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An Overview of Trade in Goods and Services

Thi Hang BANH

Xuyao ZHANG

Chi ZHANG

An LE

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Three Years into CPTPP: An Overview of Trade in Goods and Services

Thi Hang Banh* Xuyao Zhang Chi Zhang An Le

April 2023

Abstract

The Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) strives to deepen trade liberalization in goods and services among countries in the Asia-Pacific, resulting in a more seamless flow of goods and services. For example, more than 30% of tariffs were eliminated in Australia, Canada, Japan, New Zealand, and Vietnam after the first year of CPTPP came into effect. This project uses bilateral trade and tariff data to study the trade creation effect of the CPTPP on intra-CPTPP trade in goods and services after three years into CPTPP. Estimating "gravity-type" regressions separately for commodity exports and imports of CPTPP countries, we found trade creation effects on intra-CPTPP imports for 17 out of 65 industries and on intra-CPTPP exports for 11 out of 65 industries. The trade creation effect leads to an increase of from 0.5% to 17.9% in import values and from 0.9% to 25.3% in export values for each percentage point reduction in the CPTPP tariff compared to the most-favoured-nation tariff (MFN in 2010). However, given the adverse effect of the pandemic on CPTPP countries' trade and the short time frame after CPTPP came into force, we might expect to see trade creation effects in more industries in the future. Additionally, we observed an increasing trend in intra-CPTPP trade in digital services. Singapore is the largest exporter of digital services, while Japan is the top destination of digital services trade in the CPTPP bloc.

*Asia Competitiveness Institute, Lee Kuan Yew School of Public Policy, National University of Singapore. HB: hangbanh@nus.edu.sg. XZ: sppzhx@nus.edu.sg. CZ: chizhang@nus.edu.sg. AL: lehienchucan1208@gmail.com

1 Introduction

The CPTPP is a regional trade agreement between 11 countries: Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore, and Vietnam. This trading bloc represents 500 million consumers and makes up 13.5% of global GDP (Government of Canada, 2022a). The idea of the agreement was sparked off by the Trans-Pacific Strategic Economic Partnership Agreement (P4), signed by four countries, Brunei, Chile, New Zealand, and Singapore in 2006. The negotiation soon attracted more countries, including the participation of Australia, Peru, the United States and Vietnam in 2010, Canada and Mexico in 2012, and finally Japan in 2013. Eventually, in 2015, all 12 countries agreed to conclude the negotiation, and in 2016, the Trans-Pacific Partnership (TPP) was signed. However, the TPP encountered their first stumbling bloc in early 2017 with the withdrawal of the United States. After that, the 11 remaining countries met and discussed the feasible next step towards the agreement in May of the same year. In March 2018, all 11 parties came to a conclusion and signed this new agreement, embarking on a new chapter for the CPTPP. Quickly, the ratification of six countries, including Australia, Canada, Japan, Mexico, New Zealand, and Singapore, were achieved. This led to the CPTPP officially entering into force on December 30, 2018. Just nearly 15 days after the agreement came into effect, Vietnam ratified the deal, followed up by Peru's ratification in September 2021, Malaysia's ratification in November 2022, and Chile's ratification in February 2023. Brunei is the only country that hasn't ratified the CPTPP. On March 31, 2023, Britain just reached an agreement with the CPTPP member countries to join the trade bloc.

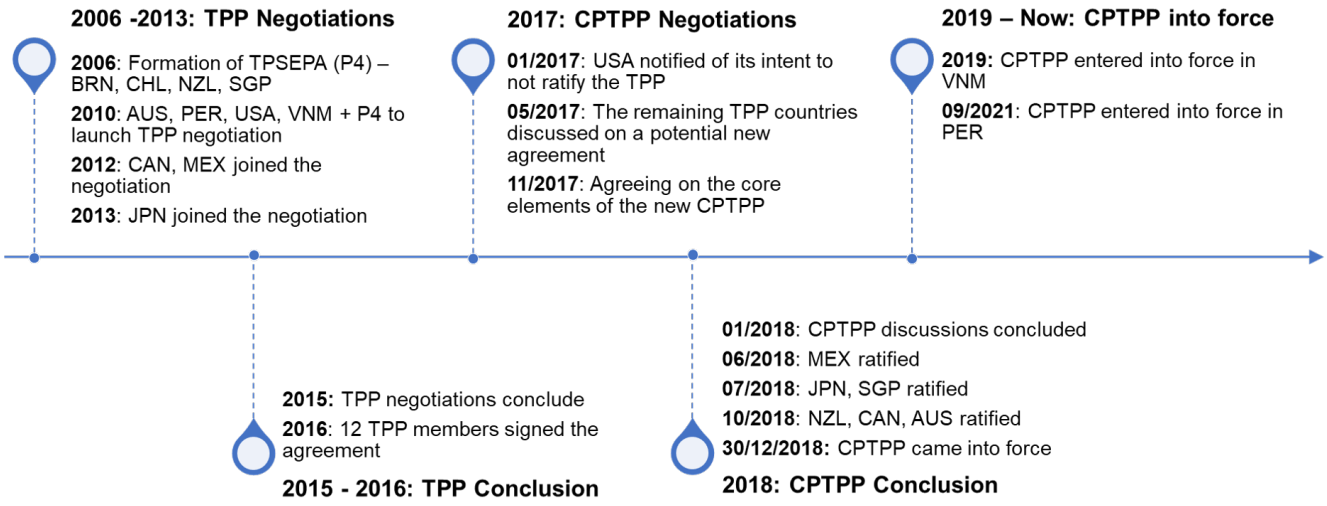

Figure 1: CPTPP Timeline

Notes: TPSEPA: Trans-Pacific Strategic Economic Partnership Agreement; TPP: Trans-Pacific Partnership; CPTPP: Comprehensive and Progressive Agreement for Trans-Pacific Partnership; AUS: Australia; BRN: Brunei; CAN: Canada; CHL: Chile; JPN: Japan; MEX: Mexico; MYS: Malaysia; NZL: New Zealand; PER: Peru; SGP: Singapore; USA: United States of America; VNM: Vietnam. Source: Authors' compilation from Government of Canada (2022b).

Table 1: Bilateral and Regional Agreements between CPTPP Member Economies.

Economies	AUS-NZL	BRN-MYS-SGP-VNM	CHL-PER	CAN-MEX
AUS-NZL	CER (1993 (G), 1989 (S)) AANZFTA (2010) PACER Plus (2020) RCEP (2022)	SGP-AUS (2003) TPSEP (2006) NZL-MYS (2010) AANZFTA (2010) AUS-MYS (2013) NZL-SGP (2020) SADEA (2020) DEPA (2021) RCEP (2022)	TPSEP (2006) CHL-AUS (2009) PER-AUS (2020) DEPA (2021)	No FTA
BRN-MYS-SGP-VNM		TPSEP (2006) ATIGA (2010)	TPSEP (2006) PER-SGP (2009) CHL-MYS (2012) CHL-VNM (2014) DEPA (2021)	No FTA
CAN-MEX			CHL-CAN (1997) CHL-MEX (1999) PER-CAN (2009) PER-MEX (2012)	NAFTA (1994-2020) USMCA (2020)
CHL-PER			Bilateral (2009)	CAN-CHL (1997) MEX-CHL (1999) CAN-PER (2009) MEX-PER (2012)
JPN	AUS (2015) RCEP (2022)	SGP (2002) MYS (2006) ASEAN (2008) BRN (2008) VNM (2009) RCEP (2022)	CHL (2007) PER (2012)	MEX (2005)

Notes: AUS: Australia; BRN: Brunei; CAN: Canada; CHL: Chile; JPN: Japan; MEX: Mexico; MYS: Malaysia; NZL: New Zealand; PER: Peru; VNM: Vietnam; SGP: Singapore. AANZFTA: ASEAN-Australia-New Zealand Free Trade Area; ASEAN: Association of Southeast Asian Nations; ATIGA: ASEAN Trade in Goods Agreement; CER: Closer economic relations; DEPA: Digital Economy Partnership Agreement; NAFTA: North American Free Trade Agreement; PACER: Pacific Agreement on Closer Economic Relations; RCEP: Regional Comprehensive Economic Partnership; SADEA: Singapore-Australia Digital Economy Agreement; TPSEP: Trans-Pacific Strategic Economic Partnership Agreement; USMCA: United States–Mexico–Canada Agreement. Source: Authors' compilation from WTO data on trade agreements.

The formation of the CPTPP is regarded as a transformational establishment of the free trade agreement (FTA), resulting in a substantial market access package (i.e., embracing high standard regulations for trade in goods and services and commitments in digitally deliverable services) for every member (Australian Government, 2021b). The agreement is expected to help member countries to create more jobs through the liberalization of trade in goods and services, and to address digital trade issues via the establishment of comprehensive e-commerce regulations (Government of Canada, 2022a). Additionally, with commitments to create common and transparent trade and investment rules, address corruption and unfair competition by state-owned enterprises, and liberalise the environment for electronic commerce, the agreement creates favourable conditions for small and medium enterprises to establish export markets (Australian Government, 2021a). This allows them to enter the market of around 4000 billion USD export value (accounting for more than 15% of total global export) and more than 3500

billion USD import value (accounting for approximately 15% of total world import) (Figure 2).

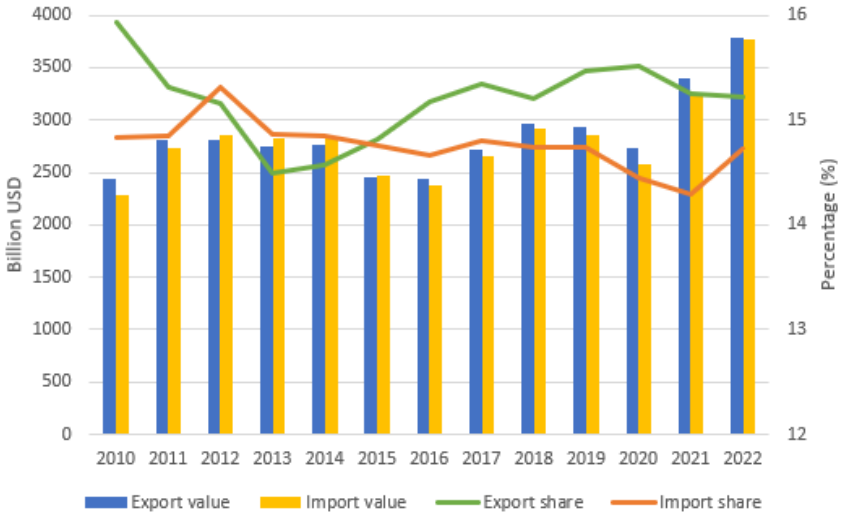

Figure 2: Total CPTPP Trade to World Trade

Notes: Import share is the ratio of total CPTPP import in total world import, export share is the ratio of total CPTPP export in total world export. Source: Authors' calculation from IMF Direction of Trade Statistics database.

Due to the recentness of the agreement, only a few empirical studies have been conducted on the impact of the CPTPP on trade in goods and services of all member countries. In "Two Years into CPTPP" by Suominen (2021), the author concluded that trade in the CPTPP region overall echoes the same pattern with the world's trade flow; meanwhile, some countries observed an increasing trend, such as: Vietnam in trade in goods and foreign direct investment (FDI), or Japan and Singapore in digitally deliverable services. On the other hand, Li and Whalley (2020) concluded that the CPTPP would lead to the gain of the bloc as a whole and positively affects the total world trade, yet non-parties would potentially experience trade loss due to the exclusiveness of the agreement. However, there hasn't been any paper examining the trade creation effect of tariff elimination and reduction under the agreement.

As CPTPP member countries committed to eliminating and reducing up to 98% of tariff lines, it would be interesting to study the trade creation effect of CPTPP. Therefore, this study attempts to provide an overview of intra-CPTPP trade in goods and services 3 years after CPTPP came into force, and analyze the trade creation effect of tariff reduction under CPTPP using bilateral trade data from the UN COMTRADE database, CEPII BACI database, and OECD-WTO-BATIS services database.[1]

The rest of the report is divided as follows. Section 2 on trade in goods starts with a description of the CPTPP tariff reduction and elimination schedule, then it examines the changes in trade trends of the region before and after the CPTPP came into force. This section ends with an analysis of the effect of the tariff reduction on intra-bloc export and import, by estimating 'gravity-type' regressions using bilateral trade data at the product level. Section 3 covers an overview of the trend in trade in services, then it dives deeper into examining the changes in the pattern of trade in digital services.

[1]CEPII: The Centre d'Études Prospectives et d'Informations Internationales

2 Trade in Goods

In this section, we describe the tariff reduction schedule and examine how it impacts intra-CPTPP trade in goods. In particular, we estimate gravity-type regressions to study the trade creation effect of the tariff reduction under the CPTPP.

2.1 CPTPP Schedule for Tariff Reduction & Trends of Trade in Goods

The CPTPP has positioned itself in the complex network of FTAs in the region. With the exception of three groups: Canada-Mexico and Australia-New Zealand, Canada-Mexico and Brunei-Malaysia-Singapore-Vietnam, and Canada-Japan, the rest of the agreement's parties have already established plurilateral and/or bilateral trade agreements with each other (see Table 1). Therefore, the tariff imposed by these countries might have been already at a low rate, which is confirmed in Figure 3 where on average 52% of tariff lines were already at 0% level. Figure 3 also shows that 33% of tariff lines will be reduced to 0% in the first year of the implementation, and the next 1% is set to eliminate in the next 2 to 3 years after the CPTPP came into effect, meaning from 2020 to 2021 for most countries. The elimination of the last 12% of tariff lines will enter into effect from 2022 to 2029. The complexity of the FTAs network will create difficulties in isolating the effect of tariff reduction under CPTPP on intra-CPTPP trade in goods.

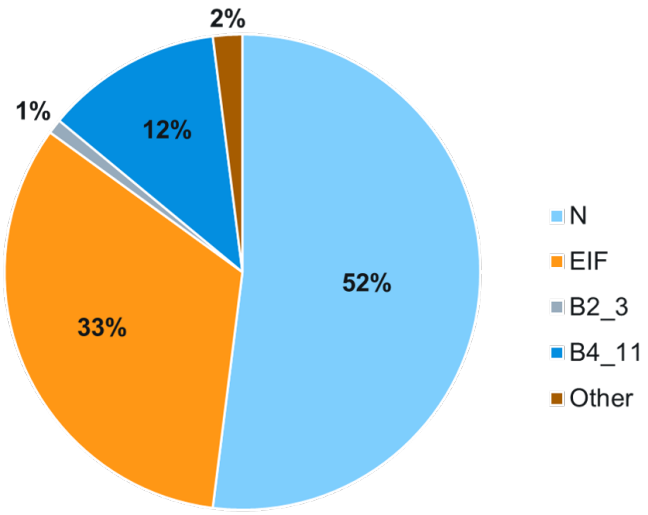

Figure 3: CPTPP Tariff Reduction (% of tariff lines by phasing down type)

Notes: N: non-dutiable goods; EIF: ad-valorem tariff to be reduced to zero in year 1 after entry into force; B2-3: ad-valorem tariff to be reduced to zero in year 2 or 3 after entry into force; B4-11: ad-valorem tariff to be reduced to zero in year 4 to 11 after entry into force; Other: Other types of tariff reduction, e.g. MFN, compound tariff, FTA, etc. Source: Authors' compilation from the CPTPP tariff schedules.

However, each country has the liberty to follow its own tariff reduction schedule. This can be shown in Figure 4, where it displays the proportion of tariff lines in 2018 and 2019 respectively. Notably, almost all tariffs imposed by Singapore were already bottomed at 0% level in 2018, while the remaining is expected to be eliminated in 2019. On the other hand, just after one year into the CPTPP, there was a huge difference in non-dutiable goods in Australia, Canada, Japan,

New Zealand and Vietnam, where an additional more than 30% of the tariff will be eliminated in 2019. Mexico, Malaysia, and Peru will also eliminate tariffs of more than 20% of their tariff lines in their first year of implementation. Furthermore, from 2022 onward, Mexico, Peru and Vietnam are scheduled to reduce tariffs of approximately 20% of their tariff lines to 0%. In the case of Chile, we can observe a major difference in market access as this country will reduce nearly 90% of its tariff one year after the agreement came into force for them.

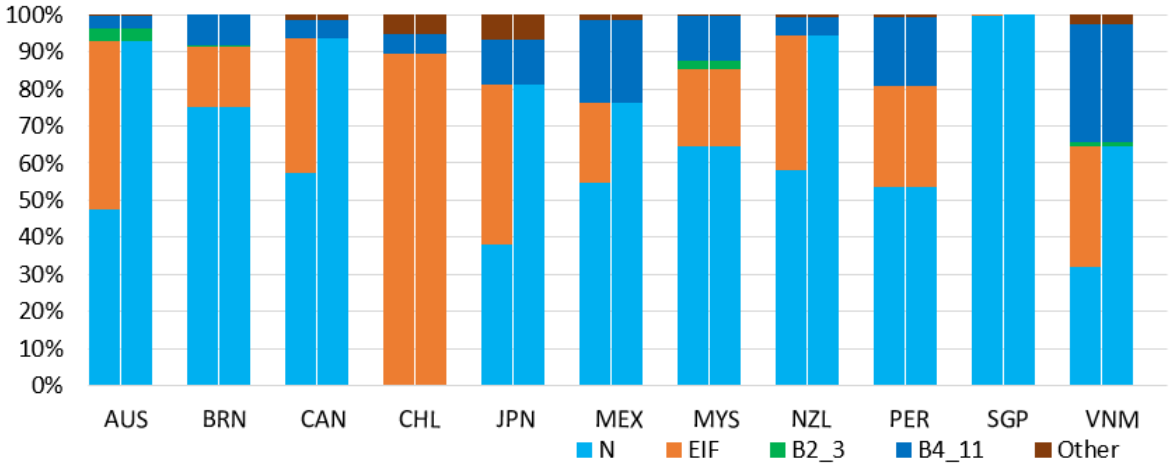

Figure 4: CPTPP Tariff Reduction by Each Member Country in 2018 and 2019 (% of tariff lines by phasing down type)

Notes: Left bar is for 2018 and right bar is for 2019. N: non-dutiable goods; EIF: ad-valorem tariff to be reduced to zero in year 1 after entry into force; B2-3: ad-valorem tariff to be reduced to zero in year 2 or 3 after entry into force; B4-11: ad-valorem tariff to be reduced to zero in year 4 to 11 after entry into force; Other: Other types of tariff reduction, e.g. MFN, compound tariff, FTA, etc. Source: Authors' compilation from the CPTPP tariff schedules.

Additionally, the ad-valorem tariff on almost all products will reach 0% after 11 years of entry into force in each member country (see Figure 5).[2] Remarkably, Figure 5 indicates that Vietnam would mark a significant drop, from an average of around 11% to 0% in 2029. On the other hand, Singapore has already imposed 0% ad-valorem tariff on imports from other CPTPP parties by 2018. Australia, Canada, and New Zealand eliminated their ad-valorem tariff on a large majority of products in 2019, following the implementation of the CPTPP in these countries.

[2]Ad-valorem tariff is a customs duty that is calculated as a percentage of the value of the product.

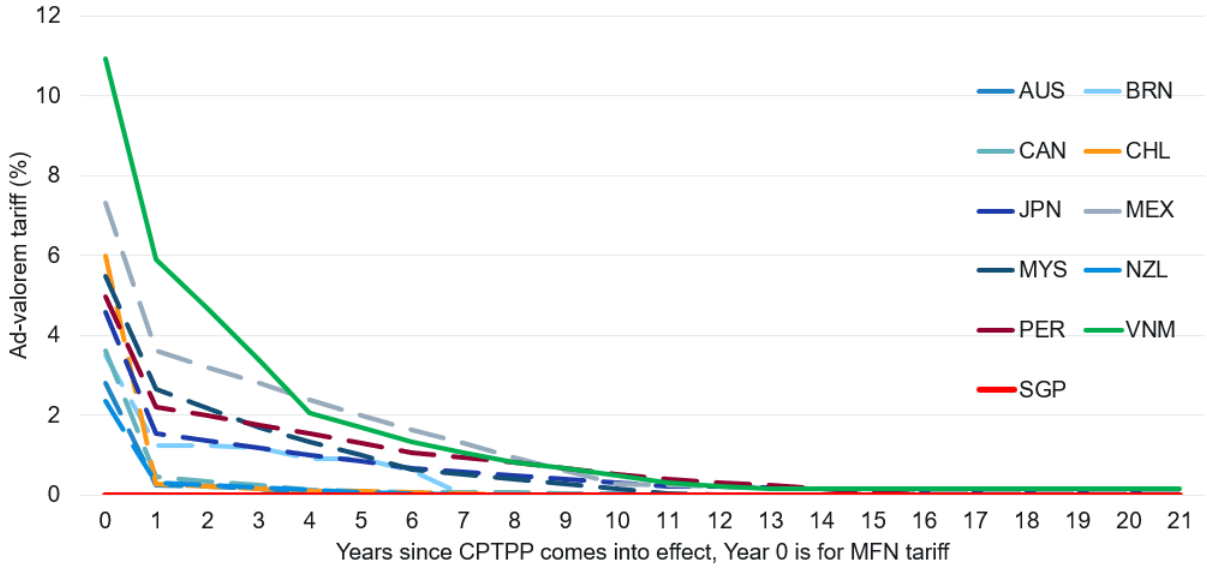

Figure 5: Mean CPTPP Tariff over Years

Notes: AUS: Australia; BRN: Brunei; CAN: Canada; CHL: Chile; JPN: Japan; MEX: Mexico; MYS: Malaysia; NZL: New Zealand; PER: Peru; VNM: Vietnam; SGP: Singapore. Source: Authors' compilation from the CPTPP tariff schedules.

In 2019, the first year of the agreement implementation, trade within the bloc experienced a slight drop in both intra-CPTPP trade value and export share. The year 2020 witnessed a more dramatic decline in the CPTPP bloc's trade in every aspect, including intra-trade value and shares due to the hit of the global pandemic. However, in 2021, we can observe a sharp increase in the intra-CPTPP trade for the first time ever since the agreement came into effect in late 2018. Intra-bloc trade value rose from less than 400 billion USD in 2020 to nearly 500 billion USD in 2021, the highest value during the last 10 years. Simultaneously, intra-export and import shares mirror the same pattern, improving by 0.1% compared to 2020 where it reached the bottom (Figure 6). This signals the positive effect of the CPTPP on trade within the bloc, during and after the recovery from the global pandemic. However, whether the trade share would return as high as the period before 2012 would be more difficult to answer. This is because, since 2012, there have been more regional and bilateral agreements between CPTPP parties and their major trading partners such as China, the United Kingdom (UK), European Union (EU), opening up more exclusive opportunities.[3]

[3]China-Canada (2017), UK-Japan (2020), UK-Mexico (2020), UK-Peru (2020), UK-Singapore (2020), UK-Vietnam (2020), UK-Canada (2020-21), EU-Peru (2013), EU-Canada (2017), EU-Japan (2019), EU-Singapore (2020), EU-Vietnam (2020). Source: Authors' compilation from WTO Regional Trade Agreements Database.

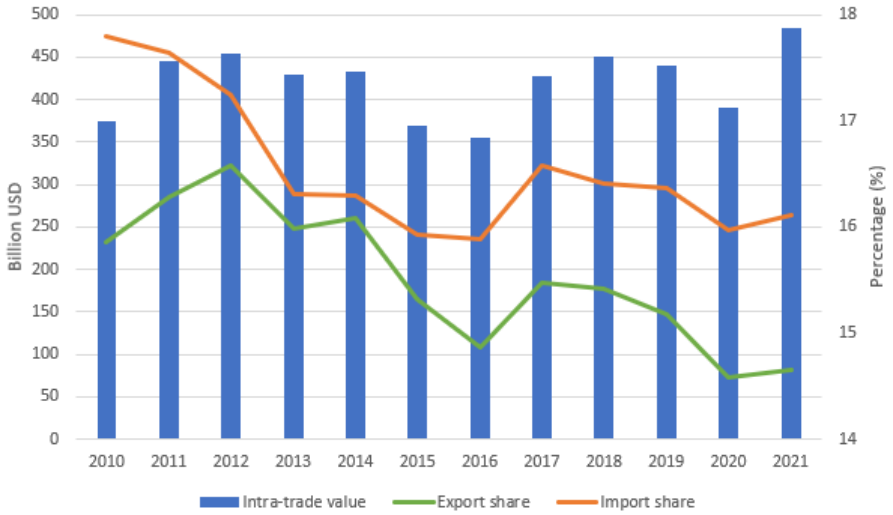

Figure 6: Intra-CPTPP Trade in Goods and Share in Trade to the World

Notes: Import share: Intra-CPTPP Imports in Total CPTPP Imports; Export share: Intra-CPTPP Exports in Total CPTPP Exports. Source: Authors' calculation from BACI database.

Compared to the North American Free Trade Agreement (NAFTA) where parties instantly witnessed growth in trade in the first year of implementation, the CPTPP does not repeat the same pattern.[4] By contrast, intra-CPTPP trade appeared to follow a similar pattern to the trade among parties of the ASEAN Trade in Goods Agreement (ATIGA), where intra-bloc trade does not always generate an increasing trend.[5] This could possibly be owing to the fact that NAFTA was the first FTA among the US, Canada, and Mexico; while both CPTPP and ATIGA were not the first FTA among many of their parties.

Overall, CPTPP parties' intra-bloc trade witnessed a significant increase in the first year of the agreement, compared to 2016. Japan and Singapore are significant export and import partners of all CPTPP parties. However, this increase did not have a chance to last longer due to the pandemic and lockdown in 2020.

2.2 Trade creation effect of CPTPP: Gravity analysis

Due to the pre-existing trade agreements between CPTPP parties and the impact of COVID-19, the trade creation effect of the CPTPP agreement is non-trivial from the descriptive statistics as shown above. Thus in this section, we use the gravity equation to form a more systematic examination of the effect of the ad-valorem tariff reduction under CPTPP on intra-CPTPP exports/imports of goods relative to CPTPP trade with non-CPTPP countries.

Gravity equation has been an empirical workhorse to study the effect of trade agreements on bilateral trade flows since Tinbergen (1962). The gravity equation shows that bilateral trade flows are positively related to partners' sizes (which are usually measured by Gross Domestic Product) and inversely related to changes in bilateral trade barriers, including geographical distance, trade policies, etc. According to the gravity model, free trade agreements help reduce

[4]Gould (1998) observes that the share of trade between NAFTA parties increased, especially between US and Mexico where trade grew 10% faster than the average of five years prior to the agreement.

[5]From 2012-2018, only Cambodia, Lao PDR, Vietnam, and the Philippines experienced increasing intra-regional import and/or export patterns, while the rest of the ASEAN parties witnessed a declining trend (Economic Research Institute for ASEAN and East Asia, 2021).

trade barriers between partner countries, such as tariff reduction or the alleviation of non-tariff barriers, which in turn is expected to create more and larger trade flows between countries. Despite the theoretical support for a trade creation effect of FTAs, the results in the literature have been mixed (Baier and Bergstrand, 2007).

We hypothesize that CPTPP promotes intra-bloc trade because it alleviates trade barriers among member countries. One important channel is the decrease in ad-valorem tariffs. However, given the existence of preexisting trade agreements and the patterns of specialization CPTPP countries have, we expect the trade creation effect to be heterogeneous across industries as in Okabe and Urata (2014).

Data on bilateral trade flows at the HS-6 digit level between 2010 and 2021 is sourced from CEPII BACI database, tariff lines from CPTPP tariff reduction schedules, and control variables from CEPII gravity database and the World Development Indicators of the World Bank.

We implement the following regression specification at each SITC 2-digit industry level. By estimating regressions at the industry level, we capture the heterogeneity at the same level.

$$\ln Y_{ijht}^{k} = \alpha + \gamma^{k}\text{TariffReduction}_{ijht}^{k} + \mathbf{X}\delta^{k} + \alpha_i + \alpha_j + \alpha_t + \epsilon_{ijht}^{k}. \tag{1}$$

where $\ln Y_{ijht}^{k}$ stands for the natural logarithm of export/import value of product h in the industry k of reporter i to/from partner j at time t. The tariff reduction under CPTPP is measured by the difference between the Most-Favoured Nation Tariff (MFN) in 2010 and the CPTPP tariff, i.e., $\text{TariffReduction}_{ijht}^{k} = MFN_{jh2010}^{k} - CPTPP_{ijht}^{k}$. $\text{TariffReduction}_{ijht}^{k}$ is non-negative for imports from CPTPP member j of CPTPP member i in the period after CPTPP came into effect in country j. $\text{TariffReduction}_{ijht}^{k}$ is zero if partner j is not a member of CPTPP or in the period before CPTPP came into effect. CPTPP has trade creation effects on intra-CPTPP export/import flows if γ^{k} is positive.

Control variables $\mathbf{X}$ include time-invariant dummies for common official or primary language, common colonizer post-1945, pair in colonial relationship post-1945, common legal origins after transition, both are GATT parties, and both are WTO parties, as well as log of GDP ($\ln GDP_{it}$, $\ln GDP_{jt}$), log of GDP per capita ($\ln pcGDP_{it}$, $\ln pcGDP_{jt}$), log of the distance between the two countries ($\ln distance_{ij}$), and an indicator taking a value of one if reporter i and partner j are members of any FTA in year t ($FTAdummy_{ijt}$). We also include a full set of reporter fixed effects (α_i), partner fixed effects (α_j), and year fixed effects (α_t). The inclusion of GDP, GDP per capita, and year-fixed effects captures both the country and global economic shocks such as the pandemic in 2020.

We limit the reporters to the 11 CPTPP member countries, while partners include every economy in the World. In total, there are 65 regressions for each export/import flow. Each regression has more than 1000 observations at the HS 6-digit level. Standard errors are clustered at the reporter-partner level.

As shown in Table 2 and Table 3, we find statistically significant intra-CPTPP trade creation effects in 11 out of 65 industries in terms of export and 17 out of 65 industries in terms of import. The detailed industries are listed in the tables. A full list of estimates is reported in the appendix.

Table 2: Gravity Regression Estimation in Exports Results.

SITC	Description	Variables							
		CPTPP Tariff Reduction	GDP_o	GDP_d	$pcGDP_o$	$pcGDP_d$	Distance	N	Adj. R^2
06	Sugars, sugar preparations and honey	0.062**	-0.861	0.633**	0.877	-0.517*	-0.470***	47,565	0.195
		(0.029)	(0.629)	(0.299)	(0.667)	(0.293)	(0.066)		
07	Coffee, tea, cocoa, spices	0.029**	-0.341	0.608***	0.243	-0.453**	-0.462***	146,799	0.228
		(0.014)	(0.507)	(0.199)	(0.531)	(0.196)	(0.060)		
08	Feeding stuff for animals	0.118**	1.657*	1.787***	-1.198	-1.266***	-0.229***	27,011	0.197
		(0.048)	(0.966)	(0.391)	(1.025)	(0.380)	(0.080)		
41	Animal oils and fats	0.009***	3.871**	-0.706	-4.282**	0.831	0.015	11,984	0.269
		(0.003)	(1.734)	(0.738)	(1.841)	(0.725)	(0.109)		
53	Dyeing, tanning and colouring materials	0.038*	0.333	0.700***	0.266	-0.488**	-0.842***	141,318	0.279
		(0.023)	(0.395)	(0.203)	(0.422)	(0.206)	(0.068)		
54	Medicinal and pharmaceutical products	0.253***	-0.332	0.901***	0.749*	-0.595***	-0.458***	198,008	0.158
		(0.042)	(0.416)	(0.171)	(0.436)	(0.167)	(0.037)		
55	Essential oils and resinoids	0.036***	0.225	-0.050	0.006	0.305**	-0.895***	213,874	0.330
		(0.009)	(0.378)	(0.149)	(0.403)	(0.151)	(0.066)		
64	Paper, paperboard	0.051***	-0.427	0.329**	0.891**	-0.137	-0.812***	295,799	0.243
		(0.013)	(0.356)	(0.157)	(0.382)	(0.159)	(0.071)		
72	Specialized machinery	0.069***	0.290	-0.172	0.209	0.311**	-0.491***	539,985	0.216
		(0.023)	(0.292)	(0.130)	(0.308)	(0.130)	(0.048)		
78	Road vehicles	0.035**	0.515*	-0.304**	-0.278	0.610***	-0.714***	328,349	0.318
		(0.016)	(0.298)	(0.149)	(0.326)	(0.150)	(0.058)		
81	Prefabricated buildings	0.044***	-0.201	-0.355**	0.573	0.581***	-0.829***	84,388	0.274
		(0.014)	(0.393)	(0.174)	(0.426)	(0.177)	(0.058)		

Notes: N: Number of observations. *, **, *** denotes for 1%, 5%, 10% significance level, respectively. All the mentioned variables in the table are in log form. The calculation also contains control variables $\mathbf{X}_{ij}$ including time-invariant dummies for common official or primary language, common colonizer post 1945, pair in colonial relationship post 1945, common legal origins after transition, both are GATT members, and both are WTO members, as well as $FTAdummy_{ijt}$. We also include a full set of reporter fixed effects, partner fixed effects, and year fixed effects. Standard errors are clustered at the reporter-partner level.

Table 3: Gravity Regression Estimation in Imports Results.

SITC	Description	Variables							
		CPTPP Tariff Reduction	GDP_o	GDP_d	$pcGDP_o$	$pcGDP_d$	Distance	N	Adj. R^2
05	Vegetables and fruit	0.019***	-0.078	1.158	0.250	-1.262*	-0.545***	374,496	0.240
		(0.004)	(0.187)	(0.732)	(0.187)	(0.748)	(0.075)		
07	Coffee, tea, cocoa, spices	0.024***	-0.311	1.605*	0.534**	-1.900**	-0.405***	141,359	0.196
		(0.006)	(0.270)	(0.837)	(0.270)	(0.855)	(0.077)	0.196	
08	Feeding stuff for animals	0.044*	-0.211	1.779*	0.332	-1.822*	-0.382***	26,715	0.210
		(0.023)	(0.656)	(1.065)	(0.654)	(1.095)	(0.102)		
11	Beverages	0.012**	-0.325	1.470**	0.708**	-1.520**	-0.861***	64,566	0.315
		(0.005)	(0.310)	(0.647)	(0.310)	(0.683)	(0.099)		
23	Crude rubber	0.056**	0.519	-0.936	-0.018	1.336	-0.244***	29,575	0.261
		(0.024)	(0.792)	(1.168)	(0.797)	(1.182)	(0.094)		
41	Animal oils and fats	0.007***	-0.895	0.161	1.000	0.389	-0.249**	11,380	0.261
		(0.002)	(1.411)	(1.946)	(1.414)	(1.993)	(0.105)		
53	Dyeing, tanning and colouring materials	0.021**	0.850**	-0.132	-0.469	0.279	-0.688***	122,889	0.313
		(0.011)	(0.413)	(0.555)	(0.420)	(0.567)	(0.065)		
54	Medicinal and pharmaceutical products	0.179***	-1.050***	0.106	1.373***	-0.038	-0.371***	173,932	0.218
		(0.019)	(0.261)	(0.576)	(0.269)	(0.601)	(0.058)		
55	Essential oils and resinoids	0.009*	-0.013	0.642	0.221	-0.426	-0.757***	177,517	0.388
		(0.005)	(0.218)	(0.476)	(0.225)	(0.493)	(0.068)		
56	Fertilizers	0.162**	-0.014	-0.449	0.454	-0.069	-0.592***	29,918	0.294
		(0.067)	(0.653)	(1.156)	(0.675)	(1.188)	(0.119)		
61	Leather, leather manufactures, n.e.s.	0.044***	-0.396	0.811	0.752	-1.233*	-0.401***	67,005	0.315
		(0.010)	(0.581)	(0.687)	(0.597)	(0.743)	(0.060)		
64	Paper, paperboard	0.029***	0.376	-0.453	0.191	0.368	-0.863***	253,589	0.309
		(0.006)	(0.306)	(0.593)	(0.322)	(0.622)	(0.068)		
72	Specialized machinery	0.064***	-0.664***	-1.500***	1.055***	1.454***	-0.469***	455,334	0.279
		(0.013)	(0.233)	(0.415)	(0.246)	(0.430)	(0.042)		

Table 3: Gravity Regression Estimation in Imports Results (continued).

SITC	Description	Variables							
		CPTPP Tariff Reduction	GDP_o	GDP_d	$pcGDP_o$	$pcGDP_d$	Distance	N	Adj. R^2
78	Road vehicles	0.045***	-0.509**	-1.338***	0.812***	1.480***	-0.618***	215,712	0.381
		(0.008)	(0.255)	(0.480)	(0.255)	(0.511)	(0.083)		
81	Prefabricated buildings	0.044***	-0.573*	-0.808	0.905***	0.726	-0.663***	70,010	0.364
		(0.006)	(0.319)	(0.619)	(0.327)	(0.650)	(0.068)		
83	Travel goods	0.014***	-0.147	0.322	0.435*	-0.190	-0.564***	75,717	0.561
		(0.005)	(0.261)	(0.703)	(0.245)	(0.734)	(0.084)		
85	Footwear	0.005*	-0.174	1.260**	0.357	-1.158*	-0.473***	102,851	0.413
		(0.003)	(0.280)	(0.574)	(0.281)	(0.616)	(0.076)		

Notes: N: Number of observations. *, **, *** denotes for 1%, 5%, 10% significance level, respectively. All the mentioned variables in the table are in log form. The calculation also contains control variables $\mathbf{X}_{ij}$ including time-invariant dummies for common official or primary language, common colonizer post 1945, pair in colonial relationship post 1945, common legal origins after transition, both are GATT members, and both are WTO members, as well as $FTAdummy_{ijt}$. We also include a full set of reporter fixed effects, partner fixed effects, and year fixed effects. Standard errors are clustered at the reporter-partner level.

It is worth noticing that trade creation effects in agricultural industries and pharmaceutical industries are more prominent. This is mainly due to the fact that original tariff levels are high in these sensitive industries without a free trade agreement. Medicinal and pharmaceutical products experienced the greatest impact in both export creation and import creation. In particular, a one percentage point decrease in tariff due to CPTPP relative to the MFN tariff will lead to a 25.3% increase in export value and a 17.9% increase in import value of medicinal and pharmaceutical trade between CPTPP parties.

Additionally, we find trade creation in more industries on Import than on Export. This is consistent with the higher intra-CPTPP import share than export share as shown in Figure 6. Among the 11 industries that stand out in trade creation effect on export, 10 of them are also statistically significant in terms of import, indicating strong intra-bloc trade creation within CPTPP.

3 Trade in Services

In this section, we examine the CPTPP commitments in trade in services by describing the intra-trade in services pattern of the parties. Additionally, we focus on analysing the CPTPP commitments, particularly in trade in digital services, by looking at trade patterns.

3.1 CPTPP Commitments in Trade in Services

The CPTPP has shown its commitment to trade in services area by providing an improvement on protection, consistency and transparency through its comprehensive conditions for conducting business and expanding access to preferential markets. The CPTPP's Chapter 10 on Cross Border trade in services (CBTS) also allows each member to maintain a list of exceptions to the CPTPP chapter on services and investment, also known as a non-conforming measure, as well as to have "reservations for sectors or activities where it wishes to retain a complete policy flexibility" (Government of Canada, 2018). This enables CPTPP countries to safeguard their sensitive sectors, ensuring their economic security, and at the same time, have the advantage of free and fair-trading activities.

In a more disintegrated focus of trade in services, digitally deliverable services have been one of the most notable areas that the agreement focuses on, given no fundamental change in WTO law and its lack of stringent regulations on trade in digital services (Burri, 2017). In recent years, digital trade has redefined the international trading system by surpassing the limitations of "what is being traded" and transforming to "how trade in goods and services being produced, traded and delivered" (Asian Development Bank, 2022). OECD (2011) provided a definition of digital trade as "the international sale or purchase of a good or service, conducted over computer networks by methods specifically designed for the purpose of receiving or placing orders." On the other hand, the United Nations Conference on Trade and Development (UNCTAD)-led Partnership specifies digital trade components in order to assist the measurement and statistics. In this section, we follow (Asian Development Bank, 2022) to categorize the services sectors based on the lists accommodated by the UNCTAD.

Code	Service Description	Digitally Deliverable	Parent Category
SA	Manufacturing services on input owned by others		Manufacturing services on input owned by others
SB	Maintenance and repair services n.i.e.		Maintenance and repair services n.i.e.
SC	Transport services		Transport services
SD	Travel		Travel
SE	Construction		Construction
SF	**Insurance and pension services**	✓	**Insurance and pension services**
SG	**Financial services**	✓	**Financial services**
SH	**Charges for the use of intellectual property n.i.e.**	✓	**Charges for the use of intellectual property n.i.e.**
SI1	**Telecommunication services**	✓	**Telecommunication, computer, and information services**
SI2	**Computer services**	✓	**Telecommunication, computer, and information services**
SI3	**Information services**	✓	**Telecommunication, computer, and information services**
SJ1	**Research and development services**	✓	**Other business services**
SJ2	**Professional and management consulting services**	✓	**Other business services**
SJ3	**Technical, trade-related, and other business services**	✓[2]	**Other business services**
SK1	**Audiovisual and related services**	✓	**Personal, cultural, and recreational services**
SK2	**Other personal, cultural, and recreational services**	✓[2]	**Personal, cultural, and recreational services**
SL	Government goods and services n.i.e.		Government goods and services n.i.e.

n.i.e. = not identified elsewhere.

Table 5: Digitally Deliverable Services Categories

Source: Asian Development Bank (2022).

The role of CPTPP in digital trade has been commented on as a "landmark" in setting ground rules and generating regulations on digital service trade activities in the region (Australian Government, 2019). According to Ministry of Trade and Industry Singapore (2020), the agreement provides a facilitative framework, covering significant aspects, including cross-border data flow and the removal of data localization, and import tariff elimination on electrical transmitted products. With its leading provisions in digital trade, CPTPP parties are expected to see a great takeoff at the beginning of the implementation.

3.2 Trends of Trade in Services

We observe that intra-bloc trade in services has an overall increasing trend, despite a slight slowdown in 2013 and a modest decline in 2015 and 2016. Specifically, intra-regional non-digital trade in services has witnessed a mild fluctuated rise from 2010 to 2019, with a growth from around 54,000 million USD at the beginning of the 2010s decade to nearly 72,000 million USD in the end (Figure 7). Although the overall picture of intra-CPTPP trade in services is steadily upward, there was no sign of an instant boost in the first year of CPTPP. However, it is difficult to examine the impact of the agreement solely based on the first year; thus, we should keep an open mind about the potential of trade in services patterns in the future. While the intra-trade value shows the sign of increasing, export and import shares remain stable throughout the whole 2010s decade, at above 18% level and around 16%, respectively (Figure 7). This implies that the intra-trade in services of the world proportionately increases with the total trade in services of the region, which does not signal a negative effect.

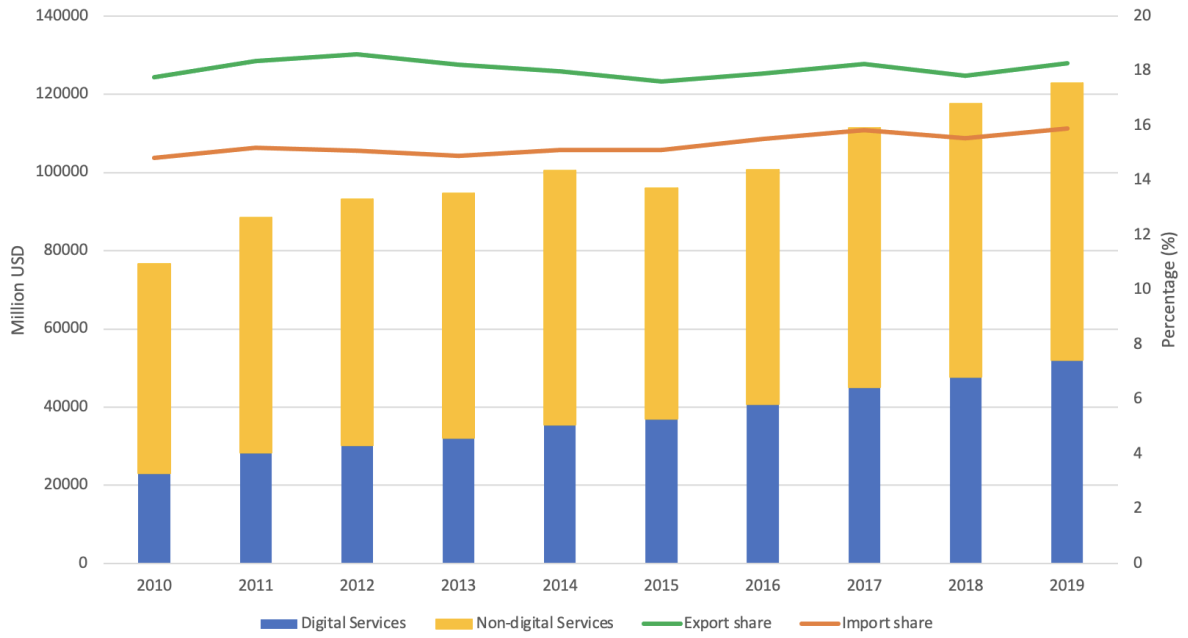

Figure 7: Intra-CPTPP Trade in Services and Shares in Trade to the World

Notes: Import share: Intra-CPTPP Imports in Total CPTPP Imports, Export share: Intra-CPTPP Exports in Total CPTPP Exports. Source: Authors' calculation from OECD-WTO-BATIS services database.

Figure 8 dissects a breakdown of 6 non-digital service industries that contribute to the total trade value of the CPTPP region. In 2010, transport represented the largest intra-CPTPP services trade proportion at 44%, with travel closely following up, at 43%. However, in 2019, travel took over as the largest non-digital service industry, comprising 47%. On the other hand, transport achieved the second-highest intra-CPTPP services trade, at 40%. Compared figures from 2010 with ones in 2019, maintenance and repair services slightly increased from 2% to 3%, while, services in construction went through a small decline by 1%. The least trading industry in both 2010 and 2019 figures belonged to government goods and services, only accumulating 1%. Although the 2020 figures are unable to observe, it is expected that travel and transport will suffer a drop in 2020 due to COVID-19 restrictions on international travel and cross-border controls.

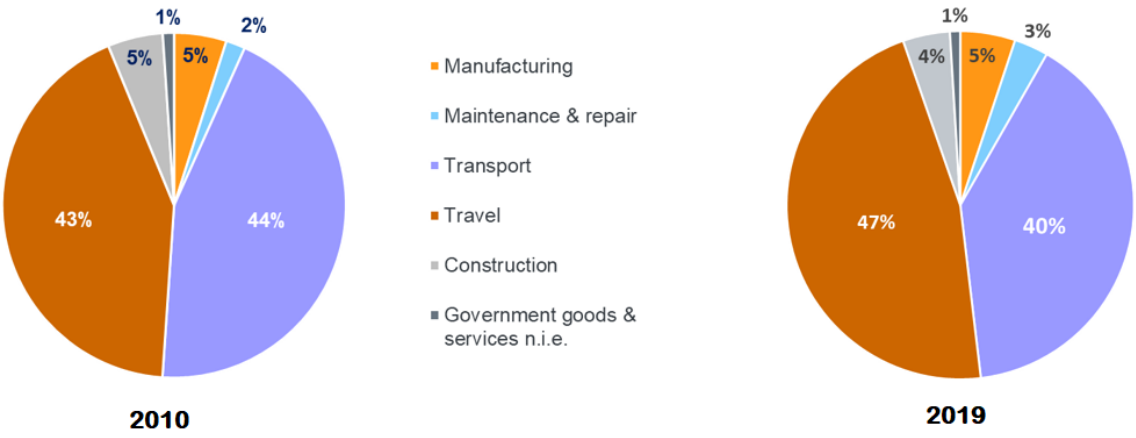

Figure 8: Intra-CPTPP Trade in Non-digital Services in 2010 (Left) and in 2019 (Right). Source: Authors' calculation from OECD-WTO-BATIS services database.

3.3 Trends of Trade in Digital Services

The intra-regional trade value for digital services was growing, with a starting point of nearly 23,000 million USD in 2010 and doubled the figure to 51,000 million USD in 2019. One year after the agreement was implemented, Australia, Japan and especially Singapore extended their digital services exports to other CPTPP parties, marking significant growths of 2,382 million USD, 5,758 million USD and 17,736 million USD, respectively, compared to 2010 (Figure 9). More than half of these parties' digital services exports came from businesses including research and development, professional and management consulting and others (classified as other businesses) (as indicated in Table 5). In fact, these businesses have always been the largest exporting digital industry since 2010 for every CPTPP party, with the largest shares in Chile and Peru in 2019.

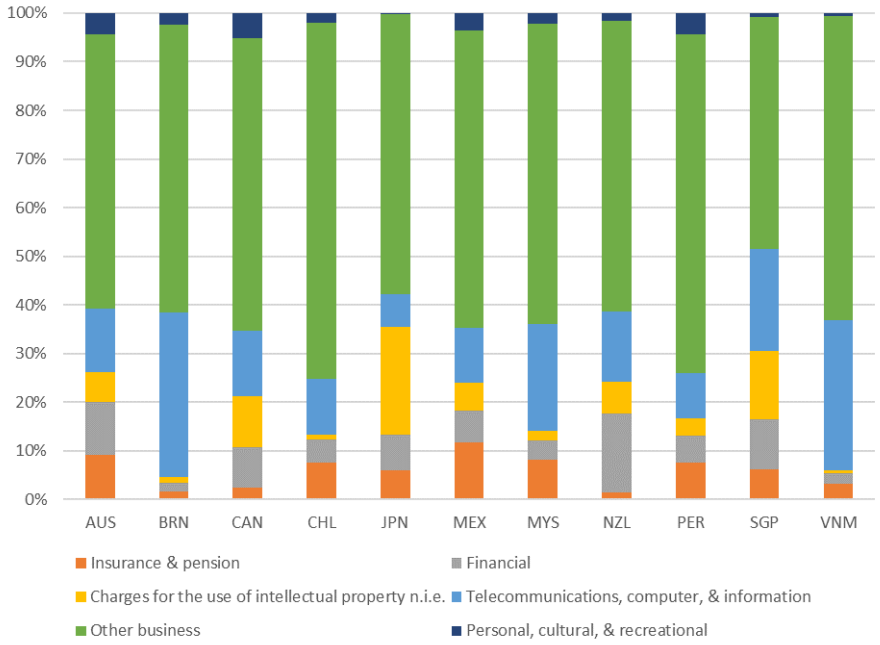

Figure 9: Intra-CPTPP Digital Export Share in 2019

Notes: AUS: Australia, BRN: Brunei, CAN: Canada, CHL: Chile, JPN: Japan, MEX: Mexico, MYS: Malaysia, NZL: New Zealand, PER: Peru, VNM: Vietnam, SGP: Singapore. Source: Authors' calculation from OECD-WTO-BATIS services database.

Intra-regional export of digital services has some remarkable growing trade patterns from 2010 to 2019. Japan and Singapore became each other's biggest export markets. In 2019, Japan exported more than 7141 million USD worth of digital services to Singapore, which increased by 4107 million USD since 2010. Likewise, Singapore expanded their digital services export to Japan, resulting in a growth of 10,403 million USD from 2010 to 2019. Australia is also a significant exporter of the region with a total intra-trade value of up to 5820 million USD in 2019, which increased from 3438 million USD in 2010. For this country, Singapore and New Zealand are the top export markets, with export values of 2719 million USD and 1695 million USD, respectively (Figure 10).

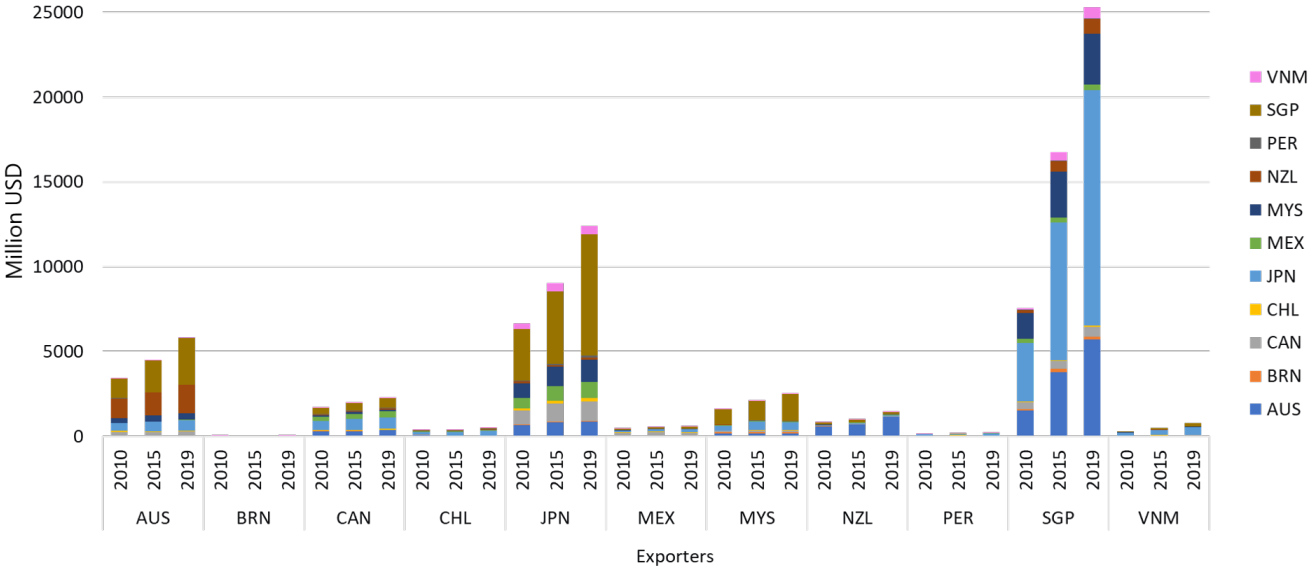

Figure 10: Intra-CPTPP Export of Digital Services

Notes: AUS: Australia, BRN: Brunei, CAN: Canada, CHL: Chile, JPN: Japan, MEX: Mexico, MYS: Malaysia, NZL: New Zealand, PER: Peru, VNM: Vietnam, SGP: Singapore. Source: Authors' calculation from OECD-WTO-BATIS services database.

The CPTPP also observes an increasing trend in intra-regional imports of digital services, in which Japan and Singapore are the notable destinations of digital trade in services in the region. Australia, Japan, and Singapore also succeeded with the most remarkable growth in imports, by 4943 million USD, 11,474 million USD, and 6902 million USD, respectively, in the span of 9 years. Singapore was Australia, Japan, and Malaysia's top source of digital services imports as Singapore accumulated more than half of these countries' import shares (Figure 11). The rest of the CPTPP parties increased their regional digital services imports significantly. Most of the import value is made up of other businesses, charges for the use of intellectual property and telecommunications, computers and information, in which other businesses reported the highest in Singapore at 72% of its total intra-digital import, while Japan recorded half of its digital import value from charges for the use of the intellectual property. Telecommunications, computer and information services, on the other hand, took up 16% of overall intra-CPTPP digital trade.

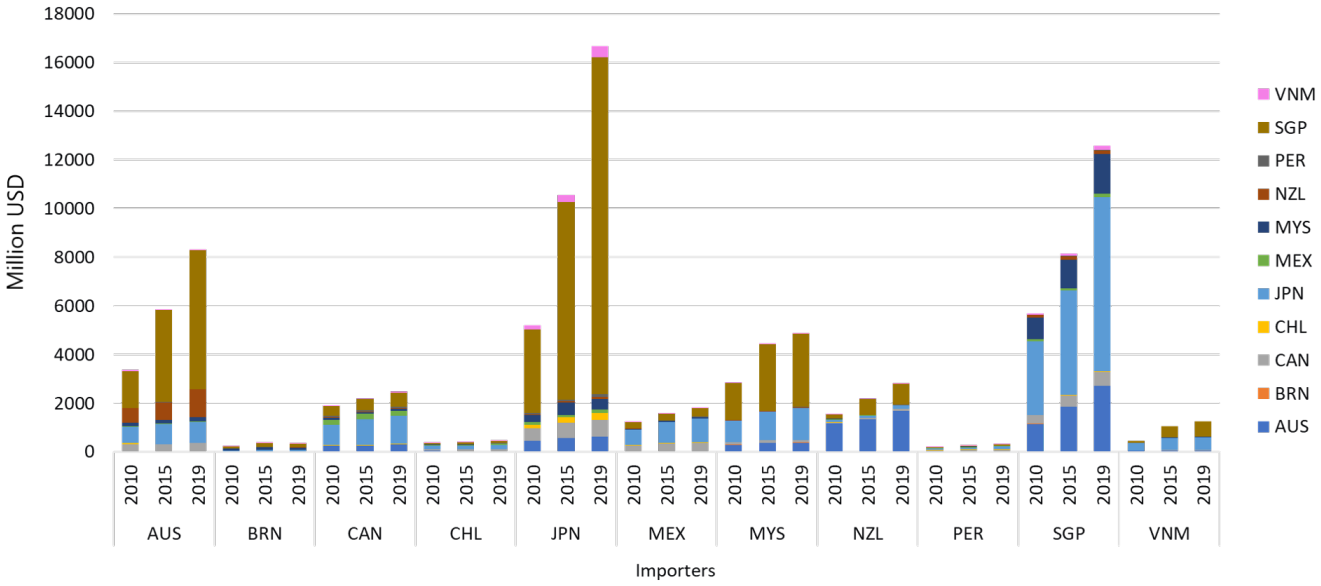

Figure 11: Intra-CPTPP Import of Digital Services

Notes: AUS: Australia, BRN: Brunei, CAN: Canada, CHL: Chile, JPN: Japan, MEX: Mexico, MYS: Malaysia, NZL: New Zealand, PER: Peru, VNM: Vietnam, SGP: Singapore. Source: Authors' calculation from OECD-WTO-BATIS services database.

Overall, the first year of the CPTPP implementation saw a positive and promising sign for the agreement, prognosticating a stable future for both exports and imports in the digital trade of the region. Japan and Singapore were the major trading partners in the CPTPP region, as both markets in total account for more than half of other countries' exports and imports. Moreover, these parties are also vital to each other in terms of trade as "their bilateral corridor" constitutes approximately 57% of total intra-regional trade in digital services (Suominen, 2021).

4 Conclusion

To summarize, the patterns of trade in goods and services in the CPTPP region reflects the combination of global trade trend as well as the beneficial impact of the comprehensive regulation of the CPTPP. In the first two years, the intra-regional trade in goods did not indicate clear evidence of an increasing trend. This pattern reflects the sudden disturbance of the pandemic in 2020, which led to abnormal trade flow within the region. However, the increase in intra-CPTPP trade value in 2021 heralds the potential and capability of the agreement to bring up the trade in goods value within region further. Furthermore, based on the results of this study, it indicates that despite the unfavourable start, the agreement still managed to generate trade creation in 17 out of 65 industries for intra-import and 11 out of 65 industries for intra-export. This trade creation effect resulted in the maximum growth of 17.9% in import value and 25.3% in export value for every percentage point tariff reduction, compared to MFN rates in 2010. With the recovery of the pandemic, the trade creation effect is anticipated to spread to more industries in the following years. However, it is important to consider that the time frame for the data is not long enough – only 3 years after the agreement came into force and that statistics should be construed with a careful manner as the agreement is just one in many factors leading to the resultant trade patterns.

On the other hand, trade in services seems to be more stable with an overall constant rise from 2010 to 2019. Non-digital trade in services still takes a larger proportion, accumulating intra-CPTPP trade value of 51,000 million USD in 2019. However, the trend of digitalization in trade will proclaim a bigger digital trade value in the upcoming years, especially after the recovery from the pandemic. The comprehensiveness chapter on e-commerce allows parties to expand their export markets as well as become destinations for digital services. Given the development of technology and the start of new norms after the COVID-19 pandemic, it can be expected that CPTPP intra-bloc digital trade will increase significantly and may stand a chance of surpassing non-digital trade.

With more available data, future research could zoom into the relationship between the implementation of the CPTPP agreement and the within-bloc economic resilience. First, the established and strengthened supply chains could help the member countries ease the current inflation from the supply side. Second, accelerated digitalization in both government and businesses would enhance the efficiency of the countries. Lastly, strong trade connectivity would attract more FDI to the regions.

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Table 6: Gravity Regression Estimation in Imports Results.

SITC	Description	Variables							
		CPTPP Tariff Reduction	GDP_o	GDP_d	$pcGDP_o$	$pcGDP_d$	Distance	N	Adj. R^2
00	Live animals	-0.012	-1.271***	-0.794	1.252***	0.606	-0.480***	79,579	0.462
		(0.010)	(0.355)	(0.872)	(0.354)	(0.971)	(0.092)		
01	Meat and meat preparations	0.004	-0.892	1.743	1.457**	-1.679	-0.488***	57,146	0.235
		(0.003)	(0.636)	(1.761)	(0.690)	(1.784)	(0.112)		
02	Dairy products and birds' eggs	0.004	-2.040***	1.986	2.237***	-2.373*	-0.551***	45,669	0.295
		(0.011)	(0.637)	(1.275)	(0.655)	(1.327)	(0.105)		
03	Fish and aquatic invertebrates	-0.014**	0.203	0.787	-0.124	-0.903	-0.468***	450,442	0.305
		(0.006)	(0.327)	(0.723)	(0.335)	(0.752)	(0.071)		
04	Cereals and cereal preparations	-0.001	0.377	1.819***	-0.253	-2.385***	-0.547***	107,493	0.200
		(0.003)	(0.270)	(0.654)	(0.275)	(0.676)	(0.085)		
05	Vegetables and fruit	0.019***	-0.078	1.158	0.250	-1.262*	-0.545***	374,496	0.240
		(0.004)	(0.187)	(0.732)	(0.187)	(0.748)	(0.075)		
06	Sugars, sugar preparations and honey	0.019	0.415	0.837	-0.240	-0.838	-0.590***	40,953	0.232
		(0.015)	(0.329)	(0.987)	(0.322)	(1.025)	(0.063)		
07	Coffee, tea, cocoa, spices	0.024***	-0.311	1.605*	0.534**	-1.900**	-0.405***	141,359	0.196
		(0.006)	(0.270)	(0.837)	(0.270)	(0.855)	(0.077)	0.196	
08	Feeding stuff for animals	0.044*	-0.211	1.779*	0.332	-1.822*	-0.382***	26,715	0.210
		(0.023)	(0.656)	(1.065)	(0.654)	(1.095)	(0.102)		
09	Miscellaneous edible products	-0.021***	0.162	0.508	0.169	-0.551	-0.639***	73,660	0.263
		(0.005)	(0.263)	(0.690)	(0.256)	(0.717)	(0.076)		
11	Beverages	0.012**	-0.325	1.470**	0.708**	-1.520**	-0.861***	64,566	0.315
		(0.005)	(0.310)	(0.647)	(0.310)	(0.683)	(0.099)		
12	Tobacco and tobacco manufactures	0.001	-0.969	-2.776	1.153	2.493	-0.819***	15,754	0.242
		(0.005)	(0.712)	(2.054)	(0.704)	(2.156)	(0.089)		
21	Hides, skins and furskins, raw	-0.303***	1.210	0.682	-0.746	-0.910	-0.237	7,212	0.341
		(0.062)	(1.155)	(1.819)	(1.176)	(1.978)	(0.157)		
22	Oil-seeds and oleaginous fruits	-0.080***	-0.691	2.862**	0.668	-3.113**	-0.323***	27,981	0.352
		(0.024)	(0.633)	(1.203)	(0.627)	(1.279)	(0.101)		
23	Crude rubber	0.056**	0.519	-0.936	-0.018	1.336	-0.244***	29,575	0.261
		(0.024)	(0.792)	(1.168)	(0.797)	(1.182)	(0.094)		

Table 6: Gravity Regression Estimation in Imports Results (continued).

SITC	Description	Variables							
		CPTPP Tariff Reduction	GDP_o	GDP_d	$pcGDP_o$	$pcGDP_d$	Distance	N	Adj. R^2
24	Cork and wood	-0.007	0.294	1.091	-0.454	-0.571	-0.347***	60,003	0.272
		(0.024)	(0.473)	(0.828)	(0.467)	(0.863)	(0.091)		
25	Pulp and waste paper		-1.509	1.465	2.162**	-0.835	-0.586***	15,361	0.323
			(1.063)	(1.505)	(1.068)	(1.556)	(0.131)		
26	Textile fibres	-0.033***	-0.898	-3.088***	1.458***	3.062***	-0.049	45,524	0.204
		(0.011)	(0.555)	(1.003)	(0.564)	(1.028)	(0.076)		
27	Crude fertilizers	0.008	0.713*	0.481	-0.416	-0.562	-0.552***	84,774	0.228
		(0.018)	(0.368)	(0.484)	(0.375)	(0.511)	(0.083)		
28	Metalliferous ores and metal scrap	-0.305***	-1.243**	-1.130	1.249**	1.369	-0.367***	46,342	0.235
		(0.060)	(0.515)	(0.976)	(0.497)	(1.032)	(0.095)		
29	Crude animal and vegetable materials, n.e.s.	-0.055***	-0.479*	0.246	0.513*	0.050	-0.527***	114,811	0.250
		(0.008)	(0.284)	(0.550)	(0.288)	(0.589)	(0.068)		
32	Coal, coke and briquettes	0.002	0.656	1.405	-0.741	-0.606	-1.023***	6,189	0.383
		(0.054)	(1.846)	(1.978)	(1.891)	(2.118)	(0.242)		
33	Petroleum, petroleum products	-0.265***	-2.038***	1.251	2.690***	-1.327	-0.905***	60,652	0.358
		(0.037)	(0.734)	(1.339)	(0.754)	(1.383)	(0.127)		
34	Gas, natural and manufactured	-0.155***	0.502	3.378	0.603	-2.770	-1.035***	7,108	0.531
		(0.056)	(1.100)	(2.496)	(0.998)	(2.556)	(0.226)		
35	Electric current		15.776	-26.107	-9.402	21.442	-0.202	136	0.878
			(13.483)	(21.925)	(11.415)	(22.517)	(0.665)		
41	Animal oils and fats	0.007***	-0.895	0.161	1.000	0.389	-0.249**	11,380	0.261
		(0.002)	(1.411)	(1.946)	(1.414)	(1.993)	(0.105)		
42	Fixed vegetable fats and oils	-0.017	0.171	-0.044	-0.090	-0.290	-0.390***	38,676	0.255
		(0.013)	(0.439)	(1.085)	(0.445)	(1.116)	(0.107)		
43	Animal or vegetable fats and oils	-0.006	0.185	0.736	0.180	-0.979	-0.408***	10,692	0.274
		(0.012)	(0.746)	(1.348)	(0.773)	(1.402)	(0.104)		
51	Organic chemicals	-0.014*	0.166	-0.798	0.128	0.886	-0.467***	462,139	0.284
		(0.008)	(0.491)	(0.538)	(0.509)	(0.556)	(0.077)		
52	Inorganic chemicals	-0.017	-0.418	-0.279	0.559	0.523	-0.413***	219,789	0.246
		(0.011)	(0.423)	(0.595)	(0.432)	(0.610)	(0.082)		
53	Dyeing, tanning and colouring materials	0.021**	0.850**	-0.132	-0.469	0.279	-0.688***	122,889	0.313
		(0.011)	(0.413)	(0.555)	(0.420)	(0.567)	(0.065)		

Table 6: Gravity Regression Estimation in Imports Results (continued).

SITC	Description	Variables							
		CPTPP Tariff Reduction	GDP_o	GDP_d	$pcGDP_o$	$pcGDP_d$	Distance	N	Adj. R^2
54	Medicinal and pharmaceutical products	0.179***	-1.050***	0.106	1.373***	-0.038	-0.371***	173,932	0.218
		(0.019)	(0.261)	(0.576)	(0.269)	(0.601)	(0.058)		
55	Essential oils and resinoids	0.009*	-0.013	0.642	0.221	-0.426	-0.757***	177,517	0.388
		(0.005)	(0.218)	(0.476)	(0.225)	(0.493)	(0.068)		
56	Fertilizers	0.162**	-0.014	-0.449	0.454	-0.069	-0.592***	29,918	0.294
		(0.067)	(0.653)	(1.156)	(0.675)	(1.188)	(0.119)		
57	Plastics in primary forms	-0.051***	0.327	-1.772***	0.250	1.891***	-0.733***	149,141	0.306
		(0.009)	(0.421)	(0.586)	(0.436)	(0.597)	(0.064)		
58	Plastics in non-primary forms	-0.035***	-0.144	-1.819***	0.613*	2.070***	-0.906***	143,162	0.394
		(0.007)	(0.309)	(0.470)	(0.320)	(0.486)	(0.064)		
59	Chemical materials and products, n.e.s.	0.002	-0.732**	0.187	0.957***	-0.015	-0.654***	357,321	0.475
		(0.007)	(0.314)	(0.585)	(0.315)	(0.604)	(0.068)		
61	Leather, leather manufactures, n.e.s.	0.044***	-0.396	0.811	0.752	-1.233*	-0.401***	67,005	0.315
		(0.010)	(0.581)	(0.687)	(0.597)	(0.743)	(0.060)		
62	Rubber manufactures, n.e.s.	-0.005	-0.350	-0.887*	0.759***	1.012**	-0.659***	229,772	0.375
		(0.007)	(0.274)	(0.465)	(0.272)	(0.489)	(0.065)		
63	Cork and wood manufactures	-0.017***	-0.800**	0.696	0.969***	-0.654	-0.527***	126,886	0.320
		(0.006)	(0.356)	(0.563)	(0.374)	(0.603)	(0.074)		
64	Paper, paperboard	0.029***	0.376	-0.453	0.191	0.368	-0.863***	253,589	0.309
		(0.006)	(0.306)	(0.593)	(0.322)	(0.622)	(0.068)		
65	Textile yarn, fabrics	-0.001	-0.083	-0.474	0.295	0.574	-0.449***	947,715	0.278
		(0.004)	(0.244)	(0.334)	(0.255)	(0.356)	(0.053)		
66	Non-metallic mineral manufactures, n.e.s.	-0.001	-0.262	0.197	0.518**	-0.050	-0.591***	385,811	0.285
		(0.004)	(0.209)	(0.345)	(0.205)	(0.368)	(0.052)		
67	Iron and steel	-0.030***	0.749	-2.184***	-0.327	1.956***	-0.667***	373,726	0.258
		(0.011)	(0.530)	(0.553)	(0.513)	(0.566)	(0.068)		
68	Non-ferrous metals	-0.007	-0.217	-0.849*	0.444	0.936*	-0.509***	188,749	0.206
		(0.017)	(0.482)	(0.496)	(0.485)	(0.519)	(0.072)		
69	Manufactures of metals, n.e.s.	-0.009	-0.197	-0.768	0.550	0.814	-0.662	766,163	0.364
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)		
71	Power-generating machinery and equipment	-0.036***	0.134	-1.306***	0.224	1.325***	-0.598***	193,874	0.307
		(0.010)	(0.265)	(0.426)	(0.270)	(0.446)	(0.046)		

Table 6: Gravity Regression Estimation in Imports Results (continued).

SITC	Description	Variables							
		CPTPP Tariff Reduction	GDP_o	GDP_d	$pcGDP_o$	$pcGDP_d$	Distance	N	Adj. R^2
72	Specialized machinery	0.064***	-0.664***	-1.500***	1.055***	1.454***	-0.469***	455,334	0.279
		(0.013)	(0.233)	(0.415)	(0.246)	(0.430)	(0.042)		
73	Metalworking machinery	-0.015	-0.305	-1.374***	0.762*	1.470***	-0.577***	154,269	0.373
		(0.010)	(0.386)	(0.485)	(0.392)	(0.508)	(0.051)		
74	General industrial machinery and equipment	-0.010**	-0.404**	-0.917**	0.723***	0.841**	-0.726***	683,784	0.411
		(0.005)	(0.185)	(0.367)	(0.194)	(0.380)	(0.051)		
75	Office machines	0.005	-0.694***	-1.471**	0.826***	1.812***	-0.443***	124,811	0.472
		(0.035)	(0.251)	(0.592)	(0.248)	(0.618)	(0.062)		
76	Telecommunications equipment	-0.068***	-0.540**	-1.670***	0.735***	2.322***	-0.509***	228,754	0.474
		(0.005)	(0.259)	(0.608)	(0.258)	(0.641)	(0.068)		
77	Electrical machinery	-0.003	-0.079	-1.048***	0.405**	1.239***	-0.648***	828,528	0.379
		(0.006)	(0.169)	(0.376)	(0.170)	(0.391)	(0.062)		
78	Road vehicles	0.045***	-0.509**	-1.338***	0.812***	1.480***	-0.618***	215,712	0.381
		(0.008)	(0.255)	(0.480)	(0.255)	(0.511)	(0.083)		
79	Other transport equipment	-0.024**	-0.318	-1.040	0.570	0.913	-0.527***	71,337	0.186
		(0.011)	(0.456)	(0.741)	(0.479)	(0.777)	(0.072)		
81	Prefabricated buildings	0.044***	-0.573*	-0.808	0.905***	0.726	-0.663***	70,010	0.364
		(0.006)	(0.319)	(0.619)	(0.327)	(0.650)	(0.068)		
82	Furniture and parts thereof	-0.020***	-1.056***	-0.100	1.308***	0.678	-0.558***	127,218	0.474
		(0.004)	(0.235)	(0.482)	(0.240)	(0.522)	(0.071)		
83	Travel goods	0.014***	-0.147	0.322	0.435*	-0.190	-0.564***	75,717	0.561
		(0.005)	(0.261)	(0.703)	(0.245)	(0.734)	(0.084)		
84	Articles of apparel and clothing accessories	-0.002	0.822***	0.573	-0.476***	-0.331	-0.355***	988,806	0.380
		(0.002)	(0.172)	(0.488)	(0.167)	(0.505)	(0.068)		
85	Footwear	0.005*	-0.174	1.260**	0.357	-1.158*	-0.473***	102,851	0.413
		(0.003)	(0.280)	(0.574)	(0.281)	(0.616)	(0.076)		
87	Professional, scientific instruments	-0.039***	-0.339*	-0.283	0.758***	0.516	-0.551***	394,980	0.408
		(0.009)	(0.181)	(0.316)	(0.184)	(0.329)	(0.053)		
88	Photographic apparatus	-0.007	0.199	-0.576	0.126	0.642	-0.404***	219,430	0.270
		(0.007)	(0.252)	(0.461)	(0.252)	(0.485)	(0.050)		

Table 6: Gravity Regression Estimation in Imports Results (continued).

SITC	Description	Variables							
		CPTPP Tariff Reduction	GDP_o	GDP_d	$pcGDP_o$	$pcGDP_d$	Distance	N	Adj. R^2
89	Miscellaneous manufactured articles, n.e.s.	-0.026***	-0.229*	-0.757**	0.497***	1.129***	-0.473***	775,770	0.320
		(0.004)	(0.133)	(0.313)	(0.138)	(0.330)	(0.052)		
96	Coin (other than gold coin)	-0.005	-1.247	-0.843	0.984	0.654	0.019	2,044	0.469
		(0.021)	(1.507)	(2.232)	(1.484)	(2.379)	(0.115)		
97	Gold, non-monetary	-0.396***	2.399*	-0.648	-2.475*	1.425	-1.044***	7,848	0.290
		(0.072)	(1.365)	(1.814)	(1.419)	(1.978)	(0.175)		

Notes: N: Number of observations. *,**,*** denotes for 1%, 5%, 10% significance level respectively. All the mentioned variables in the table are in log form. The calculation also contains control variables $\mathbf{X}_{ij}$ including time-invariant dummies for common official or primary language, common colonizer post 1945, pair in colonial relationship post 1945, common legal origins after transition, both are GATT members, and both are WTO members, as well as $FTAdummy_{ijt}$. We also include a full set of reporter fixed effects, partner fixed effects, and year fixed effects.

Table 7: Gravity Regression Estimation in Exports Results.

SITC	Description	Variables							
		CPTPP Tariff Reduction	GDP_o	GDP_d	$pcGDP_o$	$pcGDP_d$	Distance	N	Adj. R^2
00	Live animals	-0.060*	-0.896	-0.705	1.377	0.997**	-0.637***	69,903	0.368
		(0.031)	(1.032)	(0.442)	(1.049)	(0.463)	(0.109)		
01	Meat and meat preparations	0.005	-1.004	0.384	1.088	0.021	-0.072	81,764	0.248
		(0.008)	(0.997)	(0.307)	(1.007)	(0.298)	(0.075)		
02	Dairy products and birds' eggs	-0.013	-0.577	-0.274	0.281	0.585*	-0.268***	63,453	0.325
		(0.023)	(1.025)	(0.322)	(1.054)	(0.342)	(0.085)		
03	Fish and aquatic invertebrates	-0.015	1.207**	0.147	-1.477***	0.083	-0.415***	579,991	0.317
		(0.014)	(0.525)	(0.200)	(0.540)	(0.188)	(0.062)		
04	Cereals and cereal preparations	0.002	-0.225	-0.505**	0.342	0.663***	-0.543***	133,328	0.199
		(0.007)	(0.540)	(0.233)	(0.575)	(0.235)	(0.083)		
05	Vegetables and fruit	0.014	-0.134	-0.370**	0.182	0.491***	-0.447***	443,940	0.220
		(0.009)	(0.457)	(0.183)	(0.474)	(0.183)	(0.057)		
06	Sugars, sugar preparations and honey	0.062**	-0.861	0.633**	0.877	-0.517*	-0.470***	47,565	0.195
		(0.029)	(0.629)	(0.299)	(0.667)	(0.293)	(0.066)		
07	Coffee, tea, cocoa, spices	0.029**	-0.341	0.608***	0.243	-0.453**	-0.462***	146,799	0.228
		(0.014)	(0.507)	(0.199)	(0.531)	(0.196)	(0.060)		
08	Feeding stuff for animals	0.118**	1.657*	1.787***	-1.198	-1.266***	-0.229***	27,011	0.197
		(0.048)	(0.966)	(0.391)	(1.025)	(0.380)	(0.080)		
09	Miscellaneous edible products	-0.005	-0.609	0.644***	0.979**	-0.431**	-0.635***	92,290	0.223
		(0.011)	(0.455)	(0.204)	(0.481)	(0.205)	(0.060)		
11	Beverages	0.012	-3.000***	-0.175	3.376***	0.294	-0.835***	87,736	0.257
		(0.012)	(0.503)	(0.221)	(0.538)	(0.231)	(0.069)		
12	Tobacco and tobacco manufactures	-0.005	-5.757***	-1.150	5.994***	1.138	-0.666***	12,653	0.258
		(0.026)	(1.654)	(0.901)	(1.752)	(0.893)	(0.100)		
21	Hides, skins and furskins, raw	-0.365***	3.226	-1.039	-1.963	0.710	-0.079	8,061	0.310
		(0.115)	(2.832)	(1.220)	(2.929)	(1.261)	(0.155)		
22	Oil-seeds and oleaginous fruits	-0.138*	-1.252	-0.242	0.819	0.290	-0.360***	29,845	0.314
		(0.075)	(0.956)	(0.412)	(1.021)	(0.424)	(0.078)		
23	Crude rubber	-0.033	-1.348*	1.480***	1.221	-0.891*	-0.159	31,001	0.246
		(0.044)	(0.803)	(0.548)	(0.857)	(0.537)	(0.098)		
24	Cork and wood	0.072	-0.409	0.354	0.484	0.077	-0.371***	59,939	0.274
		(0.047)	(0.800)	(0.335)	(0.849)	(0.330)	(0.078)		

Table 7: Gravity Regression Estimation in Exports Results (continued).

SITC	Description	Variables							
		CPTPP Tariff Reduction	GDP_o	GDP_d	$pcGDP_o$	$pcGDP_d$	Distance	N	Adj. R^2
25	Pulp and waste paper		0.302	3.195***	-0.035	-2.717***	-0.271**	15,185	0.350
			(1.331)	(0.802)	(1.427)	(0.829)	(0.114)		
26	Textile fibres	-0.040	0.079	0.726*	0.026	-0.588	0.043	44,900	0.185
		(0.032)	(0.793)	(0.378)	(0.832)	(0.383)	(0.065)		
27	Crude fertilizers	-0.017	-0.355	0.355	0.768	-0.135	-0.374***	74,734	0.161
		(0.050)	(0.527)	(0.298)	(0.586)	(0.310)	(0.056)		
28	Metalliferous ores and metal scrap	-0.121***	-0.146	1.609**	0.399	-1.223*	-0.226**	46,122	0.237
		(0.036)	(0.929)	(0.668)	(0.975)	(0.662)	(0.092)		
29	Crude animal and vegetable materials, n.e.s.	-0.045***	1.333***	0.741***	-1.060**	-0.503**	-0.387***	118,179	0.246
		(0.016)	(0.481)	(0.222)	(0.514)	(0.221)	(0.056)		
32	Coal, coke and briquettes	0.084	-0.289	0.378	-0.772	-0.108	-0.166	6,242	0.337
		(0.150)	(2.735)	(0.906)	(2.802)	(0.897)	(0.163)		
33	Petroleum, petroleum products	-0.329***	0.193	0.681*	-1.129	-0.107	-1.121***	72,960	0.375
		(0.096)	(0.845)	(0.379)	(0.921)	(0.384)	(0.142)		
34	Gas, natural and manufactured	-0.118	4.484*	0.606	-4.622	0.205	-0.867***	5,719	0.373
		(0.274)	(2.719)	(2.017)	(2.992)	(1.932)	(0.221)		
35	Electric current		18.936	23.484**	-21.941	-19.422*	2.109	146	0.850
			(25.076)	(11.310)	(27.097)	(10.337)	(1.943)		
41	Animal oils and fats	0.009***	3.871**	-0.706	-4.282**	0.831	0.015	11,984	0.269
		(0.003)	(1.734)	(0.738)	(1.841)	(0.725)	(0.109)		
42	Fixed vegetable fats and oils	0.017	0.536	0.110	-0.886	-0.047	-0.158**	44,060	0.311
		(0.034)	(0.789)	(0.351)	(0.844)	(0.344)	(0.076)		
43	Animal or vegetable fats and oils	0.010	0.109	-1.334**	-0.491	1.153**	-0.270**	11,935	0.312
		(0.017)	(1.323)	(0.559)	(1.410)	(0.552)	(0.115)		
51	Organic chemicals	0.022	0.996**	0.142	-1.191**	0.010	-0.460***	410,123	0.259
		(0.022)	(0.430)	(0.225)	(0.468)	(0.220)	(0.076)		
52	Inorganic chemicals	-0.028	0.689	0.658***	-0.213	-0.506**	-0.435***	214,914	0.220
		(0.031)	(0.439)	(0.203)	(0.472)	(0.201)	(0.060)		
53	Dyeing, tanning and colouring materials	0.038*	0.333	0.700***	0.266	-0.488**	-0.842***	141,318	0.279
		(0.023)	(0.395)	(0.203)	(0.422)	(0.206)	(0.068)		
54	Medicinal and pharmaceutical products	0.253***	-0.332	0.901***	0.749*	-0.595***	-0.458***	198,008	0.158
		(0.042)	(0.416)	(0.171)	(0.436)	(0.167)	(0.037)		

Table 7: Gravity Regression Estimation in Exports Results (continued).

SITC	Description	Variables							
		CPTPP Tariff Reduction	GDP_o	GDP_d	$pcGDP_o$	$pcGDP_d$	Distance	N	Adj. R^2
55	Essential oils and resinoids	0.036***	0.225	-0.050	0.006	0.305**	-0.895***	213,874	0.330
		(0.009)	(0.378)	(0.149)	(0.403)	(0.151)	(0.066)		
56	Fertilizers	-0.199	0.693	0.312	-1.020	-0.380	-0.259***	26,425	0.220
		(0.139)	(1.108)	(0.514)	(1.155)	(0.529)	(0.082)		
57	Plastics in primary forms	-0.022	0.173	0.461*	0.574	-0.261	-0.715***	160,143	0.294
		(0.017)	(0.460)	(0.235)	(0.489)	(0.234)	(0.072)		
58	Plastics in non-primary forms	-0.019	0.192	-0.257	0.091	0.492***	-1.052***	178,186	0.336
		(0.014)	(0.351)	(0.158)	(0.376)	(0.155)	(0.061)		
59	Chemical materials and products, n.e.s.	0.012	-0.182	0.498***	1.050***	-0.235	-0.880***	484,635	0.427
		(0.016)	(0.347)	(0.178)	(0.374)	(0.181)	(0.062)		
61	Leather, leather manufactures, n.e.s.	0.012	-3.427***	1.141**	3.707***	-0.738	-0.406***	58,423	0.268
		(0.022)	(0.914)	(0.474)	(0.952)	(0.470)	(0.062)		
62	Rubber manufactures, n.e.s.	0.014	0.440	-0.082	-0.348	0.182	-0.671***	332,229	0.304
		(0.013)	(0.315)	(0.131)	(0.336)	(0.131)	(0.051)		
63	Cork and wood manufactures	0.003	-2.332***	0.117	2.920***	0.019	-0.630***	135,112	0.326
		(0.019)	(0.480)	(0.195)	(0.521)	(0.199)	(0.069)		
64	Paper, paperboard	0.051***	-0.427	0.329**	0.891**	-0.137	-0.812***	295,799	0.243
		(0.013)	(0.356)	(0.157)	(0.382)	(0.159)	(0.071)		
65	Textile yarn, fabrics	0.008	-0.074	0.026	0.306	0.145	-0.549***	864,287	0.241
		(0.007)	(0.343)	(0.169)	(0.360)	(0.171)	(0.064)		
66	Non-metallic mineral manufactures, n.e.s.	0.006	-0.163	0.023	0.230	0.201	-0.691***	410,271	0.257
		(0.009)	(0.301)	(0.123)	(0.318)	(0.124)	(0.056)		
67	Iron and steel	-0.047**	0.399	-0.575**	0.023	0.644***	-0.704***	371,365	0.268
		(0.022)	(0.509)	(0.233)	(0.531)	(0.230)	(0.082)		
68	Non-ferrous metals	-0.017	-0.324	-0.236	0.618	0.424	-0.473***	188,836	0.227
		(0.036)	(0.478)	(0.264)	(0.515)	(0.271)	(0.076)		
69	Manufactures of metals, n.e.s.	-0.002	-0.461**	-0.243**	0.754***	0.379***	-0.825***	969,056	0.279
		(0.010)	(0.234)	(0.095)	(0.257)	(0.093)	(0.053)		
71	Power-generating machinery and equipment	-0.043**	0.247	-0.256*	-0.088	0.456***	-0.640***	250,830	0.295
		(0.021)	(0.323)	(0.133)	(0.343)	(0.135)	(0.047)		
72	Specialized machinery	0.069***	0.290	-0.172	0.209	0.311**	-0.491***	539,985	0.216
		(0.023)	(0.292)	(0.130)	(0.308)	(0.130)	(0.048)		

Table 7: Gravity Regression Estimation in Exports Results (continued).

SITC	Description	Variables							
		CPTPP Tariff Reduction	GDP_o	GDP_d	$pcGDP_o$	$pcGDP_d$	Distance	N	Adj. R^2
73	Metalworking machinery	-0.019	-0.304	-0.046	0.467	0.224	-0.679***	163,486	0.402
		(0.019)	(0.468)	(0.190)	(0.482)	(0.196)	(0.064)		
74	General industrial machinery and equipment	-0.002	-0.258	-0.205**	0.584**	0.406***	-0.791***	921,788	0.345
		(0.011)	(0.226)	(0.094)	(0.246)	(0.092)	(0.048)		
75	Office machines	-0.078	1.788***	0.602***	-1.383***	-0.258	-0.687***	195,494	0.375
		(0.096)	(0.387)	(0.170)	(0.422)	(0.167)	(0.047)		
76	Telecommunications equipment	-0.045***	1.532***	-0.327**	-0.781**	0.506***	-0.703***	372,928	0.381
		(0.013)	(0.352)	(0.162)	(0.387)	(0.164)	(0.052)		
77	Electrical machinery	-0.014	-0.034	-0.092	0.456*	0.283***	-0.816***	1,136,647	0.337
		(0.013)	(0.240)	(0.103)	(0.258)	(0.103)	(0.051)		
78	Road vehicles	0.035**	0.515*	-0.304**	-0.278	0.610***	-0.714***	328,349	0.318
		(0.016)	(0.298)	(0.149)	(0.326)	(0.150)	(0.058)		
79	Other transport equipment	-0.036	-0.093	-0.111	0.112	0.151	-0.354***	76,068	0.141
		(0.026)	(0.629)	(0.301)	(0.649)	(0.307)	(0.063)		
81	Prefabricated buildings	0.044***	-0.201	-0.355**	0.573	0.581***	-0.829***	84,388	0.274
		(0.014)	(0.393)	(0.174)	(0.426)	(0.177)	(0.058)		
82	Furniture and parts thereof	-0.015**	-1.405***	-0.258*	1.794***	0.577***	-0.720***	168,181	0.388
		(0.006)	(0.365)	(0.138)	(0.388)	(0.136)	(0.063)		
83	Travel goods	0.013	-0.398	-0.156	0.653	0.336	-0.859***	89,509	0.477
		(0.010)	(0.411)	(0.211)	(0.437)	(0.225)	(0.070)		
84	Articles of apparel and clothing accessories	0.008	-0.871***	-0.027	1.106***	0.174	-0.562***	952,330	0.322
		(0.005)	(0.331)	(0.151)	(0.357)	(0.141)	(0.071)		
85	Footwear	0.005	-1.507***	0.053	1.773***	0.311	-0.659***	116,292	0.386
		(0.005)	(0.493)	(0.222)	(0.518)	(0.229)	(0.071)		
87	Professional, scientific instruments	-0.075***	0.859***	-0.024	-0.394*	0.240**	-0.679***	540,152	0.355
		(0.022)	(0.210)	(0.098)	(0.237)	(0.101)	(0.050)		
88	Photographic apparatus	-0.012	0.982***	-0.135	-0.734**	0.238	-0.599***	262,664	0.269
		(0.010)	(0.287)	(0.141)	(0.307)	(0.147)	(0.049)		
89	Miscellaneous manufactured articles, n.e.s.	-0.009	-0.091	0.136	0.372	0.048	-0.619***	971,276	0.248
		(0.008)	(0.221)	(0.093)	(0.236)	(0.095)	(0.047)		
96	Coin (other than gold coin)	-0.027	0.523	1.831	0.407	-1.357	0.180	2,287	0.459
		(0.037)	(2.327)	(1.467)	(2.611)	(1.406)	(0.154)		

Table 7: Gravity Regression Estimation in Exports Results (continued).

SITC	Description	Variables							
		CPTPP Tariff Reduction	GDP_o	GDP_d	$pcGDP_o$	$pcGDP_d$	Distance	N	Adj. R^2
97	Gold, non-monetary	-0.683***	2.914	0.979	-2.619	-1.070	-0.639***	8,081	0.291
		(0.161)	(1.889)	(1.196)	(2.003)	(1.280)	(0.136)	0.291	

Notes: N: Number of observations. *, **, *** denotes for 1%, 5%, 10% significance level respectively. All the mentioned variables in the table are in log form. The calculation also contains control variables $\mathbf{X}_{ij}$ including time-invariant dummies for common official or primary language, common colonizer post 1945, pair in colonial relationship post 1945, common legal origins after transition, both are GATT members, and both are WTO members, as well as $FTAdummy_{ijt}$. We also include a full set of reporter fixed effects, partner fixed effects, and year fixed effects.