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Opening Markets while Maintaining Protection: Tariff Rate Quotas in Korea and Japan

Jung-Sup Choi and Daniel A. Sumner

As the result of Uruguay Round negotiations, Korea and Japan established tariff rate quotas (TRQs) for agricultural imports. Both countries allocate the TRQs with various methods that show different fill rates and welfare implications. The state trading enterprises play important roles in TRQ administration in both countries. The TRQs contributed to increased imports. However, the transparency and commercial consideration in administering the TRQs remain a concern and the access for some commodities seems to be less open than would be the case if quota amounts were made available on a purely commercial basis.

The agricultural trade policies of Korea and Japan drew much attention during the negotiations leading to the Uruguay Round Agreement on Agriculture (URAA). Before the Uruguay Round (UR), these countries and others had been using nontariff barriers and many domestic intervention measures in agriculture. Korea and Japan argued vigorously for maintaining their farm import barriers and subsidies. Throughout the UR negotiating process, Korea and Japan faced substantial counterarguments from agricultural exporting countries and countries pursuing agricultural policy reform.

As a part of the URAA, Korea and Japan accepted tariffication for all of their agricultural commodities except rice, which received a waiver. Agricultural products with prior import bans (or very low access) faced minimum market access commitments as a part of tariff rate quota (TRQ) programs, others were required to maintain the current market access.

The TRQs were created to facilitate the tariffication of quantitatively restricted products. For these items, exporting countries want more access to the market, while importing countries tend to use TRQs as protective measures. Korea and Japan, as importing countries, have enforced TRQs strictly during the first four years of the URAA implementation period.

In the URAA, no article explicitly mentions minimum or current market access. Rather, there is reference to other market access commitments as specified in the Schedules (Josling et al. 1996). Respective country commitments are embedded in the Schedules. Minimum access and current access commitments often come in the form of TRQs, allowing imports of specified quantities at tariffs lower than the normal bound tariff rates. For some of these products, state trading is used to administer the TRQ.

The objective of this paper is to investigate implications of tariff-rate quota management for agricultural products in Korea and Japan and to describe the procedure that created TRQs for Korea and Japan and the role of TRQs in agricultural imports. We will analyze quota fill rates to show how the rates differ depending on administration method. The role of state trading enterprises (STEs) in TRQ management will also be considered. Finally, we identify some welfare implications of TRQ administration.

TRQs under Market Access Commitments to Implement the URAA

Korea

Before the URAA, imports of most agricultural products were limited by quantity restrictions, ex-

Jung-Sup Choi is a senior fellow with the Korea Rural Economic Institute and a visiting scholar with the Department of Agricultural and Resource Economics at the University of California, Davis. Daniel Sumner is the Frank H. Buck, Jr. Professor with the Department of Agricultural and Resource Economics at the University of California, Davis. He is also the director of the University of California Agricultural Issues Center. The authors thank Harry de Gorter for valuable suggestions on an earlier draft. Funding from the Farm Foundation and the International Trade Research Consortium is gratefully acknowledged.

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Table 1. Tariff Rate Quotas for Selected Products, Korea: 1995–2004

	Quota (tons)		Tariff (%)		
Product	Initial	Final	In-quota	Initial	Final
Rice	51,307	205,228	5	n.a.	n.a.
Barley	14,150	23,582	20	333/410[c]	229.7/361[c]
Corn	6,102,100	6,102,100	3	365	328
Soybeans	1,302,152	1,032,152	5	541/1,062[c]	487/956[c]
Potatoes	11,286	18,810	30	338	304
Onions	12,369	20,645	50	150/200[c]	135/180[c]
Garlic	8,680	14,467	50	400/2,000[c]	360/1,800[c]
Red pepper	4,311	7,185	50	300/6,900[c]	270/6,210[c]
Oranges	15,000	57,017	50	99	50
Ground nuts	4,907	4,907	40	256.1	230.5
Sesame	6,731	6,731	40	700/7,400[c]	630/6,660[c]
Beef	123,000	225,000[a]	43.6/41.6[a]	44.5 & 70% markup	40 & 0% markup[a]
Pork	21,930	18,275[b]	25	37	25
Poultry	7,700	6,500[b]	20	35	20
Skim milk powder	621	1,034	20	220	176
Whole milk powder	344	573	40	220	176
Whey	23,000	54,233	20	99	49.5
Butter	250	420	40	99	89

[a]2001
[b]1997
[c]%/won per kg: applied tariff is the percentage of product value or won per kg, whichever is higher. (The exchange rate in 1995 was 774 won/U.S.$. It was about 1,150 won/U.S.$ in late 1999.)

cept for a few raw materials required for manufacturing. Wide-scale trade reform for agricultural products took place in 1989. When the GATT Committee on Balance of Payments (BOP) decided to terminate concessions allowing Korea to use nontariff import barriers because of deficits in the balance of payments, the Korean government announced a reform schedule of agricultural markets for 1991 to 1997. As the result of UR negotiations, livestock products, vegetables, and oranges were the main products included as BOP items in the country schedule. The URAA resulted in higher initial tariffs for some of those BOP items, but with the agreement, the tariffs would be reduced to their original, applied levels at the end of the implementation period.

Under the URAA, Korea applied tariffs or created TRQs for all agricultural products except rice. Applying the developing-country provisions in URAA, tariffs are to be reduced by 24% during the period 1995 to 2004. Additional quantitative market access was provided as well. Minimum market access volumes were expanded from 3 to 5% of domestic consumption over the implementation period. Rice tariffication was waived and rice became subject to a pure quota. Tariffication of rice is scheduled to be renegotiated during 2004, one year before the end of the implementation period.

Market access commitments were made for 220 agricultural products,[1] and TRQs were created for 190 items,[2] while the rest of the agricultural market was opened with a tariff-only provision. Quota quantities, in-quota tariffs, and bound tariffs for major TRQ products are described in table 1. For some items, the TRQ has already expired. For example, the TRQs for pork, poultry meat, and orange juice were removed in July 1997. The TRQ for beef will expire on December 31, 2000.

After the verification of the country schedule in 1994, 97 of the 190 TRQ items gained approval for additional markups of in-quota imports. Markups were provided for BOP items as well as for tariffication items.[3] Of these 97 markup items, 83 were

[1] This applies to products defined on 10-digit HS codes. The number increased to 242 when the classification method changed. The products remain basically the same.

[2] This is the same as 67 items with 4-digit HS codes (common names). The market access is provided through minimum market access for 104 items and through current market access for 86 items.

[3] BOP items are subject to the following statement. "The Government of Republic of Korea or its designated agencies can take measures consistent with the Agreement establishing the WTO to ensure orderly domestic markets and to designate revenues resulting from the sales of these products in Korea (Note 5 of Tariff Rate Quota-Market Access, The Country Schedule of Korea)." Items under the URAA tariffication are subject to a more explicit statement on the markup. "The Government of Republic of Korea or the designated state trading agent can impose

Table 2. Imports of Major Agricultural Products in Korea: Pre- and Post UR Unit: ton

	1992–94	1995–97	Change (%)
Rice	0	213,780	Not applicable
Barley	0	83,850	Not applicable
Pepper	6,722	14,229	111.7
Garlic	39,396	28,227	−28.4
Onions	61,798	95,200	54.0
Sesame	162,163	174,800	7.8
Soybeans	3,605,822	4,530,000	25.6
Potatoes	0	5,536	Not applicable
Beef	352,119	447,210	27.0
Oranges	2,902	54,685	1,784.4

Source: Ministry of Agriculture and Forestry.

notified as the state-traded products. Among them, some BOP items were given specific time limits for state trading.[4] Beef imports will be provided by the private sector no later than January 2001. Imports of remaining items will be privatized after 2004.

The creation of TRQs under the market access provisions effectively increased agricultural imports (table 2). For example, foreign rice, potatoes, and oranges are now shipped into Korea, while they were previously allowed only in the case of emergent crop failures. Imports of beef, onion, sesame, and pepper also showed substantial increases during 1995 to 1997 compared with the 1992 to 1994 period.

For rice, the import ban was lifted and a minimum market quota was established at 51,307 tons in 1995, increasing to 205,228 tons in 2004. For wheat, for which the market was liberalized before the URAA, the tariff rate is to be reduced from 3% to 1.8% by 2004. The TRQ for corn and corn products is 6,102,100 tons, and the in-quota tariff will decline from 3% to 1.8% by 2004. A TRQ for barley and barley products of 14,150 tons was established and will increase to 23,582 tons by 2004.

For beef, the TRQ expands from 187,000 tons in 1998 to 225,000 tons in 2000. The private portion of TRQ under the simultaneous-buy-and-sell (SBS) system was set to increase by 10% each year, up to 70% in 1999 and 2000, and markup was set to decline from 70% in 1995 to zero in 2000. All nontariff import barriers will be removed in January 2001. The tariff, set at 44% in 1995, will fall to 40% in 2004. For pork and chicken, all quantitative import restrictions were eliminated on July 1, 1997 and tariffs will be reduced annually until 2004.

For dairy products, the TRQ of 23,000 tons of whey was established in 1995, to increase by 10% annually over ten years. On January 1, 1995, imports of all types of cheese, infant formula, and other dairy preparations were put under tariffication at a rate of 40%, to be reduced to 36% over ten years. For oranges, the TRQ is increasing from 28,125 tons in 1998, to 57,017 tons in 2004. The in-quota tariff is 50%, and the out-of-quota tariff of 79.4% in 1999 will be reduced to 50% in 2004. The orange juice import tariff was set at 60% on July 1, 1997.

Japan

Japan is known for high agricultural trade barriers, but Japan's agricultural market was actually less restrictive than Korea's before the UR negotiations. Fewer items are under TRQ programs in Japan than in Korea.

When it joined the GATT in 1955, Japan claimed the right to regulate trade in rice and in some other commodities under the GATT/BOP clause. In 1963, Japan ceased applying the BOP clause, except to some agricultural products, such as rice and beef. Under a bilateral agreement with the United States, quantitative restrictions on the beef market were eliminated in 1988. Under the URAA, Japan converted 28 commodities from nontariff protection to tariffs (IATRC, 1997). TRQs were created for 19 items. Among these, 10 are dairy products, including skim milk powder, whey, and butter (table 3). Other TRQ items are legumes, starches, ground nuts, konnyaku roots, and cocoons. Rice was granted a waiver from tariffication under Annex 5 to the URAA. Annex 5 increased access to the Japanese market from 4% of average annual consumption during 1986–88 (379,000 tons) in 1995 to 8% (758,000 tons) in 2000. However, in April 1999, Japan changed its rice import policy to tariffication with minimum market access. With the tariffication, Japan announced that it would reduce the annual increase in rice imports quota from 0.8% to 0.4% (682,000 tons in 2000) and apply a tariff of 351.17 yen/kg (equivalent to about 450%[5]) in 1999. In-quota rice imports are subject to further markup of up to 292 yen/kg.

markup on sales of these products in Korea in addition to the in-quota tariff (Note 4 of Tariff Rate Quota-Market Access)."

[4] Artificial honey and cocoons were removed from the list of state traded items in June 1996, and silk was removed in June 1997.

[5] This calculation is based on exchange rates on April 1999 and U.S. rice export prices (Dyck et al.).

Table 3. Tariff Rate Quotas, Japan: 1995–2000

	Quota (tons)		Tariff (yen/kg)		
Product	Initial	Final	In-quota	Initial	Final
Rice	379,000	682,000[1)]	Various	361.17[2)]	341
Wheat & processed products	5,565,000	5,740,000	Various	65	55
Barley & processed products	1,326,500	1,369,000	Various	46	39
Starches	157,000	157,000	Various	140	119
Ground nuts	75,000	75,000	10	726	617
Konnyaku roots	267	267	40	3,289	2,796
Legumes	120,000	120,000	10	417	354
Cocoons	798	798	various	2,968	2,523
Raw silk				8,209	6,978
Skim milk powder (school lunch)	7,264	7,264	0	466 + 25%	396 + 21.3%
Skim milk powder (others)	85,878	85,878	Various	466 + 35%	396 + 29.8%
Evaporated milk	1,585	1,585	Various	Various	Various
Whey (feed)	45,000	45,000	0	Various	Various
Whey (infant)	25,000	25,000	10	Various	Various
Butter & butter oil	1,873	1,873	35	Various	Various
Concentrated whey	14,000	14,000	Various	Various	Various
Prepared edible fat	18,977	18,977	25	Various	Various
Other dairy products	124,640	133,940	Various	Various	Various
Designated dairy products	137,202	137,202	Various	Various	Various

1) The original quota quantity in the country schedule was 758,000 tons.
2) For 1999.
Note: Exchange rate was 125 yen/U.S.$ (1995) and about 105 yen/U.S.$ (late 1999).

Quota Administration Methods and Quota Fill Rates

TRQs in Korea are administered in four ways (table 4): (1) first-come, first-served, (2) auction of quota, (3) license on demand, and (4) state trading. License on demand is allocated to designated multiple importers or qualified end-users and to new entrants to the market. Qualification is based on import history. Quota rent goes to the importing firm, and the markup goes to the government. For some items under auction and state trading, part of the quota is allocated with the license on demand. For auctioned products, the government gets the quota rent. State-traded products are administered using open tender, and the STEs get the quota rent.

For any TRQ products (excluding rice), out-of-quota importation is possible. Products with lower out-of-quota tariffs, such as oranges, whey, and butter, have real potential for such importation. In some cases, the TRQ has been expanded for raw materials, feed, and other products. During 1995 to 1998, about twenty product group TRQs were expanded to allow low tariff imports. Corn, soybeans, barley, and sesame have been included every year in this list.

In the following paragraphs, we consider more details on the administration of TRQ for some products important in world trade.

Rice is a state-trading item without out-of-quota imports. The in-quota tariff rate is 5%. The quota is administered by the Ministry of Agriculture and Forestry through an open tender system with sealed bids. For example, the "Invitation for Bids" (Supply Administration of Korea, 1998) contains conditions of contract, specifications, and forms. The tender specifies the 10-digit HS code. The invitation describes the specification and quantity as "Non-glutinous brown rice medium or short grain (Japonica type) in 40 kg Jute bag or P.P. bag; Crop year: 1997 or 1998; Grade: U.S. No. 3 or better for the classes of brown rice; Unit and Quantity: 20,000 M/T net." To be eligible to import, a company's offers are judged as qualified after passing the sample examination. Then the lowest price bidder wins the right to import.

State trading for beef is administered by the Livestock Products Marketing Organization, a subsidiary company of the National Livestock Cooperatives Federation.[6] Rent and markup income from imports are added to the Livestock Develop-

[6] On November 29, 1999, the Ministry of Agriculture and Forestry

Table 4. Classification of TRQ Products by Administration Methods in Korea, 1998

Administration Method	Agricultural Products
First-come, first-served	egg, silkworm eggs, apple trees, mulberry trees, seed potatoes, manioc pellets, sweet potatoes, roots and tubers, rye for seed, oats for seed, corn for seed, grain sorghum for seed, millet, other cereal flours, potato flour, artificial honey, sesame oil cakes, cocoons (18 items)
Auctioning	skim milk powder,* whole milk powder, evaporated milk, chestnuts, jujubes, sesame oil* (6 items)
License on Demand	live bovine, live swine, live fowls, whey, butter, bone powder, manioc, green tea, malting barley, corn, malt, wheat starch, potato starch, manioc starch, sweet potato starch, soybeans (feed), forage products, lactose, ethyl alcohol, meat pellets, other mixed feeds, supplementary feeds, white silk (24 items)
State Trading	beef,* natural honey,* potato, onions,* garlic,* red pepper,* oranges,* Korean citrus,* beans, pine nuts, ginger,* barley,* rice, buckwheat, soybeans (edible),* ground nuts, sesame, ginseng (18 items)

*Part of TRQ is imported by private trading companies with import licenses. Note: Korea notified 67 agricultural products as TRQ commodities in 1994. Pork, chicken, and orange juice were removed from the list as of July 1, 1997.
Source: Country Schedule of the Republic of Korea

ment Fund. An invitation for bids in 1998 included the following contents: Commodity: Frozen beef (Primal cuts packaged in a carton must be able to store under optimal conditions under −18°C for up to 24 months); Quantity: 9,323 M/T; Origin: USA, Canada, Sweden, Denmark, Japan, New Zealand, Australia, Finland, Mexico; and Netherlands; and Qualification: Registered with the Korean Foreign Trade Association and also with Livestock Products Marketing Organization, at least one day prior to the tender date.

The orange TRQ is administered by the Cheju Citrus Growers Agricultural Cooperative. To avoid competition, imports are allowed only for the season during which no local mandarins are in the market. So far there have been no out-of-quota imports. In 1997, around 38 billion won (about $40 million at the 1997 exchange rate of 951 won per U.S.$) was collected for research and development and for purchasing sub-quality mandarins. The quota rent was equivalent to about 5% of the total revenue (about $753 million) from mandarins.

announced that it would administer the state trading of beef imports by auctioning during 2000.

Table 5. Classification of TRQ Products by Administration Methods in Japan

Administration Method	Agricultural Products
License on Demand	skim milk powder (school lunch), skim milk powder (others), evaporated milk, whey for feed, whey for infant formula, butter and butter oil, mineral concentrated whey, prepared edible fat, other dairy products, legumes, starches, ground nuts, konnyaku roots (13 items)
State Trading	designated dairy products, wheat and processed products, barley and processed products, rice, raw silk (5 items)

Source: Country Schedule of Japan

In Japan, imports under TRQs are managed by import licensing and state trading (table 5). Quantities under import license are allocated by the Ministry of Agriculture, Forestry, and Fisheries to private importers, based on historical business records and business plans. For imports of pork, a differential tariff system similar to the repetitive levy of the European Union is allowed (IATRC, 1997). For some products, such as whey, butter, and ground nuts, the quantities of in-quota tariff imports were increased by applying the higher, final-year quota quantity to the initial year of implementation.

The average quota fill rate for TRQs in Korea during the period 1995 to 1998 was 113% (table 8). During the same period, Japan showed an average fill rate of 87%. Fill rates varied with management methods. In Korea, the auction method had the lowest fill rate (71%) followed by the first-come, first-served fill rate (79%). License on demand had the highest fill rate (156%). An average fill rate for products under state trading was 146% during the same period. In Japan, the average fill rate for products imported under licenses was 60% and the average fill rate for products under state trading was 113%. Individual commodity fill rates in Korea and Japan are presented in tables 6 and 7.

For commodities using the first-come, first-served method, the relatively low fill rate could be

Table 6. Korean Quota Fill Rates for Selected Products, 1995–1998 Unit: %

Commodity	1995	1996	1997	1998	Average
Rice	100.0	100.0	100.0	100.0	100.0
Barley	99.6	286.5	148.8	253.7	197.2
Corn	145.9	142.0	136.3	116.6	135.2
Soybeans	141.7	140.1	150.5	135.4	141.9
Potatoes	0.0	5.5	37.5	39.2	20.6
Onions	100.0	304.9	96.6	100.0	150.4
Garlic	76.9	81.5	100.0	100.0	89.6
Red pepper	99.5	97.0	76.2	98.9	92.9
Oranges	99.9	100.0	96.6	97.0	98.4
Ground nuts	121.6	98.9	95.1	98.3	103.5
Sesame	622.6	1,017.3	965.8	802.3	852.0
Beef	100.0	102.6	91.0	47.4	85.3
Pork	100.0	100.0	100.3	N.a.*	100.1
Poultry	74.7	94.6	101.1	N.a.*	90.2
Skim milk powder	100.0	97.4	100.0	99.6	99.3
Whole milk powder	100.0	4.3	100.0	19.0	55.8
Whey	100.0	59.7	0.0	0.0	39.9
Butter	100.0	99.7	100.0	100.0	99.9

N.a.: Not applicable
Source: Calculated from notifications to Committee on Agriculture, WTO.

Table 7. Japanese Quota Fill Rates, 1995–1998 Unit: %

	1995	1996	1997	1998	Average
Rice	100	100	100	100	100
Wheat and processed products	107	110	109	103	107
Barley & processed products	129	117	109	117	118
Starches	70	78	76	69	73
Ground nuts	55	55	57	57	56
Tubers of konyaku	73	99	88	58	80
Dried leguminous vegetables	96	95	87	94	93
Skim milk powder (school lunch)	58	64	56	52	58
Skim milk powder	49	40	44	38	43
Evaporated milk	42	49	52	90	58
Whey for feed	45	50	54	46	49
Prepared whey for infant formula	29	35	40	34	35
Butter & butter oil	27	20	23	20	23
Mineral concentrated whey	14	10	11	16	13
Prepared edible fat	100	99	99	98	99
Other dairy products	92	93	99	93	94
Designated dairy products	181	97	155	100	133
Cocoons & raw silk	131	111	67	45	89

Source: Calculated from notifications to Committee on Agriculture, WTO.

the result of weak import demand. In some cases, neither the in-quota tariff nor the quota quantity was binding. For the state-traded commodities, the tendency was to implement commitments precisely, because state-traded commodities are generally those considered politically important by the governments of Korea and Japan as well as by exporting countries.

The Role of State Trading Enterprises

Korea

Seven importing STEs handle seventeen agricultural products in Korea (table 9) (Choi et al. 1998). The STEs, except for the Cheju Citrus Growers Agricultural Cooperative and the National Ginseng Cooperatives Federation, are not involved in exporting any of the commodities they handle. TRQs allocated to the state trading enterprises contributed significantly to increased imports of those products.[7]

The Ministry of Agriculture and Forestry is the designated importer for the TRQ of rice and barley. Private companies registered with the government participate in bidding and the lowest bidder meeting minimum quality or other requirements wins the right to supply. As a result of straight price-bidding, low-quality rice has been imported from India, China, and Thailand during the period 1995 to 1998. Imported rice is sold through an open auction system to rice processors or is stored.

Barley is imported directly by private animal feed manufacturers who acquire import licenses from the Ministry of Agriculture and Forestry. Since imported barley is used mostly for feed manufacturing, it does not compete with domestically produced barley.

The Agricultural and Fishery Marketing Corporation is designated to administer the TRQs of ten state traded items: pepper, garlic, onions, sesame, ground nuts, edible soybeans, beans, buckwheat, ginger, and potatoes. For these items, a large gap exists between international and domestic prices. Private importation would have induced windfall profits and confronted domestic sellers with competition from low-priced imports. Established in 1967, the Agricultural and Fisheries Marketing Corporation is a semi-governmental organization that trades and stores in the domestic market. For

[7] It is not clear, however, that the STEs generally show higher fill rates than the private sector. For example, beef imported both through the STE and through private traders in 1998 equaled about 47% of the committed quantity. The market situation was not favorable to imported beef due to low demand and high dollar value, reflecting the financial crisis. We note that exporters disputed this situation.

Table 8. Quota Fill Rates by Management Methods, 1995–98

	First-come, first-served	Auctioning	License on Demand	State Trading	Average
Korea	79%	71%	156%	146%	113%
Japan	n.a.	n.a.	60%	113%	87%

n.a.: Not applicable.
Note: The numbers are a simple average, not trade weighted or domestic market weighted. So, for example, rice receives the same weight in the table as sesame.
Source: Author calculations.

imports, it publicly solicits bidding. The announcement includes the item name, delivery data, quantity in tons, and the arriving harbor. There is little restriction on participation in the bidding. Among import items, some sesame and ginger are imported by the private sector. Also, part of the soybean import quota is imported by the recommended end-users. The corporation sells the imported items through the auction system in the public wholesale market. Domestic prices, determined by the auction, tend to be lower than local product prices, due to quality differences.

State trading of beef TRQ lasts until beef market tariffication. Part of beef TRQ is imported by open bidding administered by the Livestock Products Marketing Organization. The remaining beef is imported by the private sector through the SBS system. Under the SBS system, beef is imported directly by the wholesalers/end-user group. The proportion of TRQ quantity imported under the SBS system increased from 30% in 1995 to 70% in 2000. Domestic sale price is determined through auction in the wholesale market or by the importing STE, taking import costs and domestic price into account. The National Livestock Cooperatives Federation (natural honey), the National Ginseng Cooperatives Federation (ginseng), and the National Forestry Cooperatives Federation (pine nuts) operate in a manner similar to other importing STEs.

Japan

Japan reported six STEs to the WTO.[8] Among these, four import agricultural products.[9] The Food Agency administers Japan's market access commitments for rice, wheat, and barley. The Livestock Industry Promotion Corporation managed TRQ imports of dairy products such as milk powder, condensed milk, buttermilk powder, whey, and butter. The Japan Raw Silk and Sugar Price Stabilization Agency administered the TRQ of raw silk until October of 1996, when the two STEs merged into the Agriculture and Livestock Industries Corporation.[10] The Japan Tobacco Inc., now a private agency, imports leaf tobacco (table 10).

Table 9. Korean Importing STEs and Traded Commodities

State Trading Enterprise	Commodity
Ministry of Agriculture and Fisheries	rice, barley
Agriculture and Fishery Marketing Corporation	pepper, garlic, onions, sesame, ground nuts, soybeans, beans, buckwheat, ginger, potatoes
Livestock Products Marketing Organization	beef
National Livestock Cooperatives Federation	natural honey
Cheju Citrus Growers Agricultural Cooperative	oranges
National Ginseng Cooperatives Federation	ginseng
National Forestry Cooperatives Federation	pine nuts

Source: Country Schedule of the Republic of Korea

State trading activities are based on legislated import rights and, in some cases, by specific monopoly rights over domestic production and distribution, as is the case with tobacco products and Japan Tobacco Inc. STEs still monopolize imports of several commodities and limit imports into Japan.

The Food Agency, the largest STE in Japan, monopolizes import and domestic markets of rice, wheat, and barley, although public traders are allowed to import if they pay import duties. The stated reason for maintaining an importing STE in rice, wheat, and barley is "to stabilize supply and demand situations of prices for such staple foods and for promoting stability of national life and economy" (Japan's notification to WTO). The Food Agency collects prior information on the demands for rice by type and origin and allocates the TRQ to exporting countries based on that information. Actual imports are administered by open tender under the SBS system, whereby importers and wholesalers offer simultaneous tenders for the buy-

[8] WTO, G/STR/N/1/JPN, 22 August 1995.

[9] Japan's Ministry of Health and Welfare and Ministry of International Trade and Industry (MITI) are STEs for opium and alcohol, respectively.

[10] WTO, G/STR/N/2/JPN, 30 October 1996.

Table 10. Japanese Importing STEs and Traded Commodities

State Trading Enterprise	Commodity
Food Agency	rice, wheat, barley
Agriculture and Livestock Industries Corporation	designate dairy products, raw silk
Japan Tobacco Inc.	leaf tobacco, salt
Ministry of Health and Welfare	opium
Ministry of International Trade and Industry	alcohol

Source: Country Schedule of Japan

ing and selling prices of each variety of rice.[11] As a result, the United States, Australia, Thailand, and China were the major suppliers of rice to Japan in 1998. The minimum share of SBS mandated in the URAA increased from 3% in 1995 to 19% in 1998.

Leaf tobacco markets were opened in 1985, but effective control over trade in tobacco continues to be exercised by Japan Tobacco Inc. through its monopoly rights as the sole domestic producer of tobacco products. Although private traders can import leaf tobacco, the existing monopoly renders all importers of leaf tobacco dependent on its subsequent purchase by the Japan Tobacco Inc.

Private traders can import dairy products and raw silk, subject to out-of-quota tariffs. The Agriculture and Livestock Industries Corporation collects the tariffs and inspects the quality and safety of imports. As with rice, markups on designated imported dairy products are bound by the Country Schedule of Japan. The bound markups were reduced by 15% between 1995 and 2000. Domestic sale prices for dairy products and raw silk are based on import prices, management costs, and domestic prices for dairy products.

Welfare Implications of TRQ Administration

Different methods of allocating import quantities may have different implications for consumers, producers, importers, and for revenue from quota. They may also have different implications for exporters. Restricting import quantity creates import quota rents and raises the issue of who receives those rents.

Contrast the quota auction used for non-STE products with the low price bid used for rice and other STE items in Korea. With an auction, the government maximizes revenue earned from the restriction on import quantity, and the specific qualities and product characteristics reflect the highest offer. Note that the outcome in this case is the same as if the tariffs were set at the quota auction price.[12] A system that offered imports to the low-price seller would have identical results only if there were no product or supplier quality variations within the quota category. The low-price bid system encourages minimum quality within a category, not the quality for which Korean customers would pay the largest differential. Thus these two systems may have quite different allocative and distributional outcomes.

Korea seems to pursue multiple objectives in its TRQ administration, while abiding by the obligations of its URAA commitments. The four objectives that we have identified are to:

1. maximize revenue (STEs, markup, quota auction) or rent (license on demand);
2. maximize farm profit or minimize damage to farmers from a given import quantity;
3. minimize domestic market price variability; and
4. maximize social welfare.

The Trade Policy Review Body for Korean agriculture stated that "ongoing reforms have been driven mainly by external requirements, rather than efficiency considerations or consumer welfare (WTO, p. 3)." The unstated background condition is that the farm constituency has been primary. Protection policy has continued with implementation of the URAA. The Ministry of Agriculture and Forestry states that "for state trading products, the import season is adjusted with flexibility so as to minimize conflicts with domestic production and to mitigate undesirable effects of imports. Revenues from the operation of STEs and quota auction are added to funds for rural projects. In 1997, revenue from STEs was about 375 billion won ($394 million) and quota auction revenue was 25 billion won ($26 million)" (MAF 1998).

Two main issues relate to the administration of a TRQ. First, internationally, is it administered with commercial considerations on a Most Favored Nation (MFN) basis? Second, what are the domestic welfare implications, especially given that domestic issues are affected by who gets the quota rent and how alternative methods of TRQ administration influence producer and consumer surplus?

Internationally, as is pointed out by Josling et al.

[11] In the Japanese rice SBS, buyers and sellers propose a quantity and price of rice to be exchanged. The Food Agency then examines all bids, choosing those that have the widest margin between the proposed selling and buying prices. The agency keeps the margin (Dyck et al. 1999).

[12] This requires a static-world assumption.

Table 11. Projected Prices and Quantities Before and After Rice Access in Korea

	Autarky	With Imports
Processing Rice		
Import Price	—	300$/ton
Domestic Price	1,466$/ton	733$/ton (−50% change)
Domestic Production	100,000 tons	33,000 tons (−67% change)
Total Supply	100,000 tons	133,000 tons (+33% change)
Table Rice		
Import Price	—	550$/ton
Domestic Price	1,910$/ton	1,879$/ton (−1.6% change)
Domestic Production	4,900,000 tons	4,821,000 ton (−1.6% change)
Total Supply	4,900,000 tons	4,921,000 ton (+0.4% change)

Note: $\eta_{low} = 1.0$; $\eta_{high} = 0.25$; $\epsilon_{low} = \epsilon_{high} = 1.0$. ($\eta$: demand elasticity; ϵ: supply elasticity; Low: low quality market; and high: high quality market).

(1996), "the test of commercial behavior is unlikely to be conclusive. . . . The solution to this problem is likely to rest in the direction of a meshing of national antitrust legislation, international codes, and the new provisions on anti-dumping, subsidies, and dispute settlement procedures that have now been incorporated into the GATT/WTO." The quotation focuses on the STEs, but it can also apply to the overall TRQ administration. From the administrator's point of view, TRQs must be administered transparently and fairly enough to conform to the international rules.

Korea's TRQ practices for rice and oranges serve as interesting cases. For rice, the government's main objectives have been to minimize impacts on the domestic market and on producers. It was politically important for the government to keep the promise of mitigating the adverse impacts of market access. With the operation of open tender and price bidding, low-quality rice was imported and used for manufacturing purposes between 1995 and 1998. Imported rice was separated from the domestic table rice market by selling it through public auctions to rice manufacturers. To minimize producer losses, the government chose the import product quality with the minimal cross-price elasticity.

Quota administration for Korean rice imports shows how seemingly open systems can work to the opposite result. The Korean system of allocating the minimum access import quota among potential suppliers appears to be open and competitive. Since there had been no imports prior to liberalization, no historical market shares could serve as referents. Indeed, if the internal prices of goods from alternative exporters were equal, then the lowest bid would be selected in a purely competitive market. That is, maximizing quota rent would select the same result as minimizing supply price.

In this case, the Korean government did not specify a particular set of quality characteristics for imports to minimize effect in the domestic market. Instead, knowing the characteristics of the domestic market, they were able to open the quota to competitive bidding while keeping the relevant domestic market closed. By doing so, minimum loss in the domestic producer surplus was attained at the cost of foregoing substantial consumer gains and import quota revenue.

We can assess the impact of alternative quota import rules by investigating how importing rice entering into the two different markets affects welfare within Korea (Sumner and Choi 2000). We use data for the three-year period during 1995 to 1997 as our starting point. Two observations are useful to note. First, the market for processing rice in Korea accounts for only about 2% of total rice consumption. Second, the domestic price in this market is *only* about 144% or $433 per ton above the import offer price, compared with about 265% or $1,460 per ton above the import offer price in the table rice market (see table 11). These facts mean that a minimum import price rule will always select rice for the processing market and that to maximize quota rent, all imports will be allocated to the high-quality market. Further, given the large size of the table rice market relative to the size of the quota, minimizing producer surplus losses drives all imports to the low quality processing rice market. Indeed, given the relative prices and sizes of the two markets, it is optimal to allocate the entire quota to one market or the other under each of Korea's alternative objectives to: maximize quota revenue; minimize producer surplus loss; maximize quota revenue plus producer surplus loss; or maximize net welfare.

Table 11 shows initial prices and quantities and the changes implied by imports into each market under the baseline set of supply-and-demand elasticities. Table 12 provides the welfare effects of

Table 12. Changes in Market and Welfare Measures with Rice Imports: Korea

	Into the Low Quality Processing Rice Market	Into the High Quality Table Rice Market
Change In: (Change as Percentage of Rice Total Revenue)		
Total Revenue	−1.5	−3.2
Quota Rents	0.5	1.4
Producer Surplus	−0.2	−1.6
Quota Rents plus Producer Surplus	0.3	−0.2
Consumer Surplus	0.3	1.6
Net Welfare	0.6	1.4
Net Welfare with Deadweight Cost of taxation (=0.2)	0.7	1.7

Note: $\eta_{low} = 1.0$; $\eta_{high} = 0.25$; $\epsilon_{low} = \epsilon_{high} = 1.0$. ($\eta$: demand elasticity; ϵ: supply elasticity; Low: low quality market; and high: high quality market).

allocating the import quota to the processing rice market by purchasing from the low price bidder or allocating it to the table rice market by opening the import decision to competition. To aid comparison and better understand the magnitude of these impacts, all changes are expressed as a percentage of the total revenue in the total Korean rice market (about $9.6 billion in the years 1995 to 1997). Under the assumptions on elasticities described in table 12, if the import quota were shifted from the processing rice market to the table rice market, the quantity of domestic supply and market price for table rice in Korea would each fall by about 1.6%. We examined the sensitivity of the results to alternative parameters and found that none of our basic conclusions change over a relatively wide range of elasticities. The main point that stands out from these tables is that the size of the two markets dominates the percentage results.

As we knew from looking at the price differentials, quota revenue earned by Korea is much larger if the quota is allocated to the table rice market. But, as shown in table 12, producer surplus loss is much greater if the quota is allocated to the table rice market rather than being segregated into the processing market (−1.6 compared with −0.2). The sum of quota revenue and producer surplus loss shows that quota rent is large enough to compensate farmers if the quota is allocated to the low quality processing market. But if the quota were to be reallocated, the sum of these two effects is negative (0.3 compared with −0.2). Thus, by ignoring consumers, which seems a fair representation of the key features of Korean rice policy, the government may be quite sensible in allocating the quota as it does.

When we do consider consumer surplus gains and net welfare effects, allocation to the high-quality table rice market is optimal. This net welfare statement is a bit stronger if we allow for a deadweight cost of raising government revenue. By allocating its import quota of 100,000 tons to the processing rice market, Korea is giving up welfare in the range of about 1% of total rice revenue, or about $100 million. That is a social waste of about $1,000 for every ton of rice imported, approximately equal to the loss in quota revenue per ton.

Next let us consider reallocation of quota from the processing market to the table rice market while allowing for interaction with the domestic rice policy, under which producers have an option to sell 20% of their crop to the government at about 110% of market price. We may fairly assume that this program applies to the table rice market, and let us initially assume that the government leaves the purchase quantity and price unchanged. If the quota were allocated to the table rice market, the market price decline of 1.6% would lead to an increase in budget cost of the rice policy. Since the government purchase price is set at 1.1 times the original market price, the price falls, which affects the government resale price, and raises the cost of the government program by 15%, from about 2% of total rice market revenue to about 2.3%. The net effect on the government budget of this quota reallocation is this outlay change plus the change in quota revenue, or about 0.6% of total rice revenue ((1.4 − 0.5) − 0.3).

With the domestic rice policy, producer surplus falls by 1.3% of total revenue (−1.6 + 0.3) or 1.1% more than when the quota was allocated to the processing market. Finally, given the nature of the domestic rice policy, it would be relatively easy to leave producers unaffected from the shifting of import quota by simply increasing the transfer from the rice policy. This approach could be used to analyze the potential impacts of raising the quantity of the import quota as well.

We show that the current system of minimizing the import price, by steering imports to the low-quality market, saves producers approximately 1.1% of total rice revenue in surplus losses (which was about U.S. $9.6 billion in the years 1995 to 1997). It also lowers quota revenue by about 0.9% of total rice revenue (about $86 million) and reduces consumer surplus gains by 1.3% of total rice revenue (about $125 million). Further, the loss of producer surplus that would occur if imports were shifted from industrial to table rice would be larger than the gain in quota rents. Thus, it would not be possible to compensate farmers for such a shift using quota rent alone (Sumner and Choi 2000).

Summary and Conclusion

Import policies in both Japan and Korea seem designed to minimize the impacts of imports on domestic markets in which domestic farms also compete, subject, of course, to the URAA and the WTO rules. TRQs are allocated partly through the STEs, but private firms import many agricultural products.

In Korea, TRQ administration follows four paths: (1) import on the basis of first-come, first-served; (2) auctioning import licenses to the highest bidder among private firms; (3) license on demand; or (4) administration by STEs that were previously responsible for price stabilization and other intervention measures. Despite elaborate policies still in place that limit import access, the TRQ contributed significantly to market access and resulted in increased imports into Korea. Japan administers its TRQ through both license on demand and state trading.

Generally, STEs in Korea and Japan operate as importers of items with large international-domestic price gaps and for which the domestic crop is economically important for farmers. For example, rice, beef, oranges, and other horticultural crops in Korea, and rice, dairy products, and leaf tobacco in Japan, are major agricultural commodities imported through STEs. The operations of STEs, including purchasing, selling, pricing, and revenue handling have been reasonably transparent.

Our analysis presents that state-traded products show the higher fill rate. It may seem ironic, therefore, that the United States and other exporters have targeted STEs for particular scrutiny in the next round of WTO negotiations. If fill rates are a useful measure of administrative barriers to openness, it is other TRQ methods that should be cause for concern. In fact, fill rate is only one part of the story; how the quota is filled is also important. Our analysis and others (de Gorter and Boughner 2000) show that variation in product type, season, and import supplier may all be crucial to understanding fill rates and the degree to which liberalization has occurred.

Welfare implications of specific TRQ allocation methods require individual case studies. For example, since the government or STE tends to choose commodity characteristics that minimize the effects on prices received by domestic farmers, it is necessary to measure cross-price elasticities to quantitatively assess how distorting this practice is on international trade. In addition, international political pressure may affect STE behavior more than it would affect private importers. Rice provides an instructive example of the interplay between domestic and international politics.

Both Korea and Japan strictly implemented the URAA commitments on rice. However, several issues arose from how these countries managed quotas. The STEs of both countries kept most imported rice away from domestic consumers. The Food Agency of Japan allocated rice across national suppliers with results roughly mimicking commercial trade. Japan also used markups to keep imported rice away from domestic consumers. In Korea, rice has been imported through tenders where the lowest bidder wins. This results in low-quality rice imports from suppliers who were unlikely to have been successful in commercial trade.

The fill rate of beef TRQ quota after the financial crisis in Korea raises another situation that warrants critical consideration. In 1998, Korea's quota fill rate was about 47% for both STE importer and the private traders through the SBS system. Is this a coincidence of commercial outcomes, or a result of internal coordination? This outcome is difficult to judge and may only be resolved through the WTO dispute settlement process. In general, the concern is that private firms may face subtle but effective domestic persuasion to curb imports or behave in ways consistent with government policy. With China joining the WTO, this issue is likely to grow in importance.

In summary, while the TRQs have contributed to increased imports of major agricultural products in both Korea and Japan, problems with transparency and commercial considerations in administering the TRQs remain. Access for some commodities seems to be less open than would be the case if quota amounts were made available on a commercial basis. As a result, consumer benefits are reduced, and allocation across import suppliers has been affected. The next round of WTO negotiations will face these issues if quantitative market

access is to improve in the interim while tariffs are reduced. Subsequent meetings will also face STE issues regarding possible manipulations within approved market methods and the ways to encourage market results through market mechanisms rather than political considerations.

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