FOOD SECURITY AND THE GATT:
THE CASE OF JAPANESE RICE*

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FOOD SECURITY AND THE GATT: THE CASE OF JAPANESE RICE


ABSTRACT: In the current round of MTN talks, the Japanese are challenging efforts to liberalize its rice markets claiming that the restrictions on rice imports are part of an overall effort to achieve food security for the country. The debate has highlighted a number of important questions regarding food security, Japanese rice policy, and their relationship, including the following. What is "food security" policy? What are Japanese rice policies and how do they relate to the concept of food security? Is "food security" as a rationale for protecting agriculture legal under the provisions of the GATT agreement? What are the most common "food security" policies and their comparative effects on world markets? This paper analyzes each of these questions.

The Texas Agricultural Market Research and Development Center (TAMRDC) celebrated its 20th anniversary of providing timely and unique research on state, national, and global issues affecting agricultural markets and commodities in 1989. TAMRDC is a market research service of the Texas Agricultural Experiment Station and the Texas Agricultural Extension Service. The main objective of TAMRDC is to conduct research leading to more efficient marketing of Texas and U.S. agricultural products in domestic and international markets. Research areas include domestic and foreign market opportunities for Texas and U.S. produced agricultural products; marketing policies and strategies; competitiveness of Texas and the U.S. in the production and marketing of traditional bulk and high value/value-added products in a global setting; the impact of new technologies on markets and prices; efficiency of market information systems; market structure and performance; consumer attitudes and preferences.
Japan is appealing to the concept of "food security" to justify its continuing opposition to liberalization of its domestic rice market in the current round of the Multilateral Trade Negotiations. Japan argues that it should be allowed to restrict imports as necessary to become and remain completely self-sufficient in rice. The United States, however, argues that food security for Japan will result from an open market and a diversity of foreign suppliers. This paper addresses four main questions in this debate. What is "Food Security" policy? Is Japanese rice policy a food security measure? Is "food security" as a rationale for protecting agriculture legal under the provisions of the GATT agreement? What are the most common alternative measures for achieving "food security" and their comparative effects on world markets?

• What is "Food Security" Policy?

Several definitions of food security are considered and the following composite definition developed:

Food security for a given country is access by the population of the country, and particularly by low-income consumers, to an ample, timely, reliable, stable supply of nutritionally adequate food at a reasonable cost on a long-term basis.

Policies intended to achieve greater food security for a country, therefore, can be categorized into two groups: those that enhance the availability, reliability, and stability of the food supply and those that improve the access of consumers to food at a reasonable cost. Such policies can be either domestically or internationally-oriented or both. Even if food is made available, however, it may not be generally accessible or accessible at a reasonable cost to the consumers in the country. Policies designed to improve a country's effective demand for food from either domestic or international sources will help achieve a greater level of food security for that country. Policies focused primarily on enhancing domestic food production and/or the access of consumers to domestically-produced food are generally referred to as self-sufficiency policies. A country can achieve an increase in food self-sufficiency even when imports are growing if the supplies available from domestic sources are growing even faster. Only policies which intend to achieve absolute or complete self-sufficiency require imports to be completely eliminated.

• Is Japanese Rice Policy A Food Security Measure?

The main objective of Japanese rice policy has been to support incomes in the agricultural sector through rice price support at a level much in excess of world market prices. To avoid having to purchase and store unreasonable volumes of rice in order to support price at that level, the government bans rice imports. A decline in the Japanese demand for rice, however, has put downward pressure on the domestic price of rice and forced the government to pay farmers to divert acreage from production to maintain price at the support level. The consequence for Japan has been lower domestic production of rice at a fairly constant farm price and, therefore, a lower value of Japanese rice production than would have been the case in the absence of the policy. In the rest of the world, the consequence has been a depressed price of rice and a restricted level of rice production and exports. A comparison of Japanese
rice policy with the definition of food security provides a clear indication that Japanese rice policy is not a food security measure but rather a common producer price support measure typical of most developed countries. Japanese rice policy has reduced rather than increased the availability of food from both domestic and international sources. The policy includes no features that necessarily increase the reliability or stability of the food supply. At the same time, the policy has reduced rather than increased the access of Japanese consumers to the available supply of rice. Also, the Japanese farm price of rice (rough basis) is 10 to 12 times world price levels. This level of price disparity seems clearly "unreasonable".

• Are Food Security Policies GATT Legal?

Even if Japan genuinely could claim food security concerns to justify its rice policies, those concerns would not trigger an exception to the GATT rules against quantitative restrictions. "Food security" as a policy goal is devoid of any legal justification under the GATT. Absent a specific waiver from Japan's negotiating partners under Article XXV of the GATT, or amendment of the GATT itself, the "food security" rationale for Japanese protectionism is flatly unlawful. To a certain extent, Japan is relying on the unwillingness of the other developed GATT members to dismiss food security as a legitimate concern in the face of certain developing country disapproval. However, the GATT rules that might permit a developing country to take steps which might be trade distorting do not apply to Japan. For a developed country member of GATT, food security in legal terms is a domestic issue that must be resolved without adversely affecting the world trade system.

• What Are Alternative Measures For Achieving Food Security?

Even though measures that involve the use of import restrictions as the means of achieving food security are not legal under the GATT, there are numerous alternative means by which a country may attempt to gain food security. These include primarily policies designed to increase the availability of food by intervening in the stockholding, production, consumption, or trade functions of the market. Some of the more salient measures include: food self-sufficiency, food stockpiling, direct overseas investment, bilateral food supply contracts, and research and development.

The analysis provided in this paper suggests that Japanese rice policy cannot be considered to be a food security or, even more narrowly, a self-sufficiency measure. The policy is clearly a common, developed-country type of producer price and income support measure. Even if the objectives and means of Japanese rice policy were consistent with the food security concept, the analysis further indicates that food security as an argument to justify restrictions on imports is devoid of any legal justification under the GATT. Finally, if the objective of a country's policies is to obtain greater food security, various alternative means of obtaining food security that do not require imports to be restricted are discussed and evaluated.
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As the Multilateral Trade Negotiations (MTN) enter the final stages, Japan is appealing to a concept of "food security" to justify its continuing opposition to liberalization of its domestic rice market. Japan argues that countries should be allowed to do whatever is necessary, including restricting imports, to become and remain completely self-sufficient in staple foods like rice. The United States, on the other hand, contends that food security for importing countries results from open markets and a diversity of foreign suppliers. The debate poses some important questions about the role of food security in the context of the General Agreement on Tariffs and Trade (GATT or General Agreement). What is "Food Security" policy? What are Japanese rice policies and how do they relate to the concept of food security? Is "food security" as a rationale for protecting agriculture legal under the provisions of the GATT agreement? What are the most common "food security" policies and their comparative effects on world markets? This paper provides some analysis for responding to these questions.

The report is divided into four major sections. The first section is a discussion of the concept of food security. The next section summarizes Japanese rice markets and policy and analyzes the relationship between Japanese rice policy and food security. The third section is an analysis of the legal basis for the Japanese food security argument under the terms of GATT. Finally, the major alternative means of achieving food security for a commodity like rice are examined. The report ends with some concluding remarks.

WHAT IS "FOOD SECURITY" POLICY?

Food security in basic foodstuffs like rice is a compelling social objective in many countries. Less developed countries with recurring food shortages as well as developed countries like Japan that have experienced food shortages in the past consider food security to be a national security issue. The concept of food security is generally understood to involve policies aimed at filling the gap between food supply and demand usually in less developed countries. Because "food security" is not a rigorously defined concept, however, there is confusion and disagreement over exactly what constitutes the set of "food security policies." A number of definitions of "food security" have been attempted, most of which differ to some degree in emphasis and focus, including the following:

1. a reliable supply of food at a reasonable cost to society (OECD);
2. a reasonable degree of stability in the consumption of food by low-income consumers in the face of uncertainties (McCalla and Josling);
3. adequate food for the populace (ABARE);
4. access by the populace to a timely, reliable, and nutritionally adequate supply of food on a long-term basis (Eicher and Staatz);
5. an adequate supply of food and access of the population to that food, usually through generating adequate levels of effective demand via income growth or transfers (Weber, et. al.);

6. meeting target consumption levels on a year-to-year basis in food-deficit countries (Valdez and Siamwalla); and

7. the assurance that supplies and financing will be available to meet minimally adequate consumption requirements without domestic price increases, regardless of world market conditions (Huddleston, et. al.).

The following composite definition of food security combines all of the essential elements of the various individual definitions:

*Food security for a given country is access by the population of the country, and particularly by low-income consumers, to an ample, timely, reliable, stable supply of nutritionally adequate food at a reasonable cost on a long-term basis.*

Given this definition, policies intended to achieve greater food security for a country can be categorized into two groups: those that enhance the availability, reliability, and stability of the food supply and those that improve the access to food at a reasonable cost to consumers. Such policies can be either domestically or internationally-oriented or both. The availability of food, for example, can be enhanced by measures intended either to increase the inflow of food into the country from foreign suppliers or to boost domestic food production. The reliability of the food supply can be improved through either bilateral contracts with foreign suppliers or publically-funded research and development to improve irrigation facilities, develop more drought and disease-resistant crop varieties, or otherwise to enhance and stabilize yields in the country. At the same time, a more stable food supply can be obtained through government operations to purchase and store food from either foreign or domestic suppliers.

Even if food is made available, however, it may not be generally accessible or accessible at a reasonable cost to the consumers in the country. Policies designed to improve a country’s effective demand for food from either domestic or international sources will help achieve a greater level of food security for that country. Such policies improve the accessibility of available food to consumers in a country by enhancing consumers’ purchasing power through either reducing or restraining the increase in the cost of food to consumers or fostering growth in consumer incomes. Also, policies to enhance the efficiency of the internal food marketing and import system, including the distribution, transportation, storage, processing, and port infrastructure, can improve the movement of food from where it is produced to where it is needed for consumption, making food more available at lower cost to consumers.

Policies focused primarily on enhancing domestic food production and/or the access of consumers to domestically-produced food are generally referred to as self-sufficiency policies. This is because the major consequence of such policies is a reduced dependence of the country on foreign sources of food, i.e., an increase in the proportion of available food supplies from domestic sources and a reduction in the proportion from foreign sources. Nevertheless, a country can achieve an
increase in food self-sufficiency even when imports are growing if the supplies available from domestic sources are growing even faster. Only policies which intend to achieve absolute or complete self-sufficiency require imports to be completely eliminated.

Policies to achieve self-sufficiency cannot reasonably be justified solely by the possibility of large-scale global food production deficits. With greatly diversified and expanded global food sources and a movement towards freer world trade, it is unlikely that agricultural production short-falls alone would lead to massive food shortages in any country. The largest negative change between years in total world grain output since 1960 has been less than 5 percent (Figures 1 and 2). Bad crops in one area of the world are generally offset by good crops in other areas. World markets have become a more dependable and stable source of food supplies. More generally, local food shortages arise from things like inadequate purchasing power, underdeveloped institutional and distributional infrastructure, political events, macroeconomic policies that impinge on agriculture, and the size and growth rate of the population relative to the arable land in the country. If a country, either on a household or on a national scale, is unable to exercise effective demand, for example, that country lacks adequate food security. Food security depends on a balance of domestic demand and supply from domestic and/or international sources.

Food security is usually considered to be a developing country concern because of the inadequate level of resources normally available to close the gap between supply and demand in such countries. The food security argument and the approach chosen by the Japanese reflects more closely the needs of less-developed countries with inadequate capital supplies to rely on the world market than of countries as highly developed economically as Japan. The Japanese "food security" strategy, however, is simply a domestic supply management program through a complete ban on imports. By maintaining import barriers, Japan seeks to guarantee domestic circumstances that will permit Japanese farmers to satisfy all domestic demand for rice. Although the food security nature of Japanese rice policy may be debateable, it is clear that the policy distorts world trade in rice.

IS JAPANESE RICE POLICY A FOOD SECURITY MEASURE?

Rice is the major staple food in the Japanese diet and is grown on 82% of the farms using 55% of the arable land in Japan. Rice alone accounts for a third of the total value of agricultural production but only a little more than 1% of the GNP of Japan. Thus, while making a significant contribution to the agricultural sector in Japan, rice is of little importance to the growth and vitality of the overall Japanese economy. Following a discussion of the structure of the Japanese rice industry and the effects of Japanese rice policy, the relationship between food security and Japanese rice policies is discussed.

The Japanese Rice Market

Rice has played a significant role in the development of Japanese culture, customs, and traditions over many centuries. Consequently, rice has come to signify the traditional Japanese way of life. Similar rice varieties are produced in California and are reportedly popular with Japanese foreign nationals living in the United States (ABARE). The preferred rice in Japan is japonica, a short
or medium grain rice that tends to be quite sticky when cooked. Long grain rice varieties are more common to the southern United States and generally have a more flaky texture. The markets for both types of rice, however, are related. This section provides a brief discussion of the supply, demand, and trade situation for Japanese rice as background to a discussion of Japanese rice policy.

Rice Production in Japan

Following World War II, rice production grew steadily in Japan, reaching an all-time high of over 13 million metric tons (mt) on a milled basis in 1967 (Figure 3). Rice production dropped even more rapidly over the following decade, slumping to under 9 million mt in 1980. Production recovered somewhat to about 10 million mt by 1989. The cost of growing rice in Japan has risen sharply from an average of ¥ 149,060/hectare in the early 1950s to ¥ 1,751,370/hectare in 1987 (Table 1). Given an exchange rate of 147 ¥/$, the cost of growing rice was $11,914/hectare in 1987 ($4,824/acre or $2,095/mt rough rice). In contrast, the U.S. rice production cost for that year averaged $1,020/hectare ($413/acre or $167/mt (USDA)).

The much higher cost of rice production in Japan reflects a capitalization of the large benefits of Japanese rice policies into the values of rice production resources. The determination of rice support price levels has been based largely on the cost of production since the early 1960s (MAFF(c)). Economic theory maintains that an increase in production as a result of a price increase will shift out the demand for production resources (Belognia). Such an increase in resource demand tends to boost the per unit value of those resources, particularly of those resources that are relatively fixed with few alternative uses outside of agriculture, such as land and water in rural areas. When support price levels are calculated on the basis of cost of production, as for rice in Japan, this process results in a treadmill effect in which high support prices lead to higher costs which, in turn, lead to upward adjustments in support price levels. Figures 4 and 5 provide some evidence that rice support prices in Japan have helped to drive up the per unit costs of land and water, respectively, over time. These figures indicate a close relationship between both land rent (R²=.97) and water costs (R²=.92) and the rice support price.

Rice Consumption in Japan

The Japanese diet is a unique food culture developed over the years in isolation from western influence. The typical meal consists of rice, processed soybean foods with fish, and vegetables cooked with mushrooms and seaweed, providing an average daily intake of 2600 calories (ABARE). The Japanese diet tends to have a much higher carbohydrate level and a lower fat level than Western diets. Japanese food consumption patterns have changed substantially in the past two decades. Caloric intake increased by about 14 percent between 1975 and 1985 partly due to increased fat intake. The consumption of rice, fruits and nuts, whale meat, and sugars has declined while the consumption of potatoes and starch, meat, milk and dairy products, and edible oils have grown (Table 2).

Dietary changes in Japan are having a profound effect on the use of rice (MAFF (a)). Domestic use peaked at 12.5 million mt of milled rice in 1971 but has steadily trended downward ever since (Table 3). A slow growth in population with falling total demand has resulted in an even faster decline in per capita domestic use (Figure 3). The high and increasing support prices in Japan have likely been responsible for at least part of the drop in per capita rice consumption. In a study of factors affecting Japanese rice consumption, however, Ito, et. al. conclude that the income elasticity of rice is negative in Japan. In other words, increases in per capita incomes in Japan over time have led to a substitution out of rice and into other foods such as meat and more highly processed products.
Table 1. Cost of Producing Rice in Japan, 1951-87

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Machinery</td>
<td>1,000 ¥/Ha</td>
<td>8</td>
<td>13</td>
<td>30</td>
<td>65</td>
<td>138</td>
<td>248</td>
<td>404</td>
<td>439</td>
<td>448</td>
</tr>
<tr>
<td>Fertilizer</td>
<td>1,000 ¥/Ha</td>
<td>30</td>
<td>33</td>
<td>35</td>
<td>45</td>
<td>54</td>
<td>92</td>
<td>110</td>
<td>110</td>
<td>102</td>
</tr>
<tr>
<td>Water</td>
<td>1,000 ¥/Ha</td>
<td>4</td>
<td>5</td>
<td>7</td>
<td>12</td>
<td>21</td>
<td>41</td>
<td>54</td>
<td>59</td>
<td>61</td>
</tr>
<tr>
<td>Buildings</td>
<td>1,000 ¥/Ha</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>10</td>
<td>23</td>
<td>28</td>
<td>28</td>
<td>28</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>1,000 ¥/Ha</td>
<td>21</td>
<td>25</td>
<td>18</td>
<td>40</td>
<td>79</td>
<td>158</td>
<td>215</td>
<td>224</td>
<td>222</td>
</tr>
<tr>
<td>Labor</td>
<td>1,000 ¥/Ha</td>
<td>68</td>
<td>83</td>
<td>128</td>
<td>206</td>
<td>284</td>
<td>482</td>
<td>548</td>
<td>525</td>
<td>515</td>
</tr>
<tr>
<td>Interest</td>
<td>1,000 ¥/Ha</td>
<td>6</td>
<td>8</td>
<td>11</td>
<td>21</td>
<td>36</td>
<td>65</td>
<td>75</td>
<td>81</td>
<td>82</td>
</tr>
<tr>
<td>Land Rent</td>
<td>1,000 ¥/Ha</td>
<td>7</td>
<td>12</td>
<td>15</td>
<td>59</td>
<td>128</td>
<td>248</td>
<td>307</td>
<td>318</td>
<td>318</td>
</tr>
<tr>
<td>Total</td>
<td>1,000 ¥/Ha</td>
<td>149</td>
<td>187</td>
<td>254</td>
<td>465</td>
<td>772</td>
<td>1388</td>
<td>1782</td>
<td>1826</td>
<td>1821</td>
</tr>
</tbody>
</table>

| Yield         | Kg/Ha      | na           | na           | 3859         | 4273         | 4492         | 4547         | 4745         | 5057 | 4952 |
| Price         | ¥/Kg       | na           | na           | 86           | 130          | 188          | 285          | 303          | 311  | 293  |
| Value         | 1,000 ¥/Ha | na           | na           | 331          | 555          | 854          | 1295         | 1440         | 1573 | 1449 |
| Byproducts    | 1,000 ¥/Ha | na           | na           | 22           | 23           | 25           | 47           | 60           | 49   | 48   |
| Net Returns   | 1,000 ¥/Ha | na           | na           | 99           | 113          | 107          | -46          | -283         | -204 | -324 |

na = not available

Source: MAFF (b)

Rice Trade in Japan

Japan was a major world importer of rice until the mid-1960s when severe import restrictions were imposed in order to keep cheap rice imports from undermining the Japanese efforts to support the producer price of rice. In 1989, imports amounted to only 15,000 mt or less than 0.2% of production. Accumulating government stocks of rice have periodically induced the government to dump surplus rice on the world market. Japanese subsidized exports of rice accounted for over 10% of world rice trade in 1970 and 1980. Japan agreed to limit rice exports following a trade action by the United States in 1980. Japan has not exported rice since 1983.

Japanese Rice Policy

Rice in Japan is controlled by the government at all stages of the industry (Tsujii). At the production stage, a high support price of rice is achieved through a procurement program operated by a quasi-governmental body, the Japanese Food Agency (JFA). The government also operates a rice acreage diversion program and imposes import controls to limit the accumulation of government holdings of rice through the procurement policy. At the marketing stage, the JFA markets the procured rice through government designated purchasing and selling agencies. Although some rice
Table 2. Per Capita Food Consumption in Japan, 1975-1985

<table>
<thead>
<tr>
<th>Item</th>
<th>1975</th>
<th>1980</th>
<th>1985</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kilograms</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cereals</td>
<td>121.5</td>
<td>112.9</td>
<td>107.9</td>
</tr>
<tr>
<td>Rice</td>
<td>88.0</td>
<td>78.9</td>
<td>74.6</td>
</tr>
<tr>
<td>Wheat</td>
<td>31.5</td>
<td>32.2</td>
<td>31.7</td>
</tr>
<tr>
<td>Potatoes and Starch</td>
<td>23.5</td>
<td>28.9</td>
<td>32.7</td>
</tr>
<tr>
<td>Pulses</td>
<td>9.4</td>
<td>8.5</td>
<td>9.0</td>
</tr>
<tr>
<td>Vegetables</td>
<td>109.5</td>
<td>110.3</td>
<td>108.3</td>
</tr>
<tr>
<td>Fruits and Nuts</td>
<td>42.4</td>
<td>38.7</td>
<td>37.0</td>
</tr>
<tr>
<td>Meat</td>
<td>17.9</td>
<td>22.5</td>
<td>25.2</td>
</tr>
<tr>
<td>Beef</td>
<td>2.5</td>
<td>3.5</td>
<td>4.4</td>
</tr>
<tr>
<td>Pig Meat</td>
<td>7.3</td>
<td>9.6</td>
<td>10.3</td>
</tr>
<tr>
<td>Chicken</td>
<td>5.3</td>
<td>7.7</td>
<td>9.2</td>
</tr>
<tr>
<td>Whale Meat</td>
<td>0.9</td>
<td>0.4</td>
<td>0.3</td>
</tr>
<tr>
<td>Eggs</td>
<td>13.7</td>
<td>14.3</td>
<td>14.9</td>
</tr>
<tr>
<td>Milk and Dairy Products</td>
<td>53.3</td>
<td>62.1</td>
<td>67.1</td>
</tr>
<tr>
<td>Fish and Shellfish</td>
<td>34.9</td>
<td>34.8</td>
<td>35.8</td>
</tr>
<tr>
<td>Sugars</td>
<td>25.1</td>
<td>23.3</td>
<td>21.0</td>
</tr>
<tr>
<td>Edible Oils</td>
<td>11.4</td>
<td>13.8</td>
<td>14.1</td>
</tr>
</tbody>
</table>

Source: ABARE.

is marketed directly from producers to buyers, the government indirectly affects the functioning of this system. At the retail level, rice consumption is constrained by government sales of rice to the mills at fixed but extremely high prices. International rice trade is monopolized by the government with a virtual ban on imports, effectively isolating the domestic Japanese rice industry from the world rice market.

Japanese Price Support Policy

The Japanese government supports the price of rice through a surplus purchase or procurement-type policy. Each year the government determines the price at which it will purchase rice from farmers based on a production cost and "income compensation" approach. The procurement (or government buying) price is set at a level that is several times that of world market prices. The 1989 government buying price of rough rice in Japan ($72.16 per cwt) was 9.9 times greater than the average price received by U.S. producers, 6.5 times greater than the U.S. target price for producers, and 10.2 times greater than the Thailand grade B 100% white rice (Table 4). This high level of support has encouraged rice producers to increase production to levels much in excess of what they...
Table 3. Japan Rice Production and Consumption, 1960 to 1987

<table>
<thead>
<tr>
<th>Year</th>
<th>Area Harv</th>
<th>Yield</th>
<th>Milled Prod</th>
<th>Begin Stock</th>
<th>Total Import</th>
<th>Total Export</th>
<th>Dom Use</th>
<th>End Stock</th>
<th>Per Capita</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000 Ha</td>
<td>MT/HA</td>
<td>1000 MT</td>
<td>Kg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1960</td>
<td>3308</td>
<td>3.54</td>
<td>11700</td>
<td>1486</td>
<td>140</td>
<td>0</td>
<td>11900</td>
<td>1426</td>
<td>108.3</td>
</tr>
<tr>
<td>1961</td>
<td>3301</td>
<td>3.42</td>
<td>11301</td>
<td>1426</td>
<td>173</td>
<td>0</td>
<td>11909</td>
<td>991</td>
<td>107.1</td>
</tr>
<tr>
<td>1962</td>
<td>3285</td>
<td>3.60</td>
<td>11838</td>
<td>991</td>
<td>177</td>
<td>0</td>
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Source: Gudmunds and Webb
Table 4. Comparison of Rice Prices In Japan, Thailand, and United States, 1980-89

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a. Japan farm price converted to U.S. dollar rough price at brown to rough equivalent 0.8 and average annual yen to dollar ratio.

b. Thailand FOB milled rice export price converted to rough rice price at a mill to rough price ratio of 0.47.

Source: USDA (a); MAFF (b); MAFF (c)

otherwise would have produced at the same time that Japanese consumers have been reducing the quantity of rice they consume. The consequence has been large government holdings of rice at times which have reached levels in excess of two-thirds of annual rice production. To limit the growth in stocks and reduce government costs, the government controls imports of rice and pays farmers to take acreage out of rice production through a voluntary acreage diversion program. At the same time, the government surplus disposal program attempts to reduce government rice stocks through the expansion of rice in domestic industrial and feed uses.

The voluntary acreage diversion program was instituted in 1971 and has enticed large grower participation. Over 3 million farmers participated in the program which ended in 1986 (ABARE). The rice diversion program has led to the expansion of some related industries in Japan. One study reports that lobbyists for several of those industries have successfully argued against liberalization of the rice market because of the perceived negative impact on their industries (ABARE).

Imports are strictly controlled by the JFA, the same agency that controls rice procurement and sales. The JFA empowers certain trading companies to import rice. This provides the JFA with the power to effectively isolate the Japanese market from world market forces. If imports were not
controlled, inflows of cheaper world rice would either undercut government efforts to support internal rice prices or force the government to purchase and store excess world supplies of rice and support the world price of rice at the government buying price, requiring a huge increase in government budget expenditures. Almost no non-glutinous rice has been imported since 1970. Small amounts of glutinous and cracked rice intended for use in the production of particular processed products like sake and rice cake have been imported from some Asian countries (ABARE).

**Rice Marketing Policies in Japan**

Rice is marketed in Japan through both legal and illegal channels (Horita). The legal channels include the government marketed rice and the voluntary marketed rice systems. As much as 30% to 40% of Japanese rice production, however, is marketed outside these official channels. About half of this rice is marketed through illegal channels with the rest used for home consumption (ABARE). The Ministry of Agriculture, Forestry, and Fisheries (MAFF) announces the upper limits for rice production each year, the expected purchases by the government, the expected quantities to be marketed through the voluntary system, and the quantities for home consumption.

In the government marketed rice system, the rice produced by farmers is first collected by local and prefectural cooperatives and private businesses and sold directly to the government. The government pays the rice farmer a predetermined price (i.e., the price support level) and then sells the rice to wholesalers under predetermined distribution plans. Until recently, the government selling price has been lower than the government buying price (see Figure 6). Retailers purchase the rice from wholesalers and in turn sell to consumers on a predetermined price basis. The government uses some rice in a school lunch program.

Rice is marketed through the voluntary system in virtually the same way as the government marketed rice with the government controlling the quantities marketed through the system. The major difference is that the government neither purchases nor fixes the purchase price of the rice marketed through the voluntary system. The price is determined through negotiations between agricultural cooperatives and wholesalers.

**Domestic and International Effects of Japanese Rice Policy**

Japanese rice policy has had a number of significant impacts on the functioning of the Japanese and world rice markets, among which are the following:

- a more than adequate supply of rice to the Japanese consumer at a stable but extremely high price;
- a periodic and high probability occurrence of large accumulations of surplus rice that are difficult and costly to draw down;
- a transfer of income from other sectors of the Japanese economy to the rice sector through rice land diversion, government purchase and sale of rice at a loss, government storage of unsold rice, and related rice program expenditures;
- a declining per capita consumption of rice and a corresponding increase in the consumption of lower cost foodstuffs;
lower and more variable world rice prices leading to conflicts with world trading partners;

production disincentives in some low-cost producing countries, reducing their potential exports, incomes of rice producers, and foreign exchange earnings;

a less than socially optimum allocation of resources in the agricultural and agricultural support industries in Japan;

the capitalization of the rice farm program benefits into the value of agricultural land and other fixed agricultural production inputs;

The economic effects of Japanese rice policy are demonstrated in more detail in the Appendix using a simple graphical technique.

The Relationship Between Japanese Rice Policy and Food Security

The main objective of Japanese rice policy has been to support incomes in the agricultural sector through supporting the farm price of rice at a level much above that of the world market. This level of price support could have been achieved through government purchasing and stockpiling of sufficient quantities of rice off the domestic and world markets to raise the market price to that level. However, to avoid having to purchase and store an unreasonable volume of rice in order to support the rice price, the government restricts rice imports. The extremely high desired level of price support in Japan has required a virtual ban on imports.

As incomes have advanced in Japan over time and consumers have increasingly diversified their diets, the Japanese demand for rice has declined, putting downward pressure on the domestic price of rice and frustrating government support efforts. This has forced the government to pay farmers to divert acreage from production in order to put a floor under internal rice prices and still avoid accumulating government holdings of rice. Boosting prices through further restrictions on imports has not been much of an option because imports have already been restricted to virtually nothing.

The consequence for Japan, therefore, has been lower domestic production of rice at a fairly constant farm price and, therefore, a declining value of Japanese rice production. In the rest of the world, the consequence has been a depressed price of rice and a restricted level of production and exports than would have been the case in the absence of Japanese rice policy.

The earlier composite definition of food security provides insight on the relationship between Japanese rice policy and food security. If Japanese rice policy is truly a food security effort, then it will fit into one or both of the two identified categories of food security policies, i.e., those that enhance the availability, reliability, and stability of the food supply and those that improve the access of consumers to food at a reasonable cost.

1. Has Japanese Rice Policy Enhanced the "Availability" of Food in Japan?

Japanese rice policy has reduced rather than increased the availability of food from both domestic and international sources. The inflow of rice from abroad has been restricted
through the import ban on rice. At the same time, the domestic supply of rice has been curtailed through the government-operated rice acreage diversion program. An elimination of the rice farm price support program, including import restrictions and the acreage diversion program, would greatly enhance the availability of rice in Japan.

2. Has Japanese Rice Policy Enhanced the "Reliability" of the Food Supply in Japan?

Japanese rice policy includes no features that necessarily increase the reliability (i.e., the consistency of availability) of the food supply. In essence, the policy only switches the source of supply from foreign to domestic rice producers.

3. Has Japanese Rice Policy Enhanced the "Stability" of the Food Supply in Japan?

Invoking a policy to switch the source of a country's food supply from international to domestic sources will not necessarily stabilize food supplies in a country. Domestic weather can still create supply fluctuations while changing internal economic conditions can still create domestic demand uncertainties. In fact, because Japan maintains a virtual ban on rice imports, domestic supply shortfalls and demand disturbances in Japan create potentially less rice and food supply stability for Japanese consumers than would be the case if world supplies could be used to fill any void caused by domestic supply and demand problems.

4. Has Japanese Rice Policy Improved the "Accessibility" of the Food Supply to Consumers?

Japanese rice policy has reduced rather than increased the access of Japanese consumers to the available supply of rice. Although Japanese rice policy has no particular effect on nominal incomes of consumers, the policy has raised rice prices much above world market levels and, therefore, reduced Japanese consumer purchasing power much below what it would be in the absence of the policy. Also, the policy has complicated rather than enhanced the efficiency of the rice marketing system in Japan. This has also reduced the accessibility of the available supply of rice to Japanese consumers.

5. Has Japanese Rice Policy Provided Rice at a "Reasonable Cost" to Consumers?

The Japanese farm price of rice (rough basis) has been 10 to 12 times the U.S. farm and the Thailand FOB export prices of rice since 1987 (see table 4). In 1986, the Japanese price was over 16 times higher than that of the U.S. Although "reasonable" is not explicitly defined, this level of price disparity between Japanese and world rice prices seems clearly unreasonable.

Because the consequence has been a reduced dependence on foreign sources of rice, Japanese rice policy has often been referred to as a self-sufficiency measure. As discussed earlier, however, self-sufficiency policies typically attempt to enhance domestic food production or access to domestic food supplies. In contrast, Japanese rice policy explicitly attempts to limit domestic rice production and reduces the accessibility of consumers to what is produced. Consequently, it is technically incorrect to refer to Japanese rice policy even as a self-sufficiency policy. In fact, Japanese rice policy is nothing more than a common, garden-variety producer price support measure typical of most
developed countries. Note that if this was not the case, the declining internal demand for rice in Japan would allow Japanese policymakers to let internal rice prices drop while still avoiding stockbuilding and imports. The fact that the Japanese government has chosen instead to provide payments to producers to reduce the area of rice under cultivation provides strong evidence that the current Japanese rice policy is simply a Government effort to support prices and incomes in the Japanese agricultural sector.

Finally, the high price of rice in Japan may have led to a reduction of food security in Japan in a number of ways. First, the policy has reduced both the availability and accessibility of the supply to consumers. Second, the policy has induced many Japanese consumers to experiment with and include other food items in their diets in place of rice, some of which are imported. Third, the high support price has diverted resources to rice production for which demand is declining and away from the production of other foods for which demand is increasing. This has forced a greater dependence by Japan on the import of foods that it might otherwise have produced domestically.

ARE FOOD SECURITY POLICIES GATT LEGAL?

By using the food security argument to justify its rice import barriers, Japan seeks to broaden significantly this concept and use it to exclude one commodity from any prospective GATT agreement on agriculture. An analysis of the legality of the food security argument requires a determination of how GATT rules affect food security. The Japanese argument that a rice import ban is justifiable on food security grounds implies that there is or should be an exception to the GATT rules on non-discrimination that permits a country to maintain import barriers if it can claim food security reasons.

The previous section concludes that Japanese rice policy cannot reasonably be considered to be a food security measure. This section demonstrates that even if Japan genuinely could claim food security concerns to justify its rice policies, those concerns would not trigger an exception to the GATT rules against quantitative restrictions. The means by which Japan is pursuing its policy goals would require a fundamental amendment to GATT rules.

Legality of Food Security Measures Under GATT

Under the terms of the GATT, signatories to the General Agreement agree to conform their trade policies to the GATT regime. The GATT regime is premised on maintaining open markets and non-discriminatory trade practices. By agreeing to conform their trade policies to the GATT, it follows that countries have agreed to surrender some discretion over domestic policy-making authorities to the extent that it affects international trade. Thus, if a country chooses to affect domestic policies by means of a trade regulation, that regulation must conform to the articles of the GATT. The GATT rules are not waived simply because a domestic policy goal is a worthy one from a social standpoint.
The extent to which a GATT signatory can rely on trade policy to effect domestic social goals was addressed by a GATT panel in the Japanese Measures on Imports of Leather (BISD 31 Supp. at 94). At that time, the panel heard a complaint by the United States that the Government of Japan had nullified or impaired U.S. benefits under the GATT by imposing an import quota on leather goods in violation of Article XI of the GATT which provides for the general elimination of quantitative restrictions. Japan argued that it had imposed the import quotas to protect a cultural group in Japan referred to as the Dowa class. The Dowa class represented a difficult social problem in Japan. The Dowa people historically have been held in an inferior social and economic position. The manufacture of leather goods had been an important source of employment for the Dowa districts. The United States argued that, while Japan's goal was a worthy one, the means chosen by the Japanese violated Article XI of the GATT.

The panel found that Japan relied only on its stated policy goal and did "not invoke any provision of the General Agreement to justify the maintenance of the import restrictions on leather" (BISD 31 Supp. at 111). Thus, the panel concluded that the Japanese import restrictions on leather goods "constituted a prima facie case of nullification or impairment of benefits" (BISD 31 Supp. at 111).

In the Japan leather case, the Japanese Government sought to promote social change through trade policy. The GATT panel did not rule on the merit of the social goal. The panel determined that Japan, by signing the GATT, agreed that domestic social goals not specifically provided for in the GATT cannot be implemented by way of a GATT-illegal trade practice. The same social goal, protection of the Dowa class, should have been pursued through a purely domestic measure. If a domestic goal can only be fulfilled by means of a GATT-illegal trade measure, then under the terms of Article XXIII (Nullification and impairment) the GATT-member country must compensate those countries who suffer because of the measure. Applying the same reasoning to the food security argument, to the extent that Japan uses a trade measure to effect a domestic policy goal such as food security, those trade measures must be consistent with GATT provisions.

The Japanese Import Ban On Rice Violates Article XI

The basic goal of the GATT is to increase market access between trading partners. To that end, the GATT regulates the way in which trade restrictions may be used and prohibits the use of quantitative restrictions. Under Article XI:

\[\text{No prohibitions or restrictions other than duties, taxes or other charges, whether made effective through quotas, import or export licenses or other measures, shall be instituted or maintained by any contracting party on the importation of any product . . . or on the exportation or sale for export of any product . . . .}\]

Article XI provides a very limited number of exceptions to the rule against quantitative restrictions.

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1It is interesting to note that the Government of Japan also has attempted to justify its rice ban on cultural grounds. Rice does occupy a unique position in the cultural heritage of Japan. However, as the Japan-Leather Imports case demonstrates, the GATT provides no exception to its trade rules for cultural policies.
Under Article XI:2(b), a country may impose quantitative restrictions as needed to enable it to apply "standards or regulations for the classification, grading or marketing of commodities in international trade." Japan's ban is not related to grading or classification standards. For example, in the case of the United States, U.S. producers grow and market many varieties and grades of rice, but all are packaged and marketed according to classification standards recognized internationally. In the 1960s, the United States exported significant quantities of rice to Japan thus suggesting that U.S. standards were acceptable to the Japanese Government during that period. Since then, Japan has not implemented any changes to its standards requirements. Thus, Japan cannot rely on an Article XI:2(b) exception.

Article XI:2(c) permits a country to impose import restrictions on agricultural or fisheries products where needed to permit the operation of certain government programs. A country relying on Article XI:2(c) must have in place one of three types of programs. It may operate a program that restricts quantities of the like domestic product or domestic substitute for the imported product that is permitted to be marketed or produced. A country may use import restrictions where it operates a domestic program to remove a temporary surplus of the like product or substitute. Finally, it may use import restrictions in conjunction with a program to restrict the production of any animal product which is dependent on the imported commodity.

None of these exceptions apply in the case of the Japanese rice import ban. First, the Japanese trade restriction is essentially a complete import ban. Article XI:2(c)(1) does not permit a country to impose an import prohibition. The language of the provision refers only to import restrictions. This interpretation was confirmed by a GATT panel in United States - Prohibition of Imports of Tuna and Tuna Products from Canada (L/5198, reprinted at BISD 29 Supp. at 91, 1982). In that report, the panel noted that whereas Articles XI:2(a) and (b) refer specifically to "prohibitions or restrictions," Article XI:2(c) refers only to "restrictions." Therefore, the panel concluded that under Article XI:2(c) a country may rely only on import restrictions -- not on an import ban -- to permit the operation of a government supply-control program.

However, even if Article XI:2(c) permitted import bans, Japan still could not rely on this provision to justify its rice import ban. Article XI:2(c) only applies if a country is attempting to restrict domestic supply of the product in question or of an animal product that depends on the restricted product. Although the Government of Japan encourages farmers to diversify away from rice production, there is no mandatory government program which operates to limit rice production. In fact, the very high support prices -- roughly eight to ten times the world price -- encourage rice production and have contributed to the production of large surpluses of rice. Moreover, Japan's food security argument is wholly inconsistent with an effort to restrict supply. The Japanese Government has argued that it must ban imports to ensure supply.

In addition to the exceptions to the rule prohibiting the use of quantitative restrictions contained in Article XI:2, there are a number of other exceptions. Yet none of these exceptions operate to permit an import ban that is justified solely on the grounds of preserving food security.

Article XII: Restrictions to Safeguard the Balance of Payments

Article XII exempts a country from many of the general GATT requirements if that country is suffering from balance of payments problems. A country that can claim a balance of payments deficit can, under certain circumstances, resort to import restrictions to preserve currency reserves.
In many cases, a developing country could rely on Article XII to justify agricultural import restrictions. A developing country with balance of payments problems will face food insecurity not only because of possibly unstable domestic supplies, but more importantly because of inadequate capital resources.

Japan cannot claim that inadequate capital resources threaten food security. Since 1963, when Japan acquiesced Article VIII under the International Monetary Agreement, it has been precluded from relying on the balance of payments exception to avoid complying with any of the GATT articles. For many years, Japan has enjoyed a substantial trade surplus and it has accumulated large monetary reserves. Indeed, Japan registered record global and bilateral trade surpluses in 1987. Japan's trade surplus with the United States alone in 1989 exceeded $55 billion. Clearly, Japan cannot use Article XII to justify market protection measures.

**Article XX: General Exceptions**

Article XX describes a number of general exceptions to the GATT rules. However, most of these exceptions address issues irrelevant to the question of food security or food production. Arguably, Article XX(b) and (h) might apply to the Japanese rice ban.

Under Article XX(b) a country may adopt measures "necessary to protect human, animal or plant life or health." The wording of Article XX(b) suggests that Japan might be able to argue that an import ban based on food security needs, by definition, protects human life and therefore is covered by the exception. This argument fails for several reasons. First, under Article XX(b), the measure must be "necessary to protect human...life." In the case of Japan, an import ban is not only unnecessary to promote food security, but also not even the most efficient way to attain the stated goal.

Second, the drafting history shows that the purpose of Article XX(b) was to allow countries to take steps to ban products that either directly or indirectly pose a threat. Thus, where a country uses dangerous chemicals in the production of food products, an importing country may take steps to prevent that food from entering its market. To condone an interpretation of the broad language of Article XX(b) such that Japan could rely on it to justify an import ban on rice would undermine completely the discipline of Article XI. Virtually all trade affects human or animal life or health. Article XX(b) was intended only to apply where the good itself, by virtue of entering the market, posed a direct threat. Rice produced under normal circumstances does not meet these conditions.

Article XX(h) allows a country to enact measures "under taken in pursuance of obligations under any inter-governmental commodity agreement which conforms to criteria submitted to the contracting parties..." Japan cannot take advantage of this provision for two reasons. First, the import ban is designed exclusively to protect the domestic market from external competition, not to conform to international obligations. Also, there is no commodity agreement governing international rice trade.

**Article XXI: Security Exceptions**

Article XXI excepts from GATT obligations certain governmental measures undertaken on national security grounds. Supporters of Japan's rice program often attempt to justify "self-sufficiency" as vital to national security interests. However, nothing in Article XXI provides a basis for asserting a food security argument. Article XXI applies only to governmental measures which a country "considers necessary for the protection of its essential security interests relating to fissionable materials [subparagraph b(i)]...[or to] traffic in arms, ammunition and implements of
war . . . . [subparagraph b(ii)]." Even if Article XXI was not limited to instruments of war, Japan would not be able to show that its rice program furthered any security interest. First, the Japanese population can satisfy its caloric intake requirements from any one of several grains. Second, a variety of countries produce substantial quantities of rice. Therefore, Japan would not be dependent on any one source, and it is not vulnerable to an effective boycott. Third, any security argument based on the possibility of a total boycott of Japan by the world's rice producers is meaningless because Japan depends on imported petroleum to produce domestically. Assuming that the world powers were to blockade Japan, that same blockade would affect oil imports as well, thus undermining any security that Japan theoretically enjoys through the current import ban on rice.

**Article XVII: State Trading Enterprises**

All rice traded in Japan is traded through a state enterprise. The enterprise purchases the rice from producers at several times the world price and then resells the rice to distributors for retail to Japanese consumers. The same enterprise establishes the import quota. Recently, before a GATT panel, Japan attempted to argue that quantitative restrictions made effective through state trading enterprises are not covered by Article XI (Japan—Restrictions on Imports of Certain Agricultural Products, L/6253, at 66, ¶ 5.2.2). However, the GATT panel specifically rejected this assertion.

Under Article XVII, which regulates state trading enterprises, Japan must follow the requirements of Article XI. Article XVII allows a country to maintain state trading enterprises, but state trading enterprises "shall . . . act in a manner consistent with the general principles of non-discriminatory treatment prescribed in this Agreement for governmental measures affecting imports or exports by private traders." In addition, these "enterprises shall . . . make any purchases or sales in accordance with commercial considerations."

The plain language of the Article, as well as the GATT panel ruling, make it clear that Article XVII does not relieve a country of its obligations to avoid quantitative restrictions.

**GATT Rules and Food Security Programs**

A country cannot avoid GATT rules prohibiting import restrictions by relying on a food security argument. There is no provision in the GATT calling for an exception from any of the GATT rules to allow a country to pursue food security policies. However, while a country may be limited by the GATT in the food security programs from which it may choose, no country is precluded by GATT rules from implementing an effective food security program.

**Preserving the Food Security of Developing Countries**

As mentioned earlier, the question of food security depends on both supply and demand-side problems. Most developing countries confront poor food security because they lack effective demand: in the face of changing world prices, they are unable to satisfy basic food needs of their populations. The GATT does not prevent these countries, the economically less-developed GATT members, from relying on import barriers to secure their food needs. The GATT provides for "special and differential treatment" for developing countries. More importantly, however, a developing country
that is unable to rely on the world market for its foods needs can turn to GATT Article XII to justify the imposition of import barriers.

Under Article XII, a country that must protect its balance of payments may impose an import barrier. Many developing countries impose an import barrier against agricultural products to ensure that they will have an adequate domestic supply, thus ensuring, in turn, that they do not further jeopardize their balance of payments by importing when short supplies drive up the world price.

In the face of substantial trade and monetary surpluses, Japan has grasped at the developing countries' justification for agricultural import barriers in an effort to justify its own illegal rice program. However, the permissible agricultural trade barrier imposed by a less-developed country is legal not because of food security arguments, but because the importation of food would threaten the balance of payments of a capital-poor country. Japan cannot possibly use the food security argument to successfully garner developing country support for its policies. Most developing countries with food security problems related to currency availability already are well protected under the GATT.

**GATT-Legal Alternatives to Preserving Food Security**

There are any number of policies that a country can implement in order to ensure food security without compromising its international obligations. The energy security provisions found in the United States-Canada Free-Trade Agreement (FTA) is one possible approach to food security.

*Energy Security in the U.S.-Canada Free-Trade Agreement*

The United States and Canada have experienced a history of unstable relations over energy supplies. Much like the U.S. embargo on soybean exports to Japan in 1975, Canada blocked exports of natural gas to the United States in the early 1970s at the peak of the energy crisis.

In the FTA, both countries have attempted to guarantee their respective energy security by agreeing to a system of allocation of shortfalls in supply. Under Chapter 9 of the FTA, the parties agree that if energy exports are restricted because of shortfalls in supply, a domestic price control program, or necessary conservation programs, the restriction may not: (1) reduce the proportion of total supply historically available to the purchasing country; (2) disrupt channels of supply or the mix of energy products; or (3) impose a higher price on exports than for comparable domestic sales.

The energy security provisions agreed to by Canada and the United States are consistent with both GATT Articles XI and XX. The strategy adopted in the FTA, applied to food security, would be GATT legal and it would have the virtue of being a more efficient means of preserving food security.

*Elimination of GATT Article XI:2(a)*

In its proposal to the Agriculture Negotiating Group of the Uruguay Round Negotiations, the United States has recommended the elimination of Article XI:2(a) of the GATT. Article XI:2(a) permits contracting parties to restrict or prohibit exports of agricultural food products to relieve domestic supply shortages. The U.S. recommendation is based on the argument that export embargoes are trade-distorting in the same way import barriers are. An amendment to the GATT prohibiting
export embargoes would be an important contribution to the enhanced food security of import-dependent countries such as Japan.

Other GATT Legal Alternatives

Direct investment in agricultural projects overseas is another viable approach to enhancing food security. By providing operating capital in joint venture agricultural projects whether in California or Australia, Japan would ensure a more stable supply of agricultural goods. The current system, dependent on import barriers, is also dependent on oil imports and, thus, far less secure than Japanese policymakers would have their constituents believe. A more detailed discussion of this method of obtaining food security is provided later.

The use of contracts with an international agreement recognizing the sanctity of contracts also would enhance food security. If contracting parties are unable to agree to the complete elimination of GATT Article XI:2(a), an international agreement recognizing contracts in existence at the time of a restriction in agricultural exports would enhance food security. Under such an agreement, signatories would agree that, in the event of an export restriction, they would recognize and honor these contracts for food exports in effect at the time that the export restriction is announced. This alternative along with several others are discussed in more detail later.

GATT Rules and Japanese Rice Policy

"Food security" as a policy goal is devoid of any legal justification under the GATT. Absent a specific waiver from Japan's negotiating partners under Article XXV of the GATT, or amendment of the GATT itself, the "food security" rationale for Japanese protectionism is flatly unlawful. To a certain extent, Japan is relying on the unwillingness of the other developed GATT members to dismiss food security as a legitimate concern in the face of certain developing country disapproval. However, the GATT rules that might permit a developing country to take steps which might be trade distorting do not apply to Japan. For a developed country member of GATT, food security is a domestic issue that must be resolved without adversely affecting the world trade system.

The Japanese Government has often compared its rice program to the U.S. peanut program. Although the existing U.S. peanut program likely causes trade distortions in the world peanut market, the program is GATT-legal due to a waiver from GATT rules granted in 1955. In the early stages of the GATT, it became clear that the United States would no longer be able to rely on quotas to operate its farm program. Because the GATT would have prohibited the use of quotas, the United States applied for and received a waiver of its GATT obligations to the extent that those obligations interfered with U.S. farm programs. Although Japan has employed even more restrictive quotas in its farm policy than has the United States, Japan has never sought a waiver. Therefore, consistent with the GATT, Japan can rely only on the exceptions provided for under current GATT rules to justify its quantitative restrictions on imports. The broader use of import bans, currently in practice, is not GATT-legal unless either a special waiver for Japanese rice is granted or a new GATT rule on food security is introduced.
WHAT ARE ALTERNATIVE MEASURES FOR ACHIEVING FOOD SECURITY?

Even though measures that involve the use of import restrictions as the means of achieving food security are not legal under the GATT, there are numerous alternative means by which a country may attempt to gain food security. These include primarily policies designed to increase the availability of food by intervening in the stockholding, production, consumption, or trade functions of the market. Table 5 summarizes the various policy measures through which a country might attempt to achieve food security. In this section, food self-sufficiency as a means to obtain food security is first discussed and then compared with a few of the other major food security policy measures, including food stockpiling, direct overseas investment, bilateral food supply contracts, research and development, and others.

Food Self-Sufficiency

Food security need not imply self-sufficiency obtained through restrictive trade barriers. While food security concerns the availability of sufficient amounts of food to feed the population of a country, food self-sufficiency has to do with the ability of a country to provide its own food supply from domestic resources, without regard for market forces and often with deliberate intent to replace imports. There are countries that are self-sufficient in their food production, such as Brazil, but by most standards lack food security (Hollist and Tullis). Food self-sufficiency is simply one of the many means of obtaining food security. Throughout the agriculture trade negotiations, however, Japan has used the terms "food security" and "food self-sufficiency" interchangeably, heightening confusion around the food security debate.

How Food Self-Sufficiency Policies Work

Policies to achieve food self-sufficiency include mainly those policies designed to bolster food production in the implementing country. Domestic prices are usually maintained in some way at a level that provides an incentive for farmers to produce sufficient quantities to meet domestic requirements. This normally requires a ban on or control of imports in order to keep the domestic market from being flooded with cheap imports from the world market. Because commodities like rice are usually grown by a large number of farmers, this approach often serves as a means of transferring income from the non-agricultural sector to the agricultural sector of the implementing country's economy. Despite the size of government expenditures on the rice program in Japan, however, the resulting transfer of income to agriculture has only a very limited effect on farm household income, especially of small part-time producers which comprise about 68 percent of total farm households (ABARE). Japanese farms with less than 0.5 hectares received less than 1 percent of their income from agriculture, while farms with 0.5 to 1.0 hectares received only 6 percent of their income from agriculture. All farm households received only 13 percent of their income from agriculture during 1987 (MAFF (b)). A political and social difficulty with this policy is that a higher domestic price of a staple food like rice reduces the real incomes of particularly low-income urban consumers. As a consequence, income is transferred to producers from not only taxpayers in general but also low income consumers in the form of lower consumption at higher prices.
Table 5. Alternative National and International Measures to Achieve Food Security

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<th>Stock measures</th>
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<td>Emergency stocks</td>
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<td>Production measures</td>
<td>Input subsidies</td>
<td>Fertilizer supply scheme</td>
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<td>Research and development</td>
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<td>Consumption measures</td>
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<td>Other</td>
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<td>Nonfood trade measures</td>
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Source: Based on McCalla and Josling.
The Domestic and International Effects of Food Self-Sufficiency Policies

A self-sufficiency policy approach to food security can be used to stabilize domestic prices at some level above the world price level but at a significant cost to consumers. These costs are related to the government price support level and the import constraints needed to maintain the integrity of the policy. The import constraint reduces the competition faced by domestic producers, creating the opportunity for domestic prices to rise. This rise in price places a heavier burden on low-income consumers since a larger share of their incomes must be spent on the commodity controlled. A higher domestic price, though stable, will lower domestic consumption of the commodity controlled. Other cheaper foodstuffs usually are substituted for the controlled commodity.

Internationally, the self-sufficiency policy of a major potential importer of a given agricultural commodity lowers the world price for that commodity, creates greater world price variability, and reduces world volume traded of the commodity. According to one report, the Japanese policy on ruminant meat lowered world meat price by 7 percent in 1987 while increasing the variability of world meat prices by 59 percent and reducing world meat trade by 27 percent (ABARE). Also, the lower resulting world prices have reduced farm income levels in exporting countries and limited the opportunities of developing countries to use exports of the commodity to finance development and meet balance of payment obligations.

The Costs and Benefits of Food Self-Sufficiency Policies

Recent studies which have attempted to measure the impact of Japanese self-sufficiency policies on both consumers and producers have consistently found that while rice and wheat producers have benefitted, the government policy has imposed a large burden on consumers and resulted in a misallocation of resources in the overall economy (Riethmuller and Roe; Otsuka and Hayami; O'Mara, Knopke, and Roberts; Josling). In the short run, these policies may have resulted in foreign exchange savings and raised farm incomes. Over the long run, however, they have been quite expensive (ABARE). Self-sufficiency programs result in less than socially optimal use of fixed resources such as land. In Japan, the high support price for rice has contributed to the relatively low standard of housing and infrastructure (ABARE). The major cost of food self-sufficiency policies is generally shouldered by consumers through higher food prices. Consequently, supporting farm prices in the quest for food self-sufficiency tends to be less scrutinized as a national policy than direct fiscal outlays by the government.

Global Examples of Food Self-Sufficiency Policies

Many countries, in developing food security policies, have used self-sufficiency as the main mechanism for obtaining that objective. Developing countries need a consistent basic food supply in order to maintain political stability. Self-sufficiency allows the country to use valuable export earnings on other resources the country needs, although at a heavy cost to their consumers. Nigeria and Indonesia have used this approach with rice. However, use of this policy by developed countries generally leads to conflicts with trading partners. The trade effects of self-sufficiency policies are a legitimate concern to trading partners and to other countries exporting the commodity. The world has fast become interdependent. No country, especially developed countries, can isolate its internal economy from the world without imposing major effects on external world markets. This is the current case with rice policy in Japan, Taiwan, and South Korea.
Food Stockpiling

A self-sufficient level of production is not the only way to achieve an adequate supply of food. Stockpiling of sufficient quantities of food and feed grains to insure against shortfalls in world and domestic production is an alternative. Revolving stockpiles of rice, rotated each year, would guard against shortfalls. This approach can provide as much food security as a self-sufficiency policy.

How Food Stockpiling Policies Work

Food stockpiling, as a food security measure, is the accumulation and storage of quantities of a commodity in excess of current needs to be available during shortfalls of domestic production and import availability. These stocks would be replenished during years of abundance. The stocks need not be large enough to furnish a full year's supply of the commodity. Only sufficient stocks are required to meet food needs given likely domestic production and import availability. The stocks need to be rotated each year with new crop stocks. Used in this way, a food stockpiling policy would tend to stabilize a country's price around the market equilibrium rather than to support it above world levels. If a country tended to allow more of the commodity into storage than is released from storage, however, this policy would tend to support rather than to stabilize the price. The effects on the market in this case would be similar to that of Japanese rice policies. Such a policy would be expensive and likely lead the government to find ways to limit the amount of the commodity that must be put into storage. This is precisely the reason that Japan has been forced to limit rice imports and induce farmers to scale back rice production.

The Domestic and International Effects of Food Stockpiling Policies

In principle, a food stockpiling policy intended to stabilize price and supplies would not necessarily impose significant distortion on domestic or world markets. Costs of the program could be covered through government purchase and release operations in which the difference between the purchase and release prices is equal to the costs of storage and administrative and other costs. The key to making such a policy work without distorting markets, however, is that domestic prices must be stabilized around the long-run equilibrium price. If the government of a country attempts to stabilize the price at too high a level, as is generally the case, it will tend to purchase more of the commodity than it releases. In this case, the country will likely implement import controls, production constraints, and other means to limit the volume of stocks that must be purchased. If the government attempts to stabilize the market at too low a price level, government stocks will eventually be depleted. The biggest problem for a country attempting to use food stockpiling as a means to stabilize its markets, therefore, is to determine the long-run market equilibrium around which to stabilize price.

The perceived reduction in price uncertainty from a stockpiling policy could induce farmers to expand production leading to a greater degree of food security. This complicates the policy planning process, however, because such an increase in production would tend to lower price and lead to an accumulation of stocks at the given government stock purchase and release prices.

If Japan shifted from its high-price-support, import-constraint policy for rice to stockpiling as a means of stabilizing price and domestic supplies, internal prices of rice would drop significantly and imports would increase. Direct government transfers of income to producers in an attempt to
maintain income levels of domestic rice producers could increase dramatically as transfers from *consumers* to producers would be replaced by transfers from *taxpayers*. Complete removal of support would require major structural shifts in not only the Japanese rice industry but also in supporting industries. The consumer would benefit from a much lower domestic price. Consumption would rise, but perhaps only moderately since the estimated price elasticity of demand for rice has been extremely low. With the dramatic declines in price that would occur, however, it is likely that consumer price responsiveness would increase appreciably. World exporting countries would benefit from an increased annual demand in the open market and possibly from the stockpiling start up, depending on existing and desired stock levels. Prices would almost certainly rise in world markets (Bateman; Pearson).

**The Costs and Benefits of Food Stockpiling Policies**

There are two major costs associated with stockpiling: 1) the cost of storing the grain through time and 2) the cost of initially purchasing the grain. The cost of holding stocks in a tropical country is high, either in terms of losses or of the capital cost of loss-proof storage facilities. The most constructive approach to stockpiling for food security may be indirect, i.e., by creating the conditions under which stocks will be adequate rather than mandating either stock levels or triggers (McCalla and Josling). This can be accomplished by increasing the correlation between domestic and world price movements in developed countries, i.e., by improving the profitability of private stockholding.

**Global Examples of Food Stockpiling Policies**

Stockpiling as a means of food security has been used for many centuries. Joseph advised the Pharaoh to store up grain during the seven good years that would follow and then use the accumulated stocks during the subsequent seven bad years (Genesis 41:14–57). Many nations buy storable food commodities such as rice or wheat during periods when the world supply is favorable and use the stock accumulations as a buffer against less favorable world supply years. These stocks, rotated with new crop each year, are generally controlled and financed by a government agency. Most developing countries with inadequate production implement some form of this policy to some degree. A well-known example of a stockpiling policy is the Farmer-Owned Reserve in the United States particularly as designed and operated during the late 1970s. This policy was an attempt to stabilize market prices for a number of commodities through an accumulation of on-farm stocks during periods of low prices and a release of those stocks during periods of high prices.

**Direct Foreign Investment**

Another strategy for increasing food security is investment in productive and/or marketing capacity in other countries which have a clear comparative advantage in the production and export of food commodities. Such investments could be spread among a number of countries to reduce the risk of unfavorable conditions affecting supply in any one country. These investments could involve the purchase of the means of production such as farmland as well as of storage, distribution, and transportation facilities and expertise. Control of these resources would aid in securing the needed supply.
How Direct Foreign Investment Policies Work

As a means of obtaining food security for an importing country, direct foreign investment is the securing of controlling interest in the decision making process of a portion of the production and/or marketing capacity in selected foreign countries. In essence, investments in productive capacity effectively increase the agricultural land base of the importing country. Although the land base in control of the foreign country is correspondingly reduced, production on that land continues to benefit local economies through the use of purchased inputs and local storage, distribution, and transportation facilities and labor. Large scale investments of this nature in a foreign country, however, often lead to concerns among foreign producers about the loss of productive capacity and comparative advantage to importing countries.

The Domestic and International Effects of Direct Foreign Investment Policies

Stabilizing and controlling the food needs of a food deficit country through investment in the production, transportation, and/or storage of that commodity in another country should add stability to prices in the domestic as well as in international markets. The source country would receive an influx of new investment capital, benefiting its economy. Increased world trade volumes should strengthen "thin markets" such as rice, lowering world price and export variability. This would mean that the world market demand for the food security commodity would become more elastic.

The Costs and Benefits of Direct Foreign Investment Policies

In principle, direct foreign investment by a food deficit country is perhaps the most efficient means of obtaining food security. Investment by such countries in the expansion of production in areas of the world with a natural resource endowment that provides a natural comparative advantage is likely to return more to the investing country in terms of output per unit of cost than similar investments in their own countries. In practice, however, there are added costs to consider above those of the initial investment and of the day-to-day operations, including the risk of investments in countries with unstable governments or in which there may be a risk that national sentiment will lead to measures designed to reduce or eliminate the profitability of such investments. Also, for developing countries experiencing foreign exchange constraints, limited investment capital, and large food deficits, such investments on a scale necessary to provide any degree of food security are not feasible.

Global Examples of Direct Foreign Investment Policies

Foreign direct investment by developed countries with a limited land base in countries with clear comparative advantages in the production and trade of agricultural commodities is an increasingly common phenomenon. Such investments by Japan through the Japanese Overseas Development Assistance Program and the actions of numerous private Japanese firms and individuals have increased markedly over the last decade. Japanese investments in U.S. farm land became a national concern in the late 1970s and early 1980s. More recently, increased Japanese investment in livestock production, feed, and processing facilities has occurred as the Japanese meat market has become more open to world trade. A likely response by the Japanese to increased liberalization of their markets will be to increase the investments in the U.S. agricultural industry to capture the value from production and to add to the supply of agricultural commodities under the control of Japanese interests.
Bilateral Food Supply Contracts

Another strategy for increasing food security is the use of long term bilateral contracts for the commodities needed. As with direct investments, the country desiring food security could negotiate contracts with several countries in order to minimize any risk associated with adverse production and/or political stability in the exporting countries. This would help a country guarantee access to its needs as opposed to trying to produce adequate supplies internally at a much higher cost.

How Bilateral Food Supply Contracts Work

Bilateral food supply contracts are formal agreements between exporting and importing countries. Generally established and executed on a government-to-government level, such contracts normally obligate exporting countries to provide some fixed or minimum level of a food commodity and importing countries to purchase the fixed or some maximum level of the commodity. Such agreements often include features to allow a proration of the export supply in the event of a production shortfall in the exporting country. Restrictions against trade embargoes are normally a part of such agreements. Although bilateral contracts offer a guarantee of additional food supplies as with direct investments, the main difference is that with the contract approach the productive and marketing processes are still in the control of the exporting country. As a consequence, the contract approach to food security is generally preferred by exporting countries over direct investments by the importing country. Such contracts provide a guaranteed market for a portion of an exporting countries excess supplies. Although such contracts also offer guarantees of supply availability to importing countries, there is limited opportunity for adjustments in the event of excess domestic production in those countries.

The Domestic and International Effects of Bilateral Food Supply Contracts

The effects of bilateral agreements on domestic and international markets are similar to those of direct investment and less costly than self-sufficiency policies to the taxpayers and consumer in the country with food security needs. In contrast to food self-sufficiency policies validated by quantitative import constraints, internal prices in the importing country would be responsive to world market price changes in bilateral contract approach to food security. This means that the agricultural sector of the importing country would be forced to share at least part of the burden of world market instabilities. In effect, this would work to help reduce world market price variability while increasing the variability of price in the importing country. Consumers in the importing country would benefit from a lower although somewhat more variable domestic price than would be the case with high producer support prices in a food self-sufficiency approach. Domestic producers would face increased international competition. Adjustments in the structure of the domestic industry in the importing, food security country would occur. World prices would rise from the increased demand generated by a bilateral contract.

The Costs and Benefits of Bilateral Food Supply Contracts

As a food security measure, bilateral trade agreements tend to be less costly to both consumers and taxpayers than self-sufficiency policies. The major drawback to bilateral agreements for food security countries is the increased perceived dependence on foreign sources and governments for food. Because food security is closely associated with national security in many countries, this increased dependence may be undesirable despite the lower social costs of such an approach to food security.
Global Examples of Bilateral Food Supply Contracts

Bilateral trade agreements to enhance food security is not a new concept. A large percentage of world trade in agricultural commodities is handled in this way. One of the most well known examples of using bilateral contracts to enhance food security is the long-term grain agreements between the United States and the Soviet Union. A five year trade agreement was signed by the two countries in 1978 and 1983 and extended for 1988 and 1989 for grain shipments. The agreements called for the United States to supply Russia with a minimum quantity of wheat and feed grains. The U.S. also entered into bilateral rice trade agreements with South Korea during the late 1970s and early 1980s. The oil and gas crisis of the mid-1970s and the resulting trade interventions by many governments led to a bilateral trade agreement between Canada and the United States on natural gas. This agreement outlined the export and import procedures that would be followed in various circumstances to insure an adequate flow of natural gas from Canada to the United States.

Investment in Research and Development

Government or private investments in research and development to boost yields or otherwise enhance the productivity and efficiency of the agricultural sector can play an important role in improving a country's food security. Because the expense may be high or the returns difficult for a single country to capture, such investments may be made by international groups. The International Rice Research Institute is an example of a global effort to increase rice production, especially in less developed countries, boosting the level of global food security.

How Research and Development Works

As a means to improve food security, a country may invest in agricultural research in its own country in an attempt to boost domestic food production or in foreign countries to build and diversify the country's foreign sources of food. The most widely accepted operational goal for agricultural research is to increase agricultural output. But agricultural research can be used to increase agricultural output in a number of different dimensions by a number of different means. Most national and international agricultural research programs focus on boosting yields of food crops and commodities, i.e., the output per unit of land area. Examples include breeding programs to improve the drought tolerance of crops in areas prone to water shortages and to develop crop varieties more responsive to applications of fertilizer or more resistant to disease. Such programs attempt to ease the constraints to increased production of food implied by the availability of production resources such as fertile land, adequate water, etc.

Research investments may also be made, however, to improve the quality of the food commodities produced, such as enhancements in protein content or in the transportability and storability of those commodities. The consequence is an increase in the supply of food available to consumers by increasing its nutritive value or by reducing wastage and spoilage.

Although the emphasis in most agricultural research programs is generally on the production side, agricultural output does not become food until it passes through the system of processing and transportation to arrive at the consumer's plate. Substantial resources are used in transforming raw agricultural output to food for consumption by households. Research to improve the efficiency in food processing, distribution, and preparation can help make a larger percentage of the food produced or imported available to consumers at a lower cost.
Research to improve the volume and quality of production resources can also help improve the supply of food available to consumers in a given country. Much of the technological change that has led to increases in agricultural output has not taken place in agriculture but in the industries that supply inputs to agriculture. Examples include the development of and improvements in the fertilizer, pesticide, herbicide and other chemical industries. Investments in research in the mechanical power and equipment and machinery industries have resulted in new and more efficient agricultural planting, harvesting, processing, etc. machinery and equipment. Research in the health care and education industries can improve the quality and skill level of the human resource in agricultural production and lead to higher levels in the supply of food available to consumers.

Finally, research that leads to improved social, political, and economic institutions can also lead to increases in agricultural output and to higher levels of innovative activities. Reductions in social upheaval and political disruption, for example, can help reduce the risk of private investments in agricultural output and free up resources for use in agriculture.

The Domestic and International Effects of Research and Development

In general, research and development programs boost the supply of food available to consumers in a country and reduce domestic food prices. Investments in research and development can also help a country that restricts imports to offset some of the perceived negative impacts from moves to liberalize its markets. Because a country, like Japan, that restricts food imports would experience a decline in internal prices from liberalizing its markets, the level of domestic production would also decline. Investment in research and development of cost-reducing technologies could help maintain the level of domestic output at the lower internal price and still allow an increase in imports over what would have been the case.

Agricultural research can also influence the distribution of income within a society. One way that this occurs is through the reduction in the real price of food as a result of the research-induced increase in the internal supply of food. Also, if the research improves the substitution of inputs in production, such as mechanical power for human labor or fertilizer for land, the result will be a shift in the distribution of income among productive inputs as their supplies change.

The Costs and Benefits of Research and Development

Research and development costs, whether public or private, are long-term investments to boost domestic food production. For this reason, investments in research and development must be coupled with other measures to insure any short-term food security needs. In most cases, many years of research investment and effort are required for new technologies to be developed and disseminated. In the U.S., the development and adoption of a new rice variety requires 8 to 10 years at a cost of about $12 million (Bollich). Because of the lag in development of new technologies, the returns to investments in research may not be realized for a number of years. Nevertheless, most studies have shown a positive return to investment in research. The return to research on Texas rice has been estimated to be $4 per dollar invested in the research programs (Stansel).

One potential cost to international efforts to boost productivity in food-deficit countries that has received much attention is the effect on international comparative advantage. The main point of debate has been the advisability of an agricultural exporting country providing financial and technical assistance to help increase agricultural productivity and output in those countries in competition with supplies from the exporting country. A strong argument is made that such assistance is, therefore, counterproductive to research in the exporting country.
Global Examples of Research and Development

Nearly all countries of the world invest in agricultural research programs to one extent or another. Many of those programs were patterned after the U.S. agricultural research and delivery system. The key components of the U.S. system are the land grant universities and the Federal research system. Nevertheless, a great deal of agricultural research is conducted at other public and private institutions. Over the years the U.S. system has generated a sizeable flow of new technology ready for use by the agricultural community. Some of this technology has been adapted for use in other regions of the world. The Japanese have invested in agricultural research in foreign countries in an effort to diversify its sources of supply. In the early 1970s, for example, when the United States imposed an embargo on exports of soybeans, Japan began investing in the development of the soybean industry in Brazil as a means of diversifying its sources of soybeans.

The International Rice Research Institute (IRRI) in the Philippines, the International Maize and Wheat Improvement Center (CIMMYT) in Mexico, and the International Tropical Agriculture Center (CIAT) in Columbia are three of the 13 international agricultural research centers worldwide that form the Consultative Group on International Agricultural Research (CGIAR). The CGIAR centers are funded by developed countries to generate and transfer agricultural technologies to developing countries. Some of the CGIAR research has had very high payoffs (McCalla and Josling). For example, the value of increased supplies of rice generated by high-yielding varieties based on IRRI research exceeds $2.5 billion (Plucknett and Smith).

Other Food Security Measures

Several other measures that can be used by a country as means of increasing food security are listed in table 5. Some of these measures are discussed briefly here.

Other Production Measures

Subsidies for the use of certain production inputs (usually through lower pricing of those inputs), is a means of both reducing production costs and increasing productivity. Increasing productivity and decreasing cost per unit usually results in an area increase, greater total production, and less dependence on imports. Government-subsidized disease and insect control measures also fit into this category. Government-financed development of river basins to collect, store, and distribute irrigation water could both expand the area utilized for rice production and enhance the stability of domestic food supplies. The development of drainage projects to remove excess water could open new land for rice production or improve productivity of existing resources. Input subsidies could not alone lead to total food security for many countries. In combination with other measures, however, input subsidies could be highly effective in boosting food production, holding down prices to consumers, and supporting producer incomes.

Other Trade Measures

The government of a country seeking to improve the food security of the country could take advantage of futures markets to reduce the price uncertainty in the country. The use of futures markets is a short-term strategy to guarantee supplies and/or to lock in favorable prices of a given
commodity (Schmitz, et al.). Futures contracts can be bought as a hedge against price rises for future cash purchases and sold when those cash purchases are made. This shifts part of the price risk to the futures market. As a tool to achieve food security, the futures market functions best as a short term pricing strategy. The benefit accrued to the consumer depends upon how much of the price risk savings is passed on to them through lower prices.

The collection and dissemination of timely domestic and world market information to domestic producers and consumers in a country seeking greater food security is essential for informed, efficient trading in domestic and world markets. The development of a market reporting system, global in scope, would facilitate rice market activities in the country. The more efficient the country’s marketing system, the more informed will be decision making in the market and the more accessible will be the available supply of food to the consumers of the country. Accurate, timely data on the availability and quality of supplies, world market prices, and import needs and export availabilities are essential elements of such a system.

**SUMMARY AND CONCLUSIONS**

In the current round of MTN talks, the Japanese are challenging efforts to liberalize its rice markets claiming that the restrictions on rice imports are part of an overall effort to achieve food security for the country. The debate has highlighted a number of important questions regarding food security, Japanese rice policy, and their relationship, including the following. What is “food security” policy? What are Japanese rice policies and how do they relate to the concept of food security? Is “food security” as a rationale for protecting agriculture legal under the provisions of the GATT agreement? What are the most common “food security” policies and their comparative effects on world markets? A number of major conclusions emerge from the analysis of each question.

First, policies intended to achieve greater food security for a country fall into two groups: those that enhance the availability, reliability, and stability of the food supply and those that improve the access to food at a reasonable cost to consumers. Such policies can be either domestically or internationally-oriented or both. Policies focused primarily on enhancing domestic food production and/or the access of consumers to domestically-produced food are generally referred to as self-sufficiency policies. Only policies which intend to achieve absolute or complete self-sufficiency require imports to be completely eliminated.

Second, as currently operated by the Japanese Government, Japanese rice policy cannot legitimately be considered to be a food security measure. Japanese rice policy explicitly reduces the availability, stability, and accessibility of the supply of rice in Japan. The policy results in an "unreasonable" disparity between the Japanese and world prices of rice.

Third, Japanese rice policy cannot even be referred to as a self-sufficiency measure. Because one of its consequences has been a reduced dependence on foreign sources of rice, Japanese rice policy has often been referred to as a self-sufficiency measure. Self-sufficiency policies, however, typically attempt to enhance domestic food production or access by consumers to domestic food supplies. In contrast, Japanese rice policy explicitly attempts to limit domestic rice production and reduces the accessibility of consumers to what is produced.
Fourth, *Japanese rice policy is nothing more than a common, garden-variety producer price support measure typical of most developed countries.* If this was not the case, the declining internal demand for rice in Japan would allow Japanese policymakers to let internal rice prices drop while still avoiding stockbuilding and imports. The fact that the Japanese government has chosen instead to provide payments to producers to reduce the area of rice under cultivation provides strong evidence that the current Japanese rice policy is simply a Government effort to support prices and incomes in the Japanese agricultural sector.

Fifth, *Japanese rice policy violates the GATT prohibition against quantitative import restrictions.* Moreover, there is no provision in the GATT calling for an exception from any of the GATT rules to allow a country to pursue food security policies. That is, a country cannot avoid GATT rules prohibiting import restrictions by relying on a food security argument. However, while the GATT may limit the range of food security measures from which a country may choose, no country is precluded by GATT rules from implementing an effective food security program.

Sixth, *there are numerous GATT-legal alternatives through which a country may attempt to gain food security.* These include primarily policies designed to increase the availability of food by intervening in the stockholding, production, consumption, or trade functions of the market, including food stockpiling, direct overseas investment, bilateral food supply contracts, research and development, and others.
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APPENDIX

This appendix provides an analytical discussion of Japanese rice policies and their impact on both the Japanese and world rice markets. The analysis here clearly establishes that Japanese rice policy is simply a farm income and price support mechanism common to many developing countries and not a food security measure. A graphical technique is first developed and then used to define Japanese rice policies and demonstrate their effects on the markets.

A Simple Graphical Tool for Policy Analysis

The analytical framework presented here is based on conventional economic logic. When the price of rice rises, producers in all countries respond by supplying more of the good to the market while consumers buy less. When the price falls, consumers demand more and producers want to supply less. This behavior can be represented for rice as in Appendix Figure 1. For simplicity, only two countries (X and M) are included in the world market for now. An upward sloping supply curve, labeled S, and a downward sloping supply curve, labeled D, represent the collective behavior of all suppliers and demanders, respectively, in each country. Each curve is subscripted with an X or an M to indicate the country with which it is associated. For the moment, assume that the two countries are isolated or out of contact with each other, i.e., they are closed to foreign trade. Two points where the supply and demand curves in the graphs for each country intersect are the only price-quantity combinations at which both producers and consumers are satisfied in their respective countries. Therefore, price $P_x$ and quantity OA are the market price and quantity in country X. Price $P_m$ and quantity OV are the market price and quantity in country M. To eliminate unnecessary complications, assume that rice is priced in the same currency in both markets.

Note that the market price in country M is much higher than in country X. This would be the situation in market economies with production resources that are not as adequate for the production of rice as is the case in countries like country X. If the two countries are now opened to the possibility of trade, consumers in country M would realize how much cheaper it would be to purchase rice from suppliers in country X. (Transportation costs can be ignored or assumed to be insignificant in this analysis.) At the same time, suppliers in country X would realize how much higher a price they could get for their product if they sold it to consumers in country M. As supplies of rice leave country X, the price in that country ($P_x$) will be bid up. Likewise, as foreign supplies of rice enter country M, the price in that country will be bid down. This means that world price must settle somewhere between prices $P_x$ and $P_m$. It also means that for the country supplying rice to the world market (X), the market price must be higher than $P_x$ and lower than price $P_m$. In the country buying rice off the world market (M), the price must be lower than $P_m$ and higher than price $P_x$. Note that if this was not the case, trade between the two countries would not occur.

The important question now is where between prices $P_x$ and $P_m$ will the world price settle and how much will be traded? This can be determined by understanding the middle panel in Appendix Figure 1. Note that in country X, at all prices greater than $P_x$ there is a surplus of supply over demand. This occurs because as price rises, producers in country X supply more while consumers buy less. This is the surplus that is available for shipping to country M. The higher the price is above $P_x$, the greater the surplus of supply over demand in country X. This surplus available for export is graphed as the upward sloping export supply curve in the middle panel of Appendix Figure 1. The
export supply curve is drawn such that at any given price, the distance from the vertical axis to the curve is exactly equal to the difference between the supply \((S_x)\) and demand \((D_x)\) curves in country \(X\). Thus, the Export Supply curve represents the various quantities of rice available for export from country \(X\) at different world price levels.

In country \(M\), at all prices lower than \(P_m'\), consumers desire to buy more than domestic producers are willing to supply. The lower the price, the greater the excess of demand over supply in country \(M\). This excess demand is the quantities that country \(M\) would be willing to import from the world market at various price levels and is graphed in the middle panel of Appendix Figure 1 as the import demand curve. It is drawn such that each point on the curve equals the difference between demand \((D_m)\) and supply \((S_m)\) in country \(M\).

The world market in the middle panel of Appendix Figure 1, therefore, is represented by an export supply curve and an import demand curve. The intersection of those two curves determines where the price is set in the world market and how much is traded. In Appendix Figure 1, the world price is set at \(P_w\) and the trade volume at \(OQ_w\). World trade \((OQ_w)\) equals both the quantity exported from country \(X\) (BC) as well as the quantity imported by country \(M\) (WX). It is important to recognize that the world price could end up anywhere between \(P_x\) and \(P_m\), depending on the relative strengths of supply and demand in the two countries. However, if country \(M\) restricted imports, for example, the price could be pushed back up to \(P_m\) in country \(M\). If this was the case, producers in that country would be willing to supply all the needs of the domestic consumers so that there would be no need for imports. 

The Effects of Japanese Rice Policy

The effects of Japanese policy on the Japanese and world rice markets can be illustrated using the analytical framework developed in the previous section. Assume that in Appendix Figure 2 the importing country is Japan and the exporting country is the rest of the world, i.e., the aggregate of all exporting and importing countries. In this sense the export supply curve facing Japan in Appendix Figure 2 represents the supplies of rice available from all exporting countries net of that consumed by other importing countries.

The main objective of Japanese rice policy has been to support incomes in the agricultural sector through supporting price at a level like \(P_B\) in Appendix Figure 2. This level of support could be achieved through purchasing sufficient quantities of rice from the domestic and world markets and stockpiling it to raise the world market price to that level. In Appendix Figure 2, this would require the purchase of a surplus of export supply over import demand at price \(P_B\) of the amount \(ab\). To avoid having to purchase and store this unreasonable volume of rice in order to support price in the domestic market, the government restricts imports to the level \(OQ_w'\) in Appendix Figure 2. Consequently, the highly restrictive import quota is the main tool of Japanese government policy to support the domestic rice industry.

The resale price of rice \((P_R\text{ in Appendix Figure 2})\) has often been set somewhat lower than the buying price, establishing a floor on the consumer price of rice that is below the producer price. The declining demand for rice in Japan over time (the shift from \(D_m\) to \(D_m'\) in Appendix Figure 2), however, has put downward pressure on the domestic price of rice in Japan. Because the objective of government policy has been to support the farm price of rice, this has forced the government to pay farmers to divert acreage from production in order to avoid an accumulation of government holdings of stock (the supply curve shift from \(S_m\) to \(S_m'\) in Appendix Figure 2). Boosting prices through further restrictions on imports has not been much of an option because imports have been already been restricted to virtually nothing (the drop from \(OQ_w\) to \(OQ_w'\) in Appendix Figure 2).
The consequence for Japan, therefore, has been lower domestic production of rice (to level OY in Appendix Figure 2), at a fairly constant price (OP,*) and, therefore, a declining value of rice production. In the rest of the world, the consequence has been a depressed price of rice (P*,x in Appendix Figure 2) and a restricted level of production (OC to OD in Appendix Figure 2) and exports (BC to FD in Appendix Figure 2).
TEXT FIGURES