

Simulation of Japan-China Regional Economic Arrangement

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Mitsuhito Ono, Yasuhiko Sasai, Takeshi Imagawa, Toshiaki Hasegawa,

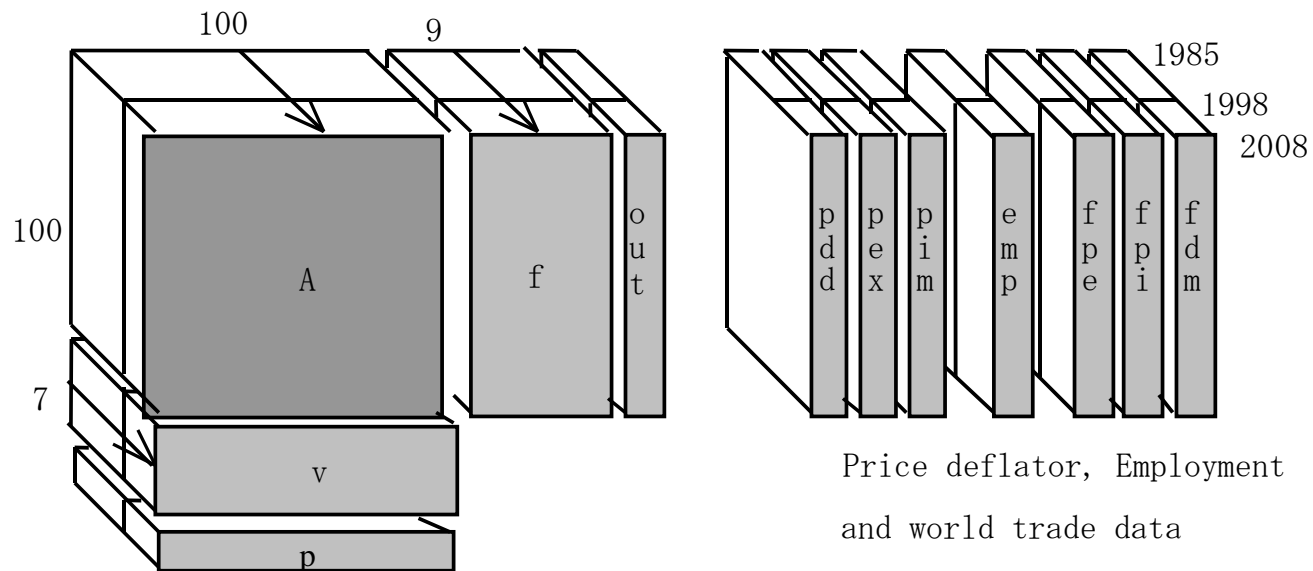
Kenichi Shiraishi

1. Background and Objective of this study

- An increasing interest in FTAs by business people
- to estimate the economic effects on the FTA between Japan and China by linking our Japanese economic model with Chinese one

2. Structure of Jidea5

JIDEA5: General Concept of the Model



I-O table (100×100)

Price deflator, Employment
and world trade data

3. Final demand

- Consumption (cobr, cohr, cogr)
- Investment(ingr, iprr, venr)
- Export
- Import
- Adjustment for consumer tax

Estimation period :1985-1999, by ols

4. Value added

- Wage
- Profit
- Depreciation
- Tax
- Subsidies
- Consumption outside household
- Double inflation

5. Solution of model

Final demand side (Real side):

$$Q = AQ + F - M(p,..)Q$$

Q : Output vector in real term

A : Intermediate coefficient in real term

F : Final demand vector contains also import in real term

M(p,..) : Import share function explained by domestic demand and relative price

Value added side (Nominal side)

$$p = AD^*p + AM^*p_m + v$$

p : Output price vector

AD : $AD = A - AM$ (Domestic intermediate coefficient)

p_m : Import price vector

AM : $AM = A * Imps$ (Imps is a matrix whose diagonal elements are import shares)

6. Linkage with Chinese Mudan03 model: Jidea51s

Table 1. The difference of Jidea51s, Mudan03, and BTM

	Jidea51s	Mudan03	BTM
Base year	1995	1997	none
Numbers of Sectors	100	59	120
Currency	yen	Yuan	dollar

7. Methods

- **Japanese export to China**
- Chinese import from Japan (real, yuan, 59 sectors) : Mudan03
(nominal, yuan, 59 sectors) : Mudan03
- (nominal, \$, 120 sectors) :BTM
- Japanese export to China (nominal, yen, 63 sectors) :Jidea51s
- (real, yen, 63 sectors) :Jidea51s
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- **Japanese import from China**
- Japanese import from China (real, yen, 63 sectors) :Jidea51s
- (nominal, yen, 63 sectors) :Jidea51s
- (nominal, \$, 120 sectors) :BTM
- Chinese export to Japan (nominal, yuan, 59 sectors) : Mudan03
- (real, yuan, 59 sectors) : Mudan03

8. Problem

After linking the models, we found the exchanged data have difference in levels.

- 1. the data base of each model is different
- 2. categories are different, thus the accumulations of errors by converting data might be expected.
- This model introduced adjustment coefficient obtained by regression to rectify the difference.

9. Summary:

The economic effects of the introduction of FTA between Japan and China

Sm1: after removal of Japanese tariff against China when FTA between China and Japan realized.

Sm2: additionally assumed that Chinese import price should be reduced by 10% by tax removal for all commodities

For Japanese tariff rate, we used the year of 2003 rates which was latest when we started this project.

Table 2. The Japanese import tariff for Chinese products reclassified to 100 industrial sectors (2003)

(unit:1000yen.%)

sector no.		value	taxed value	ave. tariff	sector no.		value	taxed value	ave. tariff
1	Agri crops	70,455,601	2,412,342	3.424	33	Cement	1,724,248	0	0
2	Agri Livestk	13,436,257	0	0.000	34	Pottery	23,113,059	0	0
4	Forestry	33,242,154	0	0.000	35	O th ceram ic	110,708,176	0	0
5	Fishery	41,947,077	0	0.000	36	P ig iron	38,691,643	0	0
6	Metal ores	4,183,093	0	0.000	37	Steel	3,425,768	0	0
7	Nonm et ores	33,476,721	0	0.000	38	Steel Cast	12,193,264	0	0
8	Coal	133,673,660	0	0.000	39	Nonfer meta	81,217,249	62,655	0.001
9	Petro & gas	72,395,443	633,710	0.875	40	Proce Nonfer	131,225,173	0	0
10	Food prod	606,719,513	1,042,553	0.172	41	Metal const	18,924,586	0	0
11	Beverages	19,269,804	337,903	1.754	42	Heating equi	3,201,382	0	0
12	Feeds& fert	7,593,690	68,886	0.907	43	Metal other	107,589,692	0	0
13	Textiles	114,728,573	21,839,168	19.036	44	M achine gen	83,710,568	0	0
14	C b th ing	1,885,353,356	3,863,819	0.205	45	M achine tool	6,624,797	0	0
15	W ooden prod	120,760,032	0	0.000	46	M achine spec	43,659,931	0	0
16	Furniture	124,607,291	0	0.000	47	M achine oth	28,333,272	0	0
17	Pulp&paper	27,364,300	0	0.000	48	M ach office	69,773,889	0	0
18	Printing	6,967,568	0	0.000	49	M ach service	17,016,320	0	0
19	Chem fert	6,307,267	0	0.000	50	M ach hous el	450,547,243	0	0
20	Chem basic	49,661,267	52,371	0.105	51	Com puter	683,920,215	0	0
21	Chem petro	738,327	0	0.000	52	Com m un ic eqp	62,500,284	0	0
22	Chem organ	58,757,629	128,415	0.219	53	Elapl d&M eas	21,812,404	0	0
23	Chem resin	4,978,519	4,745	0.095	54	IC	74,081,737	0	0
24	Chem fber	5,197,751	67,201	1.293	55	El parts	274,017,744	0	0
25	Medicine	15,005,736	0	0.000	56	Heavy el	260,810,026	0	0
26	Chem final	42,915,708	59,540	0.139	57	O th light el	138,512,057	0	0
27	Petro prod	23,675,473	123,703	0.522	58	M otor vehicl	76,425,123	0	0
28	Coal prod	22,454,963	0	0.000	59	Ships	6,993,768	0	0
29	Plastic prod	115,227,127	0	0.000	60	Rail Equip	293,242	0	0
30	Rubber prod	214,768,578	0	0.000	61	A ir plane	224,729	0	0
31	Leather	209,725,247	2,875,071	1.371	62	O th Transp E	54,696,071	0	0
32	G lass	23,027,003	0	0.000	63	P rec ision	167,325,830	0	0
					64	M fg m iscella	383,626,844	0	0

JIDEA Macro Summary

Line 1: Japan China FTA Base line 23/06/2005

Line 2: Tariff Removal by Japan (sm1) - percent difference from base

Line 3: sm1 + Chinese tariff cut by 10% (sm2) - percent difference from base

Alternatives are shown in percentage deviations from base.

GDP Components by Expenditure Category			Trillions of 1995 Yen			
	2003	2004	2005	2006	2007	2008
Gross Domestic Product	583.654	605.184	612.094	622.534	630.013	638.818
	-0.023	-0.036	0.155	0.103	0.080	0.061
	0.091	0.107	0.455	0.477	0.508	0.562
Total Consumption	418.350	428.449	434.783	441.191	443.718	446.395
	0.046	0.031	0.062	0.049	0.037	0.029
	0.076	0.075	0.190	0.218	0.233	0.256
Total Investment	139.024	142.484	144.085	144.402	145.254	145.127
	0.004	0.003	0.801	0.603	0.489	0.382
	0.004	0.003	1.116	0.995	0.885	0.830
Exports	79.913	90.362	94.238	101.206	107.615	115.686
	0.004	-0.003	0.008	0.007	0.007	0.005
	0.736	0.810	1.274	1.581	1.775	2.007
Imports	55.093	59.338	62.808	66.196	68.624	70.603
	0.619	0.604	0.775	0.682	0.554	0.425
	0.722	0.713	1.393	1.601	1.552	1.593

GDP Components by Expenditure Category

Trillions Yen

	2003	2004	2005	2006	2007	2008
Gross Domestic Product	585.745	592.546	601.804	607.556	613.352	618.835
	0.115	0.119	0.124	0.092	0.078	0.063
	0.139	0.161	0.222	0.208	0.207	0.208
Total Consumption	429.396	431.367	445.445	446.057	450.349	451.525
	0.027	0.046	0.010	0.025	0.014	0.016
	0.000	0.037	-0.054	-0.041	-0.071	-0.091
Total Investment	140.762	141.567	146.182	145.737	147.476	147.548
	0.062	0.035	0.742	0.548	0.449	0.353
	-0.008	-0.039	0.843	0.654	0.510	0.401
Exports	74.432	82.724	86.310	91.688	97.199	103.738
	-0.088	-0.036	-0.049	-0.024	-0.016	-0.007
	0.613	0.752	1.145	1.459	1.650	1.876
Imports	56.585	60.421	64.497	67.506	70.635	72.896
	0.584	0.573	0.698	0.609	0.492	0.378
	0.664	0.661	1.215	1.375	1.315	1.338

Price

	2003	2004	2005	2006	2007	2008
Household Consumption Deflator	1.021	1.001	1.016	1.002	1.005	1.002
	-0.013	0.018	-0.048	-0.024	-0.021	-0.012
	-0.063	-0.030	-0.234	-0.254	-0.297	-0.338
Import Price Index	1.027	1.018	1.027	1.020	1.029	1.032
	-0.035	-0.030	-0.077	-0.073	-0.062	-0.047
	-0.057	-0.052	-0.175	-0.222	-0.233	-0.251
Export Price Index	0.931	0.915	0.916	0.906	0.903	0.897
	-0.092	-0.033	-0.058	-0.031	-0.023	-0.012
	-0.122	-0.058	-0.128	-0.120	-0.122	-0.128
GDP Deflator	1.047	1.021	1.025	1.018	1.015	1.010
	0.138	0.156	-0.031	-0.011	-0.002	0.002
	0.048	0.054	-0.232	-0.267	-0.300	-0.352
Consumer Price Index	1.027	1.003	1.022	1.004	1.008	1.004
	-0.016	0.022	-0.060	-0.030	-0.027	-0.015
	-0.079	-0.038	-0.290	-0.316	-0.370	-0.422