TPP

Quantitative Assessments of Japan's Agricultural Policy Reforms and Its Participation in the Trans-Pacific Partnership Agreement

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In October 2015, Ministers of the 12 Trans-Pacific Partnership (TPP) countries announced conclusion of their negotiations. The objectives of this research are twofold. First, by using a dynamic CGE model with plausible sequences of TPP enlargements, we offer results that are highly policy relevant. Second, we examine additional effects of the TPP, namely trade-induced agricultural policy reforms in Japan and the positive impact on productivity. The results suggest that when Japan's agricultural policy reforms would result in an increase in productivity of its agricultural sectors, the extent of output contraction of agricultural and processed food sectors in the country would be reduced significantly except for dairy products. In addition, when import and export penetrations are assumed to exert a positive effect on productivity, the magnitudes of welfare gains for all the member countries increase considerably.

TPP   FTA CGE

１．研究開始当初の背景

The Trans-Pacific Partnership (TPP) is a free trade agreement (FTA) that aims to further liberalize trade among Asia-Pacific countries. It took the Japanese government almost three years before deciding to join the negotiations in March 2013. The delay was largely caused by a sharp division between those who were in favor of and those who were against joining the TPP.

The Principal Investigator's previous studies on FTAs have shown that Japan would realize nontrivial economic gains. Other studies suggest that the long-term decline in international competitiveness of Japanese agriculture is to a considerable extent caused by lack of agricultural policy reforms in Japan. Thus, policy reforms must be undertaken to prevent further decline in competitiveness of the agricultural sector, regardless of whether Japan joins the TPP.

２．研究の目的

In March 2013 the Cabinet Office reported that implementing the TPP would increase Japan's GDP by 3.2 trillion yen or by 0.66%. However, this estimate did not include the effects of trade facilitation or reductions in nontariff barriers on services trade. In this study, we use a global dynamic computable general equilibrium (CGE) model that incorporates trade facilitation and nontariff barriers on services trade. In addition, we include two additional scenarios: (1) productivity of agricultural sectors in Japan increases gradually from 1% a year in 2018 to 1.5% a year in 2030, resulting from Japan's agricultural policy reforms; (2) productivity of manufacturing sectors increases from 1% a year to 1.1% a year for the TPP member countries, resulting from import and export penetrations. By using a dynamic model that spans the period from 2012 to 2030, we could estimate both the economywide effects and sectoral output effects more accurately.

３．研究の方法

(1) The methodology used in this project is a dynamic CGE model, which is an empirical tool well suited to evaluating policies that have regional and sectoral ramifications in the long run. First, it captures extensive indirect effects, such as inter-industry linkages between sectors and trade linkages between countries. Second, it can evaluate the effects of removing trade barriers on resource allocation and struc- tural adjustments over time. Third, it can detail the impacts on both member and nonmember countries and thereby better elucidate implications for the negotiating environment. Thus, a dynamic CGE model is an ideal tool to examine long-term benefits and costs of Japan's participation in the TPP under alternative policy scenarios.

(2) The data for the 22-region, 29-sector dynamic CGE model previously employed by Lee and Itakura were updated using Version 8.1 of the GTAP Database, IMF's World Economic Outlook Database (2015), and the UN's World Population Prospects Database (2015). We then established the baseline scenario, showing the path of each of the 22 economies/ regions over the period 2012-2030. The baseline contains esti- mated growth rates of GDP, population and labor force and expected policy changes, such as entry into force of the FTAs signed before April 2013. Thus, implementations of all ASEAN+1 FTAs, EU-Korea FTA, and Korea-US FTA are included in the baseline.

(3) Next, we designed the following four policy scenarios:

①Scenario 1: Implementations of TPP-12 over the period 2016-2025, TPP-13 during 2018-2027 and TPP-16 during 2021-2030.

②Scenario 2: Implementations of TPP-12 during 2016-2025, TPP-13 during 2018-2027, TPP-16 during 2021-2030 and TPP-19 from 2024. 70% of TPP-19 is assumed to be implemented in 2030.

③Scenario 3: Same as Scenario 2, except that efficiency on overall output for Japan's agricultural sectors is assumed to increase gradually from 1% a year in 2018 to 1.5% a year in 2030.

④Scenario 4: Same as Scenario 3, except that efficiency on overall output for manufacturing sectors is assumed to increase from 1% a year to 1.1% a year in the TPP-12, TPP-13, TPP-16 and TPP-19 countries during 2016-17, 2018-20, 2021-23 and 2024-30, respectively.

Note: TPP-12: Twelve TPP member coun- tries. TPP-13: TPP-12 plus Korea. TPP-16: TPP-13 plus Indonesia, Philippines and Thailand. TPP-19: TPP-16 plus China, India and Taiwan.

４．研究成果

(1) After constructing a 22-region, 29-sector dynamic CGE model, we first compared between the Asian-track (RCEP → FTAAP) and the TPP track (TPP → FTAAP) of regional integration. The results can be summarized as follows:

①All member countries' economic welfare increases while at least some of non-members' welfare is predicted to decrease.

②The larger the economic size of the FTA, the larger the aggregate gain to the members.

③If a particular FTA is confined to only tariff liberalization, the welfare gains are significantly smaller than the case when the FTA includes services trade liberalization and trade facilitation.

④More Asian countries are expected to realize larger welfare gains under the Asian-track. This is largely caused by the fact that most Asian countries have greater trade shares with RCEP countries than with TPP member countries. However, the differences in welfare gains between the two tracks are relatively small and are sensitive to assumptions on the baseline scenario.

(2) Possible agricultural policy reforms that are expected to increase productivity of the agricultural sectors in Japan include, but are not limited to, the following:

①Consolidation of farmland by removing regulations that hinder agricultural land consolidation.

②Reforming Japan Agricultural Cooperatives (JA), which is expected to reduce inefficiency of the distribution system of agricultural inputs and final products.

③Abolishing subsidies to part-time farmers and provide direct payments to full-time farmers to help strengthen the farm sector's competitiveness.

④Encouraging new entrants by promoting the withdrawal of retired farmers and absentee owners.

⑤Promoting corporations to engage in agricultural production and apply their managerial skills.

(3) The welfare results for the four policy scenarios, as percentage deviations in equivalent variations from the baseline for the year 2030, are summarized in Table 1. Some of the main findings are as follows:

①There are large differences in welfare gains among the TPP countries.

②If the Japanese government is successful in accomplishing agricultural reforms, then Japan's welfare gains in 2030 are projected to increase by 0.2 percentage point. Since agriculture accounted for only 1.1% of Japan's GDP in 2014, an increase of 0.2 percentage point in the national welfare resulting from agricultural reforms is considered to be large.

③When the TPP is assumed to induce productivity growth in manufacturing sectors through a competitive effect, the magnitudes of welfare gains for the TPP members are amplified considerably.

Table 1: The welfare effects of the TPP
(% deviations in equivalent variations
from the baseline)

	Scenarios			
	1	2	3	4
Japan	0.59	0.70	0.92	2.62
China	-0.17	0.30	0.30	1.63
Korea	1.46	1.81	1.80	4.94
Taiwan	-0.25	2.15	2.17	3.54
Singapore	1.89	1.85	1.85	4.85
Indonesia	0.65	1.00	1.01	1.96
Malaysia	0.77	0.64	0.65	3.18
Philippines	1.87	1.31	1.32	3.01
Thailand	1.38	1.10	1.11	3.19
Vietnam	1.41	1.90	1.90	3.06
Rest of ASEAN	0.04	0.07	0.13	0.24
India	-0.26	0.98	0.95	2.01
Australia	0.14	1.36	1.35	1.87
New Zealand	0.70	0.72	0.68	2.07
United States	0.11	0.14	0.13	1.04
Canada	0.32	0.44	0.43	1.19
Mexico	0.35	0.34	0.35	1.65
Chile	0.62	1.63	1.61	3.08
Peru	0.08	0.37	0.37	1.66
Russia	0.04	0.05	0.07	0.19
EU-28	-0.10	-0.22	-0.22	-0.39
Rest of world	-0.03	-0.04	-0.03	-0.12

(4) The differences in the initial tariff rates across sectors and member countries play a critical role in determining the direction of the adjustments in sectoral output. Tables 2 presents the sectoral output adjustments for Japan, expressed in percent deviations from the baseline in 2030. A summary of the main findings is as follows:

①Output of dairy products contracts by

more than 10% under all scenarios, while that of other grains and meats decreases by 8-9% under Scenarios 1 and 2. Output of sugar and livestock contracts 2-5% in the first two scenarios.

② Under most of the scenarios, the manufacturing and services sectors in Japan increase with the exception of apparel, machinery, electronic equipment and other transport equipment.

Table 2: Japan's sectoral output adjustments for the year 2030 (% deviations from the baseline)

Sector	Scenarios			
	1	2	3	4
Rice	0.3	0.2	1.3	1.1
Other grains	-7.6	-7.9	-1.7	-2.9
Sugar	-2.5	-2.3	-0.4	0.2
Other crops	0.5	0.4	3.5	3.3
Livestock	-4.6	-4.4	1.1	1.2
Meats	-8.7	-8.7	-1.8	-1.3
Dairy products	-14.3	-13.9	-11.4	-9.9
Other food products	1.6	1.8	2.5	4.5
Fossil fuels	-2.5	-3.3	-3.7	-6.0
Natural resources	0.4	0.5	0.6	0.8
Textiles	7.0	11.2	10.0	10.0
Apparel	1.0	-2.3	-2.4	-0.9
Petroleum products	1.4	2.8	2.8	5.1
Chemical products	2.0	3.4	3.0	5.1
Steel	1.2	2.5	2.0	3.7
Nonferrous metal	2.6	1.0	0.6	2.0
Metal products	0.7	0.8	0.7	2.3
Machinery	-0.5	-0.3	-1.1	-1.5
Electronic equipment	-1.5	-2.3	-2.8	-2.9
Motor vehicles	1.1	0.2	-0.5	0.8
Other transport equip.	-1.0	-4.1	-4.9	-3.3
Other manufactures	1.2	1.4	1.3	2.9
Construction and util.	1.9	2.2	2.7	7.1
Trade	0.7	0.7	0.9	2.4
Transport	0.4	0.5	0.5	1.4
Communication	0.4	0.4	0.5	1.7
Financial services	0.3	0.3	0.3	1.3
Other private services	0.5	0.5	0.6	2.1
Government services	0.1	0.1	0.2	0.9

③When agricultural productivity in Japan is assumed to increase gradually from 1% a year in 2018 to 1.5% a year in 2030 under Scenario 3, the extent of contraction would be reduced significantly in other grains, sugar and meats, but not in dairy products. In livestock output changes become positive, whereas in other crops and other food products output expands by 3-4%.

These results suggest that appropriate policy reforms would sufficiently strengthen the competitiveness of Japan's agricultural and processed food sectors other than daily products.

④When the TPP is assumed to induce productivity growth in manufacturing sectors under the fourth scenario, not only output of manufacturing sectors, but also that of services sectors expands through increases in demand for intermediate services.

５．主な発表論文等
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