

Rice Tariffication in Japan : A General Equilibrium Analysis

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Introduction

- Objectives of this analysis are:

1. the impact of Japan's rice import tariffication.

2. To provide a quantitative assessment of global market access liberalization in rice sector by Japan, Korea, China and Taiwan.

Overview the rice market in the world

World rice production : Selected countries or regions (table 1)

Country or region	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01
production	Million tons									
Bangladesh	27.4	27.5	27.1	25.3	26.5	28.3	28.3	29.8	34.6	36.5
Burma	12.8	13.4	15.1	16.0	17.0	15.5	15.3	16.0	17.0	17.0
China	183.8	186.2	177.7	175.9	185.2	195.1	200.7	198.7	198.5	187.9
India	112.0	109.3	120.5	121.8	119.4	112.0	123.8	129.0	134.2	129.5
Indonesia	48.2	48.2	46.6	49.7	51.1	49.4	49.2	50.4	52.9	50.6
Japan	12.0	13.2	9.8	15.0	13.4	12.9	12.5	11.2	11.5	11.9
Philippines	9.1	9.5	9.9	10.5	11.2	11.2	10.0	10.3	12.0	12.5
South Korea	7.4	7.3	6.4	6.9	6.4	7.1	7.4	6.8	7.1	7.2
Taiwan	2.3	2.1	2.2	2.1	2.1	1.9	2.0	1.9	2.0	1.9
Thailand	20.4	19.9	19.2	21.4	21.8	20.7	23.5	23.6	25.0	25.5
Vietnam	22.2	21.2	24.3	24.6	26.8	27.3	28.9	30.5	31.7	31.0
USA	7.2	8.1	7.1	9.0	7.9	7.8	8.3	8.4	9.3	8.7
EU	2.3	2.2	2.0	2.2	2.1	2.6	2.7	2.7	2.7	2.4
World total	525.1	526.9	526.8	540.1	551.3	563.4	574.2	585.6	607.3	589.2 ⁴

Overview the rice market in the world

— the global rice trade market (2)

World rice Exports of selected countries or regions (table 2)

Unit: 1000 tons.											
Country or region	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Exports:	(milled basis)										
Australia	450	511	540	570	519	562	641	547	662	617	600
China	689	933	1,374	1,519	32	265	938	3,734	2,708	2,951	1,800
Vietnam	1,048	1,914	1,594	2,222	2,315	3,040	3,327	3,776	4,555	3,370	3,600
India	711	577	609	615	4,179	3,549	1,954	4,666	2,752	1,449	1,600
Pakistan	1,297	1,358	937	1,399	1,592	1,677	1,982	1,994	1,838	2,026	1,900
Taiwan	229	188	101	117	200	92	71	55	113	120	90
Thailand	3,988	4,876	4,971	4,720	5,891	5,281	5,216	6,367	6,679	6,549	7,000
EU	391	376	153	185	323	318	372	346	348	308	350
USA	2,199	2,112	2,725	2,793	2,993	2,625	2,304	3,156	2,648	2,756	2,650

Overview the rice market in the world

World rice imports of selected countries or regions (table 2)

Unit: 1000 tons.

Country or region	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Imports :	(milled basis)										
China	485	511	568	1,301	2,297	1,178	657	573	504	552	615
Indonesia	192	534	22	1,120	3,011	1,029	808	5,765	3,729	1,500	1,300
Japan	34	17	229	2,264	409	466	544	632	653	693	700
Malaysia	367	569	385	317	402	573	645	630	617	596	600
North Korea	194	10	112	53	683	195	272	250	159	400	550
EU	481	480	444	725	762	952	844	787	784	852	800
Canada	186	175	182	190	214	225	239	245	248	280	260
USA	164	177	206	265	228	279	317	300	357	308	315
Mexico	173	377	275	269	239	307	289	295	342	415	425
World rice trade total	12,200	14,300	15,000	16,300	20,800	19,700	18,818	27,670	24,925	22,896	23,030

Rice imported by Japanese Food Agency <Government Import>

(unit: 1000 tons)

Origin country	1995	1996	1997	1998	1999	2000
USA	194	215	273	302	313	330
Thailand	95	128	135	135	142	149
Australia	87	81	86	102	105	108
China	32	40	44	72	77	88
Other	0	1	8	22	17	17
Total	409	466	544	632	653	693

Note: sum of each column may not equal to the total due to rounding

**Rice import quantity by private traders
under the secondary tariff over the
import exceed the minimum access**
<Private import>

(unit: ton)			
Year	1999	2000	2001
Number of cases	128	159	155
Import Quantity	225	98	69

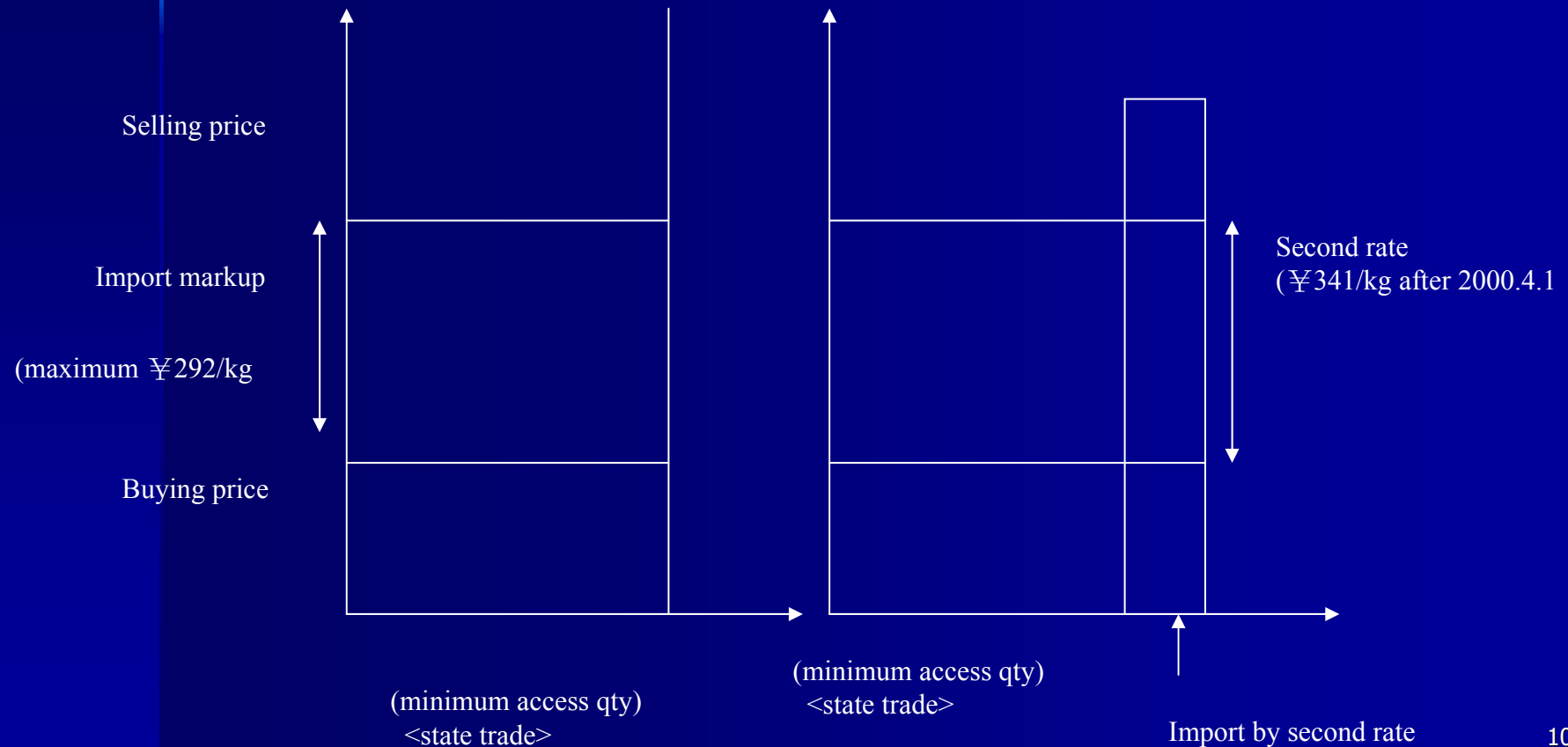
Japan's Rice Import Policy

- Rice is the major crop and staple food in Japan
- Recent hot issues on Japan's rice policy
 - market open
 - domestic support

The Mechanism of Switching to Rice Tariffication in Japan

(Old system)

(after tariffication)



Comparison of MA quantity before and after introducing the TRQ system

Case where special measures
is maintained until 2000
852000mt

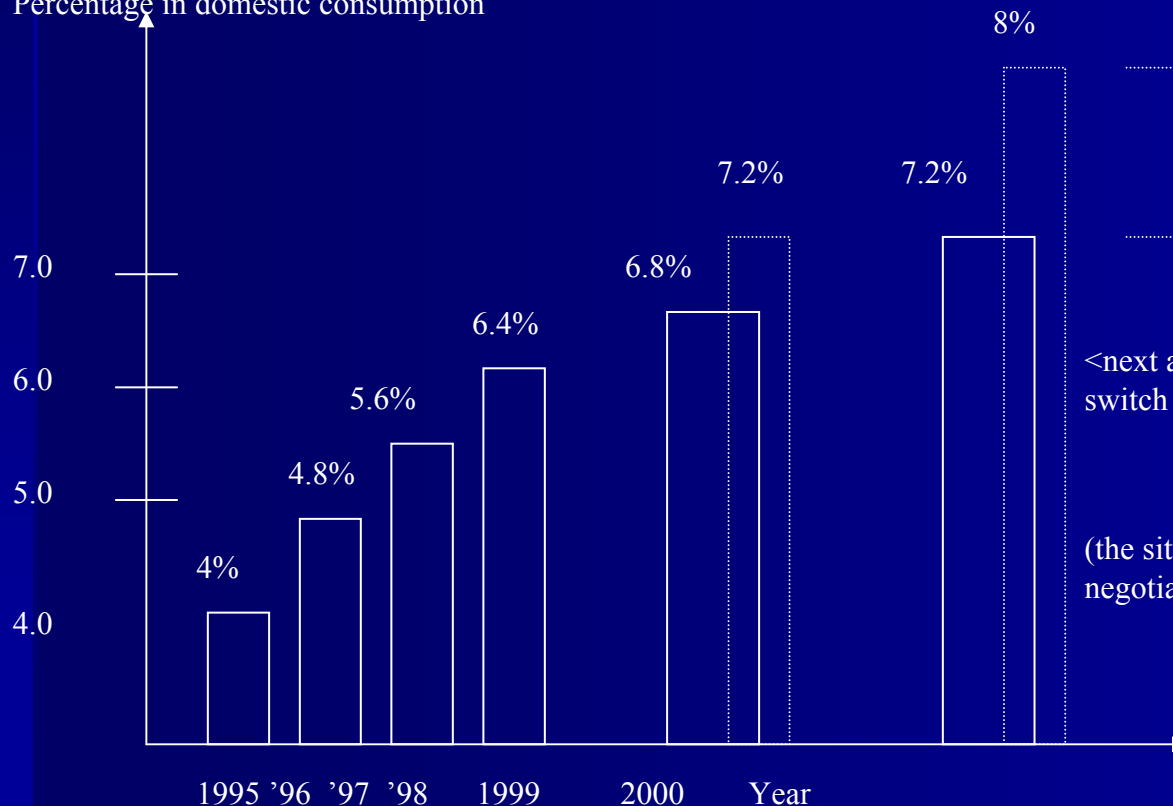
Negotiate to continue the
special measures in 2000

2000~(8%+열

Additional
concession

85000mt

Percentage in domestic consumption



85000mt

<next agricultural negotiation>
switch to tariffication in April 1999. 767000mt

(the situation in 2000 is maintained during the
negotiation period)

Comparison of MA quantity before and after introducing the TRQ system

	Unit: 1000 mt, paddy					
	1995	1996	1997	1998	1999	2000
MA quantity						
After switching to TRQ	426	511	596	681	724	767
Continue MA until 2000					767	852

The TRQ Model

- This research is based on a TRQ model implemented within an CGE model--GTAP conducted by Elbehri and Pearson (2000)
- This study differs from Elbehri and Pearson in the following areas:
 - Commodities and country aggregations
 - Closure specifications
 - Shock levels
 - Several modifications in inputs files for consistency

Data sources

- Version 5 GTAP database
- FAO database
- AMAD database

Data Aggregation

- **8 commodities:**

paddy rice, processed rice, vegetables & fruits, other agricultures, food processing, natural resources, manufacturing, and services.

- **14 regions:**

Australia with New Zealand, Japan, Korea, Philippines, India, Thailand, China (include Hong Kong), Taiwan, Indonesia, Malaysia, Vietnam, NAFTA, EU, and all other regions.

Simulation for Japan's rice tariffication -- from 2002 to 2004

Rice import regime data for the Japan, Korea, China and Taiwan

Country\Year	Quota (mt)		In quota tariff	Out of quota tariff	
	2002	2004		2002	2004
Japan	682,000	833,000	free	341 yen/kg	309yen/kg
Korea	142,520	205,228	5%	Minimum Access	
China					
short and medium grain	1,662,500	2,660,000	1%	50%	
long grain	1,662,500	2,660,000	1%	50%	
Taiwan*	144,720	159,192	free	Minimum Access	

Scenario Design -- S1

- Lowering over-quota tariffs for TRQ imports and an increase in the MA commitments for Japan, Korea, Taiwan and China.
- This scenario is used as a baseline for calculating Japan's rice tariff equivalent.

Scenario Design -- S2

- Complete rice tariffication for Japan
-- no quota, but in-quota tariff is endogenously solved to be 114% when the increase in Japan's rice import is set to be the same as that in scenario S1.
- Other countries are assumed to stay the same TRQ scheme as those in scenario S1.

Scenario Design -- S3

- Complete rice tariffication for Japan -- no quota, but in-quota tariff is raised to 120%.
- Other countries are assumed to stay the same TRQ scheme as those in scenario S1.

Scenario Design -- S4

- Complete rice tariffication for Japan
-- no quota, but in-quota tariff is lowered to 110%.
- Other countries are assumed to stay the same TRQ scheme as those in scenario S1.

Simulation Results

Rice import effects by S1 (2002 to 2004) (1)

Unit: million \$U.S. (%)

Exp\Imp	Japan	Korea	China	Taiwan	Total
Australia	13.63 (22.28)	0.02 (25.95)	4.56 (0.47)	0.00 (-0.15)	85.63 (8.01)
Japan	--	1.39 (30.14)	-0.81 (-1.82)	0.96 (9.80)	3.27 (2.97)
Korea	0.95 (22.11)	--	-0.51 (-3.16)	0.28 (9.97)	1.85 (4.39)
Philippines	0.73 (22.27)	0.45 (25.92)	-0.43 (-4.32)	0.07 (10.12)	1.15 (3.89)
Thailand	9.15 (23.89)	0.07 (11.33)	1,990.94 (62.33)	-0.02 (-13.37)	383.92 (10.33)
China	5.25 (22.04)	2.52 (28.80)	--	0.68 (9.91)	13.28 (2.23)
Taiwan	0.39 (22.14)	0.20 (27.43)	4.62 (60.00)	--	1.21 (6.93)

Simulation Results

Rice import effects by S1 (2002 to 2004) (2)

Unit: million \$U.S. (%)

Exp\Imp	Japan	Korea	China	Taiwan	Total
Indonesia	4.26 (22.17)	2.55 (27.35)	-2.09 (-3.61)	0.40 (10.03)	7.78 (4.66)
Malaysia	0.53 (22.48)	0.29 (24.09)	-0.41 (-5.76)	0.04 (10.30)	0.55 (2.67)
India	0.45 (22.15)	1.25 (27.41)	0.24 (5.84)	0.00 (9.76)	2.56 (0.25)
Vietnam	0.06 (22.23)	0.00 (27.20)	-3.84 (-4.04)	0.07 (10.08)	3.16 (0.67)
NAFTA	31.31 (22.15)	6.06 (27.42)	45.23 (60.01)	-0.01 (-0.12)	33.74 (3.85)
EU	0.50 (22.18)	0.29 (27.31)	-0.28 (-3.69)	0.05 (10.04)	5.10 (0.62)
ROW	5.76 (22.15)	8.03 (27.41)	59.70 (60.01)	1.23 (10.01)	12.39 (0.92)
Total	73.74 (22.61)	22.92 (27.27)	2,487.32 (52.05)	3.67 (8.40)	357.20 (3.46)

Japan's rice import effects by regions (1)

Unit: million \$US

	S1	S2	S3	S4
Australia	13.63 (22.28)	11.47 (18.76)	-3.45 (-5.63)	27.28 (44.61)
Korea	0.95 (22.11)	1.08 (25.19)	-0.01 (-0.15)	2.25 (52.18)
Philippines	0.73 (22.27)	0.84 (25.64)	0.01 (0.20)	1.72 (52.74)
Thailand	9.15 (23.89)	7.28 (19.01)	-2.21 (-5.77)	17.38 (45.38)
China	5.25 (22.04)	5.85 (24.52)	-0.16 (-0.69)	12.25 (51.37)
Taiwan	0.39 (22.14)	0.44 (24.55)	-0.01 (-0.68)	0.92 (51.44)

Japan's rice import effects by Regions (2)

Unit: million \$US

	S1	S2	S3	S4
Indonesia	4.26 (22.17)	5.00 (26.01)	0.10 (0.53)	10.21 (53.14)
Malaysia	0.53 (22.48)	0.64 (27.19)	0.03 (1.45)	1.28 (54.58)
India	0.45 (22.15)	0.49 (24.33)	-0.02 (-0.86)	1.03 (51.18)
Vietnam	0.06 (22.23)	0.07 (25.02)	0.00 (-0.31)	0.14 (52.00)
NAFTA	31.31 (22.15)	34.32 (24.28)	-1.28 (-0.90)	72.26 (51.12)
EU	0.50 (22.18)	0.55 (24.61)	-0.01 (-0.63)	1.16 (51.51)
ROW	5.76 (22.15)	6.33 (24.34)	-0.22 (-0.85)	13.30 (51.19)
Total	73.74 (22.61)	71.85 (22.03)	-9.53 (-2.92)	158.45 (48.58)

Japan's output effects by commodities

Unit: million \$US (%)

	S1	S2	S3	S4
Paddy rice	-210.12 (-0.8953)	-215.37 (-0.9177)	24.06 (0.1025)	-463.58 (-1.9753)
Rice(milled basis)	-280.44 (-0.9884)	-287.93 (-1.0148)	31.47 (0.1109)	-618.98 (-2.1816)
Vegetable and Fruits	18.00 (0.0599)	20.52 (0.0683)	0.78 (0.0026)	40.80 (0.1358)
Other agricultures	21.46 (0.0326)	25.68 (0.0390)	3.36 (0.0051)	48.52 (0.0737)
Food processing	51.90 (0.0169)	55.28 (0.0180)	2.76 (0.0009)	109.34 (0.0356)
Manufactures	61.28 (0.0027)	56.74 (0.0025)	-34.04 (-0.0015)	152.06 (0.0067)
Services	-177.37 (-0.0037)	-186.96 (-0.0039)	19.18 (0.0004)	-402.68 (-0.0084)
Total	-515.28 (-0.0068)	-532.04 (-0.0071)	47.56 (0.0006)	-1,134.52 (-0.0151)

Japan's commodities price effects (1)

Unit: %

countries	S1			S2		
	pp*	ppd**	ppm***	pp*	ppd**	ppm***
Paddy Rice	-0.22	-0.24	0.05	-0.26	-0.28	0.06
Rice(milled basis)	-0.22	-0.18	-2.41	-0.25	-0.21	-3.64
Vegetable & Fruits	-0.12	-0.14	0.01	-0.14	-0.16	0.01
Other agricultures	-0.05	-0.06	0.01	-0.06	-0.06	0.01
Food processing	-0.02	-0.02	0.01	-0.02	-0.02	0.01

Japan's commodities price effects (2)

Unit: %

countries	S3			S4		
	pp*	ppd**	ppm***	pp*	ppd**	ppm***
Paddy Rice	-0.01	-0.01	0.00	-0.52	-0.55	0.11
Rice(milled basis)	-0.03	-0.01	-1.08	-0.50	-0.42	-5.88
Vegetable & Fruits	0.00	0.00	0.01	-0.27	-0.32	0.01
Other agricultures	0.00	0.00	0.00	-0.12	-0.13	0.01
Food processing	0.00	0.00	0.01	-0.04	-0.05	0.01

Welfare effects

Unit: million \$U.S.

	S1	S2	S3	S4
Australia	3.32	2.89	0.78	5.15
Japan	-23.46	-24.14	-0.79	-48.63
Korea	-0.10	-0.06	-0.63	0.53
Philippines	1.63	1.61	1.18	2.08
Thailand	36.91	36.09	32.83	39.58
China	-43.43	-41.99	-42.93	-41.02
Taiwan	-0.03	-0.01	-0.73	0.75
Indonesia	-0.21	-0.13	-0.60	0.37
Malaysia	-1.23	-1.22	-1.40	-1.03
India	0.73	0.73	0.55	0.92
Vietnam	1.46	1.43	1.31	1.56
NAFTA	12.76	12.92	5.31	20.93
EU	4.81	5.02	0.78	9.35
ROW	6.82	6.86	4.37	9.47

Japan's Quota rent and Tariff Revenue Change

Unit: million \$U.S.

	S1	S2	S3	S4
Quota rents change (1)	52.82	-281.38	-281.39	-283.40
Tariff revenues change (2)	138.70	498.55	279.66	723.67
(1)+(2)	191.52	217.16	-1.73	440.28

Concluding Remarks

- If Japan set rice tariff at 114%, the consequence would be similar with the outcome under TRQ regime from 2002 to 2004.
- Japan shows a net welfare loss ranging from \$0.79 to \$48.52 million.
- Major rice exporting countries will be better off, reflecting the dominant trade effect from expanded rice exports.
- The impacts of the complete tariffication is very sensitively to the tariff level.