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An Inter-Regional Input-Output Simulation Analysis on the Trade Liberalization of Milled Rice

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Abstract

The purpose of this paper is to investigate the result of a simulation analysis using interregional input-output analysis to determine the impact of the trade liberalization of rice on regional economies in Japan.

The results of this study suggest that the policy implications of rice production are that it is not only important to improve rice productivity, but also to adjust the rice industry to the regional industries effected by the trade liberalization. Traditional agricultural policies have put a heavy emphasis on individual rice farmers' income and rice production, however, rice policies that emphasize processing and distribution are more important, considering their backward linkage effect on agribusiness policies.

Key words : Trade Liberalization on Rice, Inter-regional Input-Output Analysis.

1. Introduction

As represented by the Japan-US Structural Impediments Initiative, Japan's trade liberalization is at great issue these days. Rice is one of Japan's main agricultural products, and the restriction of free trade on rice is criticized by many foreign countries. Rice production has strong connections with regional economies, unlike other manufacturing industries that have production activities with large-scale equipment and factories. If there were rice trade liberalization, the impact of the structural adjustment in rice production would affect not only agricultural industries in the region, but also whole industries. So far, most studies and analyses of the effect of the free trade liberalization of rice so far have been made on the basis of Japan as a whole, or on a special region using a regional input-output table. Very few of them were quantitative analyses of the effect of trade liberalization on the whole structure of interregional industries, though there was one qualitative analysis of a specific region. There have also been a few studies which analyzed the intra-regional or inter-regional effect of the trade liberalization of rice using an inter-regional input-output table. In those studies, however, the effect of the trade liberalization of rice on a specific industry is considered to be the reduction of production in domestic industries. There is no new consideration of the coefficient of import which becomes very important when we think of the impact rice imports have on the production of other industries.

The purpose of this study is to clarify what influences the trade liberalization of rice will have on regional industrial structures by using a simulation model that allows the coefficient of import in inter-regional input-output analysis to change according to the trade liberalization scenarios. Our analytical viewpoints for this study were as follows :

1) We made the effects of trade liberalization clear from the viewpoint of spatial general equilibrium and spatial partial equilibrium. Spacial general equilibrium occurs when all the regions in the nation interact with change in each region, and spacial partial equilibrium occurs when change in a region effects interaction among all the regions. Applying an inter-regional noncompetitive model, we used spacial general equilibrium for analyzing changes in all the regions of the nation, and spacial partial equilibrium for change in a region. The effects were determined according to (a) change of total production, which is the total amount of the first stage production and the second stage production and (b) change of value added using the two criterion values of total production and value added changes.

2) The relation among industries concerning the effects caused by trade liberalization in certain regions is evaluated from the forward linkage effect and backward linkage effect.

3) The effects of free trade liberalization among the regions have been compared with induced production and induced value added. The areas where we made analyses were nine regions (Hokkaido, Tohoku, Kanto, Chubu, Kinki, Chugoku, Shikoku, Kyushu, Okinawa) and Japan as a whole[1].

2. Theoretical Framework

This study focuses on trade liberalization's effects on industries from the spatial viewpoint of an inter-regional one. The simulation model is a transformed model of the equilibrium production amount model[2] using an inter-regional noncompetitive input-output table that distinguishes products in the region from those in other regions. The theoretical framework of the analytic model is as follows :

A balance equation on production according to the inter-regional noncompetitive model

$$AX+F(D)+E-M=X, \tag{1}$$

A : inter-regional output coefficient matrix,
X : regional production amount vector,
F(D) : the total of each region's final demand vector,
E : each region's export amount vector,
M : each region's import amount vector.

Then transpose the production amount X to make :

$$X-AX=F(D)+E-M. \tag{2}$$

Therefor, production amount X becomes :

$$X=(I-A)^{-1}(F(D)+E-M). \tag{3}$$

The import coefficient $\bar{M}$ is defined as the regional import amount M in proportion to the regional demand in the consumption area of the imported product, so the import amount will be shown as below :

$$M=\bar{M}(A^*X+F^*(D)), \tag{4}$$

Provided $A^*=\begin{vmatrix} A^{11} & 0 & 0 \\ 0 & A^{22} & 0 \\ 0 & 0 & A^{33} \end{vmatrix}$

$F^*(D)=\begin{vmatrix} F^{11}(D) \\ F^{22}(D) \\ F^{33}(D) \end{vmatrix}$

Then use the formula for M in equation (1) :

$$AX+F(D)+E-[\bar{M}A^*X+\bar{M}F^*(D)]=X. \tag{5}$$

Transpose X :

$$X-AX+\bar{M}A^*X=F(D)-\bar{M}F^*(D). \tag{6}$$

Therefore production amount X becomes :

$$X=[I-(A-\bar{M}A^*)]^{-1}[F(D)-\bar{M}F^*(D)+E]. \tag{7}$$

The purpose of this study is to examine what effects there are on regional production of the rice industry and related industries, and the effects in other areas as a result of the inter-regional mutual reliance of supply and demand.

In order to make the model show explicitly the effects of the structural changes by the trade liberalization of rice, we made a model which allowed for a change in the import coefficient based on the model including import as an endogenous variable. Therefore, suppose that the change in import coefficient is $\bar{M}'$ and the amount of each region's final demand and exports are given. The change of gross production value in the case that the import coefficient has changed is expressed as shown below :

$$\blacktriangle X=\{[I-(A-\bar{M}'A^*)]^{-1}\cdot -\bar{M}'F^*(D)\}-\{[I-(A-\bar{M}A^*)]^{-1}\cdot -\bar{M}F^*(D)\}. \tag{8}$$

This means the changes in the import coefficient will be revealed through the impact on the production process through the change of the diagonal element of $\bar{M}$. Here we define A as a constant, as we suppose the technical structure will not be influenced. As for the import coefficient, we adapted the selected coefficients according to the real condition of each industry. Therefore, the inverse matrix is changed by the change in the import coefficient.

Using equation (8), the effects of trade liberalization on milled rice in a specific region or in the whole country can be examined, including the effects on each region's industrial structure, through the process by which production is impacted.

Next, we estimate the change of value added ▲V, based on the change of production ▲X. Change of additional value ▲V will be obtained in equation (9) :

$$\blacktriangle V = \hat{V} \cdot \blacktriangle X, \tag{9}$$

$\hat{V}$: diagonal matrix with value added as a diagonal element

Propensity to consume η[3] is defined in equation (10) :

$$\eta = \frac{PC}{EI + OP}, \tag{10}$$

PC : private consumption,

EI : employer's income,

OP : operation surplus.

Change of consumption ▲C is found in equation (11) :

$$\blacktriangle C = \eta \ \blacktriangle V. \tag{11}$$

From equations (9) through (11), the second stage change of production $X^{(2)}$ is shown as follows :

$$\blacktriangle X^{(2)} = [I - (A - \bar{M}'A^*)]^{-1} \cdot \blacktriangle C. \tag{12}$$

The total change of production (TP) is defined in equation (13) by the sum of the first stage change of production in equation (8) and the second stage change of production in equation (12) :

$$TP = \blacktriangle X + \blacktriangle X^{(2)}. \tag{13}$$

The notable characteristics of our analytic method to simulate the effects of the trade liberalization of rice are 1) that the model has the import coefficient as an endogenous variable, and 2) that we disaggregated 45 inter-regional input-output table sectors to the 54 table sectors.

So far, there have been no other studies that have simulated, using inter-regional input-output analysis, the effects of trade liberalization on industries by letting the import coefficient of the regional final demand and reverse matrix change. In particular, a unique feature of this model is that it allows the nine regions' import coefficients to change simultaneously to analyze the spatial general equilibrium.

3. Simulation Analysis and Discussion

3-1 Analytic Scenarios and Assumptions

As for a simulation analysis on the trade liberalization of milled rice, the analytic scenarios are shown in Table 1. The analytic scenarios of milled rice consist of (1) regional trade liberalization scenarios and (2) a trade liberalization scenario for the whole country.

In the regional trade liberalization scenario, firstly two regions, Kanto and Kinki, were selected, as they have the highest final demand. Secondly, Tohoku, Hokkaido and Kyushu were selected because their production of rice is large. We set two scenarios that show

Table 1. Scenario

	Costents
Trade liberalization scenario of milled rice	Case A-R1-(1) :A case supposing the degree of liberalization of milled rice in Hokkaido at 0.03
	Case A-R1-(2) :A case supposing the degree of liberalization of milled rice in Hokkaido at 0.10
	Case A-R2-(1) :A case supposing the degree of liberalization of milled rice in Tohoku at 0.03
	Case A-R2-(2) :A case supposing the degree of liberalization of milled rice in Tohoku at 0.10
	Case A-R3-(1) :A case supposing the degree of liberalization of milled rice in Kanto at 0.03
	Case A-R3-(2) :A case supposing the degree of liberalization of milled rice in Kanto at 0.10
	Case A-R4-(1) :A case supposing the degree of liberalization of milled rice in Kinki at 0.03
	Case A-R4-(2) :A case supposing the degree of liberalization of milled rice in Kinki at 0.10
	Case A-R5-(1) :A case supposing the degree of liberalization of milled rice in Kyushu at 0.03
	Case A-R5-(2) :A case supposing the degree of liberalization of milled rice in Kyushu at 0.10
	Case A-RA-(1) :A case supposing the degree of liberalization of milled rice in the whole country at 0.03
	Case A-RA-(2) :A case supposing the degree of liberalization of milled rice in the whole country at 0.10

the degree of trade liberalization, that is, (1) a case with an import coefficient of 0.03 which assumes a 3% degree of trade liberalization, and (2) a case with an import coefficient of 0.10 which asumes a 10% degree of trade liberalization[4].

The trade liberalization scenario for the whole country is the case where the market is simultaneously opened for all nine regions. We set import coefficients of 0.03 and 0.10 as in the regional scenarios above[5].

The analytic assumptions of this study are as follows :

1) The year of analysis is 1985.

For the data, which are the basis of the analysis, we used the input-output analysis table. Since the latest input-output table is from 1985, we chose it as the year of analysis.

2) Policies that may lessen the effect of trade liberalization are not assumed at all.

Since this is a simulation analysis under trade liberalization scenarios, which are based on the industrial structure of Japan's economy in the year of analysis, any policies or measures to soften or lessen the effect are not contained in the analysis.

3) We suppose there is no difference between the import price of rice and the domestic price of rice.

3-2 Simulation Results

Tables 2 and 3 show the simulation results of the trade liberalization of rice in all

Table 2. Regional Change of Value Added and Total Change of Production
Case A-RA-(1) :A case supposing the degree of trade liberalization in the whole region at 0.03 (unit:million yen, %)

		Hokkaido	Tohoku	Kanto	Chubu	Kinki	Chugoku	Shikoku	Kyushu	Okinawa	Total
Change of Value Added	Whole Sectors	-5435.3	-16252.3	-21970.1	-6162.0	-7288.9	-5061.5	-2235.0	-7793.3	-70.8	-72269.1
		-0.040	-0.073	-0.016	-0.016	-0.013	-0.025	-0.022	-0.028	-0.003	-0.022
		(7.5)	(22.5)	(30.4)	(8.5)	(10.1)	(7.0)	(3.1)	(10.8)	(0.1)	(100.0)
	Rice Sector	-3990.7	-13343.1	-12718.5	-3883.0	-3862.2	-3392.6	-1585.7	-5733.8	-9.4	-48519.0
		-1.971	-1.627	-1.730	-1.439	-1.606	-1.519	-1.598	-1.747	-1.922	-1.662
		(8.2)	(27.5)	(26.4)	(8.0)	(8.0)	(6.9)	(3.2)	(11.8)	(0.0)	(100.0)
	Milled Rice Sector	319.0	482.8	1994.0	583.0	929.4	372.2	191.6	628.8	80.1	5580.9
		-2.449	-1.703	-1.972	-1.743	-2.159	-1.773	-1.868	-2.004	-2.227	-1.957
		(5.7)	(8.6)	(36.0)	(10.4)	(16.6)	(6.6)	(3.4)	(11.2)	(1.4)	(100.0)
Total Change of Production	Whole Sectors	-19052.3	-46256.2	-93309.6	-26953.2	-37517.4	-22204.3	-9400.8	-31337.3	-998.8	-287029.6
		-0.073	-0.111	-0.034	-0.032	-0.032	-0.048	-0.048	-0.057	-0.026	-0.043
		(6.6)	(16.1)	(32.7)	(9.4)	(13.1)	(7.7)	(3.3)	(10.9)	(0.3)	(100.0)
	Rice Sector	-8196.2	-27188.0	-25838.9	-7888.3	-7945.0	-6754.5	-3264.4	-11692.7	-19.2	-98787.1
		-2.931	-2.415	-2.568	-2.126	-2.383	-2.291	-2.380	-2.589	-2.712	-2.470
		(8.3)	(27.5)	(26.3)	(8.0)	(8.0)	(6.8)	(3.3)	(11.8)	(0.0)	(100.0)
	Milled Rice Sector	-3754.6	-5685.8	-23470.0	-6863.4	-12598.5	-5046.9	-2597.2	-8525.1	-513.5	-69054.9
		-2.302	-1.530	-1.970	-1.561	-1.991	-1.634	-1.749	-1.866	-1.979	-1.847
		(5.4)	(8.2)	(34.2)	(9.9)	(18.2)	(7.2)	(3.7)	(12.3)	(0.7)	(100.0)

Note: The top line shows the amount of change,the middle line shows the change rate of the amount of change in the definite sector and region,and the bottom line(in parenthesis)shows the rate of effect in each region.

Table 3. Regional Change of Value Added and Total Change of Production
Case A-RA-(2) :A case supposing the degree of trade liberalization in the whole region at 0.10 (unit:million yen, %)

		Hokkaido	Tohoku	Kanto	Chubu	Kinki	Chugoku	Shikoku	Kyushu	Okinawa	Total
Change of Value Added	Whole Sectors	-18496.0	-55609.1	-75444.8	-21066.2	-24914.0	-17211.1	-7603.8	-26573.1	-241.9	-247159.7
		-0.136	-0.250	-0.054	-0.056	-0.043	-0.084	-0.076	-0.096	-0.012	-0.075
		(7.5)	(22.5)	(30.5)	(8.5)	(10.1)	(7.0)	(3.1)	(10.8)	(0.1)	(100.0)
	Rice Sector	-13571.6	-45648.7	-43761.0	-13271.3	-13204.5	-11513.8	-5385.1	-19542.0	-32.2	-165930.0
		-6.705	-5.566	-5.953	-4.919	-5.489	-5.155	-5.429	-5.953	-6.585	-5.684
		(8.2)	(27.5)	(26.4)	(8.0)	(8.0)	(6.9)	(3.2)	(11.8)	(0.0)	(100.0)
	Milled Rice Sector	1079.5	1638.7	6871.2	1992.5	3178.3	1262.2	650.4	2143.0	273.7	19089.5
		-8.287	-5.782	-6.797	-5.959	-7.385	-6.013	-6.340	-6.829	-7.609	-6.694
		(5.7)	(8.6)	(36.0)	(10.4)	(16.6)	(6.6)	(3.4)	(11.2)	(1.4)	(100.0)
Total Change of Production	Whole Sectors	-64768.8	-158089.8	-320599.3	-92146.2	-128263.9	-75528.1	-31979.9	-106858.9	-3411.8	-981646.2
		-0.249	-0.379	-0.115	-0.109	-0.110	-0.163	-0.162	-0.195	-0.087	-0.146
		(6.6)	(16.1)	(32.7)	(9.4)	(13.1)	(7.7)	(3.3)	(10.9)	(0.3)	(100.0)
	Rice Sector	-27873.7	-93014.4	-88903.4	-26960.8	-27163.2	-22923.3	-11086.0	-39850.9	-65.6	-337841.1
		-9.968	-8.262	-8.836	-7.267	-8.148	-7.775	-8.083	-8.824	-9.266	-8.446
		(8.3)	(27.5)	(26.3)	(8.0)	(8.0)	(6.8)	(3.3)	(11.8)	(0.0)	(100.0)
	Milled Rice Sector	-12704.1	-19300.4	-80875.4	-23456.5	-43082.3	-17116.8	-8817.8	-29054.9	-1753.7	-236161.7
		-7.788	-5.193	-6.788	-5.334	-6.809	-5.543	-5.938	-6.361	-6.760	-6.317
		(5.4)	(8.2)	(34.2)	(9.9)	(18.2)	(7.2)	(3.7)	(12.3)	(0.7)	(100.0)

Note: The top line shows the amount of change,the middle line shows the change rate of the amount of change in the definite sector and region, and the bottom line(in parenthesis)shows the rate of effect in each region.

regions. Figure 1 shows the characteristic effects of the trade liberalization of rice on the whole economy according to the simulation analysis.

The characteristic effects of the trade liberalization of rice are as follows :

1) When the influences of the trade liberalization of rice as a change of total productivity are evaluated, three regions shew the greatest effects. One is the Kanto region that is highly influenced in the sectors of both the milled rice sector as a direct effect and in that of rice production as an indirect effect, as well as in all the sectors of industries. The other two are the Tohoku and Kyushu regions that show a high influence in the production of rice.

2) When estimating the intra-regional impact of the highest five industrial sectors in those regions, there are backward linkage effects to the production of rice and chemical industries[6] in all three regions. The Kanto region shows forward linkage effects to the sectors of commerce, finance and insurance and transportation. The Tohoku region shows forward linkage effects to commerce and the finance and insurance sector, and the Kyushu region to commerce and transportation.

3) Table 4 shows the degree of separation caused by changes in productivity and value added between the milled rice sector and the rice sector and all industry sectors. From this the characteristics mentioned below become clear.

(a) Trade liberalization in the Kanto region, where there is the highest effect, has a relatively high effect on the production of rice as the direct effect.

(b) In the Tohoku and Kyushu regions, trade liberalization of milled rice has a relatively higher influence on rice production in the agricultural sector and on all sectors of industries as a total influence on the regional economy, compared with the influence on the sector of milled rice as the direct effect.

(c) The tendencies mentioned in (a) and (b) are found both in the change of total induced production and the change of induced value added.

(d) In the Tohoku and Kyushu regions, the effect of the change of induced value added is much higher than that of the change of total induced production as in all the sectors of

Table 4. Degree of Separation from the Sector of Trade Liberalization in the Rate of Effect in Each Region

Region / Sectors	Hokkaido	Tohoku	Kanto	Chubu	Kinki	Chugoku	Shikoku	Kyushu	Okinawa
Milled Rice Sector	± 0	± 0	± 0	± 0	± 0	± 0	± 0	± 0	± 0
	(± 0)	(± 0)	(± 0)	(± 0)	(± 0)	(± 0)	(± 0)	(± 0)	(± 0)
Rice Sector	− 2.9	− 19.3	+ 7.9	+ 1.9	+ 10.2	+ 0.4	+ 0.4	+ 0.5	+ 0.7
	(− 2.5)	(− 18.9)	(+ 9.6)	(+ 2.4)	(+ 8.6)	(− 0.3)	(+ 0.2)	(− 0.6)	(+ 1.4)
Whole Sectors	− 1.2	− 7.9	+ 1.5	+ 0.5	+ 5.1	− 0.5	+ 0.4	+ 1.4	+ 0.4
	(− 1.8)	(− 13.9)	(+ 5.5)	(+ 1.9)	(+ 6.5)	(− 0.4)	(+ 0.3)	(+ 0.4)	(+ 1.3)

Note 1 : This is obtained by the simulation result of Case A-RA-(2)

2 : The figure on the top line shows the degree of separation in the total change of production, The figure on the bottom line (in parenthesis) is the change of value added.

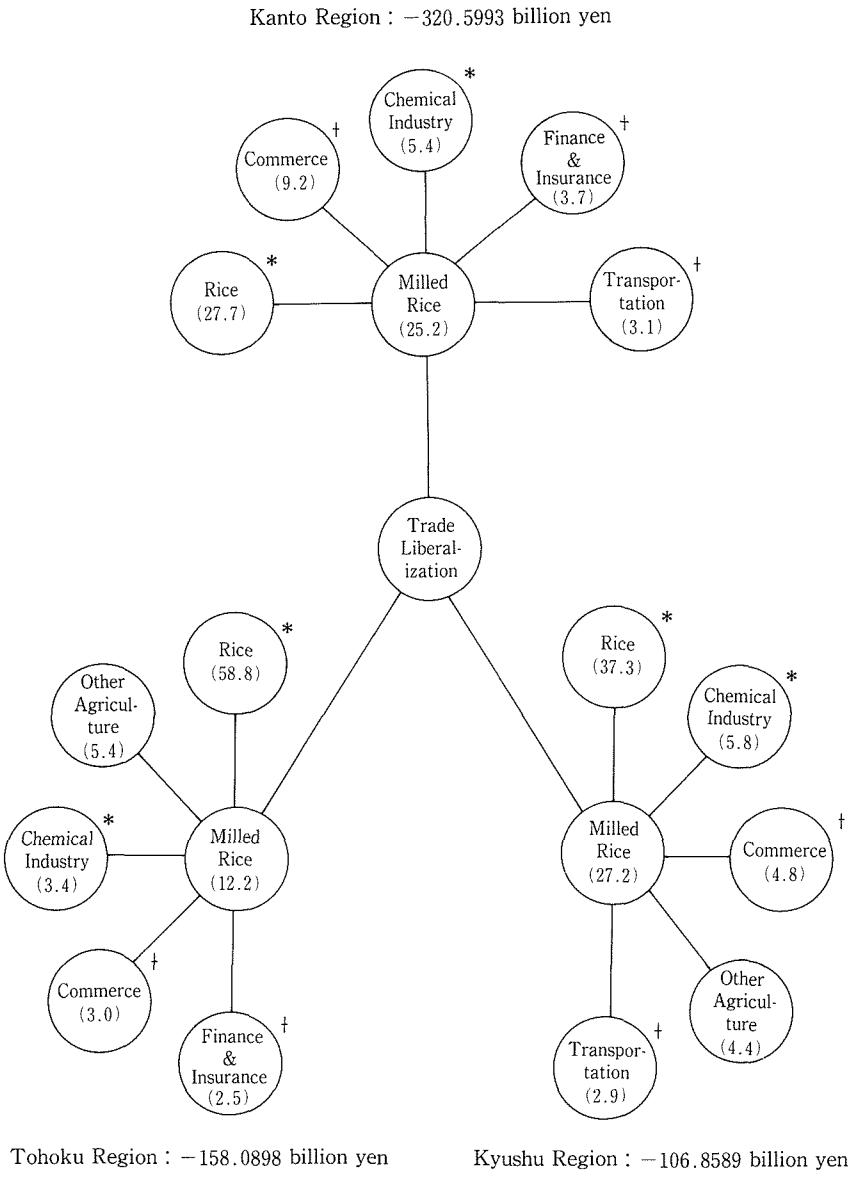

Figure 1. Characteristic Impact of the Trade Liberalization of Milled Rice
Note 1 : This is obtained by simulation result of Case A-RA-(2)
2 : The figures in parentheses mean the share with all the sectors of industries.
3 : * shows a backward linkage effect, † shows a forward linkage effect.

industries.

Other results of the simulation are shown in the Appendix.

4. Conclusion

The purpose of this paper is to analyze the effects the trade liberalization of milled rice will have on regional economies through intra-regional and inter-regional linkage, using an interregional input-output analysis model containing a change of import coefficient as an endogenous variable. The results of those effects are as follows : trade liberalization of milled rice has brought stronger backward linkage effects than forward linkage effects to the sector of rice production. Especially in the rice production areas of the Tohoku and Kyushu regions, there is a relatively stronger effect on rice production, and on all the sectors of industries as the regional economies, than on the sector of the milled rice industry. There is also a relatively larger effect on change of value added than on change of production.

The great linkage effect of the liberalized sector on other sectors suggests that the present industrial policy be changed in response. A new and comprehensive policy is needed, considering the backward linkage effect in order to improve the present short-sighted industrial policy, which is to only focus on a single sector. Finally, this study implies that regional policy concerning trade liberalization will have to be made considering not only increasing the productivity of regional industries, but also the restructuring of regional industries. A word of warning is that the present study is based upon several assumptions and the adopted model. The validity of this study is limited by these two factors.

Notes

1) Names of the regions analyzed are as follows :

Rdgions Analyzed	Prefectures Analyzed
1. Hokkaido	Hokkaido
2. Tohoku	Aomori, Iwate, Miyagi, Akita, Yamagata, Fukushima
3. Kanto	Ibaraki, Tochigi, Gunma, Saitama, Chiba, Tokyo, Kanagawa, Niigata, Yamanashi, Nagano, Shizuoka
4. Chubu	Aichi, Gifu, Mie, Toyama, Ishikawa
5. Kinki	Fukui, Shiga, Kyoto, Osaka, Hyogo, Nara, Wakayama
6. Chugoku	Tottori, Shimane, Okayama, Hiroshima, Yamaguchi
7. Shikoku	Tokushima, Kagawa, Ehime, Kochi
8. Kyushu	Fukuoka, Saga, Nagasaki, Kumamoto, Oita, Miyazaki, Kagoshima
9. Okinawa	Okinawa
whole country	47 prefectures

2) The inter-regional input-output table in 1985 used in this analysis consists of 45 industrial sectors. Sectors of milled rice and those of rice production are not independent. Therefore, we disaggregated the 45 sectors into 54 sectors in order to analyze the influences of the trade liberalization of milled rice.

3) Propensity to consume is found by an OLS regression of personal consumption expenditures in the National Accounts Annual Report with the total of employers' income and operating surplus. The parameter of (EI+OP) indicates propensity to consume.

Period : 1981−1989 (nominal value)

Result $PC = 646.53963 + 0.7347641\ (EI+OP) \quad R^2 = 0.9955672$

(0.35) (39.65)

The figures in parentheses are t-values.

4) About 95% of milled grains are rice.

5) The annual rice production in Japan is about 10 million tons. Since the present import coefficient is close to none, 0.03 means about 300 thousand tons of import. Accordingly, 0.10 means about one million tons.

6) Single quality fertilizer, nitrogeneous fertilizer, mixed fertilizer and compound fertilizer which are necessary for the production of material are contained in this sector.

This paper is a summary of some parts of a doctoral dissertation of Hokkaido University.

APPENDIX

Table a. Regional Change of Value Added and Total Change of Production
Case A-R1-(1) :A Case supposing the degree of trade liberalization in Hokkaito at 0.03
(unit:million yen, %)

		Hokkaido	Tohoku	Kanto	Chubu	Kinki	Chugoku	Shikoku	Kyushu	Okinawa	Total
Change of Value Added	Whole Sectors	-3014.6	-251.7	-329.3	-95.9	-151.7	-43.6	-13.7	-25.7	-0.7	-3926.9
		-0.022	-0.001	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.001
		(76.8)	(6.4)	(8.4)	(2.4)	(3.9)	(1.1)	(0.3)	(0.7)	(0.0)	(100.0)
	Rice Sector	-2437.1	-155.0	-18.5	-0.1	-12.9	0.0	0.0	0.0	0.0	-2623.6
		-1.204	-0.019	-0.003	-0.000	-0.005	0.0	0.0	0.0	0.0	-0.090
		(92.9)	(5.9)	(0.7)	(0.0)	(0.5)	(0.0)	(0.0)	(0.0)	(0.0)	(100.0)
	Milled Rice Sector	319.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	319.0
		2.499	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.112
		(100.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(100.0)
Total Change of Production	Whole Sectors	-11978.1	-729.1	-1399.2	-461.4	-626.8	-260.2	-64.9	-132.1	-4.6	-15656.4
		-0.046	-0.002	-0.001	-0.001	-0.001	-0.001	-0.000	-0.000	-0.000	-0.002
		(76.5)	(4.7)	(8.9)	(2.9)	(4.0)	(1.7)	(0.4)	(0.8)	(0.0)	(100.0)
	Rice Sector	-4994.1	-316.1	-38.0	-0.2	-26.6	-0.2	-0.1	-0.2	0.0	-5375.5
		-1.786	-0.028	-0.004	-0.000	-0.008	-0.000	-0.000	-0.000	0.0	-0.134
		(92.9)	(5.9)	(0.7)	(0.0)	(0.5)	(0.0)	(0.0)	(0.0)	(0.0)	(100.0)
	Milled Rice Sector	-3753.3	-0.3	-0.3	-0.1	-0.1	-0.1	0.0	-0.1	0.0	-3754.3
		-2.301	-0.000	-0.000	-0.000	-0.000	-0.000	0.0	-0.000	0.0	-0.100
		(100.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(100.0)

Note: The top line shows the amount of change, the middle line shows the change rate of the amount of change in the definite sector and region, and the bottom line (in parenthesis) shows the rate of effect in each region.

Table b. Regional Change of Value Added and Total Change of Production
Case A-R1-(2) :A Case supposing the degree of trade liberalization in Hokkaito at 0.10
(unit:million yen, %)

		Hokkaido	Tohoku	Kanto	Chubu	Kinki	Chugoku	Shikoku	Kyushu	Okinawa	Total
Change of Value Added	Whole Sectors	-10201.2	-851.9	-1114.7	-324.7	-513.5	-147.9	-46.1	-87.0	-3.0	-13290.0
		-0.075	-0.004	-0.001	-0.001	-0.001	-0.001	-0.000	-0.000	-0.000	-0.004
		(76.8)	(6.4)	(8.4)	(2.4)	(3.9)	(1.1)	(0.3)	(0.7)	(0.0)	(100.0)
	Rice Sector	-8246.1	-524.4	-62.6	-0.2	-43.7	-0.2	-0.1	-0.1	0.0	-8877.4
		-4.074	-0.064	-0.009	-0.000	-0.018	-0.000	-0.000	-0.000	0.0	-0.304
		(92.9)	(5.9)	(0.7)	(0.0)	(0.5)	(0.0)	(0.0)	(0.0)	(0.0)	(100.0)
	Milled Rice Sector	1079.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1079.3
		8.286	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.378
		(100.)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(100.0)
Total Change of Production	Whole Sectors	-40529.0	-2467.5	-4735.0	-1561.2	-2121.1	-882.2	-219.7	-447.0	-15.5	-52978.2
		-0.156	-0.006	-0.002	-0.002	-0.002	-0.002	-0.001	-0.001	-0.000	-0.008
		(76.5)	(4.7)	(8.9)	(2.9)	(4.0)	(1.7)	(0.4)	(0.8)	(0.0	(100.0)
	Rice Sector	-16898.0	-1069.5	-128.7	-0.7	-90.0	-0.5	-0.3	-0.5	0.0	-18188.2
		-6.043	-0.095	-0.013	-0.000	-0.027	-0.000	-0.000	-0.000	0.0	-0.455
		(92.9)	(5.9)	(0.7)	(0.0)	(0.5)	(0.0)	(0.0)	(0.0)	(0.0)	(100.0)
	Milled Rice Sector	-12699.7	-0.9	-1.2	-0.4	-0.5	-0.2	-0.2	-0.2	0.0	-12703.3
		-7.785	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	0.0	-0.340
		(100.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(100.)

Note: The top line shows the amount of change, the middle line shows the change rate of the amount of change in the definite sector and region, and the bottom line (in parenthesis) shows the rate of effect in each region.

Table c. Regional Change of Value Added and Total Change of Production
Case A-R2-(1) :A Case supposing the degree of trade liberalization in Hokkaito at 0.03
(unit:million yen, %)

		Hokkaido	Tohoku	Kanto	Chubu	Kinki	Chugoku	Shikoku	Kyushu	Okinawa	Total
Change of Value Added	Whole Sectors	-114.8	-4220.1	-974.1	-133.2	-312.8	-73.8	-26.3	-86.7	-4.1	-5945.9
		-0.001	-0.019	-0.001	-0.000	-0.001	-0.000	-0.000	-0.000	-0.000	-0.002
		(1.9)	(71.0)	(16.4)	(2.2)	(5.3)	(1.2)	(0.4)	(1.5)	(0.1)	(100.0)
	Rice Sector	-22.4	-3708.4	-194.7	-0.2	-73.2	-0.1	-0.1	-0.2	0.0	-3999.3
		-0.011	-0.452	-0.0026	-0.000	-0.030	-0.000	-0.000	-0.000	0.0	-0.137
		(0.6)	(92.7)	(4.9)	(0.0)	(1.8)	(0.0)	(0.0)	(0.0)	(0.0)	(100.)
	Milled Rice Sector	0.0	482.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	482.4
		0.000	1.702	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.169
		(0.0)	(100.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(100.0)
Total Change of Production	Whole Sectors	-447.1	-16780.8	-3549.1	-615.1	-1143.9	-427.9	-125.9	-431.6	-16.1	-23537.5
		-0.002	-0.040	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.000	-0.004
		(1.9)	(71.3)	(15.1)	(2.6)	(4.9)	(1.8)	(0.5)	(1.8)	(0.1)	(100.0)
	Rice Sector	-46.7	-7533.3	-397.0	-0.7	-150.4	-0.3	-0.2	-0.6	0.0	-8129.2
		-0.017	-0.669	-0.039	-0.000	-0.045	-0.000	-0.000	-0.000	0.000	-0.203
		(0.6)	(92.7)	(4.9)	(0.0)	(1.9)	(0.0)	(0.0)	(0.0)	(0.0)	(100.0)
	Milled Rice Sector	-0.1	-5676.1	-1.3	-0.3	-0.3	-0.1	-0.1	-0.3	0.0	-5678.6
		-0.000	-1.527	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	0.000	-0.152
		(0.0	(100.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(100.0)

Note: The top line shows the amount of change, the middle line shows the change rate of the amount of change in the definite sector and region, and the bottom line (in parenthesis) shows the rate of effect in each region.

Table d. Regional Change of Value Added and Total Change of Production
Case A-R2-(2) :A Case supposing the degree of trade liberalization in Hokkaito at 0.10
(unit:million yen, %)

		Hokkaido	Tohoku	Kanto	Chubu	Kinki	Chugoku	Shikoku	Kyushu	Okinawa	Total
Change of Value Added	Whole Sectors	-389.2	-14324.2	-3306.8	-453.4	-1062.4	-250.7	-89.6	-293.2	-14.5	-20184.0
		-0.003	-0.064	-0.002	-0.001	-0.002	-0.001	-0.001	-0.001	-0.000	-0.006
		(1.9)	(71.0)	(16.4)	(2.2)	(5.3)	(1.2)	(0.4)	(1.5)	(0.1)	(100.)
	Rice Sector	-75.9	-12587.9	-661.0	-0.8	-248.5	-0.3	-0.2	-0.6	0.0	-13575.2
		-0.037	-1.535	-0.090	-0.000	-0.103	-0.000	-0.000	-0.000	0.000	-0.465
		(0.6)	(92.7)	(4.9)	(0.0)	(1.8)	(0.0)	(0.0)	(0.0)	(0.0)	(100.0)
	Milled Rice Sector	0.0	1637.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	1637.4
		0.000	5.776	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.574
		(0.0)	(100.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(100.0)
Total Change of Production	Whole Sectors	-1518.2	-56960.9	-12047.8	-2087.7	-3882.5	-1452.0	-427.7	-1465.7	-56.1	-79898.5
		-0.006	-0.137	-0.004	-0.002	-0.003	-0.003	-0.002	-0.003	-0.000	-0.012
		(1.9)	(71.3)	(15.1)	(2.6)	(4.9)	(1.8)	(0.5)	(1.8)	(0.1)	(100.0)
	Rice Sector	-158.6	-25570.9	-1347.5	-2.3	-510.4	-1.0	-0.6	-2.0	0.0	-27593.3
		-0.057	-2.271	-0.134	-0.001	-0.153	-0.000	-0.000	-0.000	0.000	-0.690
		(0.6)	(92.7)	(4.9)	(0.0)	(1.8)	(0.0)	(0.0)	(0.0)	(0.0)	(100.0)
	Milled Rice Sector	-0.3	-19266.9	-4.5	-1.2	-1.1	-0.5	-0.2	-0.9	0.0	-19275.6
		-0.000	-5.184	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	0.000	-0.516
		(0.0)	(100.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(100.0)

Note: The top line shows the amount of change, the middle line shows the change rate of the amount of change in the definite sector and region, and the bottom line (in parenthesis) shows the rate of effect in each region.

Table e. Regional Change of Value Added and Total Change of Production
Case A-R3-(1) :A Case supposing the degree of trade liberalization in Hokkaito at 0.03
(unit:million yen, %)

		Hokkaido	Tohoku	Kanto	Chubu	Kinki	Chugoku	Shikoku	Kyushu	Okinawa	Total
Change of Value Added	Whole Sectors	-1080.6	-6252.9	-15114.4	-638.5	-836.4	-326.3	-150.5	-320.8	-20.4	-24740.8
		-0.008	-0.028	-0.011	-0.002	-0.001	-0.002	-0.002	-0.001	-0.001	-0.007
		(4.4)	(25.3)	(61.1)	(2.6)	(3.4)	(1.3)	(0.6)	(1.3)	(0.1)	(100.0)
	Rice Sector	-708.3	-4998.5	-10788.9	-16.8	-11.1	-8.9	-0.6	-2.0	0.0	-16535.1
		-0.350	-0.610	-1.468	-0.006	-0.005	-0.004	-0.001	-0.001	0.000	-0.566
		(4.3)	(30.2)	(65.2)	(0.1)	(0.1)	(0.1)	(0.0)	(0.0)	(0.0)	(100.0)
	Milled Rice Sector	0.0	0.2	1993.7	0.1	0.1	0.0	0.0	0.1	0.0	1994.2
		0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.699
		(0.0)	(0.0)	(100.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(100.0)
Total Change of Production	Whole Sectors	-3146.6	-15204.3	-68949.2	-3012.5	-3633.3	-1825.4	-687.2	-1552.1	-83.9	-98094.4
		-0.012	-0.036	-0.025	-0.004	-0.003	-0.004	-0.003	-0.003	-0.002	-0.015
		(3.2)	(15.5)	(70.3)	(3.1)	(3.7)	(1.9)	(0.7)	(1.6)	(0.1)	(100.0)
	Rice Sector	-1456.1	-10176.9	-21898.3	-35.8	-24.0	-18.1	-1.6	-5.1	0.0	-33615.9
		-0.521	-0.904	-2.176	-0.010	-0.007	-0.006	-0.001	-0.001	0.000	-0.840
		(4.3)	(30.3)	(65.1)	(0.1)	(0.1)	(0.1)	(0.0)	(0.0)	(0.0)	(100.0)
	Milled Rice Sector	-0.6	-5.1	-23461.0	-2.6	-1.7	-0.8	-0.5	-1.8	0.0	-23474.1
		-0.000	-0.001	-1.969	-0.001	-0.000	-0.000	-0.000	-0.000	0.000	-0.628
		(0.0)	(0.0)	(99.9)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(100.0)

Note: The top line shows the amount of change, the middle line shows the change rate of the amount of change in the definite sector and region, and the bottom line (in parenthesis) shows the rate of effect in each region.

Table f. Regional Change of Value Added and Total Change of Production
Case A-R3-(2) :A Case supposing the degree of trade liberalization in Hokkaito at 0.10
(unit:million yen, %)

		Hokkaido	Tohoku	Kanto	Chubu	Kinki	Chugoku	Shikoku	Kyushu	Okinawa	Total
Change of Value Added	Whole Sectors	-3724.1	-21546.0	-52083.2	-2200.3	-2883.0	-1124.7	-519.1	-1105.7	-71.5	-85257.6
		-0.027	-0.097	-0.037	-0.006	-0.005	-0.005	-0.005	-0.004	-0.003	-0.026
		(4.4)	(25.3)	(61.1)	(2.6)	(3.4)	(1.3)	(0.6)	(1.3)	(0.1)	(100.0)
	Rice Sector	-2440.8	-17224.6	-37177.6	-57.9	-38.2	-30.5	-2.0	-6.8	0.0	-56978.4
		-1.206	-2.100	-5.058	-0.021	-0.016	-0.014	-0.002	-0.002	0.000	-1.952
		(4.3)	(30.2)	(65.2)	(0.1)	(0.1)	(0.1)	(0.0)	(0.0)	(0.0)	(100.0)
	Milled Rice Sector	0.1	0.8	6870.0	0.4	0.2	0.1	0.1	0.2	0.0	6871.9
		-0.002	-0.002	-0.002	-0.001	-0.001	-0.001	0.0	-0.000	0.000	2.410
		(0.0)	(0.0)	(100.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(100.0)
Total Change of Production	Whole Sectors	-10843.9	-52392.7	-237594.4	-10380.7	-12520.7	-6290.6	-2368.9	-5348.4	-288.7	-338028.6
		-0.042	-0.126	-0.086	-0.021	-0.011	-0.014	-0.012	-0.010	-0.007	-0.050
		(3.2)	(15.5)	(70.3)	(3.1)	(3.7)	(1.9)	(0.7)	(1.6)	(0.1)	(100.0)
	Rice Sector	-5017.5	-35068.7	-75459.9	-123.2	-82.9	-62.4	-5.5	-17.7	0.0	-115837.7
		-1.794	-3.115	-7.500	-0.033	-0.025	-0.021	-0.004	-0.004	0.000	-2.896
		(4.3)	(30.3)	(65.1)	(0.1)	(0.1)	(0.1)	(0:0)	(0.0)	(0.0)	(100.0)
	Milled Rice Sector	-2.0	-17.5	-80844.9	-9.1	-5.9	-2.6	-1.9	-6.1	0.0	-80889.8
		-0.001	-0.005	-6.786	-0.002	-0.001	-0.001	-0.001	-0.001	0.000	-2.164
		(0.0)	(0.0)	(99.9)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(100.0)

Note: The top line shows the amount of change, the middle line shows the change rate of the amount of change in the definite sector and region, and the bottom line (in parenthesis) shows the rate of effect in each region.

Table g. Regional Change of Value Added and Total Change of Production
Case A-R4-(1) :A Case supposing the degree of trade liberalization in Hokkaito at 0.03
(unit:million yen, %)

		Hokkaido	Tohoku	Kanto	Chubu	Kinki	Chugoku	Shikoku	Kyushu	Okinawa	Total
Change of Value Added	Whole Sectors	-559.7	-4051.4	-2048.7	-569.2	-4641.4	-614.1	-138.7	-439.4	-14.1	-13076.7
		-0.004	-0.018	-0.001	-0.002	-0.008	-0.003	-0.001	-0.002	-0.001	-0.004
		(4.3)	(31.0)	(15.7)	(4.4)	(35.5)	(4.7)	(1.1)	(3.4)	(0.1)	(100.0)
	Rice Sector	-374.4	-3358.3	-791.1	-130.9	-3649.1	-243.4	-0.4	-160.1	0.0	-8707.7
		-0.185	-0.410	-0.108	-0.049	-1.517	-0.109	-0.000	-0.049	0.000	-0.298
		(4.3)	(38.6)	(9.1)	(1.5)	(41.9)	(2.8)	(0.0)	(1.8)	(0.0)	(100.0)
	Milled Rice Sector	0.0	0.1	0.1	0.1	929.2	0.0	0.0	0.0	0.0	929.5
		0.000	0.000	0.000	0.000	2.159	0.000	0.000	0.000	0.000	0.326
		(0.0)	(0.0)	(0.0)	(0.0)	(100.0)	(0.0)	(0.0)	(0.0)	(0.0)	(100.0)
Total Change of Production	Whole Sectors	-1607.9	-9732.0	-7189.6	-2235.0	-26635.5	-2396.0	-590.7	-1577.8	-55.1	-52019.6
		-0.006	-0.023	-0.003	-0.003	-0.023	-0.005	-0.003	-0.003	-0.001	-0.008
		(3.1)	(18.7)	(13.8)	(4.3)	(51.2)	(4.6)	(1.1)	(3.0)	(0.1)	(100.0)
	Rice Sector	-773.3	-6867.9	-1618.3	-268.4	-7503.1	-485.6	-1.2	-328,0	0.0	-17845.8
		-0.277	-0.610	-0.161	-0.072	-2.251	-0.165	-0.001	-0.073	0.000	-0.446
		(4.3)	(38.5)	(9.1)	(1.5)	(42.0)	(2.7)	(0.0)	(1.8)	(0.0)	(100.0)
	Milled Rice Sector	-0.3	-2.8	-2.9	-1.4	-12593.0	-1.1	-0.6	-1.1	0.0	-12603.2
		-0.000	-0.001	-0.000	-0.000	-1.990	-0.000	-0.000	-0.000	0.000	-0.337
		(0.0)	(0.0)	(0.0)	(0.0)	(99.9)	(0.0)	(0.0)	(0.0)	(0.0)	(100.0)

Note: The top line shows the amount of change, the middle line shows the change rate of the amount of change in the definite sector and region, and the bottom line (in parenthesis) shows the rate of effect in each region.

Table h. Regional Change of Value Added and Total Change of Production
Case A-R4-(2) :A Case supposing the degree of trade liberalization in Hokkaito at 0.10
(unit:million yen, %)

		Hokkaido	Tohoku	Kanto	Chubu	Kinki	Chugoku	Shikoku	Kyushu	Okinawa	Total
Change of Value Added	Whole Sectors	-1914.7	-13854.5	-7005.0	-1946.9	-15871.8	-2099.4	-475.3	-1502.6	-48.9	-44719.1
		-0.014	-0.062	-0.005	-0.005	-0.028	-0.010	-0.005	-0.005	-0.002	-0.014
		(4.3)	(31.0)	(15.7)	(4.4)	(35.5)	(4.7)	(1.1)	(3.4)	(0.1)	(100.0)
	Rice Sector	-1280.3	-11484.2	-2705.4	-447.8	-12478.6	-832.4	-1.3	-547.4	0.0	-29777.4
		-0.632	-1.400	-0.368	-0.166	-5.188	-0.373	-0.001	-0.167	0.000	-1.020
		(4.3)	(38.6)	(9.1)	(1.5)	(41.9)	(2.8)	(0.0)	(1.8)	(0.0)	(100.0)
	Milled Rice Sector	0.0	0.4	0.4	0.2	3177.6	0.1	0.1	0.1	0.0	3178.9
		0.000	0.000	0.000	0.001	7.383	0.000	0.001	0.000	0.000	1.115
		(0.0)	(0.0)	(0.0)	(0.0)	(100.0)	(0.0)	(0.0)	(0.0)	(0.0)	(100.0)
Total Change of Production	Whole Sectors	-5500.0	-33280.8	-24584.2	-7643.3	-91082.0	-8193.6	-2019.7	-5395.6	-188.2	-177887.3
		-0.021	-0.080	-0.009	-0.009	-0.078	-0.018	-0.010	-0.010	-0.005	-0.026
		(3.1)	(18.7)	(13.8)	(4.3)	(51.2)	(4.6)	(1.1)	(3.0)	(0.1)	(100.0)
	Rice Sector	-2644.5	-23485.8	-5534.0	-917.8	-25657.8	-1660.5	-4.2	-1121.6	0.0	-61026.2
		-0.946	-2.086	-0.550	-0.247	-7.696	-0.563	-0.003	-0.248	0.000	-1.526
		(4.3)	(38.5)	(9.1)	(1.5)	(42.0)	(2.7)	(0.0)	(1.8)	(0.0)	(100.0)
	Milled Rice Sector	-1.0	-9.7	-9.9	-4.9	-43063.3	-3.7	-2.0	-3.7	0.0	-43098.2
		-0.001	-0.003	-0.001	-0.001	-6.806	-0.001	-0.001	-0.001	0.000	-1.153
		(0.0)	(0.0)	(0.0)	(0.0)	(99.9)	(0.0)	(0.0)	(0.0)	(0.0)	(100.0)

Note: The top line shows the amount of change, the middle line shows the change rate of the amount of change in the definite sector and region, and the bottom line (in parenthesis) shows the rate of effect in each region.

Table i. Regional Change of Value Added and Total Change of Production
Case A-R5-(1) :A Case supposing the degree of trade liberalization in Hokkaito at 0.03
(unit:million yen, %)

		Hokkaido	Tohoku	Kanto	Chubu	Kinki	Chugoku	Shikoku	Kyushu	Okinawa	Total
Change of Value Added	Whole Sectors	-254.1	-394.0	-983.9	-180.7	-440.5	-367.0	-87.7	-6163.3	-14.2	-8885.4
		-0.002	-0.002	-0.001	-0.001	-0.001	-0.002	-0.001	-0.022	-0.001	-0.003
		(2.9)	(4.4)	(11.1)	(2.0)	(5.0)	(4.1)	(1.0)	(69.4)	(0.2)	(100.0)
	Rice Sector	-182.4	-296.9	-258.0	-0.2	-47.8	-12.3	-1.8	-5159.9	0.0	-5959.3
		-0.090	-0.036	-0.035	-0.000	-0.020	-0.006	-0.002	-1.572	0.000	-0.204
		(3.1)	(5.0)	(4.3)	(0.0)	(0.8)	(0.2)	(0.0)	(86.6)	(0.0)	(100.0)
	Milled Rice Sector	0.0	0.0	0.0	0.0	0.0	0.1	0.0	628.6	0.0	628.7
		0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.003	0.000	0.220
		(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(100.0)	(0.0)	(100.0)
Total Change of Production	Whole Sectors	-692.9	-1026.5	-3589.7	-865.6	-1800.6	-1956.7	-403.9	-25161.2	-57.1	-35554.2
		-0.003	-0.002	-0.001	-0.001	-0.002	-0.004	-0.002	-0.046	-0.001	-0.005
		(1.9)	(2.9)	(10.1)	(2.4)	(5.1)	(5.5)	(1.1)	(70.8)	(0.2)	(100.0)
	Rice Sector	-376.9	-610.0	-529.0	-0.7	-99.6	-25.7	-4.1	-10531.3	0.0	-12177.3
		-0.135	-0.054	-0.053	-0.000	-0.030	-0.009	-0.003	-2.332	0.000	-0.304
		(3.1)	(5.0)	(4.3)	(0.0)	(0.8)	(0.2)	(0.0)	(86.5)	(0.0)	(100.0)
	Milled Rice Sector	-0.1	-0.4	-1.1	-0.5	-0.7	-2.3	-0.3	-8520.3	0.0	-8525.7
		-0.000	-0.000	-0.000	-0.000	-0.000	-0.001	-0.000	-1.865	0.000	-0.228
		(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(99.9)	(0.0)	(100.0)

Note: The top line shows the amount of change, the middle line shows the change rate of the amount of change in the definite sector and region, and the bottom line (in parenthesis) shows the rate of effect in each region.

Table j. Regional Change of Value Added and Total Change of Production
Case A-R5-(2) :A Case supposing the degree of trade liberalization in Hokkaito at 0.10
(unit:million yen, %)

		Hokkaido	Tohoku	Kanto	Chubu	Kinki	Chugoku	Shikoku	Kyushu	Okinawa	Total
Change of Value Added	Whole Sectors	-866.7	-1342.7	-3353.0	-615.9	-1500.6	-1250.4	-299.0	-21005.6	-48.8	-30282.7
		-0.006	-0.006	-0.002	-0.002	-0.003	-0.006	-0.003	-0.076	-0.002	-0.009
		(2.9)	(4.4)	(11.1)	(2.0)	(5.0)	(4.1)	(1.0)	(69.4)	(0.2)	(100.0)
	Rice Sector	-621.6	-1011.9	-879.2	-0.7	-162.9	-42.1	-6.1	-17585.5	0.0	-20310.0
		-0.307	-0.123	-0.120	-0.000	-0.068	-0.019	-0.006	-5.357	0.000	-0.696
		(3.1)	(5.0)	(4.3)	(0.0)	(0.8)	(0.2)	(0.0)	(86.6)	(0.0)	(100.0)
	Milled Rice Sector	0.0	0.1	0.1	0.1	0.1	0.3	0.0	2142.4	0.0	2143.1
		0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.827	0.000	0.752
		(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(100.0)	(0.0)	(100.0)
Total Change of Production	Whole Sectors	-2361.0	-3499.3	-12233.5	-2949.6	-6135.9	-6668.8	-1376.8	-85753.4	-195.2	-121173.4
		-0.009	-0.008	-0.004	-0.004	-0.005	-0.014	-0.007	-0.156	-0.005	-0.018
		(1.9)	(2.9)	(10.1)	(2.4)	(5.1)	(5.5)	(1.1)	(70.8)	(0.2)	(100.0)
	Rice Sector	-1284.7	-2079.1	-1803.1	-2.6	-339.3	-87.7	-13.8	-35892.3	0.0	-41502.6
		-0.459	-0.185	-0.179	-0.001	-0.102	-0.030	-0.010	-7.948	0.000	-1.038
		(3.1)	(5.0)	(4.3)	(0.0)	(0.8)	(0.2)	(0.0)	(86.5)	(0.0)	(100.0)
	Milled Rice Sector	-0.4	-1.5	-3.6	-1.6	-2.4	-7.8	-0.9	-29038.3	0.0	-29056.5
		-0.000	-0.000	-0.000	-0.000	-0.000	-0.003	-0.001	-6.357	0.000	-0.777
		(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(99.9)	(0.0)	(100.0)

Note: The top line shows the amount of change, the middle line shows the change rate of the amount of change in the definite sector and region, and the bottom line (in parenthesis) shows the rate of effect in each region.

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