

THE INTERNATIONAL JOURNAL OF BUSINESS & MANAGEMENT

Comprehensive and Progressive for Trans Pacific Partnership with South Korea, Thailand, and Taiwan Integration: A Gtap Model Approach

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Abstract:

The Comprehensive and Progressive Agreement for Trans – Pacific Partnership (CPTPP) is a multilateral free trade agreement which includes 11 countries on both sides of the Pacific. Recently, some countries are considering the possibility of joining in the bloc, including South Korea, Taiwan, and Thailand. This paper attempts to examine the impact of CPTPP expansion with the participation of South Korea, Taiwan, and Thailand. A Global Trade Analysis Project (GTAP) model is employed to evaluate the economic effects of CPTPP and CPTPP with South Korea, Taiwan, and Thailand (CPTPP +3). The results show that CPTPP or CPTPP+3 members would benefit from the agreement while non – members show negative impacts of trade liberation. The CPTPP+3 scenario provides more benefits as compare with CPTPP, particularly for the case of Vietnam.

Keywords: CPTPP, CPTPP+3, GTAP, export, real GDP, welfare

1. Introduction

In the past two decades, many countries have participated in bilateral and multilateral FTAs in order to boost their domestic production, trade and economic growth. The Comprehensive and Progressive for Trans Pacific Partnership (CPTPP) have originated from the Trans Pacific Strategic Economic Partnership Agreement (known as TPP) – a Free Trade Area (FTA) among twelve members, including United States, Canada, Mexico, Peru, Chile, New Zealand, Australia, Japan, Singapore, Malaysia, and Vietnam. Actually, TPP is based on an agreement between four countries (Brunei, Chile, New Zealand and Singapore – a P4 agreement) signed in 2005 (Fergusson and Vaughn, 2011). After long negotiation of several more countries, TPP was officially signed on February, 2016, expecting to come into force in 2018. However, The United States gave notice of its intent not to join in TPP on January, 2017 which made TPP cannot meet requirement for enforcement as expected. As a results, the eleven remaining members of TPP had to pursue a new agreement known as CPTPP. In March, 2018, CPTPP was signed by 11 countries and was approved by 7 members including Australia, Canada, Japan, Mexico, New Zealand, Singapore and Vietnam. Almost all commitments of TPP were maintained excluding: (i) United States commitments; (ii) 22 freeze clauses; (iii) and some modifications among CPTPP members¹.

Some others countries such as United States, South Korea, United Kingdom, Indonesia, Thailand, Colombia and Taiwan also announced their interest about CPTPP. However, the possibility of joining CPTPP of potential members is still depend on many factors. For example, The United Kingdom may decide the outcome of Brexit before examining whether or not to join CPTPP, Indonesia's government seems to be hesitate because without United States, the benefits on trade front for Indonesia are not big², event previous Colombia's government expressed willingness to take part in the CPTPP, however, the existing government has no action to prove their intention to join in near future.

This paper assesses the possibility of trade liberation through the CPTPP with the addition of new members including South Korea, Thailand, and Taiwan. The objective of this study is to assess the impact of trade liberation before and after South Korea, Taiwan and Thailand to join in CPTPP, especially this study aims at measuring the effects of CPTPP and CPTPP+3 on Vietnam.

2. Methodology and Data

2.1. Methodology

In order to quantify assessment on the CPTPP impact on welfare and GDP, a Global Trade Analysis Project (GTAP) model has been utilized in this study. GTAP model originally formulated by Hertel (1997) in 1992 at Purdue University, USA, is the most widely utilized Computable General Equilibrium (CGE) model for the analysis of trade policy. The model includes multi – market (market for final goods, intermediate good, traded goods, and factors of production), and multi-region (a region representing a country or a group of countries). The quantity of endowments such as land, skilled and

¹<http://www.wtocenter.vn/fta/175-cptpp-tp11/1>

²<https://asia.nikkei.com/Spotlight/The-Future-of-Asia-2018/Indonesia-making-preparations-to-join-TPP>

unskilled labor, natural resources, and initial capital is fixed and main agents in the GTAP model are producers, consumers, and the government Plummer et al (2010)

2.1. Data

GTAP version 8 database is the source of the data for simulation. The database covers 129 regions and 57 sectors, representing the world economy based on a 2007 benchmark. For this study, the GTAP version 8 database was aggregated down to 14 regions (Australia - AUS, New Zealand - NZL, Japan - JPN, Singapore - SGP, Malaysia- MYS, Canada - CAN, Chile - CHL, Peru - PER, Mexico - MEX, Vietnam - VNM, and South Korea - KOR, Taiwan - TWN, Thailand - THA) and 16 sectors (Grains and Crops -GC, Rice - RC, Vegetables -VE, Livestock - LS, Meat Products - MP, Fishing - FH, Mining and Extraction - ME, Processed food - PF, Textiles and Clothing - TC, Leather - LT, Wood Products - WP, Light Manufacturing - LM, Heavy Manufacturing - HM, Utilities and Construction - UC, Transport and Communication - TC, Other Services- OC). Because Brunei do not include in the GTAP version 8 database, it is not possible to aggregate Brunei to be one separate region. Moreover, 16 sectors in this study which contains some main export products of developing countries like Vietnam such as Rice, Leather, Textiles and Clothing should be meaningful for Vietnam in the analysis process.

3. Results

In this study, it is assumed that all tariffs in all sectors would be eliminated if a region or a country participate in CPTPP in order to analyze the impacts of CPTPP on both of the members or non – members in general. The results are reported in the macroeconomic, sectoral and welfare effects of two scenarios with and without South Korea, Thailand, and Taiwan.

	Change in GDP (%)		Change in EV (millions USD)		Change in Export (%)	
	CPTPP	CPTPP+3	CPTPP	CPTPP+3	CPTPP	CPTPP+3
AUS	0.03	0.06	2016.25	2499.76	2.50	2.99
JPN	0.27	0.37	14194.08	22025.83	2.11	2.80
KOR	-0.01	0.18	-681.94	3142.69	-0.14	2.79
NZL	0.07	0.08	765.99	801.85	2.99	3.32
MYS	0.15	0.23	802.43	1004.17	1.63	2.10
TWN	-0.01	0.04	-420.63	1335.16	-0.18	3.00
MEX	0.06	0.14	306.89	1006.86	0.70	1.12
SGP	0.01	0.02	763.74	1330.40	0.63	1.34
VNM	0.72	1.87	1203.23	1482.83	6.29	14.48
THA	-0.04	0.13	-569.55	1002.42	-0.30	3.44
CAN	0.06	0.06	1464.41	1838.07	0.41	0.46
CHL	0.02	0.03	138.07	145.65	0.44	0.51
PER	0.02	0.01	7.91	10.57	1.23	1.59
ROW	0.00	-0.01	-8279.54	-19872.20	-0.08	-0.20

Table 1: Change in Real GDP and Equivalent Variation (EV)

Source: Model Simulation

Table 2 shows the impacts of trade liberation at 0 tariff rates to all members of CPTPP. Except Peru, all countries participated in CPTPP or CPTPP +3 gain in real GDP growth rate. By contrast, South Korea, Taiwan, Thailand, and Rest of the world suffer negative impacts from the abolition of tariffs. Vietnam is among the countries beneficial the most from CPTPP and CPTPP+3. The results suggest that the CPTPP and CPTPP+3 would have negative effects for all non – member economies. In addition, comparing the change of real GDP of CPTPP+3 and CPTPP shows that the value of real GDP and export increases more than with only the present members and again, Vietnam gains more than any other members for the two scenarios. The EV – the net welfare shows that Japan, South Korea, Australia gains the most among all members for CPTPP +3 scenarios while Peru gets less than any other members, insignificantly.

Region/sector	GC	AUS	JPN	KOR	NZL	MYS	TWN	MEX	SGP	VNM	THA	CAN	CHL	PER	ROW
OS	-0.21	0.21	-0.24	-0.03	-1.15	-0.58	-0.04	-1.47	-7.80	-1.15	-0.04	-0.04	0.00	0.02	
TC	-0.15	0.04	0.06	-0.41	0.30	-0.30	0.04	-0.77	0.20	-0.64	0.00	0.04	0.05	0.05	
UC	0.96	0.45	1.03	0.82	0.70	1.10	0.60	1.00	5.96	3.36	0.15	0.17	0.39	-0.13	
HM	-2.74	0.17	-0.32	-3.32	0.34	-0.12	-0.04	1.35	-12.79	-0.41	-0.47	-0.48	-0.03	0.11	
LM	-5.51	1.73	1.35	-5.02	-1.13	0.22	0.11	3.34	-9.71	-0.42	-0.85	-1.53	-1.02	-0.08	
WP	-2.04	-0.75	-0.55	-1.81	6.90	0.95	-0.86	5.67	-18.54	-1.01	-0.56	-0.94	-0.06	0.07	
LT	-11.24	-2.33	9.34	-10.78	18.92	58.88	-10.46	9.91	54.71	3.49	-3.25	-1.56	-1.21	-1.34	
TC	-3.84	1.02	9.64	-5.44	8.19	14.29	-0.24	6.36	77.58	-1.42	-1.49	-0.95	0.02	-0.79	
PF	5.42	0.43	-0.36	10.10	1.26	4.22	-0.09	15.37	-	4.93	-0.46	1.27	0.20	-0.16	
ME	-1.09	-1.31	-2.28	-1.82	-0.66	-1.70	0.05	-0.22	-6.28	-1.01	-0.12	-0.20	0.30	0.12	
FH	0.64	0.35	-0.21	4.87	-0.02	0.24	0.12	-0.12	-3.46	1.23	0.01	0.54	0.02	-0.02	
MP	21.47	-17.92	-12.83	3.72	-0.01	-3.99	-0.91	2.00	-17.13	-8.58	10.81	10.10	0.12	-0.22	
LS	12.28	-8.86	-8.76	6.98	1.48	-1.74	-0.36	1.17	-0.34	-5.85	3.35	6.82	0.08	-0.07	
VE	-0.33	0.58	-12.51	-1.54	3.20	-2.10	-0.15	-3.69	2.22	-0.15	0.02	-1.49	0.16	-0.05	
RC	126.8	-64.49	0.42	2.62	-20.36	2.28	0.03	15.91	3.68	17.43	1.14	0.31	-0.26	1.18	
GC	3.08	-4.40	7.49	-1.96	0.43	5.51	0.14	3.55	-	-3.92	7.16	0.45	0.05	-0.08	

Table 2: Production by Sector of CPTPP+3 (Unit: Percentage Change)

Source: Model Simulation

Table 3 show the production output for different sectors in percentage change. Under this scenario, production output increased in some agriculture sectors not only for Australia, Canada, Singapore, Chile, New Zealand but also for Vietnam, Thailand. Rice (Paddy Rice, Rice Process) saw an increase of 126.8% in Australia, following by Thailand of 17.43%, Singapore of 15.91%, and Vietnam with only 3.68%. Australia, Chile, New Zealand, Singapore, and Canada also increase their production output in Livestock, Meat products, and Processed Food significantly, with 12.28% in Australia, 6.98% in New Zealand, and 6.82% in Chile (for Livestock); 21.47% in Australia, 10.81% in Canada, and 10.1% in Chile (for Meat Products); 15.37% in Singapore, 10.1% in New Zealand, and 5.42% in Australia (for Processed Food). On the other hand, Textiles and Clothing, Leather saw an output increase of 77.58%, and 54.71%, respectively. Similarly, Taiwan and Malaysia also increase their production output in Textiles and Clothing, and Leather, but in smaller volume. However, output decreased for the Textiles and Clothing and Leather sectors in Australia, New Zealand, Canada, Mexico, and Chile. Trade liberation of CPTPP agreement seems to be much more positive in Australia, Singapore, New Zealand, Canada, Chile in terms of agricultural sectors, whereas, Vietnam, Taiwan, Malaysia, and South Korea had positive output in Textiles and Clothing and Leather sectors.

Region/Sector	AUS	JPN	KOR	NZL	MYS	TWN	MEX	SGP	VNM	THA	CAN	CHL	PER	ROW
GC	3.90	49.33	35.76	-9.37	-2.44	30.68	2.86	23.35	-12.16	-7.48	13.96	-3.07	3.24	-0.73
RC	594.75	31.83	19.19	-0.35	36.35	384.29	6.70	-0.82	26.18	47.59	6.14	2.90	4.93	3.87
VE	0.19	50.05	37.05	-7.31	11.72	23.08	-0.43	-0.88	25.15	8.94	3.03	-1.69	1.59	-0.77
LS	-9.37	38.38	34.23	2.99	4.06	2.68	0.11	10.16	8.07	2.74	-0.83	-0.19	1.14	0.78
MP	62.80	21.43	84.33	10.42	0.01	0.68	-8.42	12.11	-10.93	-25.67	52.88	48.78	1.97	-2.98
FH	0.12	19.80	13.06	-8.98	2.48	7.81	2.30	1.89	1.30	1.76	0.49	0.16	1.93	-0.22
ME	-0.43	4.28	1.80	-1.99	-1.67	2.02	0.19	3.71	-4.59	0.26	0.10	0.06	1.28	0.13
PF	31.18	38.19	34.31	23.09	3.83	57.22	1.43	32.72	-5.95	15.60	3.31	2.55	2.21	-1.31
TC	-0.67	17.52	25.79	-	12.71	22.31	4.07	16.20	87.73	2.48	1.21	-5.00	5.60	-1.88
LT	-	9.83	25.45	-	30.31	84.27	9.52	19.58	56.69	10.91	0.32	-0.69	4.31	-2.68
WP	-1.05	11.21	7.36	-2.07	9.17	3.65	-0.31	13.67	-15.29	-0.71	-0.47	-1.37	0.72	-0.03
LM	-1.64	6.35	4.93	-14.32	8.88	5.15	2.40	11.42	-4.11	5.48	-0.86	-2.02	2.62	-0.65

Region/Sector	AUS	JPN	KOR	NZL	MYS	TWN	MEX	SGP	VNM	THA	CAN	CHL	PER	ROW
HM	-3.11	1.78	1.81	-5.77	2.03	1.55	0.93	2.13	-12.86	2.30	-0.48	0.09	1.36	-0.08
UC	-3.34	-3.75	-2.85	-6.05	-2.16	-3.58	0.85	-1.79	-20.11	-2.33	-0.99	0.12	0.88	0.52
TC	-3.39	-0.60	0.04	-3.98	-1.33	-2.69	-0.19	-0.81	-9.82	-3.72	-0.34	0.25	0.46	0.47
OS	-3.77	-3.10	-3.79	-5.60	-3.27	-4.55	-0.47	-3.02	-24.47	-4.32	-0.85	-0.49	0.19	0.38

Table 3: Export by Sectors of CPTPP+3 (Unit: Percentage Change)

Source: Model Simulation

It is quite interesting since the magnitude of export variation is lower than for imports, may be due to the effect of trade expansion on the production sectors in CPTPP+3 agreement. Table 4 shows the percentage change in export by sectors. The largest export gain in rice sector and the export increase was seen in all countries except New Zealand and Singapore. As a matter of fact, the export increase of rice is 594.75% for Australia, 384.29% for Taiwan, 47.59% for Thailand, 36.35% for Malaysia, 31.83% for Japan, and 26.18% for Vietnam. The significant export increases come from Meat Products and Processed Food in Australia, Japan, New Zealand, Singapore, Canada, and Chile with more than 10% increase.

4. Conclusions

In this study, GTAP model is utilized to quantify the effect of CPTPP and CPTPP with South Korea, Taiwan, and Thailand. Even the GTAP model still has some shortcomings, but it could provide a framework for assessing the impacts of policy and structural changes on resource allocation, and the estimation of potential economic consequences of different trade liberation scenarios.

Under both scenarios, Viet Nam records the highest growth rate in real GDP and exports with 14.48% increase for real export volume and 1.87% increase for real GDP but much lower than the case of TPP (Ciuriak, 2017). Members of CPTPP or CPTPP+3 were gain benefits for real export volume, real GDP and welfare. The increase of real GDP (in percentage change) is insignificant – less than 0.1%, except for Japan, Malaysia, and Korea while welfare increased much, except for the case of Peru. The above results are in line with other recent studies of World Bank (2018), Ciuriak (2017) that the impacts of CPTPP on its members are much lower than the case of TPP. Moreover, CTPPP +3 with South Korea, Taiwan, and Thailand has the biggest gain for its members while non – members would have negative impact due to trade liberation. There are some limitations of this study since the GTAP model is a comparative static model and the database do not include Brunei as well as it reflects the world economy in 2007. Therefore, the impact projection of CPTPP and CPTPP+3 may not indicate the true outcome.

5. Acknowledgement

This study is supported by the research project entitled: "Impact Assessment of the Comprehensive and Progressive Agreement for Trans – Pacific Partnership on Vietnam Economy" funded by Thai Nguyen University of Economic and Business Administration – Thai Nguyen University, Vietnam

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