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AN ANALYSIS ON THE ECONOMIC EFFECTS OF AGRICULTURAL IMPORT LIBERALIZATION IN KOREA

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I. Introduction

Korea's agriculture has never been with more severe difficulties than it is at present. Notwithstanding Korea's remarkable economic growth over the past quarter of a century, it is not exaggerating to say that the future of Korea's economy is not clear in light of the current domestic conflicts resulting from unbalanced sectoral growth as well as external import liberalization pressure coming from the reorganization of the inter national economy and unbalanced trade with major trading partners.

In particular, the agricultural sector has lagged far behind the industrial sector, while income disparity between farm households and wage–earning urban households has been widening mainly due to the implementation of a lower wage policy for industrialization by lowering the support prices and expanding imports of agricultural products, coupled with the small amount of investment in comparison with the industrial sector.

From the early 1960's, through the implementation of successive five–year economic development plans, Korea has achieved phenomenal economic growth, unprecedented in the history of economic development throughout the world. However, Korea, lacking in capital and natural resources, has had no choice but to borrow from abroad for the investments required to foster and sustain this economic growth, and has laid much emphasis on the production and exportation of labor-intensive industrial products which were considered to have international competitiveness. Accordingly, most of the investments and support policies have concentrated on the industrial rather than agricultural sector, and the policy of low prices for agricultural products has been implemented to maintain lower wages and thus stabilize commodi-

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ty prices for sustaining international competitiveness of industrial products. As a result, the gap in the growth rates between the agricultural and industrial sectors has increased.

On the other hand, due to the successful economic growth during the past two decades, Korea has been upgraded remarkably in its economic status and is now required to play an equal role in the international arena. In particular, owing to the rapidly increased exports and successive surpluses in the international balance of payments for 1986–88, Korea has come to encounter many difficult problems including trade friction with major trading partners and the opening of its domestic market.

Today's agricultural market opening pressure toward Korea has mainly originated from the United States of which trade and budget deficits has increased since 1980 partly due to the sluggish agricultural exports. Combined with this bilateral pressure for trade liberalization, agricultural trade negotiation in the Uruguay Round are in the final stage and expected to proceed in the direction of the liberalization of agricultural trade which will impose a further burden on Korea to open its agricultural market much wider.

In addition, Korea in 1989, graduated GATT Article 18;B which allows the nations with a poor balance of payments position to restrict imports. In consideration of the fact that most of the import restricted items under Article 18;B have been agricultural products, it is quite certain that Korea's agriculture will be influenced markedly because of its vulnerable agricultural production infrastructure.

The purpose of this paper is to explain past trends of import liberalization of agricultural products in Korea and to estimate the economic impacts of the further liberalization of main agricultural products in the future. The economic effects include, among others, the possible changes in the production levels, producer and consumer surpluses, and levels of imports.

II. Trends of Imports of Agricultural Products

During the last several decades, the structures of the supply and demand have been considerably changed, while the overall demand for food has been increasing in line with the increased per capita income and population growth, rapid urbanization and industrialization have caused substantial shifts in food consumption patterns toward higher-quality food.

As per capita income increases further and the consumption pattern is westernized, grain consumption has been declining, but the consumption of income–elastic foods such as meat, dairy products, fruits

TABLE 1 Trend of per capita Food Consumption 1970–87

Unit:kg, %

	1970	1975	1980	1985	1986	1987	Average Annual Growth Rate[1)]
Food grains	216.1	193.0	185.4	186.4	186.1	187.8	–1.0
Rice	133.8	119.8	132.9	128.0	128.2	128.2	–0.4
Meats	8.4	9.3	13.9	16.5	17.2	18.9	5.1
Beef	1.6	2.1	2.6	2.9	3.6	3.6	5.4
Pork	3.6	2.8	6.3	8.4	8.9	8.9	5.5
Potatoes	38.4	35.0	22.5	11.9	13.5	13.5	–6.3
Fruits	12.0	3.9	16.2	26.6	26.3	26.0	5.1
Milk products[2)]	3.0	4.0	10.8	23.1	26.2	33.8	13.4
Oils and Fats	1.5	2.7	5.0	9.2	9.4	10.3	10.8

Note:1) during 1976/77–1986/87
2) Weight estimated by raw milk
Source: Korea Rural Economic Institute(KREI), *Food Balance Sheets*, 1987.

TABLE 2 Trend of the Agricultural Imports, 1970–88

Unit : million U. S. dollars

	1970	1975	1980	1985	1986	1987	1988	Average Annulal Growth Rate[1)]
Agricultural and Livestock products	341	1,020	2,215	1,791	1,795	1,953	2,716	9.8
Cereals	248	703	1,261	1,157	1,079	1,081	1,471	8.6
Vegetables	0.3	1.8	0.8	9.1	0.7	39	4	34.9
Fruits	0.6	2.2	7.8	7.4	10	19	26	24.3
Livestock Products	10	15	66	64	70	85	140	8.8
Prepared Food Stuffs	2	4	31	49	37	52	86	29.5
Oil and Fats	19	54	125	153	129	137	176	6.6
Vegetable Materials	2	11	39	34	37	44	60	15.2
Feed grains	23	1	6	50	93	138	212	37.0
Taste Foods	36	227	678	267	339	355	542	9.0
Forestry products	128	274	912	629	524	844	1,293	7.5
Fishery products	0.4	10	37	91	118	215	316	29.1
Total	469	1,304	3,176	2,511	2,537	3,012	4,325	9.6

Note:1) during 1976/77–1986/87
Source:MAFF, *Major Statistics of Agriculture, Forestry, and Fisheries*, 1989.

and vegetables and oils and fats has been increased markedly(Table 1). However, production structure still have not been fully adjusted in parallel with these changes in the structure of food consumption.

TABLE 3 Changes in Food Self-Sufficiency Rates, 1970–1988

	1970	1975	1980	1985	1986	1987	1988
Rice	93.1	94.6	95.1	103.3	96.9	99.8	97.9
Wheat	15.4	5.7	4.8	0.4	0.2	0.1	0.1
Corn	18.9	8.3	5.9	4.1	3.5	2.4	2.5
Pulses	86.1	85.8	35.1	22.5	18.8	16.2	15.7
Total	80.4	73.0	56.0	48.4	44.5	41.0	39.3

Source:MAFF, *Major Statistics of Agriculture, Forestry and Fisheries*, 1989.

Because of the discrepancy between supply and demand as well as the expansion of domestic livesock production followed by the increases in the demand for meats, the volume of agricultural imports, including feed grain imports, has been sharply increased. Oil and fat imports have also increased due to the improvement of the standard of living.

Table 2 shows the trend and structure of agricultural imports. In 1988, the total value of agricultural imports reached 4.3 billion dollars, which was 8.3 percent of total merchandise imports.

The imports of feed grins, vegetables, and processed foodstuffs soared, whose annual rate of growth in the period from 1976/77 to 1987/88 was 37 percent, 34.7 percent, and 29.5 percent respectively. Particularly, the increased agricultural imports since the 1980's is largely ascribable to the launching of internationalization and open-door policies.

As shown in Table 3, Korea's self-sufficiency rate for food decreased from 80 percent in 1970 to 39 percent in 1988. Also as Korea's dependency on international markets for agricultural products becomes higher, the importance of food security and of maintaining a minimum rate of self-sufficiency for staple foods is widely recognized.

III. Recent Market Opening Measures and the Trend toward Import Liberalization

As pointed out previously, to cope with trade friction with major trading partners and the internationalization trend of the national economy, Korea has continuously taken steps to open its agricultural markets according to the import liberalization schedule since 1984.

As shown in Table 4, import restrictions were lifted for 29 items, including lemons, limes figs, and coffee in 1984, 37 items including purebred breeding animals and grapefruits in 1985, 21 items including turkey meat, edible offal of poultry, and tomato sauce in 1986, and 8 items including lemon juice and grapefruit juice in 1987. In 1988, the

market opened to 43 products, including avocados, preparation of fruits and canned anchovies.

In addition to these market-opening measures for 1984–1988, as part of an effort to escape from the designation as a "priority foreign

TABLE 4 Trend of Agricultural Import Liberalization: 1987–1988

	1984	1985	1986	1987	1988
Agricultural and Livestock Products	Lemons, Limes, Coffee(11)	Grapefruit Pig Semen (28)	Turkey meat Tomato sauce(10)	Canned Port GrapeFruit Juice(8)	Preparations of Fruits(5), Vegetable Juice(27)
Fishery Products	Chub-mackerel, Trout(10)	Puffers, Oysters(8)	Seabream, Codfish(11)		Canned Anichovies Canned Horse Mackerel (13)
Forestry Products		Amonds(1)			Tree Barks
Total	29	37	21	8	43

Source ; MAFF.

TABLE 5 Market Opening Timetable for 1989–91

	1989	1990	1991
Grains, Beans(19)	Egypt bean, Lentz bean, Broad bean(3)	Wheat(4), Corn(1) Others(1)	Rapeseed, Haricot bean(10)
Fruits(20)	Papaya, Fresh Strawberry(11)	Pecan, Kiwi(2)	Melon, Walnut(7)
Livestock Products(24)	Duck meet(non-cut, Fresh), Livers of cattle and pig(7)	Cut duck meat, Pork offal(10)	Duck meat(non-cut, frozen) animal liver, Vension(7)
Feed(10)	Perilla seed meal, Assorted Feed(5)	Alfalfa, Others(4)	Soybean meal(1)
Processed Food(64)	Meat juice, Peanut oil, Canned Strawberry(26)	Aanned pineapple, Tomato juice, Sunflower seed Oil(20)	Soybean Oil, Canned Peach, Sausage(18)
Fishery Products(97)	Cod(fresh chilled), Canned salmon(26)	Canned herring Anchovy(33)	Frozen albacore tuna, Others(38)
Others(9)	Others(4)	Others(1)	Oak leaf, Silk yern, Others(4)
243	82	76	85

Source : MAFF.

TABLE 6 Agricultural Import Liberalization Ratio

Unit : percent

	Dec, 1988	1989	1990	1991
Total	71.9	76.1	80.3	84.9
Agricultural products, Livestock Products	75.1	79.3	82.8	86.2
Forestry Products	94.6	94.9	95.3	97.3
Fishery Products	40.2	48.2	57.9	69.2

Source : MAFF.

country" engaging in unfair trading practices by United States, the government announced a three-year(1989-91)market-opening schedule to liberalize imports of 243 farm, livestock, forestry and fishery products.

Accordingly, Korea's agricultural import liberalization ratio will be raised to 84.9 percent in the end year of the schedule(Table 6).

However, Korea's agricultural import liberalization is anticipated to be accelerated and proceeded further because of the graduation of the GATT Article 18;B. When Korea agreed to abandon the rights to restrict agricultural imports, it was instead granted grace period of eight years, which is needed for the structural adjustment of domestic agriculture. In 1991 and 1994, Korea has to set up and present import liberalization schedules to GATT and actually has to liberalize 264 items of agricultural and fishery products which are still import restricted until the time of July 1, 1997.

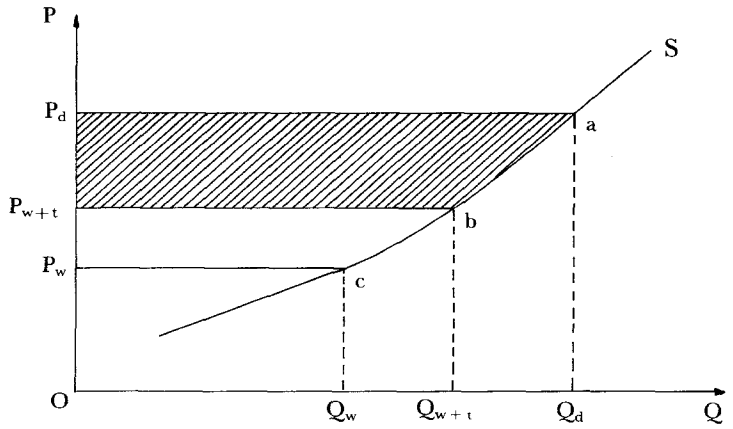
In consideration of the fact that Korea's agriculture still does not have adaptive ability to cope with internationalization and the opening of the domestic market, Korea's agriculture will be greatly influenced. To make the matter worse is the fact that Korea has to liberalize much more important products for the farmers' income as time passes.

IV. The Economic Effects of Agricultural Import Liberalization

In this paper, the impact effects of import liberalization of import restricted major agricultural products on the producer and consumer surpluses will be analysed, since the other products already liberalized have somewhat minor economic effects and data are not fully available.

It is assumed that there is no income effects both in supply and demand sides. If the domestic agricultural markets are completely opened, consumer's real income will increase according to the decreases in the prices of agricultural products, which induce the consumers to consume more than otherwise. Similarly, some farmers will leave for

FIGURE 1 The Losses of Producer Surplus



other jobs and stop production. if their income decrease below certain levels because of import liberalization and decreases in the prices of agricultural products. Here, only price effects are considered.

1. Changes in Producer Surplus

The losses of producer surplus can be easily estimated under the traditional partial equilibrium analysis, In Figure 1, producer surplus losses are shown by the shaded area $P_d\ abp_{w+t}$, which occurs when the concerned product is import liberalized, After liberalization, domestic production decreases from point a to b along the supply curve, where p_d, p_w, and t are domestic farmers' price, world price, and amount of specifc tariff respectively.

In order to estimate the decrease in the producer surplus without the statistical estimation of supply equation, it is assumed that price elasticity of supply is constant in some relevant intervals.

$$(1) \qquad Q = AP^{\varepsilon}$$

where Q, P and ε indicate supplied quantity, price, and price elasticity. A represents all other factors which have influences on the supply, such as input price index, technology, and the price of competing goods etc.. After some algebraic arrangements using the equation(1), following equation can be derived.

$$(2) \qquad Q_{w+t} = Q_d\left(\frac{p_{w+t}}{p_d}\right)$$

where Q_d and Q_{w+t} are the quantities of supply before and after the import liberalization, which are sufficient information for the calculation of the losses in producer surplus of P_dadP_{w+t} in Figure 1.

TABLE 7 The Losses in Producer Surplus Occured by Import Liberalization of Major Agricultural Products

	Current Tariff Rate(%)	Supply Elasticity	World Price($/ton)	Domestic Price($/ton)	Domestic Production after Liberalization (1000M/T)	Decreases in Producer Surplus (million $)
Green Bean	30	0.17	461	3,254	5.29	16.37
Red Bean*	30	0.17	335	2,330	24.81	54.82
Wheat	5	1.29	171	662	0.75	1.17
Rye*	5	1.29	95	545	0.16	0.29
Barley*	5	1.82	132	911	11.48	140.33
Corn*	5	0.17	120	545	93.14	45.02
Rice	5	0.28	355	1,551	3,739.22	5,472.30
Sorghum*	5	0.43	82	1,235	0.65	1.60
Buck Wheat*	5	0.17	308	1,291	9.02	9.79
Millet*	5	0.17	357	1,444	2.34	2.78
Soybean*	5	0.17	292	1,694	150.54	236.95
Peanut*	40	0.59	572	3,159	11.65	44.58
Rape*	35	0.43	253	652	5.91	2.19
Sesame*	40	0.43	547	1,599	33.37	33.04
Pelilla Seed	40	0.2	–	1,760	–	–
Cocoons	2	0.3	21,427	26,059	7.57	32.60
Malt	40	1,82	322	756	46.05	25.14
Hop Cones	40	1.5	9,215	9,212	0.93	0
Potato	30	0.17	190	360	476.6	55.40
Sweet Potato	20	0.24	285	387	595.0	27.34
Banana*	50	0.1	687	4,371	5.71	20.61
Pineapple	50	0.1	570	2,851	3.81	8.04
Citrus	50	0.14	548	996	380.04	66.51
Grape	50	0.50	1,469	2,620	124.98	59.49
Apple	50	0.19	1,045	1,380	637.00	0
Pear	50	0.64	817	1,418	127.60	25.58
Peach	50	0.6	721	1,029	142.50	0
Persimmon	50	0.6	1,462	1,949	69.67	0
Onion	50	0.71	298	380	507.42	0
Garlics*	50	0.36	392	2,237	237.95	513.52
Red Pepper*	50	0.33	1,488	5,457	123.89	468.06
Ginger*	20	0.3	646	1,485	29.62	23.24
Beef	30	0.55	3,947	8,028	115.00	379.62
Pork	50	0.54	2,117	3,191	347.6	5.55
Chicken	30	0.33	751	1,364	120.9	49.55
Sausage	30	2.0	3,720	5,160	6.0	2.05
Birds egg.eggyolk	30	0.176	927	1,114	351.8	0
Honey	20	1.0	2,317	6,717	2.8	18.86
Total			59,441	111,108		7,842.40

Note:1) Most inelatic one is used among the elasticities already estimated, since short–run impact effects are the objectives of the analysis. If elasticities are not available, elasticities are determined according to the economic intuition, for example, the price elasticity of banana supply equation is assumed to be less elastic than that of citrus which is 0.14 because banana production requires much more investment of fixed inputs.

2) * indicates the products of which price gaps between domestic and world prices are more than twice of domestic prices. In these case, the possibilities of zero production after the liberalization could not be excluded.

Sources ; MAFF, *Statistics of Agricultural, Forestry, and Fishery Trade(V)*, 1989. 1.

TABLE 8 The Proportions of Major Agricultural Products to the Total Value of Agricultural Production, 1987

Items	Value of Production (million dollars)	Ratio (%)
Rice	6,242.08	37.9
Pork	1,281.96	7.8
Beef	852.71	5.2
Red Pepper	684.46	4.2
Milk	543.73	3.3
chicken	539.32	3.3
Apple	496.53	3.0
Sesame	397.96	2.4
Garlie	358.20	2.2
Egg	323.49	2.0
Tangerine	308.97	1.9
Tabacco	265.68	1.6
Ginseng	252.05	1.5
Soybean	230.97	1.4
Sweet Potato	201.06	1.2
Naked barley	172.28	1.0
Potato	160.55	1.0
Grape	130.51	0.8
Pear	109.05	0.7
Peanut	84.82	0.5
Honey	84.31	0.5
Onion	79.26	0.5
Peach	77.62	0.5
Beer Barley	77.37	0.5
Pelilla Seed	71.06	0.4
Red bean	61.47	0.4
Corn	48.59	0.3
Ginger	47.84	0.3
Persimmon	45.82	0.3
Cocoons	42.41	0.3
Green bean	17.92	0.1
Buck Wheat	13.13	0.1
Garden Pea	11.61	0.1
Tomato	11.36	0.1
Rape	4.67	0.0
Hop cones	3.41	0.0
Total	14,345.58	87.0
Hop cones	16,481.38	100.0

Source ; MAFF, *Crop Statistics*, 1988.

The losses in producer surplus of major commodities are presented at the Table 7.

According to the Table 7, if 38 major agricultural products are import liberalized imposing only current level of tariff rate, the losses in producer surpluses will be 7.84 billion dollars which is 47.6 percent of total agricultural production of 16.48 billion dollars in 1987. Since agricultural products have such characteristics that each products has close substitution and competition relationship with other products in demand and supply side, indirect economic effects through various channels will take place, if only some products are import liberalized. However, if all the products are liberalized, such indirect effects will be disappeared.

2 Resource Unemployment

As the influx of cheap agricultural products from international markets increases, domestic productions and thus planting acreage decrease resulting in serious unemployment of agricultural resources including farm labor forces.

According to Table 9, agricultural production decreases by 2.7 million metric tons in total, which is 26.4 percent of current production. The planting acreage and the number of farmhousehold decrease 37 percent and 25 percent respectively, if the yield of each crop and the scale of each farmhousehold are assumed to be constant. However, as pointed out previously, farmers begin to cease producing agricultural products and migrate into urban areas, if farmers income decrease bellow certain level because of agricultural trade liberalization. Therefore, the level of unemployment of agricultural resources might be higher than those indicated in Table 9.

3 Changes in Consumer Surplus

Changes in consumer surplus caused by import liberalization can be easily estimated as in the case of the estimation of producer surplus by assuming constant price elastic demand functions. The estimation results are shown in Table 10.

As shown in the Table 10, consumer welfare increases, in value terms, by 16.39 billion dollars after liberalization which is twice larger than the losses in producer surplus.

TABLE 9 The Estimation of the Idle Agricultural Resources

	Production (1,000M/T)			Planting Acreage (1,000ha)		Farm Households (1,000 Households)	
	Current[1] (A)	After Liberalization(B)	B/A	Current[2]	After Liberalization	Current[2]	After Liberalization
Rice	5,550.0	1,810.8	32.6	1,262.0	411.8	1,632.0	532.5
Barley	352.0	340.5	96.7	205.0	198.3	70.5	68.2
Wheat	4.1	3.4	82.9	1.2	1.0	3.8	3.2
Buck Wheat	11.4	2.4	21.1	3.0	2.7	49.0	10.3
Rye	1.4	1.2	85.7	0.8	0.7	7.0	6.0
Millet	3.0	0.6	20.0	2.1	0.4	31.0	6.2
Sorghum	2.1	1.4	66.7	1.8	1.2	37.0	24.7
Corn	120.0	26.9	22.4	6.0	5.0	138.0	30.9
Soybean	201.0	50.5	25.1	4.0	64.8	1,168.0	293.5
Red Bean	33.0	8.2	24.8	2.0	8.0	635.0	157.8
Green Bean	7.1	1.8	25.4	8.3	2.1	189.0	47.9
Potato	508.0	31.4	6.2	2.0	1.4	503.0	31.1
Sweet Potato	613.0	18.0	2.9	6.0	0.8	700.0	20.6
Pape	7.8	1.9	24.4	4.6	1.1	17.0	4.1
Peanut	26.2	14.6	55.7	2.0	12.3	97.0	54.1
Sesame	45.8	12.4	27.1	4.0	25.4	1,029.0	278.6
Onion	452.0	0.0	0.0	2.0	0.0	55.0	0.0
Garlic	385.0	147.1	38.2	9.0	18.7	563.6	215.3
Red Pepper	166.4	42.5	25.5	9.0	22.7	1,051.0	268.4
Ginger	36.0	6.4	17.8	4.4	0.8	13.0	2.3
Hop Cones	0.6	0.0	0.0	0.0	0.0	1.9	0.0
Cocoons	8.0	0.4	5.0	7.2	0.9	60.0	3.0
Apple	547.0	154.0	28.2	9.0	11.0	61.8	17.4
Pear	140.0	12.4	8.9	8.0	0.7	15.9	1.4
Peach	138.3	0.0	0.0	4.0	0.0	37.0	0.0
Tangerine	390.3	10.3	2.6	8.0	0.5	21.6	0.6
Grape	161.9	36.9	22.8	7.0	3.9	38.0	8.7
persimmon	64.9	0.0	0.0	0.0	0.0	21.0	0.0
Banana	6.6	0.9	13.6	0.7	0.1	1.6	0.2
Pineapple	3.8	0.0		0.3	0.0	1.2	0.0
Total	10,372.7	2,736.9	26.4	2,153.4	796.3	8,248.9	2,087.0
Livestock	1,000M/T		%	1,000Head		1,000Households	
Beef	47.1	32.1	21.8	1,923.1	419.8	854.3	186.8
Pork	48.5	1.0	0.0	4,281.3	12.3	302.9	0.9
Chicken	35.0	14.1	10.4	59,324.0	6,196.1	168.7	28.1
Honey	6.8	0.8	11.8	534.4	62.9	49.0	5.8
				(1,000Tubs)	(1,000Tubs)		

Note:1) Current production levels are average values of 1986 and 1987.

2) Planting acreage and number of farm households in 1987.

Sources ; MAFF, *Annual Statistic Report of Agriculture, Forestry, and Fishery*, 1988.

TABLE 10 The Gains Consumer Surplus Occured by Import Liberalization of Major Agricultural Products

Commodities	Current Tariff Rate	Elasticities[1)]	World Price($/ton)	Domestic Price($/ton)	Domestic Demand After Liberalization (1,000M/T)	Increases in Consumer surplus (million $)
Rice	5%	–0.06	355	1,551	6,046.2	6,831.24
Barley	5	–0.30	132	911	618.9	374.70
Wheat	5	–0.33	171	662	5,816.4	2,319.81
Buck Wheat	5	–0.30	308	1,291	17.6	14.51
Rye	5	–0.33	95	545	60.5	21.18
Millet	5	–0.10	357	1,444	3.6	3.60
Sorghum	5	–0.10	82	1,235	165.1	167.56
Soybean	5	–0.23	292	1,649	1,850.4	2,090.31
Red Bean	3	–0.23	335	2,330	48.6	77.27
Green Bean	3	–0.23	461	3,254	11.7	26.05
Corn	5	–0.10	120	545	4,919.3	1,934.26
2Potato	3	–0.23	190	360	553.9	59.76
Sweet Potato	2	–0.07	285	387	618.4	27.91
Onion	50	–0.14	298	380	440.8	0
Garlic	50	–0.005	392	2,237	385.8	633.99
Red Pepper	50	–0.25	1,488	5,457	208.1	603.80
Ginger	20	–0.005	646	1,485	36.1	25.60
Peanut	40	–0.50	572	3,159	62.0	109.95
Rape	35	–0.02	253	652	9.0	2.78
Rape Sesame	40	–0.02	547	1,599	51.5	42.63
Hop Cones	40	–0.91	9,212	9,212	0.4	0
Apple	50	–0.30	1,045	1,380	515.3	0
Pear	50	–0.07	817	1,418	136.3	25.96
Peach	50	–0.30	721	1,029	135.1	0
Persimmon	50	–0.73	1,462	1,949	59.5	0
Citrus	50	–0.67	548	996	443.7	71.95
Grape	50	–0.36	1,469	2,620	171.9	61.91
Banana	50	–0.80	687	4,371	38.2	83.77
Pineapple	50	–0.80	1,976	2,851	4.2	0
Beef	30	–0.51	3,947	8,028	184.3	479.40
Pork	50	–0.75	2,117	3,191	347.9	5.58
Chicken	30	–0.80	751	1,364	176.9	60.28
Sausage	30	–1.20	3,720	5,160	7.4	2.29
Honey	20	–0.50	2,317	6,717	5.6	24.37
Birds egg. eggyolk	30	–0.40	927	1,114	254.9	56.31

TABLE 10 Continued

Commodities	Current Tariff Rate	Elasticities[1]	World Price($/ton)	Domestic Price($/ton)	Domestic Demand After Liberalization (1,000M/T)	Increases in Consumer surplus (million $)
Skimmed milk powder	20	−1.63	2,171	6,286	34.1	77.58
Fat milk powder	40	−1.63	3,795	5,664	10.6	3.54
Condensed milk	40	−1.63	1,614	2,163	2.1	0
Processed milk powder and dairy products	40	−1.63	4,175	4,970	14.2	0
Butter	40	−2.55	3,795	4,824	2.8	0
Cheese	40	−3.21	4,130	9,297	4.7	10.13
Cocons	2	−0.01	21,427	26,059	6.8	28.45
Malt	40	0.08	322	756	123.2	36.88
Total			80,227	142.552		16,394.95

Note ; 1) An in the case of production, most inelastic elasticities are used. If elasticities are not available, they are determined according to the economic intuition considering number of substitutable goods, the proportion of the expenditure out of total budget etc.

Source ; MAFF, *Statistics of Agricultural, Forestry, and Fishery Trade(V)*, 1989. 1

V. An Interpretation of the Economic Effects of Agricultural Import Liberalization

According to traditional international trade theory, free trade is always better than restricted trading economic system and autarky state. The truth might be equally applied to Korea's agriculture, as in the above. However, there are some points to be reserved before arriving such conclusions.

(1) We could say that national welfare is maximized through free trade, only if the losses are completely compensated by the gains from trade liberalization, even when the importance of the welfare of each group are assumed to be equal. However, in reality, there is no automatic mechanism of transferring gains from international trade to losers. Furthermore, as explained previously, losses in farmer's income is much more highly appreciated than gains in consumers welfare under the situation of wide gaps between farm and urban wage earners' incomes.

(2) Considering the special characteristics of agriculture, the full liberalization of agricultural trade has substantial limitations. In addi-

tion to the economic functions, keeping certain level of agriculture is important for its non–trade concerns including food security, maintenance of overall national employment, balanced regional development, and environmental protection. If we fully take into account the adverse effects of import liberalization of agricultural products on non–trade aspects, it is difficult to say that free trade is always superior to any other trading systems.

VI. Summary and Conclusion

Korea's agriculture is now under difficult situation internally and externally. While income disparity between farm households and wage earning urban households is widening, the infrastructure of agriculture is vulnerable and weak with low productivity and predominant patterns of small–scale farming.

In the meantime agricultural market opening pressures from the outside has been escalated recently. Among other, the graduation of GATT Article 18;B and UR agricultural trade negotiation which is scheduled to be terminated this coming December are prime sources of the pressures of agricultural trade liberalization.

In this paper, the economic effects of agricultural import liberalization are analyzed and possible changes in producer surplus, consumer surplus, and resource unemployments are estimated. Even though, consumer gains is bigger than the losses in producer surplus after the liberalization and thus net gains occur in the economy, farmer's income decrease almost to the half of the current level. Taking the non–trade concerns of agriculture into account including food security, balanced regional development, and environment protection, the social costs of import liberalization must be vast.

In consideration of the fact that Korea's agriculture still does not have adaptive ability to cope with internationalization and the opening of a rapid influx of foreign farm products, and in the context of the non–trade concerns of agriculture, it may be impossible for Korea to open its agricultural market drastically and completely. Therefore, before expanding the opening of its market, it is necessary to launch appropriate policies to protect and support farmers.

In order to enhance international competitiveness and increase farm household income the projects for improving the rural infrastructure should be implemented in addition to the reduction in production costs through efficient farm management. To raise agricultural productivity, above all, the present small farming size needs to be expanded for farmers to attain economies of scale. In addition, recognizing that there are substantial limitations for increasing farm household income

through agricultural income, rural industrialization plans must be actively implemented to provide rural inhabitants with sufficient non–agricultural job opportunities.

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