550	316	234
	2006	243	(74)	9,924	700	700	0	-12	112	-626	883	514	369

^aA: No tariffication + increased minimum access imports + equivalent increase in acreage reduction.

A-a: Continue the same policy after 2000.

A-b: Shift to tariffication after 2000 + increase in acreage reduction.

A-c: Shift to tariffication after 2000 + decrease in acreage reduction.

B: Tariffication + increase in acreage reduction equivalent to minimum access imports.

C: Tariffication + decrease in acreage reduction by 1 percent per year of total paddy field area.

^bYen per kilogram.

^cThousand metric tons.

^dPercentage of total paddy field area.

^eBillion yen.

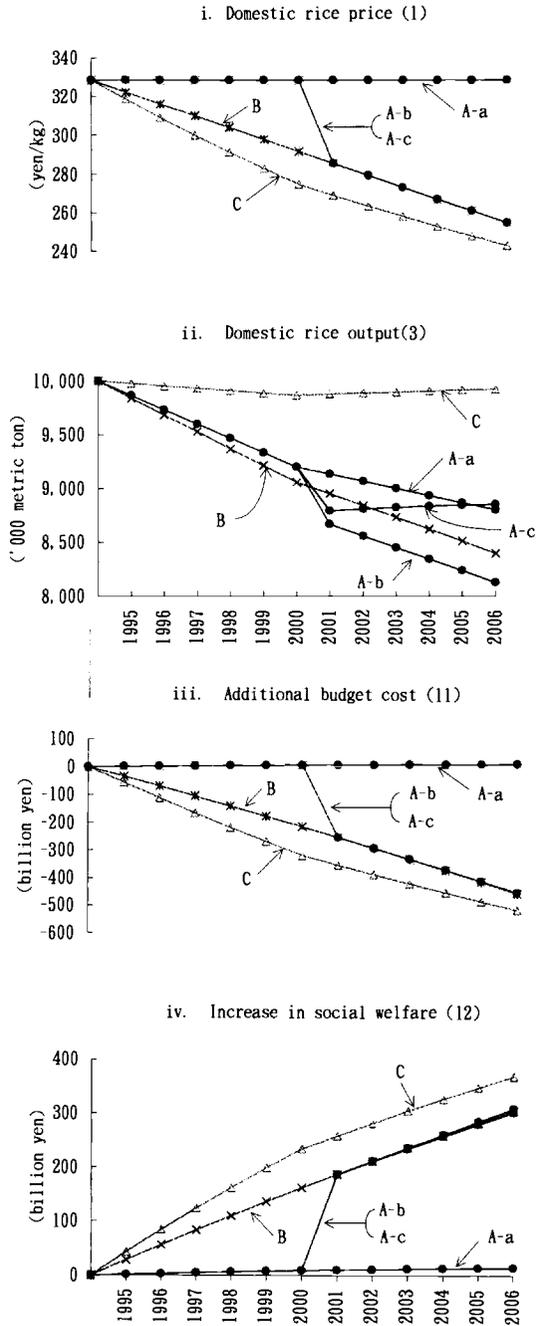


Fig. 13.4 Results of the simulation analysis

Note: Numbers in parentheses correspond to column numbers in table 13.4.

continuation of traditional Japanese agricultural policy geared toward charging the cost of agricultural protection to consumers with a minimal burden on the treasury.

Scenario B: Tariffication + Increased Acreage Control

Scenario B would have been the likely situation had tariffication been accepted at the conclusion of the Uruguay Round. In this scenario, the domestic price will decline from the baseline by a modest 11 percent over the first six years, entirely as a result of a reduction in the secondary tariff rate, and by another 11 percent over the next six years if the same rate of tariff cut is applied. The corresponding shrinkage in domestic output will be the largest among the three alternative scenarios, by about 10 percent by 2000 and 16 percent by 2006.

Loss in producer surplus is expected to be large, but nearly half of the income compensation required from the government can be financed by the tariff/mark-up revenue from increased imports. Still, the additional budget requirement will amount to about 200 billion yen in 2000 and 450 billion yen in 2006. Yet social welfare will increase by about 160 billion yen in 2000 and by 300 billion in 2006.

Scenario C: Tariffication + Decreased Acreage Control

A very different picture will emerge under tariffication if acreage control is relaxed instead of strengthened. Scenario C will see the largest decline in domestic price, but domestic production can be maintained at almost the baseline level right through to 2006. This is because the increased supply of domestic rice will result in a larger price decline than the decline that results from the prescribed tariff cut, and thus the importation of foreign rice will be prevented from increasing above the minimum access quota. The decline in prices, together with greater freedom in land use, is expected to encourage structural adjustment in order to improve farm efficiency. The budget costs of 316 billion yen in 2000 and 514 billion yen in 2006 may appear to be very large but are modest when compared with the new six-year agricultural support program recently approved, which includes a budget appropriation of 6 trillion yen as compensation to farmers for rice market opening due to the UR agreement. Social welfare gains from this market-opening scheme will be the highest among the three alternatives because of the large gain in consumer surplus.

For bureaucrats, however, Food Agency revenue from the tariff/mark-up will be small and thus will fall far too short of compensation payments to farmers. In other words, this scenario reduces the consumer burden of agricultural protection at the expense of the treasury. For this reason, despite its large contribution to the social welfare of the nation as well as its encouragement of domestic rice production, this scenario is unlikely to be adopted.

13.6 Conclusion

In general, agriculture tends to be protected in high-income countries largely because consumers in affluent economies tolerate high food prices. Japan is no exception to this rule. Furthermore, Japan is no exception to the tendency that the lower a country's comparative advantage in agriculture, the higher its agricultural protection. This tendency emerges partly because agricultural industries that have declining comparative advantage face more serious adjustment problems and, thereby, demand more government assistance. But an equally or even more important reason appears to be that it is much easier for the importer of agricultural commodities to charge the cost of agricultural protection to consumers by means of border protection, resulting in less pressure on the treasury. However, agricultural protection by the exporter tends to be more constrained because it relies heavily on government expenditure, which can be politically costly.

From this perspective, the UR agricultural negotiations geared toward curtailing agricultural protection are considered to have been undertaken and somehow successfully concluded because the European Union began to share an interest with the United States in the fact that it has become a major exporter of agricultural commodities since the early 1980s. In contrast, Japan has continued to be a major importer and, hence, has not been subject to such severe pressure from the treasury to reduce agricultural protection. In the absence of domestic support arising from the point of view of budget savings, Japanese negotiators chose the option of waiting for the other two major players to work out a solution and then accepted the agreement to a minimal extent; this was achieved with the exemption of rice from tariffication.

One could guess that the reason this formula is acceptable at home is not because it protects the interests of farmers. Possible negative effects of rice tariffication on domestic agriculture are expected to be very modest by all calculations and can be eliminated altogether if countered by appropriate domestic policies. As suggested by the results in this paper, the increased minimum access import quotas to which Japan committed itself for the purpose of compensation could have more adverse effects than tariffication. The decision to avoid rice tariffication could be interpreted as a move to protect the vested interests of the Food Agency and agricultural cooperatives, who have strong control over rice marketing.

Avoiding tariffication, when coupled with increased acreage reductions equivalent to minimum access imports, will make it difficult for consumers to enjoy any benefits from the opening of the rice market. But because it does not require additional budget expenditure, this scheme is likely to meet with the approval of the Ministry of Finance and related political circles. This would suggest that the traditional policy mix of supporting producer prices while curtailing domestic production via acreage control will continue in the future that

is, scenario A in our simulation. Under such a policy, little momentum will emerge for inducing structural adjustments in agriculture in order to close the productivity gap with overseas producers. In contrast, options like scenario C in the simulation analysis (i.e., accepting tariffication and relaxing acreage control) are less likely to be adopted because of opposition from the aforementioned political groups and the treasury.

Within certain groups it is often said that the international competitive power of Japan's agricultural industry will weaken without certain changes in government agricultural policy.¹⁵ However, the evasion of tariffication could mean that the present course will continue at least for the time being.

Appendix A

On the Difference between Domestic and Border Prices in Japan

During the autarky with respect to rice ending in 1993, it was difficult to estimate the tariff equivalent for rice because of a sheer absence of border prices. An early attempt to estimate the border price was made in the report by the USITC (1990). Based a comparison between the average government sale price in Japan and the ex mill price of medium-grain rice in California plus the cost of shipment to Japan, the USITC concluded that the tariff equivalent for rice would amount to as much as 600–700 percent.

However this USITC calculation is considered to be a gross overestimation, partly because quality differences were not considered, but more critically because several important cost components such as interest and insurance charges were not counted (Godo and Owens 1995). Estimates by Y. Hayami that incorporate all possible marketing costs turned out to range from 200 to 300 percent depending on assumptions about quality differences (see Forum for Policy Innovation 1990).

The emergency imports that occurred in the 1993 rice year as a result of domestic crop failures produced an opportunity for the evaluation of foreign rice in the Japanese market. Even though this market test could not be especially accurate under such conditions, it is still useful information for a broad estimation of the tariff equivalent.

Column (1) in table 13A.1 reports government sale prices to wholesalers of imported rice from various countries. These prices were determined by the Food Agency when it began to sell imported rice in November 1993. Relative to the price of Japanese rice, imported rice of Japonica type from U.S.-

15. For details, see Forum for Policy Innovation (1990, 1993) and Godo (1994).

Table 13A.1 Comparison between Government Sale Prices and Import c.i.f. Price of Foreign Rice, 1993 Rice Year (November 1993–October 1994)

Origin	Government Sale Price		Import c.i.f. Price ^c (3)	(1)/(3) (4)	(2)/(3) (5)
	Initial ^a (1)	Revised ^b (2)			
Japan	302.1 ^d (100)	302.1 ^d (100)	–	–	–
United States			65.9		
California	236.5 (78)	240.7 (80)		3.6 ^e	3.7 ^e
South	208.9 (69)	137.9 (46)		3.2 ^e	2.1 ^e
Australia	223.1 (74)	242.6 (80)	71.3	3.1	3.4
China					
Dongbe	205.6 (68)	128.1 (42)	52.8	3.9 ^f	2.4 ^f
Xiaozham	218.6 (72)	144.3 (48)		4.1 ^f	2.7 ^f
Changshu	213.6 (71)	128.1 (42)		4.0 ^f	2.4 ^f
Thailand	199.9 ^g (66)	106.5 ^g (35)	55.6 ^g	3.6	1.9

Sources: Government sale price, announced by the Food Agency; import c.i.f. price, Japan Ministry of Finance, Customs Bureau, *Nihon Boeki Geppyou* (Japan exports and imports) (Tokyo, various issues).

Note: Prices are brown rice prices in yen per kilogram.

^aEffective before 26 August 1994.

^bEffective after 26 August 1994.

^cAverage for November 1993–October 1994.

^dAverage for government rice, grades 1–5.

^eDivided by the average c.i.f. price for the United States.

^fDivided by the average c.i.f. price for China.

^gPrice in milled rice.

California, Australia, and China had prices that were about 20 percent lower, while the prices of Indica rice from U.S.-South and Thailand were more than 30 percent lower.

These prices are considered the Food Agency's expectations of the market value of imported rice. Yet the sale of foreign rice, especially of the Indica type, proved to be slow at these prices despite sharp rises in the price of domestic rice in the free (black) market in the first half of 1994. With the growing expectation that a large stock of foreign rice would be left unsold by the end of the 1993 rice year (actually the stock in October 1994 turned out to be 980 thousand tons, about one-third of total imports), the Food Agency decided in August 1994 to lower the sale prices of Indica rice and low-quality Japonica rice from China, as indicated in column (2).

It is obvious that the initial government sale prices in column (1) represented overestimates of market-clearing prices of foreign rice in Japan. It is not so obvious whether the revised prices in column (2) were also overestimates under normal market conditions, even though the stock of foreign rice has remained large under these prices. The unusual glut of foreign rice, especially

of the Indica type from Thailand, has been created by the Food Agency's scare purchase of an amount far exceeding the absorptive capacity of the Japanese market. If Thai rice had been imported commercially in an appropriate quantity under normal market conditions, its price could have been higher than that shown in column (2). It may not be unreasonable to expect that market prices of foreign rice at the wholesale level in a normal situation would be somewhere between the initial and the revised prices.

Columns (4) and (5) are obtained by dividing the initial and the revised government sale prices by the import c.i.f. prices in order to develop a range of estimates of the domestic-border price ratio for rice. The domestic-border price ratios thus calculated were lower than 4 (except that for Chinese rice) before the revision in August 1994.

The c.i.f. prices of 1993–94 in column (3) could have been much higher than normal because of the effect of sudden large-scale purchases by Japan on the volatile world rice market. On the other hand, in a normal year, when the supply of domestic rice is abundant, foreign rice could only have been sold at much lower prices than the government set in this situation. Moreover, to be exactly comparable with the government sale price of domestic rice at the wholesale level, border prices must include various marketing costs of moving rice from the port to the government warehouse in addition to the c.i.f. price. According to our rough calculation, this additional cost would amount to about 25 yen/kg. To that extent, the domestic-border price ratios in columns (4) and (5) may involve a 30–50 percent overestimation.

Considering all such possibilities, it is highly unlikely that the domestic-border price ratio of rice in Japan today (the first half of 1995) would exceed 4 with a tariff equivalent of 300 percent. In our simulation analysis this upper-end estimate is used so as not to underestimate the impact of tariffication on the domestic rice market.

Appendix B

Formulas for the Simulation Analysis

This appendix specifies formulas used for the simulation analysis whose results are shown in table 13.4 and figure 13.4. The demand and supply functions are specified as

$$\text{Demand: } q_d = \gamma p^{-\alpha},$$

$$\text{Supply: } q_s = \delta A p^\beta,$$

where q_d and q_s are quantities of demand and supply, respectively; p is price; A is area planted in rice; $-\alpha$ and β are price elasticities of demand and supply, respectively; and γ and δ are constants. While p and q are supposed to be

determined at the market equilibrium, A is considered to be exogenously determined by the government acreage control program.

The elasticities α and β are assumed to be 0.2 and 0.4, respectively. We measure price and quantity in units of yen per kilogram and thousand metric tons, both in brown rice terms. Then the baseline (pre-market-opening) price and quantity for the Japanese rice market are $p = 329$ yen/kg and $q = 10,000$ metric tons. Normalizing A in the baseline year as 1, $\gamma = 31,868$ and $\delta = 985$.

If all minimum access import rice is supplied to the domestic rice market, its price falls drastically. Thus the Japanese government will likely keep some minimum access import rice for several years after the beginning of minimum access import activities, as stock or for foreign aid. We assume that only after 1999 will all of the minimum access imports be supplied to the domestic rice market. Until 1999 the volume of minimum access imported rice sold in the domestic rice market in year t measured in thousand metric tons (m) is calculated as follows:

$$m = \frac{t - 1994}{6} \times 800 \quad \text{for scenario A,}$$

$$m = \frac{t - 1994}{6} \times 500 \quad \text{for scenarios B and C.}$$

In our simulation the cost of accumulation of rice stock or foreign aid is abstracted out.

The import price of foreign rice of the same quality as Japanese rice is assumed to be one-quarter of the baseline domestic price.

The equation numbers for the different scenarios indicated below correspond to column numbers in table 13.4:

(1) is the solution for p in the equation

$$\delta(1 - 0.01 \times (7))Ap + (6) + m = \gamma p^{-\alpha} \quad \text{for all scenarios.}$$

(2) = $100 \times (1)/329$ for all scenarios.

(3) = $\delta(1 - 0.01 \times (7))Ap^\beta$ for all scenarios.

(4) = (5) + (6) for all scenarios.

(5) = $400 + (800 - 400) \times (t - 1995)/5$ for $t = 1995-2000$ for scenario A.

= $800 + (1,200 - 800) \times (t - 2006)/6$ for $t = 2000-2006$ for scenario A-a.

= $800 + (1,000 - 800) \times (t - 2006)/6$ for $t = 2000-2006$ for scenarios A-b and A-c.

= $300 + (500 - 300) \times (t - 1995)/5$ for $t = 1995-2000$ for scenarios B and C.

$$= 500 + (700 - 500) \times (t - 2006)/6 \quad \text{for } t = 2000\text{--}2006 \text{ for scenarios B and C.}$$

$$(6) = 0 \quad \text{for } t = 1995\text{--}2000 \text{ for scenario A.}$$

$$= 0 \quad \text{for } t = 2000\text{--}2006 \text{ for scenario A-a.}$$

$$= \max [0, \gamma \eta^{-\alpha} - \delta (1 - 0.01 \times (7)) A \eta^{\beta} - (5)] \quad \text{for } t = 2000\text{--}2006 \text{ for scenarios A-b and A-c.}$$

$$= \max \{0, \gamma \eta^{-\alpha} - \delta (1 - 0.01 \times (7)) A \eta^{\beta} - (5)\} \quad \text{for scenarios B and C,}$$

where

$$\eta = 329 \times \left[1 + 3 \left(1 - \frac{t - 1994}{6} \times 0.15 \right) \right],$$

which is the import price of rice including tariff.

$$(7) = m/10,000 \quad \text{for } t = 1995\text{--}2000 \text{ for scenarios A and B.}$$

$$= (5)/10,000 \quad \text{for } t = 2000\text{--}2006 \text{ for scenarios A-a, A-b, and B.}$$

$$= 800/10,000 - (t - 2000) \quad \text{for } t = 2000\text{--}2006 \text{ for scenario A-c.}$$

$$= - (t - 1994) \quad \text{for } t = 1995\text{--}2006 \text{ for scenario C.}$$

$$(8) = 0.001 \times ((6) + m) \times ((1) - 329/4) \quad \text{for scenarios B and C.}$$

$$(9) = 0.001 \times ((1) \times (3) - 329 \times 10,000)/(1 + \beta) \quad \text{for all scenarios.}$$

$$(10) = 0.001 \times \int_{(1)}^{329} \gamma p^{-\alpha} dp \quad \text{for all scenarios.}$$

The reason for multiplying by 0.001 in equations (8), (9), and (10) is to express the answer in units of billion yen.

$$(11) = (8) + (9) \quad \text{for all scenarios.}$$

$$(12) = (8) + (9) + (10) \quad \text{for all scenarios.}$$

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Comment Ammar Siamwalla

The paper by Hayami and Godo asks why the Japanese government was willing to trade an extra minimum access quota for the right not to tariff. It has accepted a minimum access amount of imports that starts at 4 percent, rising to 8 percent, compared to other advanced countries, which are allowed to set their minimum access level at 3 percent, rising to 5 percent. In exchange, Japan (and Korea), unlike other signatories to the World Trade Organization, does not have to bind tariffs for the amount in excess of the minimum access amount.

The answer the authors give to this question lies in the special objective function of the government. The government is asserted to have to trade off between the budget cost (and revenues) from different policy measures and the benefits to producers, with consumers having negligible weight within that objective function. Since the domestic support is to be manipulated so as to maintain farmers' welfare intact, the main criterion left is the minimization of the budget cost of the new arrangement.

With these assumptions, the authors show that the main benefit from the point of view of the government is that the minimum access route lowered the

budget cost relative to the tariffication route. The main benefit does not come from revenue from the quota rent because, by the authors' calculations, the minimum access route actually reduces that. Rather the main benefit is from saving on domestic supports, as farmers do not suffer as severe a price cut or output fall with the minimum access route.

My problem with the authors' exercises is with the particular model used. First of all, it is not clear whether the conventional supply model is quite relevant to the task at hand. The presence of set-asides would imply that farm output is *not* on the supply curve. The use of the supply elasticity in this context is therefore highly questionable, even if the estimate were obtained correctly.

The second problem is that the authors make no explicit assumption as to the future course of world prices and the yen-dollar exchange rate. Demand and supply conditions in Japan may be such that the stationary characterization that the authors have chosen is appropriate. This lack of consideration of long-term changes carries a message to which I shall return.

My next problem is the omission of the kind of considerations that motivated Weitzman in his classic piece on "Prices vs. Quantities" (1974). The choice of the minimum access instrument is basically a choice of the quantity instrument (as is, of course, the set-aside instrument), whereas tariffication is a choice of the price instrument. There are uncertainties in the government's perception of the future course of demand and supply and above all of the future course of world prices. Of course, the Weitzman analysis is relevant for a government that is intent on maximizing efficiency, which is not the case with the Japanese government. But the central point made in that paper, that it is uncertainty that makes for a substantive difference in the two modes of policy is, I think, quite robust.

Let me play devil's advocate and argue the case from the Japanese government's point of view. I would then maintain that we all, including Japanese bureaucrats, are quite uncertain about the future course of world dollar prices and of the yen-dollar exchange rate. By this I do not mean the uncertainty that arises from yearly fluctuations that would necessitate fine-tuning and invocation of the safeguard measures allowed for in the Uruguay Round outcome. Rather, I mean the mistakes that the government could make about the *secular* trends of these variables. After all, one of the main reasons why Japanese rice prices are now stuck at such a high level relative to the world price is that the real exchange rate of the Japanese yen has gone up by so much.

There is no permanent safeguard to counter such a miscalculation of trends. Now if domestic supply and demand curves do not shift much, the management of the domestic price support program would produce fewer surprises in the domestic price level, and therefore in the budget, with a known amount of minimum access than with tariffication.

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Comment Kym Anderson

This is a wonderful case study on a very important aspect of the Uruguay Round. It has direct relevance for the political economy of other rice markets (most notably Korea's) and for other state-trading situations (e.g., BULOG in Indonesia). The economic consequences of the policy outcome it focuses on are important not only for Japan but also for other rice-trading nations, both exporters and importers. And since this perennial issue of agricultural protectionism is bound to continue to be thorny in subsequent multilateral, regional, and bilateral trade negotiations, getting a better understanding of why governments intervene in the ways they do remains an important research topic.

The paper is in the spirit of the neoclassical theories of politics, of bureaucracy, and of regulation generally. It provides yet another illustration of the difficulty of reversing ever rising complexity in regulatory control, as analyzed recently by Krueger and Duncan (1994): when policies are not working well, the tendency of governments is to add another layer of intervention rather than dismantle the existing problematic regulations. It was a phenomenon that led Harry Johnson to say to policymakers in such situations, "Don't just do something; stand there!" But the frequency with which such pleas are ignored reminds us of Stigler's view that "a policy adopted and followed for a long time, or followed by many states, could not usefully be described as a mistake. . . . To say that such policies are mistaken is to say that one cannot explain them" (Stigler 1975, x).

Clearly, Hayami and Godo, following Stigler, have begun with the assumption that the Japanese government opted not to tariffify its rice policy because this choice was in some domestic constituency's vested interest. They argue that it is the Food Agency that stands to gain from the slight opening-up of the Japanese rice market with imports controlled administratively rather than by tariffs. The authors mention that the benefits to that group come in two forms: one of continuing to be the monopoly distributor of what will be an expanded volume of rice in the country and the other of being able to retain the large difference between domestic and import prices. That revenue can then be shared with farmers via payments to the agricultural cooperatives. The authors might also have mentioned that by controlling rice imports the Food Agency can manipulate the quality of imported rice available for sale (e.g., placing only inferior imported rice on the domestic market so as to give the [incorrect] impression that only Japanese farmers know how to produce rice for Japanese palates). Tariffication, on the other hand, would mean that the revenue from that price difference would go to the Finance Ministry instead of the Food Agency. That would more obviously expose for debate the questions of why

the tariff and hence consumer prices of rice should be so high, why so much money should be transferred from the budget to farmers, and why the Food Agency's monopoly on rice distribution should continue. Tariffication would also make it less easy for the government to manipulate the source of imports (e.g., so as to placate aggressive unilateral pressure from the United States).

The authors use the simplest possible model of the market for rice to make their key economic points. That seems perfectly appropriate. Obviously, if one wanted more precise estimates of the magnitude of those effects, one would distinguish Indica from Japonica varieties and take into account the impact Japan's purchase of Japonica rice from California or Australia might have on the international price of that type of rice. But for present purposes their simple model is quite adequate.

Less adequate, however, is their implicit model of the political market. It involves just rice producers and consumers, plus the Food Agency, cooperatives, and the treasury. The authors point out that the importance of rice in household consumption (and of farmers in total employment) has fallen to such low levels in Japan that the impact of holding up the consumer price of rice on real wages is very slight. Hence, they claim, there is no effective opposition to rice protectionism from nonagricultural employers (unlike early in this century—see Hayami 1975).

Perhaps the authors are right to ignore the impact of rice policy and associated zoning of land use on the price of land in Japan. Large though it is, it may nonetheless create little effective opposition to farm policy because the losers are so dispersed. Likewise, the widespread negative effect of farm protection on producers of nonfarm tradables, via its strengthening of the yen, may have become too small per industry group to make it worth their while to try to overcome the free-rider problem of getting together with other industry groups to oppose farm protection. Those are standard general equilibrium effects of sectoral assistance to declining industries in the course of economic development (Anderson 1995).

However, this is a closed model of the political market. It ignores the increasing reality of international pressures on domestic politics as internationalization proceeds. The Uruguay Round offered a major new opportunity for commercial diplomatic pressures to be used to upset domestic political market equilibria around the world (Anderson 1992). Evidently it was not enough to bring about rice tariffication in Japan. Why not? And at what price?

One of the additional, external reasons as to "why not" may be that the United States perceived its interests to be better served with greater market opening (8 rather than 5 percent of domestic sales to be imported by 2000) and a chance to pressure Japan to buy a disproportionately large share of those imports from the United States if quantitative import restrictions remained.

Moreover, the price Japan is to pay for being allowed not to tariffy may be far from trivial. Indeed, Japan has *already* paid a high price in the form of reduced influence in the final Uruguay Round agreement. More specifically,

by being seen to be unwilling to compromise on its agricultural policy, Japan's capacity to obtain greater market access abroad for Japanese exporters was severely curtailed. To see this, consider the insights from the political economy models developed by Grossman and Helpman (1995) and Hillman and Moser (1995). Those models suggest that trade negotiations can be perceived as an exchange of market access. Assume each country has a closed polity and its political market for protection is in equilibrium (with import-competing sectors enjoying more political power than exporter interests, for the reasons canvassed in Krueger 1989). Then assume the opportunity to enter into trade negotiations arises. It may then pay each country's government to reduce import protection somewhat in exchange for market access abroad for the country's exporters. That is, the new opportunity offered by the Uruguay Round increases the incentive for exporters to lobby against import protection at home if that can lead, as a quid pro quo, to less protection abroad against their export products.

The irony is that Japan is committed to providing considerably more rice import access than it would have had to under tariffication, and yet it has left the impression that it is unprepared to play by the same rules as other Uruguay Round signatories. Had it not left that impression, it is unlikely that its confrontation with the United States over trade in autos and parts would have progressed to the extent that it had by June 1995.

The authors are fairly pessimistic about further rice policy reform after the turn of the century. To the extent that the above point has validity, perhaps their pessimism is excessive. As well, the APEC forum will add to unilateral pressures from the United States and others for "fairer" trade practice by Japan.

A further reason for the authors' pessimism—based on the experience to date with beef tariffication—also is questionable. From inspection of their table 13.2, the authors conclude that had beef tariffication followed the Uruguay Round rules, it would not have been followed by increased beef imports. They base this on the absence of an increase in beef import growth after tariffication. That prompts three points. First, the volume of imports was growing at 20 percent per year from 1986 *because* of pressure from the United States and others to expand import quotas and in the expectation that liberalization was inevitably to be required as part of the Uruguay Round accord. Second, when tariffication looked likely to be part of the Uruguay Round agreement, Japan may have chosen to tariffify beef early so it could be at a higher rate than after further import quota expansion. In addition, it might have hoped that early beef tariffication would make a postponement of rice tariffication less objectionable. And third, apart from 1991, import growth after tariffication has been almost as rapid as in the previous six years—and it is expected by those in the trade to continue at that high rate for the remainder of the decade as the tariff continues to drop from 50 to 30 percent. In short, the beef case is one of phenomenal import liberalization, and one that cannot be reversed because the tariffs are bound at these progressively lower levels. Tariffication therefore

should not be underestimated, even if the initial tariff levels have a lot of “water” in them. And because tariff revenue goes to the Finance Ministry, any attempt to use it to subsidize farm incomes requires that it go through the annual budget process, making the assistance more transparent and open to budget scrutiny every year—unlike the case for rice at present in Japan.

One final point: Is there anything else about beef that facilitated the substantial liberalization of that market? In fact there is. During recent years there have been substantial investments by Japanese firms in beef feedlots abroad. Over time that has given birth to a domestic constituency with a *direct* interest in beef import liberalization. It seems unlikely that such a development will have a rice parallel to the same extent, in which case it is all the more necessary for Japan's exporters of manufactures to mobilize more lobbying against rice protectionism if they are to avoid the trade skirmishes of the sort we saw in mid-1995 between the United States and Japan over auto trade.

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