Comparing the Economic Impact of the Trans-Pacific Partnership and the Regional Comprehensive Economic Partnership*

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Abstract
Several initiatives have emerged for regional economic integration in the Asia-Pacific region. The United States has led the negotiations for the Trans-Pacific Partnership agreement, and ASEAN countries have recently started to promote the Regional Comprehensive Economic Partnership. This paper estimates the net economic impact of these initiatives by eliminating the overlapping portions of free trade agreement–related economic gains through the use of a dynamic computable general equilibrium model. The paper analyzes the economic and political feasibility of these two initiatives and assesses their economic impacts. Finally, the paper provides implications for economic integration in East Asia based on a quantitative assessment.

1. Introduction

When the four countries of Singapore, Brunei, New Zealand, and Chile formed the Pacific Four (P4) in 2006, the United States, Australia, Malaysia, Vietnam, and Peru expressed intentions to join them in 2008. These nine countries began negotiating the Trans-Pacific Partnership (TPP) agreement in 2009. ASEAN recognized that its centrality could be threatened in East Asia when the United States led the TPP negotiations in 2009 and Japan and Canada expressed their intention to participate during the 2011 Asia-Pacific Economic Cooperation (APEC) Economic Leaders' Meeting. Because of these actions, ASEAN has pursued various coping measures to ensure its centrality

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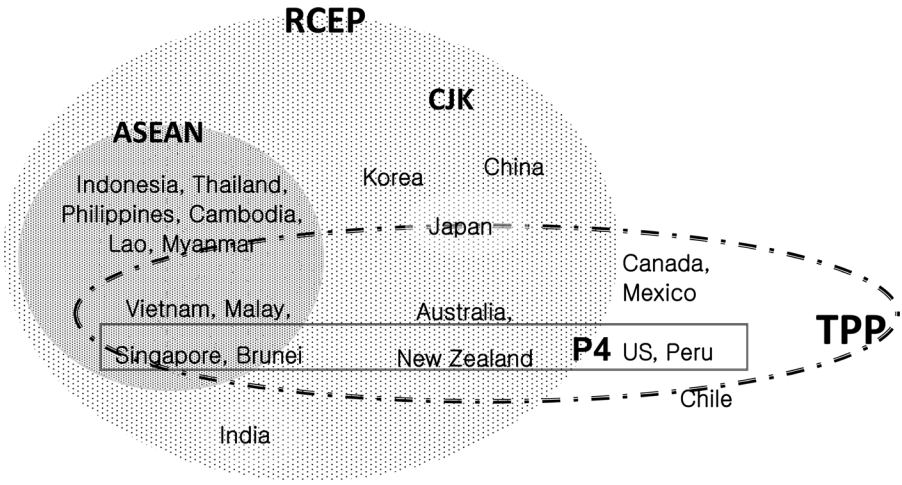
Figure 1. Membership in the TPP and the RCEP



Source: *Authors' drawing based on official FTA discussions.*

by adopting the ASEAN Framework for Regional Comprehensive Economic Partnership (RCEP), the main goals of which reflect qualitative improvements in the existing idea from the ASEAN+6 free trade agreement (FTA) at the 19th ASEAN Summit in November 2011. This can be interpreted as a desperate attempt to prevent the weakening of ASEAN's centrality from the participation of East Asian countries such as Brunei, Malaysia, Singapore, and Vietnam in the TPP negotiations.

ASEAN has expressed its intention to strengthen its leading role in promoting a region-wide FTA in East Asia through the RCEP, and asked the parties for their official position regarding their participation in the RCEP in the ASEAN+6 meeting in August 2012. Japan has insisted on an ASEAN+6 FTA through the Comprehensive Economic Partnership in East Asia (CEPEA) and has already shown its intention to participate in the RCEP. Australia and New Zealand have also expressed their intention to participate in the RCEP, and China, Korea, and India have paid close attention to developments in the RCEP. Although ASEAN is pushing forward with the RCEP, it remains unclear whether it can maintain its centrality because China, Japan, and Korea have agreed to hold negotiations for a trilateral FTA.[1]

Because the TPP and the RCEP cover large economies in the Asia-Pacific region, as Figure 1 shows, both may have a considerable influence on the regional economy. If the TPP is expanded to 12 member countries including Japan, then the bloc's trade

1 For ASEAN's unstable status in terms of centrality, see Kassim (2012).

Table 1. Economic status of the RCEP in the world economy (2011)

		Trade volume		Population		Nominal GDP	
	Country	Billion US$	Share (%, world)	Million	Share (%, world)	Billion US$	Share (%, world)
	China	3,642	10	1,344.10	19.3	7,298.10	10.5
CJK	Japan	1,677	4.6	127.8	1.8	5,869.50	8.4
	Korea	1,080	3	49.8	0.7	1,116.20	1.6
	Subtotal	6,399	17.5	1,521.70	21.8	14,283.90	20.5
	Australia	515	1.4	22.6	0.3	1,488.20	2.1
	New Zealand	75	0.2	4.4	0.1	161.9	0.2
	India	748	2	1,241.50	17.8	1,676.10	2.4
RCEP (total)		10,131	27.7	3,399.00	48.7	19,764.00	28.4
World		**36,595**	**100**	**6,973.70**	**100**	**69,659.60**	**100**

Source: *Trade statistics from the WTO; population data from the UN Population Division; GDP data from the IMF World Economic Outlook.*

volume and nominal GDP will reach US$ 10.19 trillion and 19.76 trillion, respectively, based on 2011 data, as seen in Table 1. Although the RCEP is organized among the ASEAN+6 countries, it is expected to command a status similar to that of the TPP in terms of the global economy. The RCEP accounts for almost half of the world population, and its trade volume and GDP are expected to reach US$ 10.13 trillion and 19.76 trillion, respectively.

The net impact of the TPP and the RCEP may vary, however, depending on the consideration of 126 FTAs signed or in effect in the Asia-Pacific region as of 2012.[2] Even a concluded agreement can take a long time before implementation. Here a dynamic economic analysis is required for a more precise assessment of the economic impact of the TPP and the RCEP. Many studies that have neglected existing FTAs have serious analytical limitations and thus provide a less precise estimation of economic impacts and entail some overestimation problems in most cases. The present paper estimates the net economic impact of these initiatives by eliminating overlapping portions of economic gains from these FTAs through the use of a dynamic model that allows for selection of specific years of simulations based on different start–end years for the implementation of FTAs and initiatives.

2. Development of regionalism in East Asia and the Asia-Pacific region

The economic linkages among East Asian countries have deepened substantially over time. Although these countries have long pursued a trade bloc at the regional level, they have achieved little success for various historical and political reasons. The feasibility of organizing a region-wide FTA has been discussed since APEC's

2 FTA data available from the ADB's Asia Regional Integration Center.

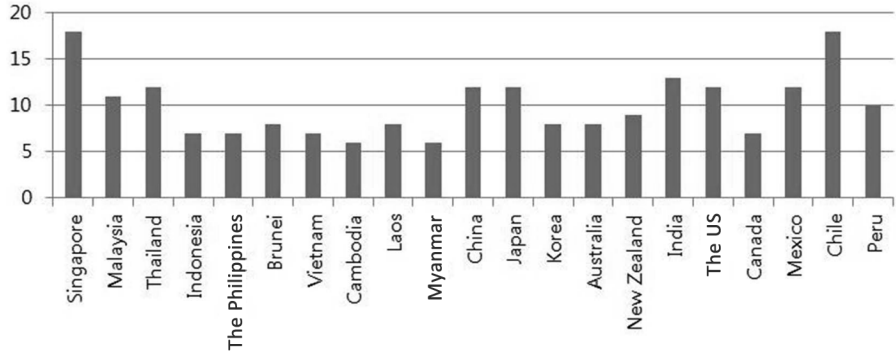
1994 Bogor Declaration, but such efforts have not gained the necessary momentum to facilitate a binding regional trade bloc. East Asian countries recognized an urgent need for the expansion of regionalism while overcoming the 1997–98 Asian financial crisis, however. The crisis motivated a number of countries to consider and pursue bilateral FTAs.

The countries in Southeast Asia organized ASEAN in the mid 1960s and launched the ASEAN Free Trade Area (AFTA) in 1992, motivated by economic integration in the Americas and Europe in the 1980s and 1990s, and because they had already accumulated some competence in economic integration in East Asia through the conclusion of the ASEAN+1 FTA, as well as the solidification of AFTA. On the other hand, China, Japan, and Korea have been reluctant to pursue regional integration for various reasons, including problems associated with past relations, different perceptions on historic consciousness, different political systems, and different economic development stages. During the Korea-China-Japan FTA working-level talks in Qingdao, China, in August 2012, these countries agreed to start official negotiations for a trilateral FTA in November 2012. A decade has passed since the initiation of FTA discussions among these three countries in 2003. APEC, which consists of countries in East Asia and the Pacific Rim, has continued to discuss the economic integration of the Asia-Pacific region and negotiate the development of a Free Trade Agreement Asian Pacific (FTAAP) since 2005.

Figure 2 shows the number of FTAs signed or in effect by TPP and/or RCEP countries. East Asian countries had at least six FTAs as of 2012, and therefore the region is no longer isolated from the global trend toward regionalism. According to Baldwin (2009), regionalism in East Asia has spread like "wild fire," and its direction is difficult to forecast. Because of the conclusion of a number of FTAs in a competitive manner in East Asia over a relatively short period of time, many FTAs overlap and have caused various problems such as complicated rules of origin (ROOs) across industries and FTAs and insufficient agreement content, among other issues. In addition, these FTAs have revealed the intentions of ASEAN, China, Japan, and Korea to serve as FTA hub countries. This process has facilitated the development of a competitive structure reflecting a hub-and-spoke FTA.

A number of studies have examined FTAs in East Asia, and most have explored the trend toward FTAs and/or major issues associated with FTAs (e.g., Stubbs 2002; Cheong 2003, 2005; Drysdale 2005; Li 2007; Cheong and Cho 2011; Choi 2011; Kawai and Wignaraja 2011; Zhang and Shen 2011). Some studies have discussed the qualitative aspects of these FTAs. Kawai and Wignaraja (2011) pointed out the problem of low utilization rates for these FTAs, highlighting low levels of preferential tariff

Figure 2. Number of FTAs by country in East Asia



Source: *Drawn based on the FTA database of the ADB.*

margins and complicated ROOs, even though East Asian countries had signed or implemented 126 FTAs as of September 2012.[3] Their study was based on the use of FTAs in 2008. Recent years have witnessed a substantial increase in the use of FTAs, however.[4] Zhang and Shen (2011) focused on the possibility of the so-called "Asian Noodle Bowl," in which multilayered FTAs produce new trade barriers in East Asia and increase business expenses, although the spread of FTAs in East Asia facilitates the expansion of trade and economic growth.

In the exploration of the feasibility of a regionwide FTA in the Asia-Pacific region, the prospect for a domino effect has become a key issue. Baldwin (2009, 2011) analyzed regionalism in East Asia and forecasted future development paths based on his FTA domino theory. He predicted that the Korea-Japan FTA would become the hub of regionalism in East Asia and suggested that the FTA could be a governing hub, although China and Japan may try to become the hub of East Asian FTAs (the East Asian "bicycle system").

Chen and de Lombaerde (2011) extended Baldwin's analysis and reached an opposing conclusion in some sense. Baldwin predicted that regionalism in East Asia would spread through a domino effect, whereas Chen and de Lombaerde suggested

3 Based on FTAs by status (cumulative) provided by the ADB Asia Regional Integration Center. Twenty-seven FTAs were signed but not in effect, and 99 were in implementation stages, as of 2012.

4 For example, the average FTA utilization rate was 16 percent in 2008 but was 55 percent for Korea because of the implementation of its bilateral FTAs with the EU and the United States.

that the domino effect has yet to take place in East Asian regionalism, pointing out that no country in East Asia has been willing to participate in an FTA already concluded by other countries and that East Asia remains in the initial stages of regionalism. In addition, they claimed that only Japan and China deserve to be FTA hub countries in East Asia and expected a domino effect only if these countries take the lead.

The domino theory deserves close attention in the context of East Asian regionalism because the end point of this regionalism is unclear. If Chen and de Lombaerde's (2011) predictions are correct, then economic integration in East Asia may take longer to achieve, and competition among blocs is not likely in the near future. Instead, East Asian countries appear to compete for the conclusion of more FTAs while pursuing FTA hubs. In this sense, many East Asian countries may not be eager to conclude the RCEP negotiations, and the bloc may not be realized without close cooperation between China and Japan.

Many studies have estimated the economic impact of forming regionwide FTAs; for example, Lee and Park (2005), Cheong (2005), Todsadee, Kameyama, and Ito (2012), Wignaraja (2011), and Petri and Plummer (2012) estimated the economic impact of the TPP by focusing on ASEAN countries and the United States. Wignaranja compared the economic impact of the TPP with that of the RCEP by using a static CGE model and reported GDP gains of 2–3 percent for ASEAN countries through the ASEAN+6 FTA (RCEP) and higher gains for the FTA than for the TPP, implying that a regionwide FTA in East Asia is a better option for ASEAN. However, he analyzed the economic impact only on ASEAN countries, assumed that Korea would join the TPP, and neglected existing FTAs.

Todsadee, Kameyama, and Ito (2012) assumed that China, Japan, and Korea would join the TPP, which is a more ambitious prediction regarding TPP members than that in Wignaranja (2011). Petri and Plummer (2012) analyzed the economic impacts of the TPP and the FTAAP and concluded that member economies would experience substantial economic gains. More specifically, they suggested that the TPP would bring economic gains of US$ 295 billion by 2025. In contrast to Wignaranja, Petri and Plummer implicitly concluded that a regional FTA including the United States would be a better option for East Asia and the world economy than one including only East Asian countries. Although these studies have their merits, their common shortcomings include an overestimation problem and a lack of consideration of existing FTAs among member countries in the estimation of economic gains.

Table 2. Sectoral and regional disaggregation

Industrial sectors and countries/regions			
Sector	Agriculture	1–11, 13, 19–23	
	Light manufacturing	12, 14–18,24–31,34,42	
	Transportation, electronics	38–40,	GTAP classification
	Machinery, chemicals	32–33,35–37,41	
	Services	42–57	
Country /region	1. New Zealand	10. Mexico	
	2. Chile	11. Japan	
	3. Peru	12. Korea	
	4. Singapore	13. China	
	5. US	14. India	
	6. Australia	15. RASEAN	ASEAN countries not classified
	7. Malaysia	16. The EU	
	8. Vietnam	17. ROW	Rest of the world
	9. Canada		

Source: *Authors' calculations.*

3. The model, database, and simulation scenarios

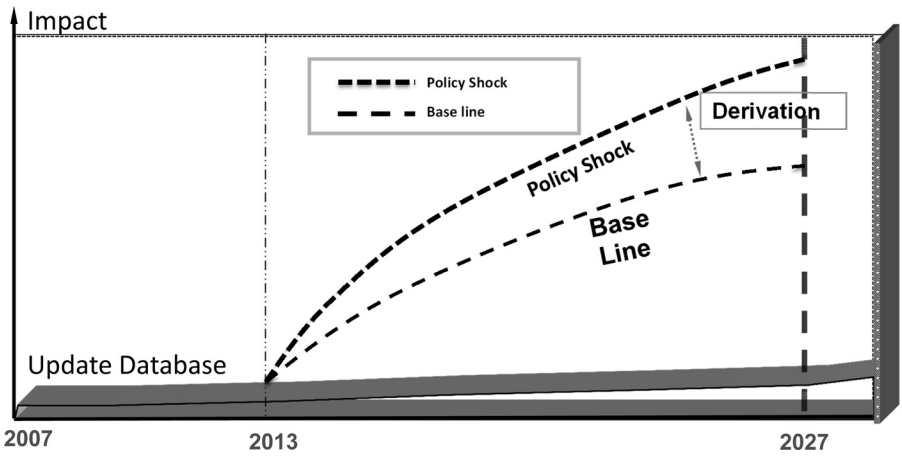
We use the dynamic GTAP model to compute the economic impact of TPP and RCEP.[5] In analyzing large blocs in the Asia-Pacific region, a total of 21 countries can be considered, including 10 ASEAN countries, China, Japan, Korea, Australia, New Zealand, India, the United States, Canada, Mexico, Peru, and Chile. It is not easy to run simulations using a highly disaggregated database, however, because of technical problems and limitations. We therefore aggregate some countries in the model. For example, the 10 ASEAN countries are divided into TPP members (Singapore, Malaysia, and Vietnam) and RASEAN members (the remaining ASEAN countries), resulting in a total of 18 countries/regions.[6] We also aggregate each economy into five industrial sectors, as shown in Table 2.

Because the TPP and the RCEP are recent trade agreements and huge amounts of time and effort are required for a quantitative analysis, few studies have estimated the economic impacts of these two trade blocs in the Asia-Pacific region. In addition, some studies such as Petri and Plummer (2012) and Todsadee, Kameyama, and Ito (2012) have been limited by the overestimation problem. East Asian countries implemented 99 FTAs as of September 2012, as shown in Figure 2. Previous studies, providing simulations using computable general equilibrium (CGE) models with tariff

5 For an introduction to the structure of the GTAP model, see Hertel (1997). Specifically, we use GTAP 6.2, which was developed in November 2003, and the GTAP 8 database, publicly available since March 2012. The base year of the GTAP 8 database is 2007. For more information on the GTAP model and database, see http://www.gtap.org/ and Ianchovichina and Walmsley (2012).

6 Because Brunei's economy is small, it is not included in the GTAP database as an individual country, and therefore we omit it from the simulation.

Figure 3. Derivation of a policy shock and the baseline



Source: *Authors' drawing.*

barriers removed under currently effective FTAs, resulted in overestimation of the impact of the TPP without considering the reality of widely spread FTAs in East Asia.

We use GDyn, a recursive dynamic CGE model developed by GTAP, to estimate the impact of forming the TPP and the RCEP in a general equilibrium context and use the GTAP 8 database, which can be fully linked to the model with some modifications.[7] The base year of GTAP 8 is 2007, but we set the analysis period to 2013 to estimate a more realistic impact. For this, we update the database to the year 2012 by using a repetitive method that, together with a baseline simulation, allows trade liberalization measures to be imposed on the database under the existing FTAs noted in Figure 3 for the 2007–12 period. That is, we estimate the impact of trade liberalization only when it is supposed to liberalize trade additionally as a result of the conclusion of the TPP or RCEP. The starting point of the simulation is 2013, and we design the simulation such that the impact can be estimated annually and accumulatively through 2027 (Figure 3).

3.1. Simulation scenarios

The difference between the projection under the baseline and that under a policy shock is the impact of a policy change. This is derived from simulations for each sce-

7 The GTAP 8 database does not link the GDyn model directly. Using a text editor, we realign the database to be compatible with the model.

nario and year. Simulations are run with chosen closures for research purposes. It is assumed that all tariffs among members are completely eliminated.[8] It is known that TPP emphasizes intellectual property rights (IPR) much more than a regular FTA. Because it is difficult to include the impact of protecting the IPR in the trade CGE model, simulation results in this paper do not take the IPR into account.

Here a *closure* is the specification of variables for a combination of endogenous and exogenous variables while maintaining an equal number of equations and endogenous variables. In the baseline simulation, we embed the structural characteristics of the world economy in the model by assuming that there is no policy change with a baseline closure by converting relevant endogenous variables into exogenous ones.[9] We perform simulations to calibrate the model to policy changes. Once we generate the baseline, we run policy simulations to estimate the impact of a policy change in terms of deviations from the baseline simulation.

We estimate the economic impacts of six large-scale trade blocs in the Asia-Pacific region by modifying and adjusting TPP and RCEP member countries. In the first scenario, we estimate the impact of the current TPP with nine members ("TPP9"). In the second scenario, we analyze the impact of including Japan, Canada, and Mexico ("TPP12"), although their participation in the TPP is not likely.[10] In the third scenario, we examine the impact of including China ("TPP12+China").

Although ASEAN and Japan are targeting a regionwide FTA through the RCEP, there are many barriers to such a trade bloc, including economic and political issues (e.g., conflicts between China and Japan over history or national territory). We design three RCEP simulation scenarios by considering the hurdles facing the RCEP. The RCEP scenario refers to the existing ASEAN+6 FTA framework. We also incorporate the influence of China and Japan, which are expected in RCEP formation, by considering two additional scenarios: the RCEP-C and RCEP-J scenarios. As shown in Table 3, the RCEP-C scenario excludes China from the current RCEP membership,

8 Nontariff barriers are not accounted for in this paper, although nontariff barriers actually are more significant barriers to trade in many cases than tariffs due to the substantial tariff reductions under WTO and FTAs.

9 We conducted the baseline simulation to replicate an economy's performance while accounting for structural specifications such as changes in technologies and tastes. We use historical data and macroeconomic projections for real GDP, populations, and skilled and unskilled labor to generate baseline simulations in which an economy will be continued up to any target year in the future.

10 Canada and Mexico were approved for TPP negotiations during the APEC Economic Leaders' Meeting in Vladivostok in 2012, although Japan has yet to make its official decision.

Table 3. Simulation scenarios

			Content and groupings by country
Pre-simulation	Database updates		• All currently signed FTAs • Database updated to the year 2012 • Simulation starts in 2013 and ends in 2027
Simulations under six scenarios	TPP	TPP9	Chile, New Zealand, Singapore, the U.S., Australia, Peru, Malaysia, Vietnam
		TP	Canada, Mexico, and Japan join the TPP
		TP+China	China joins TP
	RCEP	RCEP	Singapore, Malaysia, Vietnam, RASEAN, China, Japan, Korea, India, Australia, New Zealand
		RCEP-China	RCEP without China
		RCEP-Japan	RCEP without Japan
	CJK FTA		Trilateral FTA between China, Japan, and Korea

Source: *Authors' calculations.*

and the RCEP-J excludes Japan. By comparing the impacts of these two scenarios, we determine whether China or Japan would be critical in RCEP formation.

4. Simulation results

As discussed in Section 2, previous studies have generally neglected existing FTAs among countries in the Asia-Pacific region and shared a common problem of overestimation. This section reports the net impact of the TPP and the RCEP on the GDP of countries/regions, which are disaggregated in this paper to address the overestimation problem. Because a major objective of this paper is to estimate the economic impacts of the two large trade blocs on GDP, we do not report the effects of other variables because of space limitations.

4.1. Impacts of the TPP

Overall assessment Table 4 summarizes the impacts of the TPP on regional GDP in terms of percentage changes and the absolute deviations of nominal GDP from the baseline. The simulation results indicate that trade liberalization through a newly formed TPP not only has little effect on the GDP of the disaggregated countries/regions but also even a negative effect on the GDP of some of the member countries (excluding the accumulated impacts of existing FTAs for the 2013–27 period). Those countries that do not participate in the TPP are likely to face economic losses because of trade diversions. Under the scenarios of TPP9 and TPP12, the world economy will lose due the formation of TPP. If the number of TPP member countries increases, then they can expect an overall increase in economic gains. If China joins the TPP, it is expected that the net impacts of the enlarged TPP on world economy will be substantial.

Table 4. Impacts of the TPP on GDP for the 2013–27 period

	% changes of GDP			Deviations of nominal GDP (million US$)[a]		
	TPP9	TPP	TPP+China	TPP9	TPP	TPP+China
New Zealand	0.17	0.97	0.6	307	1,751	1,083
Chile	0.01	−0.13	−2.4	27	−354	−6,531
Peru	0.27	−0.04	−0.35	499	−74	−647
Singapore	0.41	0.48	−0.79	1,107	1,296	−2,133
US	0.01	0	0.45	1,561	0	70,244
Australia	−0.01	0.22	0.23	−159	3,489	3,648
Malaysia	0.71	0.7	−0.24	2,171	2,141	−734
Vietnam	0.29	0.18	0.08	393	244	108
Canada	−0.04	0.02	−0.34	−722	361	−6,136
Mexico	−0.13	0.9	1.12	−1,570	10,870	13,528
Japan	−0.01	0.21	0.53	−598	12,560	31,699
Korea	−0.03	−0.11	−1.73	−349	−1,280	−20,129
China	−0.03	−0.11	4.51	−2,398	−8,791	360,427
India	−0.01	−0.05	−0.38	−178	−890	−6,761
RASEAN	−0.06	−0.37	−1.59	−977	−6,022	−25,880
EU	−0.01	−0.04	−0.33	−1,677	−6,710	−55,354
ROW	−0.02	−0.07	−0.57	−2,910	−10,185	−82,937
Total	—	—	—	−5,472	−1,593	273,494

Source: *Authors' simulation results, International Monetary Fund (2012), World Economic Outlook Database, April.*

Note: *a. absolute deviations of nominal GDP from the baseline are calculated by multiplying the percentage changes with respective nominal GDPs, obtained from the IMF.*

Cheong and Cho (2012) suggested a weak economic impact of the TPP because the TPP9 has a number of FTAs that are already in implementation stages, which limits additional gains from the TPP. The results in Table 4 provide empirical support for this argument. Previous studies such as Petri and Plummer (2012) have predicted that the TPP would have substantial economic impacts, but this paper's results suggest the opposite.

Most of the member countries experience small economic gains under the TPP9 block, but there is a slight decrease in Australia's GDP. In addition, Malaysia and Vietnam, which have no bilateral FTAs with the United States, receive modest economic benefits, and the trade agreement has little effect on Chile and the United States. This is because Chile already has bilateral FTAs with many TPP countries and the GDP of the United States is not likely to be influenced by the TPP, which would account for a small portion of the total trade volume of the United States; Canada, and Mexico already have tariff-free access to the U.S. market through NAFTA and thus experience an unavoidable loss from the launch of the TPP. The GDP of non-TPP countries such as China, Japan, Korea, and RASEAN members decreases slightly. Note that RASEAN member countries, which engage in free trade among ASEAN countries, face increased competition in some ASEAN markets with non-ASEAN TPP countries and that the non-TPP ASEAN countries face losses from TPP implementation.

Canada, Mexico, and Japan experience economic benefits from their participation in the TPP12. Although the Obama administration wants Japan to participate in TPP negotiations, the United States gains less in terms of GDP under the TPP12, which includes Japan. This result can be explained as follows: Basically, although Japan has one of the lowest average tariff rates in the world, it is one of the most competitive countries in the world. In addition, it should be noted that the United States has to share its favored position in the market with other NAFTA countries if Japan becomes a member. Among TTP12 countries, Mexico experiences the largest increase in GDP (0.9 percent), and New Zealand and Malaysia see 0.7 percent and 0.97 percent increases, respectively. This suggests that these three countries are likely to aggressively pursue the expansion of the TPP to 12 countries, although contradicting the economic logic of the United States.

Economic losses for non-member countries are greater under the TPP12 scenario (0.11–0.37 percent) than under the TPP9 scenario (0.03–0.06 percent). RASEAN countries such as Thailand, Indonesia, and the Philippines are the biggest losers with the expansion of the TPP. These results suggest that RASEAN countries' losses increase to 0.37 percent of GDP as a subregion of ASEAN. This implies that these countries are likely to insist on strengthening the centrality of ASEAN and promoting the RCEP as a major policy option for ASEAN countries.

China's participation in the TPP has favorable as well as unfavorable effects on TPP member countries. The biggest winner is China itself (a 4.51 percent increase in GDP) under the TPP12+China scenario and the GDP of the United States also improves by 0.45 percent because of China's participation. If the United States evaluates the merits of the TPP based only on some economic logic, then the result of the quantitative analysis suggests that it is important to encourage China, not Japan, to participate. In addition, China's participation reduces the GDP of Chile, Singapore, Peru, Canada, and Malaysia because they have to share the U.S. market with China. Although Canada benefits under the TPP12 scenario, it loses under the other two scenarios, particularly under the TPP12+China scenario, because of equal treatment for Chinese exports in the U.S. market.

The TPP12+China scenario is highly unlikely because the United States has pursued the TPP to contain China,[11] and based on the simulation results, a number of other countries may not welcome China's participation. If this scenario is realized,

11 According to Armstrong (2011), if the TPP proceeds based on the terms being set by the United States, it may be difficult for China to join: "The United States may drive the region apart with the systematic exclusion of non-members, including China. . . . China would then have to join the TPP on U.S. terms as the TPP has now become a creature fashioned largely by Washington."

Table 5. Dynamic impacts of the TPP9 on GDP by country and year (unit: %)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
New Zealand	0	0.01	0.03	0.04	0.06	0.08	0.1	0.11	0.13	0.14	0.15	0.16	0.16	0.17	0.17
Chile	0	0	0	0	0	0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Peru	0.02	0.04	0.06	0.08	0.1	0.13	0.16	0.18	0.21	0.23	0.24	0.25	0.26	0.27	0.27
Singapore	0	0.01	0.02	0.04	0.07	0.1	0.14	0.17	0.21	0.25	0.28	0.32	0.35	0.38	0.41
US	0	0	0	0	0	0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Australia	0	0	0	0	0	0	0	0	0	0	−0.01	−0.01	−0.01	−0.01	−0.01
Malaysia	0.06	0.12	0.21	0.3	0.41	0.47	0.52	0.56	0.6	0.63	0.66	0.68	0.69	0.7	0.71
Vietnam	−0.05	−0.1	−0.16	−0.22	−0.29	−0.16	−0.04	0.06	0.14	0.2	0.24	0.26	0.28	0.29	0.29
Canada	0	0	0	−0.01	−0.01	−0.01	−0.02	−0.02	−0.02	−0.03	−0.03	−0.03	−0.03	−0.03	−0.04
Mexico	0	−0.01	−0.01	−0.02	−0.03	−0.04	−0.05	−0.06	−0.07	−0.08	−0.09	−0.11	−0.12	−0.13	−0.13
Japan	0	0	0	0	0	0	−0.01	−0.01	−0.01	−0.01	−0.01	−0.01	−0.01	−0.01	−0.01
Korea	0	0	0	0	0	−0.01	−0.01	−0.01	−0.02	−0.02	−0.02	−0.03	−0.03	−0.03	−0.03
China	0	0	−0.01	−0.01	−0.01	−0.02	−0.02	−0.02	−0.02	−0.02	−0.02	−0.02	−0.02	−0.02	−0.03
India	0	0	0	0	0	0	0	0	0	0.01	0.01	0.01	0.01	0.01	0.01
RASEAN	0	0	0	0	−0.01	−0.01	−0.02	−0.02	−0.03	−0.04	−0.04	−0.05	−0.05	−0.06	−0.06
EU	0	0	0	0	0	0	0	−0.01	−0.01	−0.01	−0.01	−0.01	−0.01	−0.01	−0.01
ROW	0	0	0	0	−0.01	−0.01	−0.01	−0.01	−0.01	−0.01	−0.01	−0.02	−0.02	−0.02	−0.02

Source: *Authors' calculations.*

however, then the results imply that Korea and RASEAN countries, which depend heavily on the Chinese market, have no choice but to seek their participation in the TPP to prevent declines in GDP by 1.73 percent and 1.59 percent, respectively.

Assessment of the dynamic path One of the merits of this paper is that it conducts an analysis based on a dynamic CGE model to provide a dynamic assessment of the impacts of establishing a trade bloc. To consider the accumulated impacts of the TPP on regional GDP in Table 4, we report the dynamic impacts of the TPP by individual countries on GDP for each year in Tables 5–7. Under the TPP9 scenario, signs of GDP change over the analysis period for Australia and Vietnam. Australia's GDP does not change under the TPP9 scenario until 2022, after which it increases slightly. Vietnam's GDP decreases under the TPP9 scenario until 2019, after which it increases by 0.29 percent through 2027.

The impact on GDP is likely to be bigger under the TPP12 scenario than the TPP9. TPP12 formation has a substantial net impact during the initial period, but its impact decreases over time. Unlike under the TPP9 scenario, Australia benefits from the TPP. That is, its GDP increases, although it is not substantial. The accumulated loss during the analysis period is expected for Chile, with its GDP decreases by 0.13 percent through 2027. In addition, Vietnam sees a larger decrease in GDP under the TPP9 scenario than under the TPP12 scenario. Under these two scenarios, the maximum loss for Vietnam takes place in 2017. Here the maximum loss under the TPP9 scenario is 0.29 percent, and that under the TPP12 scenario is 0.55 percent.[12]

12 We conduct a sensitivity test to determine whether this result is related to the model specification. The results are robust to the model.

Table 6. Dynamic impacts of the TP on GDP by country and year (unit: %)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
New Zealand	0.02	0.07	0.13	0.21	0.32	0.43	0.53	0.62	0.71	0.78	0.85	0.9	0.93	0.96	0.97
Chile	0	−0.01	−0.01	−0.02	−0.03	−0.05	−0.06	−0.07	−0.08	−0.09	−0.1	−0.11	−0.12	−0.13	−0.13
Peru	0	0	0	0	−0.01	−0.01	−0.02	−0.02	−0.02	−0.03	−0.03	−0.03	−0.04	−0.04	−0.04
Singapore	0	0.01	0.02	0.05	0.08	0.12	0.16	0.2	0.25	0.29	0.34	0.38	0.41	0.45	0.48
US	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Australia	0.01	0.03	0.05	0.06	0.08	0.11	0.13	0.14	0.16	0.18	0.19	0.2	0.21	0.21	0.22
Malaysia	0.06	0.13	0.22	0.32	0.44	0.49	0.54	0.58	0.61	0.64	0.66	0.68	0.69	0.69	0.7
Vietnam	−0.08	−0.17	−0.27	−0.39	−0.55	−0.38	−0.24	−0.12	−0.02	0.06	0.11	0.14	0.16	0.17	0.18
Canada	0.01	0.01	0.02	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Mexico	0.02	0.06	0.1	0.14	0.19	0.25	0.32	0.39	0.46	0.53	0.61	0.68	0.76	0.83	0.9
Japan	0.02	0.03	0.05	0.07	0.09	0.11	0.12	0.14	0.15	0.17	0.18	0.19	0.19	0.2	0.21
Korea	0	0	0	−0.01	−0.02	−0.03	−0.04	−0.05	−0.06	−0.07	−0.08	−0.09	−0.1	−0.11	−0.11
China	−0.01	−0.01	−0.03	−0.04	−0.06	−0.07	−0.08	−0.09	−0.09	−0.1	−0.1	−0.11	−0.11	−0.11	−0.11
India	0	−0.01	−0.01	−0.02	−0.02	−0.03	−0.03	−0.04	−0.04	−0.04	−0.05	−0.05	−0.05	−0.05	−0.05
RASEAN	−0.01	−0.02	−0.04	−0.06	−0.09	−0.12	−0.16	−0.19	−0.22	−0.25	−0.28	−0.31	−0.33	−0.35	−0.37
EU	0	0	0	−0.01	−0.01	−0.01	−0.01	−0.02	−0.02	−0.02	−0.03	−0.03	−0.03	−0.03	−0.04
ROW	0	0	−0.01	−0.01	−0.02	−0.02	−0.03	−0.04	−0.04	−0.05	−0.05	−0.06	−0.06	−0.06	−0.07

Source: *Authors' calculations.*

Table 7. Dynamic impacts of the TP+China on GDP by country and year (unit: %)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
New Zealand	0.01	0.03	0.06	0.09	0.14	0.18	0.23	0.27	0.32	0.38	0.43	0.48	0.52	0.57	0.6
Chile	−0.03	−0.11	−0.22	−0.39	−0.62	−0.84	−1.07	−1.29	−1.49	−1.68	−1.86	−2.02	−2.16	−2.29	−2.4
Peru	−0.01	−0.02	−0.04	−0.07	−0.11	−0.15	−0.19	−0.22	−0.25	−0.28	−0.3	−0.32	−0.33	−0.34	−0.35
Singapore	−0.01	−0.05	−0.1	−0.18	−0.28	−0.38	−0.47	−0.55	−0.62	−0.68	−0.72	−0.75	−0.77	−0.79	−0.79
US	0.01	0.02	0.04	0.07	0.12	0.16	0.2	0.24	0.28	0.32	0.35	0.38	0.41	0.43	0.45
Australia	0.02	0.04	0.06	0.08	0.09	0.11	0.12	0.14	0.15	0.17	0.18	0.19	0.21	0.22	0.23
Malaysia	0.03	0.04	0.05	0.05	0.04	−0.01	−0.06	−0.09	−0.13	−0.15	−0.17	−0.19	−0.21	−0.22	−0.24
Vietnam	−0.12	−0.26	−0.44	−0.66	−0.91	−0.76	−0.62	−0.48	−0.35	−0.24	−0.15	−0.08	−0.01	0.04	0.08
Canada	0.01	0.01	0	−0.03	−0.07	−0.12	−0.17	−0.2	−0.24	−0.27	−0.29	−0.31	−0.32	−0.33	−0.34
Mexico	0.06	0.14	0.22	0.3	0.35	0.41	0.48	0.55	0.63	0.71	0.79	0.87	0.96	1.04	1.12
Japan	0.03	0.07	0.12	0.17	0.22	0.26	0.29	0.33	0.37	0.4	0.43	0.46	0.48	0.51	0.53
Korea	−0.02	−0.06	−0.14	−0.26	−0.42	−0.59	−0.76	−0.93	−1.09	−1.23	−1.36	−1.48	−1.58	−1.66	−1.73
China	0.44	0.97	1.56	2.16	2.7	3.06	3.39	3.67	3.91	4.11	4.26	4.37	4.44	4.49	4.51
India	−0.02	−0.04	−0.08	−0.13	−0.19	−0.23	−0.27	−0.3	−0.33	−0.35	−0.37	−0.38	−0.38	−0.39	−0.38
RASEAN	−0.07	−0.15	−0.27	−0.41	−0.58	−0.71	−0.83	−0.95	−1.06	−1.17	−1.27	−1.36	−1.45	−1.52	−1.59
EU	0	−0.01	−0.03	−0.06	−0.09	−0.13	−0.17	−0.2	−0.23	−0.26	−0.28	−0.3	−0.31	−0.32	−0.33
ROW	−0.01	−0.04	−0.07	−0.12	−0.19	−0.26	−0.31	−0.37	−0.42	−0.46	−0.49	−0.52	−0.55	−0.56	−0.57

Source: *Authors' calculations.*

As discussed earlier, the GDP of individual member countries is more likely to be dynamically impacted under China's TPP participation than under the previous two scenarios (Table 7). China's GDP increases sharply during the initial period, and although the rate of increase slows around 2016, China records an accumulated 4.52 percent increase in GDP through 2027 by maintaining a steadily increasing trend over the whole analysis period. The United States, New Zealand, Australia, Mexico, and Japan experience steady increases in their GDP over the analysis period, whereas the other countries face losses from China's TPP participation. Non-TTP countries (Korea, India, and RASEAN countries) show monotonically increasing losses over time.

Table 8. Impacts of the RCEP on GDP for the 2013–27 period

	% changes of GDP			Deviations of nominal GDP (million US$)[a]		
	RCEP	RCEP-China	RCEP-Japan	RCEP	RCEP-China	RCEP-Japan
New Zealand	0.79	0.39	−0.18	1,426	704	−325
Chile	−1.86	−0.76	−0.94	−5,061	−2,068	−2,558
Peru	−0.42	−0.25	−0.28	−777	−462	−518
Singapore	4.1	3.99	3.92	11,071	10,774	10,585
US	−0.28	−0.19	−0.21	−43,707	−29,658	−32,780
Australia	0.42	0.66	0.69	6,661	10,467	10,943
Malaysia	0.66	1.55	1.46	2,018	4,740	4,465
Vietnam	5.87	5.07	4.92	7,949	6,865	6,662
Canada	−0.4	−0.27	−0.28	−7,218	−4,872	−5,053
Mexico	−2.01	−1.42	−1.4	−24,277	−17,151	−16,909
Japan	0.63	0.04	−0.45	37,680	2,392	−26,914
Korea	2.11	0.34	2.2	24,551	3,956	25,598
China	0.88	−0.48	0.23	70,327	−38,360	18,381
India	2.78	0.8	1.43	49,464	14,234	25,444
RASEAN	−0.82	2.76	2.61	−13,347	44,924	42,482
EU	−0.54	−0.37	−0.4	−90,580	−62,064	−67,096
ROW	−0.77	−0.46	−0.53	−112,038	−66,932	−77,117
Total	—	—	—	−85,858	−122,511	−84,711

Source: *Authors' simulation results, International Monetary Fund (2012), World Economic Outlook Database, April.*

Note: *a. absolute deviations of nominal GDP from the baseline are calculated by multiplying the percentage changes with the respective nominal GDPs, obtained from the IMF.*

4.2. Impacts of the RCEP

Overall assessment RCEP member countries are the same as members of ASEAN+6 or CEPEA, which Japan has promoted. The theory of economic integration suggests that countries that do not belong to these trade blocs are likely to experience losses, whereas member countries can expect substantial GDP growth. According to the absolute deviations of nominal GDP from the baseline as shown in Table 8, it seems that world economy will lose due to the RCEP under all scenarios considered in this paper, implying substantial trade diversions from non-RCEP regions to RCEP regions.

As expected, the RCEP has a substantial accumulated economic impact, even though a number of RCEP countries already have FTAs. This is feasible because the East Asian production network (EAPN) can be activated through a regionwide FTA and the supply chain mechanism established in the territory be facilitated. Although the TPP can have such an effect, the RCEP is more likely to activate the EAPN. The greatest economic impact under the scenario in which China participates in the TPP (TPP12+China) is partly due to China's role as an integral part of the EAPN.

In terms of the impacts on individual member countries, Vietnam experiences the largest increase in GDP (5.87 percent), followed by Singapore (4.1 percent), India (2.78 percent), Korea (2.11 percent), China (0.88 percent), New Zealand (0.79 percent), Malaysia (0.66 percent), Japan (0.63 percent), and Australia (0.42 percent).

RASEAN countries' GDP decreases, however, because these countries compete with China in exporting goods. These results clearly demonstrate that China should be excluded from the RCEP.

China's GDP decreases by 0.48 percent under the RCEP-C scenario, whereas the GDP of RASEAN countries increases sharply by 2.76 percent. As discussed earlier, excluding China has a negative effect on all countries as well as the country itself. Excluding China reduces economic gains for Japan and Korea, which are key players in the EAPN. In particular, for Korea and India, China's involvement is crucial for realizing economic gains from RCEP formation because their GDP increases by 2.11 percent and 2.78 percent, respectively, under the scenario but the rate of increase decreases sharply by 0.34 percent and 0.8 percent, respectively, under the RCEP-C scenario.[13] In addition, excluding China from the RCEP partially mitigates decreases in GDP for non-member countries such as the United States and the EU.

Excluding Japan from the RCEP will vary depending on member countries. In terms of GDP, this has a negative effect on Japan and modest effects on Singapore, Vietnam, and Korea. It has considerable influence, however, on New Zealand, China, and India to a certain extent. By contrast, Malaysia and RASEAN countries experience larger GDP gains under the RCEP-J scenario than under the RCEP scenario because ASEAN countries take advantage of preferential treatment for their exports to Japan under an ASEAN-Japan FTA.

Assessment of the dynamic path The impact of forming a regionwide trade bloc under the RCEP and modified scenarios appears to keep trend over time for most countries. Vietnam, India, and RASEAN countries experience changing trends, however, depending on the simulation scenario (Table 9). All non-RCEP countries experience increasing economic losses over time. RASEAN countries, the only loser under the RCEP scenario, experience the largest losses in 2017, after which their losses decrease. India experiences a decrease in GDP in 2017, after which its GDP increases rapidly through 2024 and its growing trend would mitigate after that.

All countries except for China and RASEAN countries show similar GDP patterns under the RCEP and RCEP-C scenarios (Table 10). RASEAN countries benefit from the exclusion of China from the RCEP as a cumulative measure. There are dynamically different patterns of impacts over time, however. The RASEAN will experience losses until 2020, after which the region will realize economic gains. India experiences minor losses in the early years under the RCEP scenario but realizes economic

13 We conduct another sensitivity test, but the results are robust to this model.

Table 9. Dynamic impacts of the RCEP on GDP by country and year (unit: %)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
New Zealand	0.02	0.05	0.1	0.16	0.23	0.29	0.35	0.42	0.48	0.54	0.6	0.66	0.71	0.75	0.79
Chile	−0.03	−0.1	−0.2	−0.33	−0.5	−0.67	−0.83	−0.99	−1.15	−1.29	−1.43	−1.56	−1.67	−1.77	−1.86
Peru	−0.01	−0.02	−0.05	−0.08	−0.13	−0.17	−0.21	−0.25	−0.28	−0.31	−0.34	−0.36	−0.38	−0.4	−0.42
Singapore	0.08	0.24	0.47	0.8	1.21	1.61	2	2.38	2.73	3.05	3.34	3.59	3.8	3.97	4.1
US	−0.01	−0.02	−0.04	−0.06	−0.09	−0.12	−0.15	−0.18	−0.2	−0.22	−0.24	−0.25	−0.27	−0.28	−0.28
Australia	0.02	0.04	0.07	0.1	0.15	0.18	0.22	0.25	0.28	0.31	0.34	0.36	0.39	0.4	0.42
Malaysia	0.33	0.65	0.95	1.22	1.47	1.35	1.23	1.11	1	0.9	0.82	0.76	0.71	0.68	0.66
Vietnam	0.92	1.89	2.91	3.96	5.05	5.33	5.56	5.72	5.84	5.91	5.95	5.96	5.94	5.91	5.87
Canada	−0.01	−0.03	−0.05	−0.09	−0.13	−0.17	−0.21	−0.25	−0.28	−0.31	−0.33	−0.35	−0.37	−0.39	−0.4
Mexico	−0.02	−0.06	−0.13	−0.23	−0.37	−0.51	−0.67	−0.83	−1	−1.17	−1.34	−1.52	−1.68	−1.85	−2.01
Japan	0.02	0.06	0.1	0.16	0.23	0.28	0.33	0.38	0.43	0.47	0.51	0.54	0.58	0.6	0.63
Korea	0.04	0.12	0.23	0.39	0.57	0.75	0.94	1.12	1.29	1.46	1.62	1.76	1.89	2.01	2.11
China	0.09	0.19	0.3	0.41	0.51	0.59	0.67	0.73	0.78	0.82	0.85	0.87	0.88	0.88	0.88
India	0.04	0.07	0.08	0.04	−0.04	0.45	0.91	1.34	1.72	2.04	2.29	2.49	2.64	2.73	2.78
RASEAN	−0.48	−0.94	−1.39	−1.84	−2.31	−2.06	−1.84	−1.63	−1.44	−1.28	−1.14	−1.03	−0.94	−0.87	−0.82
EU	−0.01	−0.02	−0.05	−0.09	−0.15	−0.2	−0.25	−0.31	−0.35	−0.4	−0.43	−0.47	−0.5	−0.52	−0.54
ROW	−0.02	−0.05	−0.11	−0.18	−0.26	−0.34	−0.42	−0.49	−0.55	−0.6	−0.65	−0.69	−0.73	−0.75	−0.77

Source: *Authors' calculations.*

Table 10. Dynamic impacts of the RCEP-China on GDP by country and year (unit: %)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
New Zealand	0.02	0.04	0.07	0.1	0.14	0.17	0.21	0.24	0.27	0.29	0.32	0.34	0.36	0.37	0.39
Chile	−0.01	−0.03	−0.06	−0.11	−0.17	−0.23	−0.29	−0.36	−0.42	−0.48	−0.54	−0.6	−0.66	−0.71	−0.76
Peru	0	−0.01	−0.02	−0.04	−0.06	−0.08	−0.1	−0.13	−0.15	−0.17	−0.19	−0.2	−0.22	−0.23	−0.25
Singapore	0.07	0.21	0.43	0.73	1.1	1.48	1.85	2.21	2.55	2.87	3.16	3.42	3.64	3.83	3.99
US	0	−0.01	−0.02	−0.03	−0.05	−0.07	−0.09	−0.1	−0.12	−0.13	−0.15	−0.16	−0.17	−0.18	−0.19
Australia	0.03	0.06	0.11	0.17	0.24	0.3	0.36	0.42	0.47	0.51	0.55	0.59	0.62	0.64	0.66
Malaysia	0.32	0.64	0.96	1.27	1.58	1.58	1.58	1.57	1.55	1.54	1.53	1.53	1.53	1.54	1.55
Vietnam	0.86	1.76	2.69	3.65	4.62	4.84	5	5.12	5.19	5.22	5.23	5.22	5.18	5.13	5.07
Canada	0	−0.01	−0.02	−0.04	−0.07	−0.09	−0.11	−0.14	−0.16	−0.18	−0.2	−0.22	−0.24	−0.25	−0.27
Mexico	−0.01	−0.03	−0.07	−0.13	−0.21	−0.3	−0.4	−0.51	−0.63	−0.75	−0.88	−1.01	−1.15	−1.28	−1.42
Japan	0.01	0.02	0.03	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.04
Korea	0.01	0.03	0.05	0.08	0.11	0.15	0.19	0.22	0.25	0.28	0.3	0.32	0.33	0.34	0.34
China	−0.01	−0.04	−0.08	−0.13	−0.19	−0.24	−0.28	−0.33	−0.36	−0.4	−0.42	−0.44	−0.46	−0.48	−0.48
India	0.06	0.14	0.23	0.32	0.4	0.5	0.58	0.66	0.72	0.76	0.79	0.81	0.82	0.81	0.8
RASEAN	−0.54	−1	−1.38	−1.68	−1.91	−1.29	−0.69	−0.11	0.43	0.94	1.4	1.82	2.18	2.5	2.76
EU	0	−0.01	−0.02	−0.04	−0.07	−0.1	−0.14	−0.17	−0.2	−0.24	−0.27	−0.29	−0.32	−0.35	−0.37
ROW	−0.01	−0.02	−0.04	−0.08	−0.12	−0.16	−0.2	−0.25	−0.28	−0.32	−0.36	−0.39	−0.42	−0.44	−0.46

Source: *Authors' calculations.*

gains under the RCEP-C scenario. This implies that India competes with China under the RCEP.

In general, dynamically larger negative shocks are expected for non-RCEP countries under the RCEP-J scenario than under the RCEP-C scenario (Table 11). This explains why Western countries such as the United States are concerned about economic integration in East Asia under China's leadership. Noteworthy is that RASEAN countries experience a similar dynamic path under the RCEP-C and RCEP-J scenarios. RASEAN countries must make some structural adjustments to their industries under these two RCEP scenarios during the initial period but realize economic gains cumulatively. Despite the political pressure from industrial adjustments, RASEAN countries prefer China or Japan to join the RCEP because of their losses under the RCEP scenario.

Table 11. Dynamic impacts of the RCEP-Japan on GDP by country and year (unit: %)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
New Zealand	0	−0.01	−0.03	−0.05	−0.09	−0.12	−0.15	−0.18	−0.2	−0.21	−0.22	−0.22	−0.21	−0.19	−0.18
Chile	−0.02	−0.04	−0.09	−0.15	−0.24	−0.32	−0.4	−0.48	−0.56	−0.63	−0.71	−0.77	−0.84	−0.89	−0.94
Peru	0	−0.01	−0.03	−0.05	−0.08	−0.1	−0.13	−0.16	−0.18	−0.2	−0.22	−0.24	−0.26	−0.27	−0.28
Singapore	0.07	0.21	0.41	0.7	1.07	1.43	1.8	2.15	2.49	2.81	3.09	3.35	3.57	3.76	3.92
US	0	−0.01	−0.02	−0.04	−0.06	−0.08	−0.1	−0.12	−0.14	−0.15	−0.17	−0.18	−0.19	−0.2	−0.21
Australia	0.03	0.07	0.12	0.18	0.26	0.32	0.38	0.43	0.48	0.53	0.57	0.61	0.64	0.66	0.69
Malaysia	0.32	0.63	0.94	1.24	1.54	1.53	1.52	1.5	1.48	1.46	1.45	1.44	1.44	1.45	1.46
Vietnam	0.81	1.66	2.55	3.46	4.4	4.61	4.77	4.89	4.96	5.01	5.02	5.02	5	4.96	4.92
Canada	0	−0.01	−0.03	−0.05	−0.08	−0.1	−0.13	−0.15	−0.17	−0.2	−0.22	−0.23	−0.25	−0.27	−0.28
Mexico	−0.01	−0.04	−0.09	−0.15	−0.24	−0.33	−0.42	−0.53	−0.64	−0.76	−0.89	−1.01	−1.14	−1.27	−1.4
Japan	0	−0.02	−0.04	−0.07	−0.11	−0.16	−0.2	−0.25	−0.29	−0.32	−0.36	−0.39	−0.41	−0.43	−0.45
Korea	0.04	0.12	0.25	0.43	0.64	0.83	1.03	1.22	1.4	1.57	1.73	1.88	2	2.11	2.2
China	0.03	0.08	0.12	0.17	0.21	0.23	0.25	0.25	0.26	0.26	0.25	0.25	0.24	0.23	
India	0.11	0.24	0.39	0.55	0.71	0.87	1.02	1.15	1.25	1.33	1.39	1.42	1.44	1.44	1.43
RASEAN	−0.56	−1.05	−1.46	−1.79	−2.03	−1.41	−0.81	−0.23	0.32	0.82	1.28	1.69	2.05	2.35	2.61
EU	0	−0.01	−0.03	−0.05	−0.09	−0.12	−0.16	−0.2	−0.23	−0.27	−0.3	−0.33	−0.35	−0.38	−0.4
ROW	−0.01	−0.03	−0.06	−0.1	−0.15	−0.2	−0.25	−0.3	−0.35	−0.39	−0.42	−0.46	−0.49	−0.51	−0.53

Source: *Authors' calculations.*

5. Conclusions and policy implications

Although a U.S.-led TPP or an ASEAN-led RCEP may foster bilateral competition for regionalism in East Asia, the simulation results suggest that neither is likely to be realized. Some member countries experience economic losses under the RCEP and modified scenarios. Some prefer China to be in the group, whereas others experience economic gains when Japan is excluded. Unless existing FTAs among Asian countries are considered in the simulation, the results may suggest that all participating countries will support the idea of the RCEP because all these countries are expected to experience a wide range of benefits through trade liberalization even when trade barriers are eliminated through effective FTAs. This paper's simulation results suggest that a subgroup of ASEAN+6 countries should form a subregional FTA to maximize their economic benefits, which may hinder ASEAN's centrality because only some ASEAN countries may join this group. Although the idea behind the RCEP can be evaluated favorably, it may be too ambitious and thus may end up as a talk shop as in the case of the 1994 Bogor Declaration.

The simulation results further suggest that the TPP may be in trouble because of its minimal economic impact. In addition, it is difficult to evaluate the quality of the TPP because the content of the discussion is not available, and, in contrast to the U.S.'s declaration, the TPP is not likely to become a high-quality FTA for the 21st century. Such an FTA requires wide coverage and extensive market access. In this regard, developing countries such as Vietnam and Peru are not yet ready to accept a high-quality FTA in the form of the TPP. In addition, it is difficult for the Obama administration to promote an FTA with sensitive issues because it has had little success in securing Trade Promotion Authority from Congress, which is necessary for promoting a wide range of liberalization measures under the agreement. Also, it seems

to be difficult to push for a high-quality agreement when it is viewed from a practical perspective. Given many other bilateral FTAs among TPP countries, this TPP may not be a crucial trade bloc in the Asia-Pacific region even if TPP negotiations are successfully concluded.

Although the United States continues to lead the TPP talks, its interest appears to have decreased from one year earlier. This indicates that the TPP may be blocked by the United States for various economic and political reasons. The United States' continuing interest in the Asia-Pacific region, however, suggests that it may be using the TPP to contain the rapid rise of China. Recently, the United States has tended to rationalize the TPP as an interim phase toward an FTAAP. The United States led the 1994 Bogor Declaration with a political purpose, which can be seen as a similar case with the TPP. If the United States continues to push for the TPP as a way to contain China, then it is likely to exclude China from the FTAAP. Based on this line of reasoning, the FTAAP could turn out to be just a paper agreement for political purposes.

The simulation results suggest that a regionwide FTA in East Asia can provide the region with substantial economic gains, however—although this would require considerable efforts by participating countries. In this regard, a core group of countries should initiate a subregional FTA while promising an open-membership system. Here it should be noted that there are tradeoffs between exceptionally large gains in the long term with all members and substantial benefits in the short term with core members. East Asia has needed trade development in the region since the 2008–09 global financial crisis to maintain and develop the region's production network.

Finally, this paper has some limitations. First, Taiwan is one of major trading countries in East Asia, but is not considered as a potential member of TPP or RCEP due to political reasons. Additionally, the Economic Cooperation Framework Agreement is currently under implementation between China and Taiwan. The Taiwan-China trade pattern is a product of present trade arrangements. If Taiwan succeeds in getting an FTA with the United States, then the configuration of regional trade could change. In spite of these implications, the simulations in this paper do not take this feature into account. Second, because this paper focuses on the net impacts of the TPP and the RCEP on the GDP of member countries in a dynamic context, it provides no sectoral assessment. Noting the 1,530 result solutions for a 15-year time period in 17 countries (regions) multiplied by six scenarios, analyzing the impact on the GDP requires substantial work and many pages of paper. A similar rationale can be given for the dynamic assessment on regional investment. Third, ASEAN countries need to be fully disaggregated from a strategic perspective. One of the main

points in this paper is whether all ASEAN countries can support the RCEP, and the paper explores this through an analysis of the impact of various scenarios on the GDP of individual ASEAN member countries.

Fourth, this paper assumes tariff elimination without taking into account the role of nontariff barriers, but improvement in nontariff barriers, services, and investment should be considered for more accurate estimation of economic gains from the TPP and RCEP. Fifth, any assessment of economic gains from a particular policy initiative should be closely linked to a qualitative analysis of the feasibility of that initiative. In addition, simulation results under diverse scenarios should be examined based on the pursuit of desirable regional economic integration in East Asia and the Asia-Pacific region.

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