Effect of the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CP TPP) on Economic Growth: An Analysis of Developed Economies

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Abstract: *Following the collapse of the TPP, the CP TPP was ratified and came into force in 2018. In this study, we estimate the effect of import and export on economic growth in five developed economies – Canada, Japan, Australia, New Zealand and Singapore. The Exploratory Data Analysis shows the presence of possible mixed effects of imports and exports on economic growth in the selected countries. On the other hand, the random effects model shows that while imports exert positive effects on economic growth in the selected countries, the effect of export is negative; both effects are not statistically significant. Thus, policy around the strengthening of imports in the countries concerned should be pursued, especially economic growth enhancing imports.*

1. Introduction

There is no other trade partnership apart from the WTO that is as comprehensive as the TPP (Schott, 2013) When the TPP was muted in 2016, it was greeted with so much optimism. The TPP was designed not to fit into the common models of bilateral free trade or plurilateral customs unions given that it has implications for regionalism (Lewis, 2011). The TPP was negotiated by 12 countries in the Pacific-rim, comprising Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore, Vietnam and the United States. While the proposal was signed into law in 2016, it was not ratified. It remained unratified util the withdrawal of the United States in 2017 following the election of former president Donald Trump. The countries that were in the former TPP came together and formed the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CP TPP). The CP TPP includes every member of the TPP apart from the United States. The economic objective of the CP TPP is to be a platform for deep economic integration and comprehensive free trade agreement (Khan et al., 2018). Thus, countries forming the CP TPP do so with the hope that it will help boost their economies and add value to their production of goods and services, in essence, member countries aim to improve their economic growth prospects with the trade agreement.

Starting with the TPP, several studies have been carried out on its possible effect on economic growth in Turkey (Oduncu et al., 2014), Japan (Todo, 2013), Brunei, Malaysia, Singapore and Vietnam (Dasgupta & Mukhopadhyay, 2016), and on other macroeconomic variables in countries such as India and Bangladesh (Faruqui et al., 2015). It is interesting to see how the effect of TPP is projected to be felt in economies that are not in the partnership. This is not unsurprising given

that countries in the TPP account for about 36 percent of global output, and 24 percent of global trade (imports and exports) (Schott, 2013). Hence, studies that evaluate the effect of TPP on other economies only go to recognize the importance of the agreement to the global economy.

In the same vein, the newly negotiated CP TPP is also touted to have some effects on certain countries. For Canada, Lin (2018) projects that it will have benefits if the country can develop trade relationships among members as a bloc and not individually. Additionally, Khan et al (2018) posits that the entry of Pakistan into the trading bloc will yield benefits as the country will be used as a transit economy, thus helping to reduce poverty and the gap between the rich and the poor, reducing inequality. Few studies have focused on the economic growth effects of the CP TPP trade agreement on the most developed countries in the bloc since agreement was ratified. This study fills the gap by comparing the performance of trade and economic growth in the selected countries a decade before the agreement was ratified and after it was ratified to find the potential for possible benefits to the countries examined.

The rest of the paper is organized thus: in section 2, we lay out the data and methodology employed for this study. In section 3, we present the result of both the exploratory data analysis and the static panel regression analysis; in section 4, the conclusion and policy implication of the study.

2. Data and Methodology

2.1. Data

Data for this study are obtained for five of the most advanced countries in the CP TPP agreement – Japan, Australia, Canada, New Zealand and Singapore. Data are obtained from the World Bank's World Development Indicators (WDI). Data on economic growth (Growth) is measured as percentage change in gross domestic product (GDP), imports (IMP) and exports (EXP) are measured as percentages of GDP. Data for the exploratory data analysis spans 2017 – 2021, while data for the static panel estimation spans 2018 – 2021.

2.2. Methodology

The first methodology applied in this study is the exploratory data analysis (EDA). In this method, we use summary statistics and graphical presentations to show the relationship among economic growth, imports and exports. Secondly, we employ the static panel regression model to estimate the effect of imports and exports on economic growth in the selected countries from the time of the agreement going into effect (from 2018 to 2021)

The model to be estimated is presented thus:

$$Growth_{it} = \beta_0 + \beta_1 IMP_{it} + \beta_2 EXP_{it} + \varepsilon_{it} \qquad (1)$$

Where:

IMP_{it} and EXP_{it} are as earlier described, for country i at time t.

Estimating equation (1) by the pooled OLS method is better when there is no significant time or country effects. Thus, a more robust model will be the fixed effects (FE) of random effects (RE) model. Thus, equation (1) will be rewritten thus:

$$Growth_{it} = \beta_0 + \beta_1 IMP_{it} + \beta_2 EXP_{it} + \vartheta_{it} + \varphi_{it} \qquad (2)$$

In equation (2), ϑ_it represents the country fixed effects while φ_it represents the random effects. The Hausman test is used to choose between the fixed effects and the random effects model. The hypothesis to be tested in the Hausman test is:

H_0: Random effects model is preferred

H_1: Fixed effects model is preferred

3. Results

3.1 Exploratory Data Analysis

Japan

Table 1: Descriptive Statistics for Japan

	GROWTH	IMP	EXP
Mean	0.156488	16.39795	16.19078
Median	0.668947	16.44396	16.64676
Maximum	4.097918	20.01278	18.32602
Minimum	-5.693236	11.97060	12.41957
Std. Dev.	2.558311	2.070587	1.641686
Skewness	-1.077574	-0.412730	-0.789332
Kurtosis	3.703851	2.950912	2.890960
Jarque-Bera	2.998374	0.398880	1.460707
Probability	0.223312	0.819189	0.481739

The result for Japan in Table 1 shows that its imports and exports, as a percentage of GDP, were at their maximum in 2014 (before the CP TPP agreement came into force) and 2018 (as the CP TPP agreement came into force) respectively. Economic growth is at its highest of about 4.1 percent in 2010.
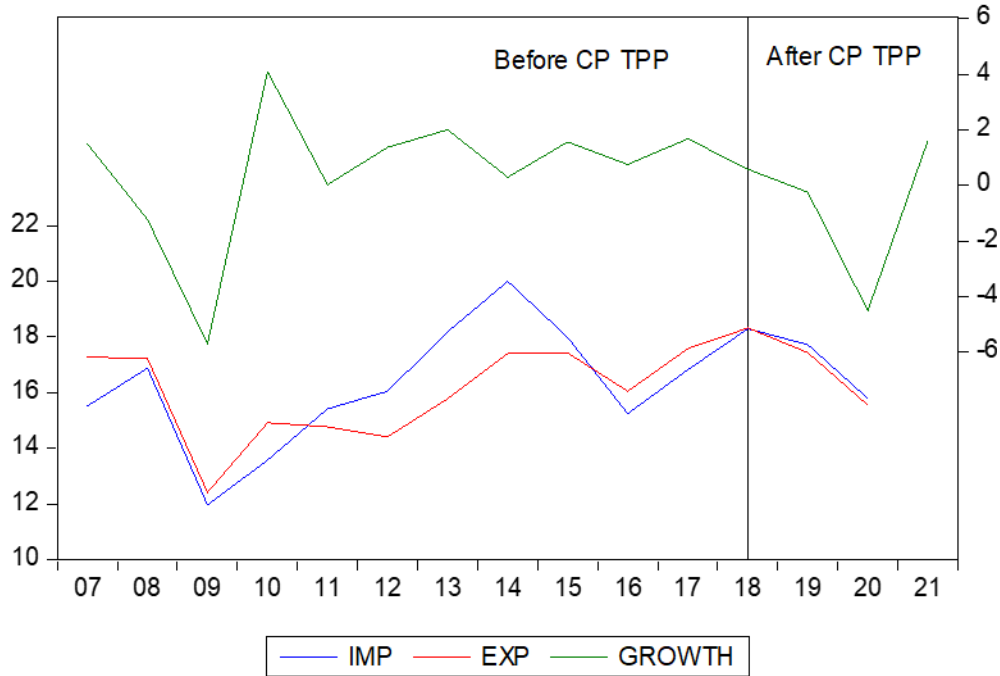
Figure 1: Trends in Japanese imports, exports and economic growth

Figure (1) shows a fairly steady path in economic growth for Japan before the period of CP TPP agreement. Growth declines sharply from between 2018 and 2020; so does imports and exports. Growth however recovered sharply between 2020 and 2021.
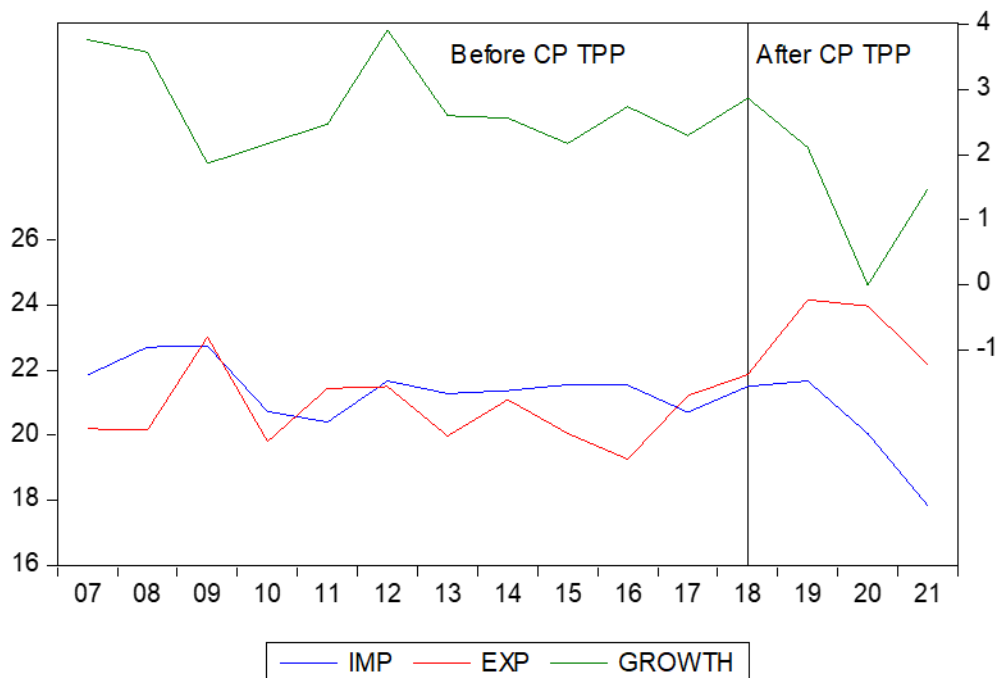
Australia

Table 2: Descriptive Statistics for Australia

	GROWTH	IMP	EXP
Mean	2.440010	21.18029	21.33488
Median	2.469746	21.51251	21999.22532
Maximum	3.917362	22.74742	24.16973
Minimum	-0.003837	17.83480	19.26986
Std. Dev.	0.965897	1.184851	1.503718
Skewness	-0.706097	-1.392528	0.590823
Kurtosis	4.067354	5.409151	2.327301
Jarque-Bera	1.958460	8.475344	1.155508
Probability	0.375600	0.014441	0.561157

In Australia, the result presented in Table 2 shows that imports and exports as a percentage of GDP were at the highest at around 2009 and 2019 respectively. This high figure for export is which is recorded for Australia, is also observed for Japan.

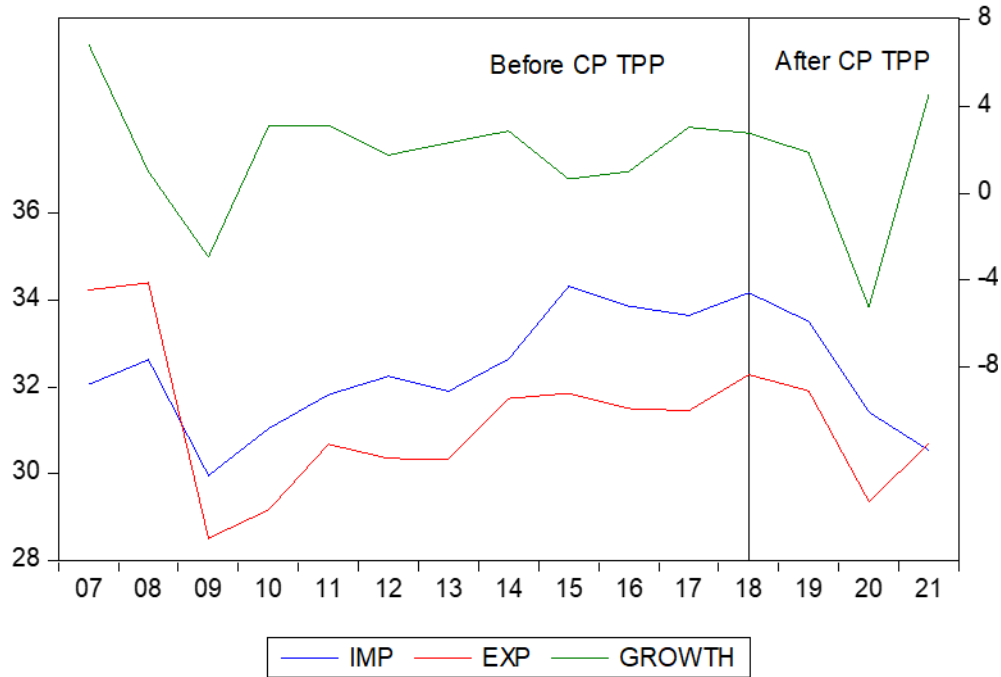**Figure 2: Trends in Australian imports, exports and economic growth**

In figure (2), it is observed that Australia has a similar trend in economic growth as Japan; declining from 2018 to 2020, and rising sharply afterwards. Imports declines sharply around the time economic growth. Meanwhile, exports rose for a short period between 2018 and 2019, plateaued between 2019 and 2020, before declining.

Canada

Table 3: Descriptive Statistics for Canada

	GROWTH	IMP	EXP
Mean	1.788836	32.38228	31.23049
Median	2.329123	32.24252	31.45441
Maximum	6.868609	34.31494	34.39501
Minimum	-5.233024	29.95856	28.51583
Std. Dev.	2.867457	1.330531	1.660884
Skewness	-0.916069	-0.143420	0.379393
Kurtosis	4.148648	2.037908	2.703652
Jarque-Bera	2.922578	0.629937	0.414736
Probability	0.231937	0.729812	0.812721

In Canada, the highest value of imports and exports as a share of GDP is recorded in 2015 and 2008 respectively. This indicates that the CP TPP period may have had no influence on Canada's external trade.

Figure 3: Trends in Canadian imports, exports and economic growth

In Figure (3) we observe that Canada's economic growth trend is similar to that of Japan and Australia – steadying before the 2018 signing of the CP TPP accord before declining sharply. Following this downward trend in economic growth is the downward trend in import and export.
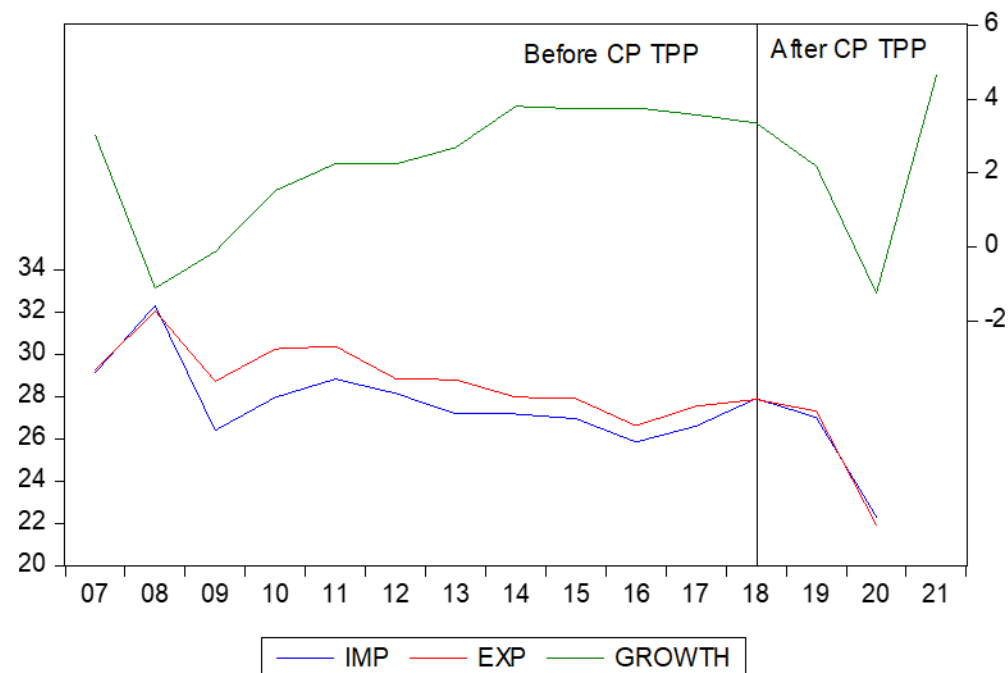
New Zealand

Table 4: Descriptive Statistics for New Zealand

	GROWTH	IMP	EXP
Mean	2.121596	27.42481	28.25896
Median	2.473588	27.19267	28.35838
Maximum	3.815428	32.33002	32.07871
Minimum	-1.252665	22.30519	21.91622
Std. Dev.	1.761602	2.165819	2.315988
Skewness	-0.940470	-0.102472	-1.192570
Kurtosis	2.538527	4.845073	5.407679
Jarque-Bera	2.188023	2.010339	6.700053
Probability	0.334870	0.365983	0.035083

In the case of New Zealand, the maximum value of imports and exports both occurred in 2008. This follows the trend for Canada.
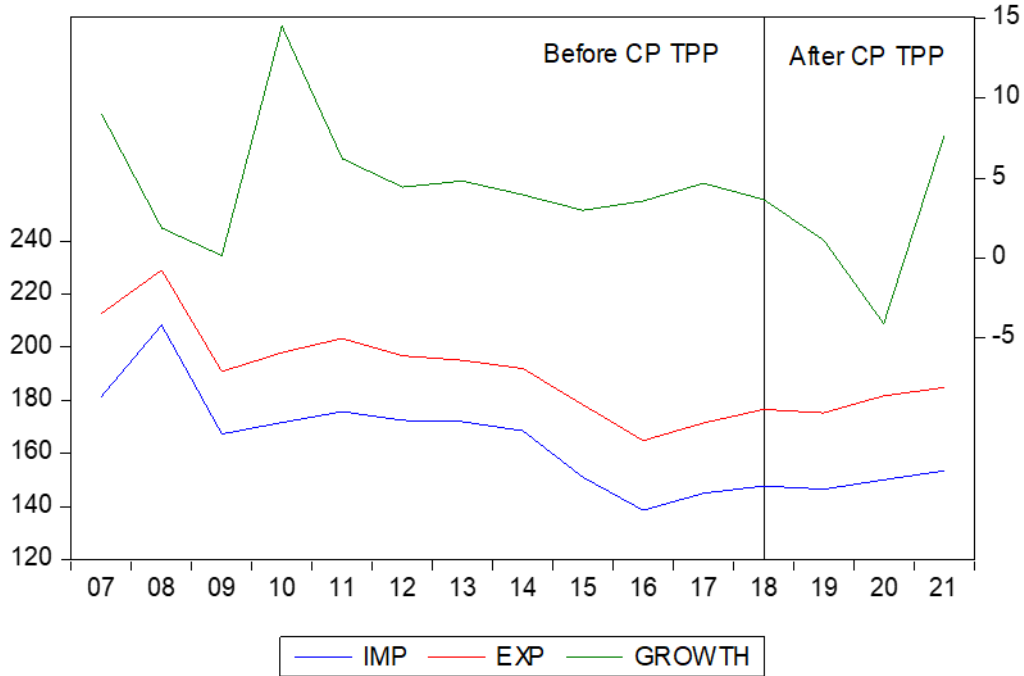

Figure 4: Trends in Canadian imports, exports and economic growth

In New Zealand, as shown in Figure 4, a similar trend in economic growth, imports and exports is observed, as with Japan, Australia and Canada.

Table 5: Descriptive Statistics for New Zealand

	GROWTH	IMP	EXP
Mean	4.290938	163.3333	190.0445
Median	3.935540	167.3479	190.8449
Maximum	14.51975	208.3329	228.9938
Minimum	-4.143106	138.5592	164.7718
Std. Dev.	4.221832	18.28708	16.83072
Skewness	0.489444	0.799973	0.675065
Kurtosis	4.116046	3.383493	3.089703
Jarque-Bera	1.377363	1.691810	1.144313
Probability	0.502238	0.429169	0.564307

In Singapore, it is noticed in Table 5 that imports and exports as a percentage of GDP is the largest of the countries being studied. Both imports and exports, as a percentage of GDP were at their highest in 2008, in perfect consonance with New Zealand.

Figure 5: Trends in Canadian imports, exports and economic growth

The trend in economic imports and exports for Singapore, shown in Figure 5 is a bit different from the rest of the countries, while economic growth trend remains largely the same as others. It is interesting to find an almost prefect trend pattern between imports and exports throughout the period of enquiry, rising continuously from 2016 till 2021.

A few points are clear from the EDA.

Economic growth in all five advanced countries of the CP TPP follow the same pattern – it is steady in the years before the forming of the CP TPP but declines and rises sharply from 2018 to 2019

Imports and exports, which represent trade in the five countries present different trend relationship with economic growth. This will potentially be realized in the static panel analysis that follows.

3.2. Static Panel Regression

Haven noticed that there seem to be a relationship among imports, exports and economic growth in the countries sampled, the study proceeds to regress economic growth on imports and exports for the five countries. The result is presented in Table (6). The Hausman test in Table 6b shows that the preferred model is the ransom effects model, given that the probability of chi square statistic is greater than 0.05 level of significance.

Table 6a: Fixed effects model

Dependent Variable: GROWTH

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-34.84032	21.73601	-1.602885	0.1373
IMP	0.734122	0.885243	0.829290	0.4246
EXP	-0.039812	0.749083	-0.053148	0.9586

R-squared	0.307373
Adjusted R-squared	-0.070423
F-statistic	0.813594
Prob(F-statistic)	0.580973

Table 6b: Hausman Test

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	2.694067	2	0.2600

Table 6c: Random effects model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.085274	1.930738	0.044166	0.9654
IMP	0.090504	0.372768	0.242788	0.8115
EXP	-0.063556	0.301877	-0.210537	0.8361

R-squared	0.042192	Mean dependent var	1.044757
Adjusted R-squared	-0.085515	S.D. dependent var	3.279177
S.E. of regression	3.416511	Sum squared resid	175.0882
F-statistic	0.330383	Durbin-Watson stat	2.616837
Prob(F-statistic)	0.723747		

From the random effects estimation result presented in Table (6c), while imports have a positive effects on economic growth in the countries sampled, exports have a negative effect. These effects are not statistically significant at the 0.05. Thus, the effect of trade on economic growth among the advanced CP TPP countries can be said to be mixed within since the start of the trade partnership. The significance of the impact of both imports and export in the countries sampled may still be further felt as more data is gathered in the future.

4. Conclusion and Policy implication

In this study, we have demonstrated that around a decade before the signing and enforcing of the CP TPP agreement (2008 – 2017), the five developed economies, of the 11 countries that formed the agreement, experienced fairly stable trends in economic growth, imports and exports. However, significant declines and rises are noticed in the economies from the period after the agreement was enforced (from 2018). Imports and exports had a mix of trends – falling in most cases with economic growth.

We, however, subjected the data to econometric analysis and found that import has a positive effect on economic growth, against the negative effect of exports.

Therefore, policy around the strengthening of imports – especially raw materials needed for the production of finished goods should be pursued by the advanced economies in the CP TPP agreement.

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