Economic Impacts of Thailand Joining the CPTPP: Analysis Using IDE-GSM

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Highlights

- ✓ We simulated the economic impacts of Thailand joining the CPTPP that includes either or both China and Taiwan.
- ✓ GDP in Thailand in 2030 is expected to increase by 0.20% when both China and Taiwan are included in the CPTPP.
- ✓ The largest impacts will be felt by the automotive industry, followed by the electrical, and electronics industries.
- ✓ Samut Sakhon and Samut Prakarn will enjoy relatively larger benefits.

The Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) was enforced in December 2018. During its negotiation, the CPTPP received considerable attention not only from its member countries but also from other countries around the globe. In 2021, this high-level free trade agreement (FTA) is again attracting considerable international attention as countries other than the United Kingdom, namely China and Taiwan, have applied to join the group. Furthermore, due to the China's application—the second-largest country in terms of Gross Domestic Product (GDP) —many

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countries, such as Thailand and South Korea, have been reassessing the costs and benefits of their joining the CPTPP. Indeed, our prior simulation study indicated that Thailand and South Korea will decrease their real GDP in 2030 by 0.03% if they do not join the CPTPP that includes both China and Taiwan (Kumagai and Hayakawa, 2021).

In this short report, we examine the economic impacts of Thailand's membership in the CPTPP. Specifically, we simulate those impacts under the CPTPP that include either or both China and Taiwan. We do not discuss the issue of whether or not their accession is approved. We quantify the economic effects of reducing/eliminating tariffs. Namely, we do not consider the effects of changing non-tariff measures because such effects are still unclear in the quantification. For simulation, we have used the Institute of Developing Economies' Economic Geography Simulation Model (IDE-GSM).

The IDE-GSM

We utilized the IDE-GSM to evaluate the economic impacts of Thai membership in the CPTPP. The details of the model are provided in Kumagai et al. (2013). The IDE-GSM is designed to evaluate the economic impacts of various transport and trade facilitation measures (TTFMs) by scenario-based approach and is computed based on a series of steps. First, we estimated GDP for each region as the baseline, without any intervention. Second, assuming interventions of infrastructure upgrade, tariff reduction, or trade facilitation measures as different scenarios, we estimated regional GDPs under these alternative scenarios. Finally, by taking the difference of regional GDP for each scenario with the baseline, we found them as per the impacts of each intervention.

The advantages of IDE-GSM can be summarized as the following three points—subnational level economic data, multi-modal logistics networks, and agglomeration economies based on spatial economics. First, our data was constructed at a subnational level, such as districts/provinces/states/prefectures, while the Global Trade Analysis Project (GTAP) model is based on a country-level dataset. The IDE-GSM entails 169 countries, divided into more than 3,000 subnational regions. Each regional economy consists of eight industrial sectors.

Second, our model incorporated multi-modal logistics networks such as roads, railways, ships, and air. As the connectivity among regions is multi-layered, the impacts of each infrastructure project can be complicated. For the transport network data, the number of routes included in the model were 20,081 (land: 12,870, sea and inland waterway: 1,347, air: 2,660, railway: 3,129, and high-speed railway: 75). We can analyze various TTFMs with these multi-modal networks taking them into account.

Third, the IDE-GSM has incorporated the mechanism of agglomeration economies based on spatial economics, whereas the GTAP is based on the Armington model of international trade. This feature is essential in the context of Asia as we can easily observe several megacities, which are the typical examples of agglomeration economies of firms and

people. With such a mechanism in its theoretical backbone, the IDE-GSM can successfully estimate the changes in the distribution of industries and population brought about by various TTFMs.

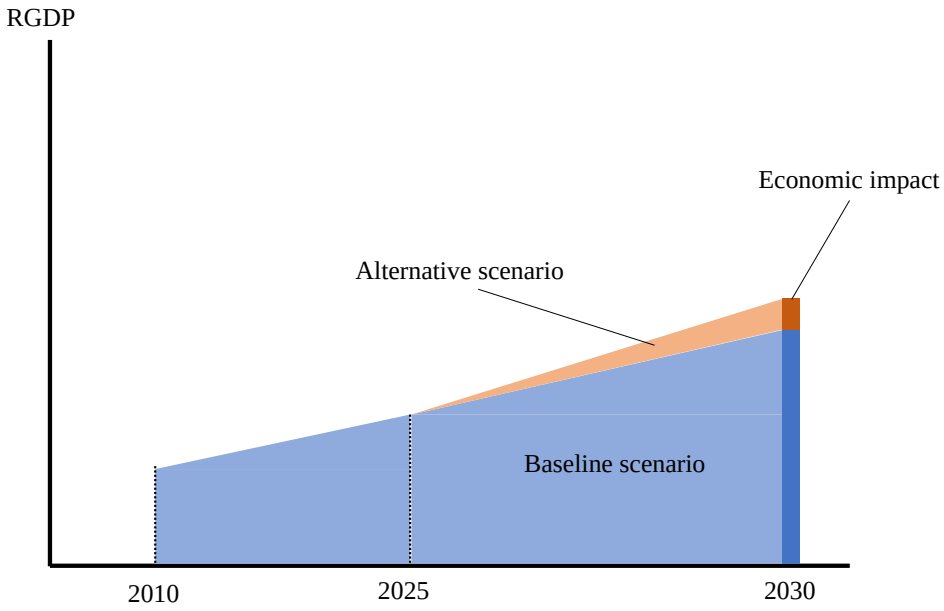
Scenarios

In this study, the CPTPP from 2018 in our baseline scenario included Australia, Canada, Japan, Mexico, New Zealand, Singapore, and Vietnam. Peru was also included from 2021. We further assume that the CPTPP will become effective in the remaining original members—Brunei, Chile, and Malaysia—from 2022. Another assumption imposed in the baseline scenario is that the United Kingdom will be included in 2023.

In our model, applied tariff rates (lowest available tariff rates) until 2019 were incorporated. Those rates take into account not only the most favored national rates but also FTA tariff and unilateral trade liberalization rates (e.g., a generalized scheme for preference). We assume that the same level of tariff rates as those in 2019 is applied afterward. However, we also incorporated the further reduction of tariffs for some specific country pairs after 2019. First, our model included the tariff reduction scheduled in the regional comprehensive economic partnership (RCEP) by assuming its entry into force in all RCEP members in 2022. Second, we assumed that tariff rates become zero for all products in each CPTPP member country at the year set in its legal text (e.g., 2038 in Japan). Then, tariff rates among the CPTPP member countries are supposed to decrease proportionally from the level in 2019 to zero rates in that year. Third, similar to CPTPP, we considered tariff reduction based on the bilateral FTA between Vietnam and United Kingdom. In short, our model to some extent, took into account the tariff reduction scheduled in existing FTAs.

Economic impact evaluation of each scenario is performed in the comparison of the two scenarios (Figure 1). One is a baseline scenario, with no CPTPP for Thailand, and the other is an alternative scenario with Thailand joining CPTPP. Then we can define the economic impacts as the difference in regional GDP(RGDP) of each administrative region between the two scenarios. In this report, we evaluate the economic effects in 2030.

Figure 1. Economic Impacts as Differences between the Baseline and the Alternative Scenarios



Source: Authors

By comparing with this baseline scenario, we simulated the economic impacts that Thailand joining the three kinds of CPTPP, i.e., three alternative scenarios: (S1) CPTPP with China, (S2) CPTPP with Taiwan, and (S3) CPTPP with China and Taiwan, would have. We assumed that China and Taiwan will become CPTPP members in 2025. Thailand is also assumed to join in 2025. Since then, these countries/economies can enjoy tariff reduction when exporting to other CPTPP member countries. On the other hand, tariff rates of these three countries/economies (in addition to the United Kingdom) are supposed to be eliminated for all products in 2038, which is the final year of tariff elimination among the original member countries. Note that Thailand already has some FTAs with most of the CPTPP members. It lacks FTAs only with Canada, Mexico, United Kingdom, and Taiwan. Thus, the economic impacts of Thailand joining the CPTPP will be sourced mainly from the tariff reduction with these countries/economies.

Results

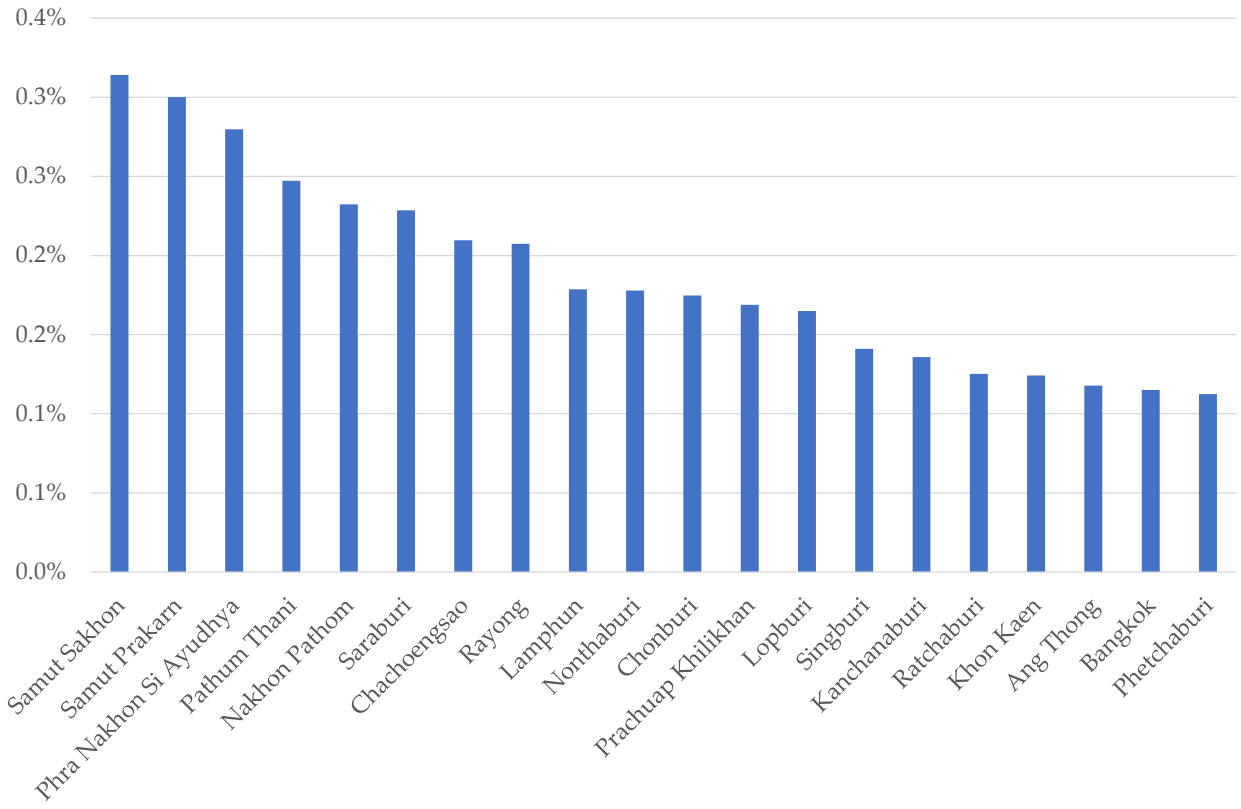
The three alternative scenarios were compared with the baseline scenario for 2030. Table 1 summarizes the economic impacts on GDP in Thailand by industry. In "S1," we show the effects of Thailand joining the CPTPP that includes China as a member. The automotive industry receives the largest effect, which is an increase of GDP in this industry by 0.85%. The electrical and electronics (E&E) industry also shows a relatively large effect. As a result, the total effect on real GDP is a 0.18% increase. Figure 2 shows the impact of this scenario on real GDP in the top 20 provinces. The relatively large and positive effects are observed in Samut Sakhon, Samut Prakarn, and Phra Nakhon Si Ayudhya, where automotive producers are agglomerated.

Table 1. Economic Impacts of Thailand Joining Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) by Industry (as of 2030)

	S1	S2	S3
Agriculture	0.03%	0.02%	0.03%
Mining	0.01%	0.00%	0.01%
Food Proc.	0.22%	0.27%	0.24%
Textile	0.27%	0.93%	0.42%
E&E	0.37%	0.12%	0.46%
Automotive	0.85%	0.80%	0.97%
Oth. Mfg.	0.16%	0.10%	0.15%
Services	0.09%	0.08%	0.10%
Real GDP	0.18%	0.17%	0.20%

Source: Authors' computation using the IDE-GSM.

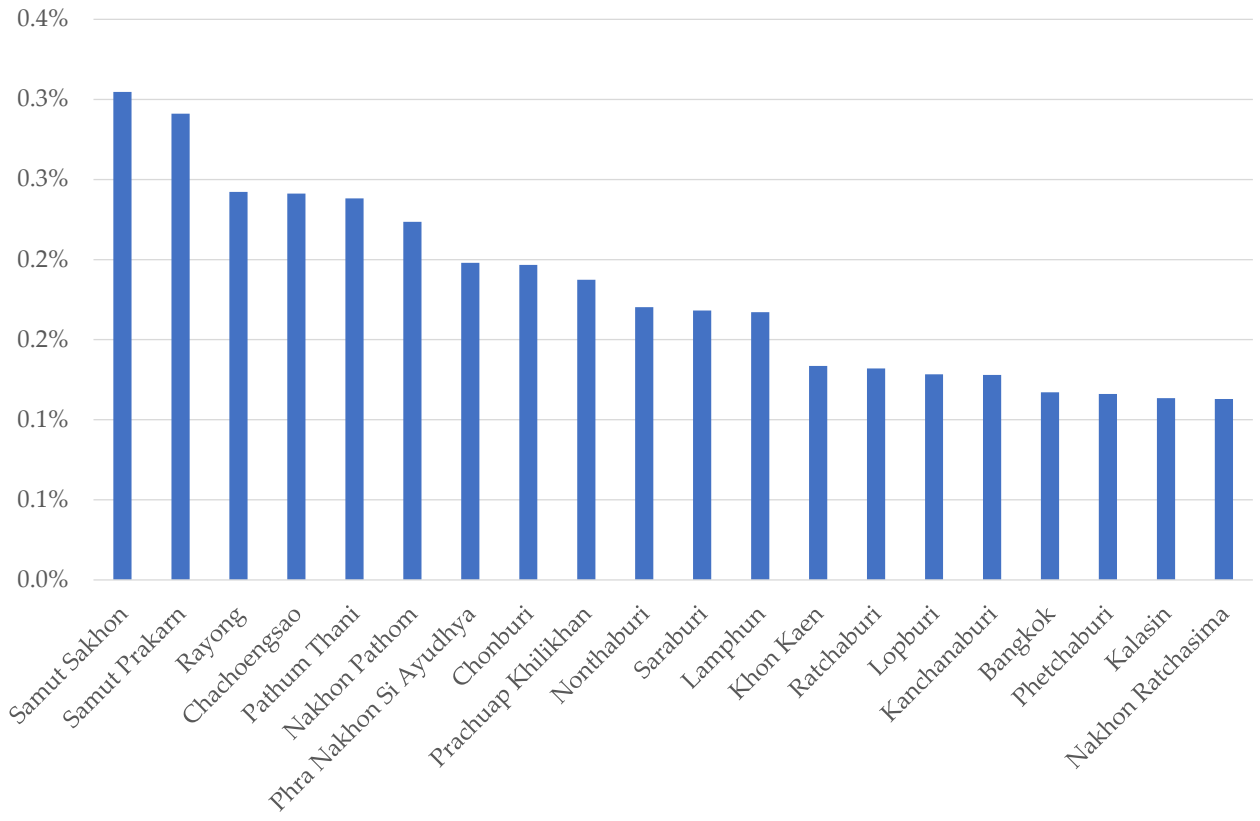
Figure 2. Top 20 Provinces in the Economic Impacts on Real Gross Domestic Product (GDP) under Scenario 1 (as of 2030)



Source: Authors' computation using the IDE-GSM.

Column "S2" in Table 1 reports the economic impacts under Scenario 2, i.e., joining the CPTPP including Taiwan as a member. Despite the difference in economic size between China and Taiwan, the effects on GDP are not quantitatively different between Scenarios 1 and 2 because Thailand already has ASEAN-China FTA and RCEP with China. While the automotive industry again shows a relatively large effect, the most significant effect can be found in the textile industry. Looking at the economic impacts by province, which are shown in Figure 3, we see that the top two provinces under Scenario 2 are the same as those under Scenario 1. However, the third-largest effect is found in Rayong.

Figure 3. Top 20 Provinces in the Economic Impacts on Real Gross Domestic Product (GDP) under Scenario 2 (as of 2030)

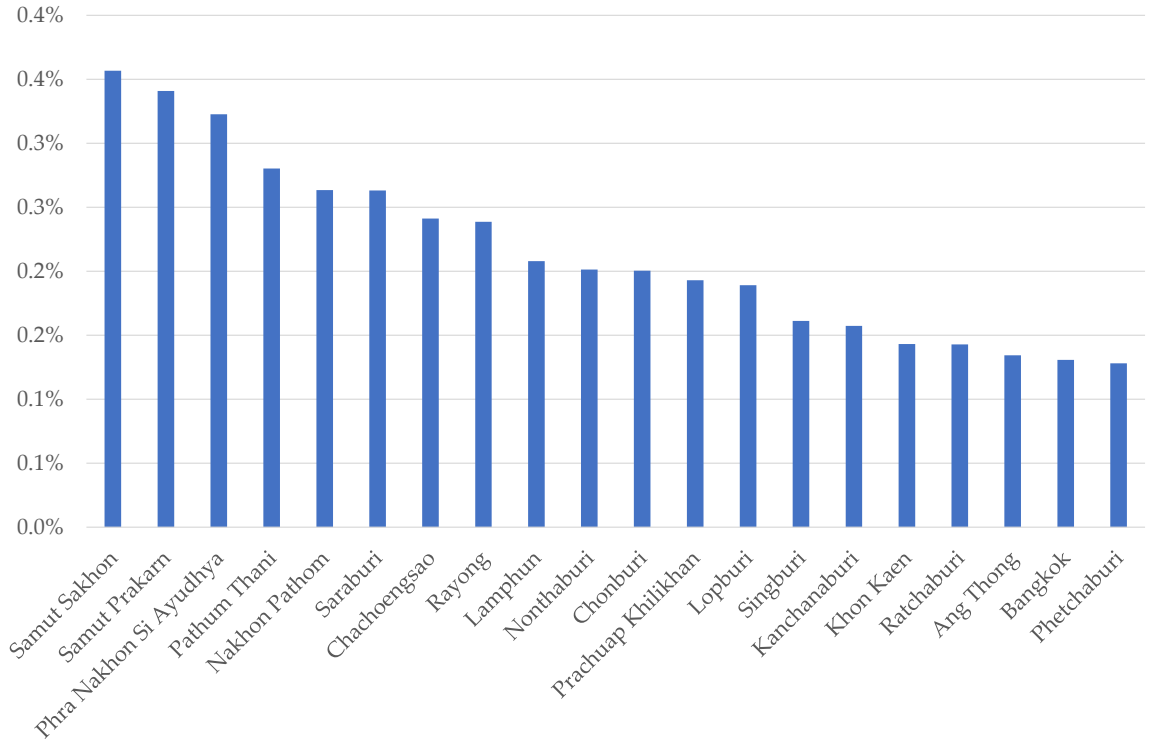


Source: Authors' computation using the IDE-GSM.

Finally, the results under Scenario 3 are shown in column "S3" in Table 3. The impacts on real GDP in this scenario, which are a 0.20% increase, are largest among the three scenarios. Like Scenario 1, the largest effect is found in the automotive industry, followed by the E&E industry. An interesting result can be seen in the effect in the textile industry, which is larger than that in Scenario 1 but lower than that in Scenario 2. This result is because, under Scenario 3, China and Taiwan enjoy large tariff reductions when trading with each other, though the early harvest program of the Economic Cooperation Framework Agreement is effective between them. Namely, the benefits in the textile industry by

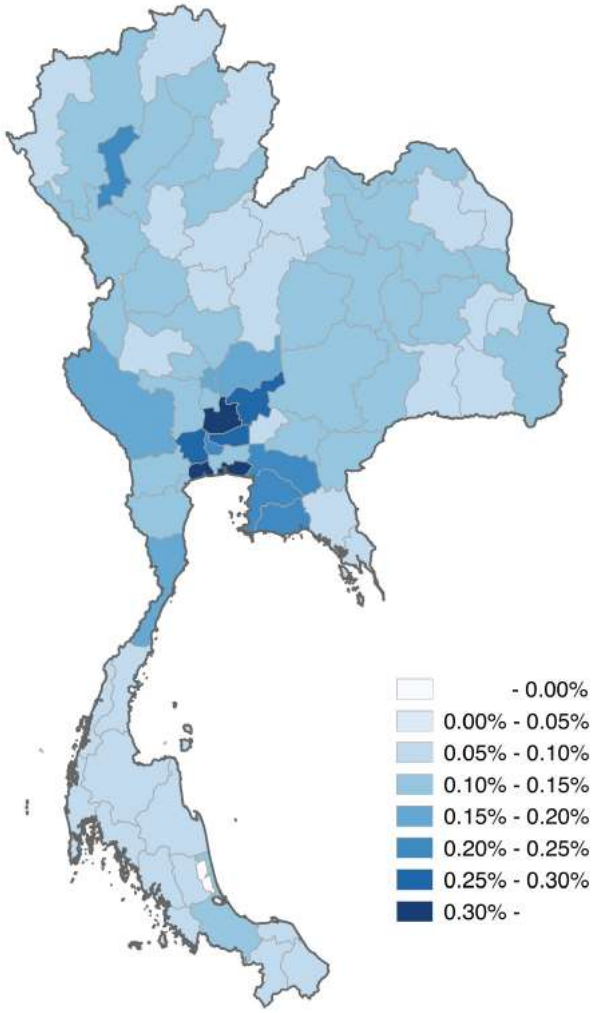
exporting from Thailand to Taiwan decrease due to a tough competition with China in the Taiwanese textile market. As shown in Figure 4, the top three provinces in this scenario are the same as those in Scenario 1, i.e., Samut Sakhon, Samut Prakarn, and Phra Nakhon Si Ayudhya. The impacts on real GDP in all provinces are also shown in Figure 5.

Figure 4. Top 20 Provinces in the Economic Impacts on Real Gross Domestic Product (GDP) under Scenario 3 (as of 2030)



Source: Authors' computation using the IDE-GSM.

Figure 5. Economic Impacts on Real Gross Domestic Product (GDP) under Scenario 3 (as of 2030)



Source: Authors' computation using the IDE-GSM.

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