

THE POTENTIAL IMPACT OF TRANS PACIFIC PARTNERSHIP AGREEMENT (TPPA) ON MALAYSIA’S TRADE

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ABSTRACT: *Trans-Pacific Partnership Agreement (TPPA) which is now known as the Comprehensive and Progressive Agreement on Trans Pacific Partnership (CP-TPP) opens door of opportunities as well as challenges to Malaysia. The agreement has become subject of heated debate in Malaysia as well as other countries due to the reason that it may bring some new elements which are not in the other earlier Free Trade Agreements (FTA) on which Malaysia has signed. Competition policy, government procurement, labor standard and WTO-Plus commitments in the agreement which is TRIPS-Plus element which may affect access to medicine among others are among the contentious issues. This study focuses on one issue that is whether or not TPPA will bring significant effect on Malaysia’s export. In assessing the potential impact of the TPPA on Malaysia’s trade, the study uses gravity model to estimate the effects. The study found that FTA has positive effects on Malaysia’s export of beverages and tobacco (SITC-1), mineral fuels, lubricants and related materials (SITC-3), manufacturing goods classified chiefly by material (SITC- 6), machinery and transport equipment (SITC-7), miscellaneous manufactured articles (SITC-8) and commodities and transactions not classified elsewhere in the SITC (SITC-9) but negative effects on the export of food and live animals (SITC-0) export of animal and vegetable oils and fats (SITC-4).*

Keywords: TPPA, trade, gravity model, Malaysia

1. INTRODUCTION

In 2010, Malaysia announced that it will be joining the Trans-Pacific Partnership (TPP) negotiation that currently involves twelve countries from three continents namely the US, Australia, Brunei, Canada, Chile, Japan, Mexico, New Zealand, Peru, Singapore and Vietnam. The Trans-Pacific Partnership Agreement (TPPA) that was finally concluded on 5th October 2015 is viewed by some as a strategic step towards achieving high income nation status by 2020.

TPPA is ambitious and comprehensive trade agreement and there has been a lot of controversy and debate on this mega-trade deal. Some argue that the TPPA is more geo-politically motivated and that there is no much economic advantage that can be gained from the deal while some other suggest the potential benefits that Malaysia would gain from TPPA will outweighs its costs. The proponents argue that the free trade agreement between countries across the three continents would create a deeper integration and obtain greater market access in the TPPA member nations, enhance trade engagement with the US as well as to serve as a stepping stone in penetrating the Latin American market. Analysts are doubt on the significance of the TPPA on Malaysia’s trade. In addition, the issue on the effect of the TPPA on access to affordable medicines in Malaysia, change in labor standards and government procurement among others is among the most contentious one.

This study intends to analyse two most important potential impact of the TPPA. The first is to evaluate the impact on market access of Malaysian export to TPPA member countries in general. To validate the critics and assess the effects of the TPPA on Malaysia’s export this study is conducted to fill in the gaps in the literature as there is limited study has been undertaken to date. In assessing the potential impact of the TPPA on Malaysia’s Trade, regression analysis using Gravity Model of Trade have been undertaken.

2. LITERATURE REVIEW

There are any studies which have attempted to assess the effects of FTA on trade. Independent variables are defined in Table 1.

Table 01: Past Empirical Studies on Effects of FTA on Trade

Studies on FTA and its impact on trade	Authors	Findings
US-Singapore FTA	[1]	Positive
US-Chile FTA	[2]	Positive
US-Australia FTA	[3]	Positive
Bahrain-US FTA	[4]	Positive
US-Oman FTA found that	[5]	Positive
US-Peru FTA	[6]	Positive Positive
Potential Malaysia- US FTA	[7]	Positive and Negative
MERCOSUR, NAFTA and AFTA	[8]	Trade creation effects is much greater than the trade diversion effects
Effect of FTA involving many countries	[9]	Positive
TPPA	[10] and [11]	Insignificant Insignificant except for Malaysia’s trade with the US
TPPA	[12]	Negative
AFTA	[13]	Mixed
India-ASEAN FTA	[14]	Mixed
OIC	[15]	Negative and insignificant

In summary, there appears to be mixed findings concerning the effects of FTA involving the US or not, on a country’s trade. In addition, there have been limited studies so far that have focused on how FTAs affect Malaysia’s trade in particular at

aggregated and disaggregated level. Due to this inconclusiveness and limited studies that have attempted to assess the impact of FTA on Malaysia’s trade, there is a research gap that warrants a study on the said area.

3. OBJECTIVE OF STUDY

The objective of the study is:

>To analyze the potential effects of TPPA on Malaysia’s export at aggregated level and disaggregated level at 1 digit code.

4. METHODOLOGY OF STUDY

Gravity model of trade being applied in this study. Equation (1) is used to assess the effect of FTA on Malaysia’s export.

$$\ln(XM_{ijt}) = \beta_0 + \beta_1 \ln D_{ij} + \beta_2 \ln(Y_i Y_j)_t + \beta_3 \ln(N_i + N_j)_t + \beta_4 Abs(\ln YPC_i - \ln YPC_j) + \beta_5 \ln E_{ijt} + \gamma FTA_{ijt} + \epsilon_{ijt} \dots \dots \dots (1)$$

where in equation (3) subscript i denotes the exporter (Malaysia) while j denotes the importer. Equation (1) attempts to assess whether or not FTA has a significant influence in determining Malaysia’s export. The independent variables are defined in Table 2.

Table 2: Data and source

TYPE OF VARIABLES	DATA	SOURCE
Dependent Variable <i>ln XM_{ijt}</i>	Natural log of annual exports of Malaysia to country <i>j</i> (involving 188 countries), in real US dollars (equation (1)).	[16]
Independent Variables <i>ln D_{ij}</i>	the distance between country <i>i</i> and country <i>j</i> in natural logarithmic form (capital city distance in kilometer)	[17]
<i>Abs(ln YPC_i - ln YPC_j)</i>	difference of real GDP per capita (constant prices: Laspeyres) of country <i>i</i> and <i>j</i> in logarithmic and absolute form (in US dollars). Also called relative development.	[18]
<i>ln (Y_i Y_j)_t</i>	GDP of country <i>i</i> and <i>j</i> in multiplicative & logarithmic form (in real US dollars)	[19]
<i>ln(N_i+N_j)_t</i>	the sum of population in country <i>i</i> and <i>j</i> in logarithmic form	[18]
<i>ln E_{ijt}</i>	Bilateral exchange rate. Trading partner’s units of currency that can be purchased by one RM	[20]
<i>FTA_{ijt}</i>	Dummy variable of FTA. The value is unity if country <i>i</i> and country <i>j</i> both belong to the same bilateral/regional trade agreement and zero otherwise	[21]

Equation (1) is estimated using Pooled Ordinary Least Square (POLS) and Heckman Selection Model method involving 188 countries as trading partners. The data being regressed are annual data for the total period of 21 years and 11 years for sensitivity analysis. Other estimation methods are not used for the reason recent literature have suggested that Heckman Selection Model is preferable compared to other methods. In addition, some attempts have been made using several other estimation methods.

The regression is performed at aggregated and disaggregated level. The ten categories of product for analysis at disaggregated level are food and live animals (SITC-0), beverages and tobacco (SITC-1), crude materials, inedible, except fuels (SITC-2), mineral fuels, lubricants and related materials (SITC-3), animal and vegetable oils and fats (SITC-4), chemicals (SITC-5), manufacturing goods classified chiefly by material (SITC-6) and machinery and transport equipment (SITC-7), miscellaneous manufactured articles (SITC-8) and commodities and transactions not classified elsewhere in the SITC (SITC-9) which is based on the Standard International Trade Classification (SITC) at one digit code. The study aims at estimating the effect of bilateral/regional FTA affiliation while allowing for other determinants of export into the same equation. Hence, the coefficient of interest is the dummy variable FTA which represents the marginal effect of bilateral/regional FTA affiliation on export.

The OLS has been used extensively in estimating the gravity model. However, recent literature has highlighted issue pertaining correct specification and interpretation of the gravity model in regression estimation [22, 23 and 24]. One of the issues is on the best way to deal with zero value of trade. The standard log transformed model is reported for not able to capture zero trade flows [22, 23 and 24] Logarithm of zero trade causing the dependent variable value becomes undefined. This causes the practice of ignoring zero trade flows in the analysis of bilateral trade in many researches. Ignoring zero flows can make the empirical results to be biased. In addition, omitting zero flow observations indicate the loss of information on the reason of low trade volume. Hence, the study applies Heckman Selection Model to deal with the zero trade issues. Heckman selection model has been applied in various studies such as [23, 24 and 25]. Literature has shown the ability of this model in capturing zero trade value. This provides a robust justification on whether or not the TPPA will increase Malaysia’s export to the rest of the world. In addition, sensitivity analysis is conducted using Heckman Selection Model. For sensitivity analysis, data with smaller number of observation for year 2000 until 2010 only were included

5. FINDINGS

Table 1 presents the results of regression analysis using ordinary least squares (OLS) method. The findings show that FTA has increased Malaysia’s export to the rest of the world for most categories of products. At disaggregated level, FTA impact is significant on the export of beverages and tobacco (SITC-1), mineral fuels, lubricants and related materials (SITC-3), manufacturing goods classified chiefly by material (SITC- 6), machinery and transport equipment

(SITC-7), miscellaneous manufactured articles (SITC-8) and commodities and transactions not classified elsewhere in the SITC (SITC-9). On the contrary, the study found a negative impact of FTA on the export of animal and vegetable oils and fats (SITC-4).

The regression results using Heckman Selection Model is presented in Table 2. The results are generally found to be consistent with a priori expectation. It is found that the bilateral/regional FTA involving Malaysia and its trading partners have contributed in a significant increase in Malaysia's total export. The subsectors that have experienced a notable expansion are beverages and tobacco, mineral fuels, lubricants and related materials, manufacturing goods classified chiefly by material and machinery and transport equipment, miscellaneous manufactured articles, and commodities and transactions not classified elsewhere. However, using the Heckman Selection Model, FTA is found to have a negative impact on the export of food and live animals (SITC-0) export of animal and vegetable oils and fats (SITC-4).

To check for the robustness of the results, sensitivity analysis is conducted where the number of observations is reduced from 21 years (1990-2010) to 11 years (2000-2010). Based on the sensitivity analysis results presented in Table 3, it shows that FTA has increased Malaysia's total export and export of beverages and tobacco, export of mineral fuels, lubricants and related materials, export of manufacturing goods classified chiefly by material and export of machinery and transport equipment. This is similar to the results using Heckman's Selection Model with the exception of crude materials, inedible, except fuels (SITC-2) where the effect is found to be negative while exports of food and live animals (SITC-0) are found to be insignificant. The results also found that the impact of FTA to be larger for total export, the export of beverages and tobacco, export of mineral fuels, lubricants and related materials, export of manufacturing goods classified chiefly by material and export of miscellaneous manufactured articles but smaller for the export of machinery and transport equipment and commodities and transactions not classified elsewhere.

6. DISCUSSION

Past FTAs are used as proxy to investigate TPPA's potential impact on Malaysia's export. Potentially, TPPA would increase Malaysia's export of beverages and tobacco (SITC-1), export of mineral fuels, lubricants and related materials (SITC-3), export of manufacturing goods classified chiefly by material (SITC-6), export of machinery and transport equipment (SITC-7), export of miscellaneous manufactured articles (SITC-8) and export of commodities and transactions not classified elsewhere in the SITC (SITC-9). However, the TPPA may result in a negative effect on Malaysia's export for food and live animals (SITC-0) and animal and vegetable oils and fats (SITC-4).

On the other hand, TPPA is expected to have a negative impact on the export of food and live animals (SITC-0) and animal and vegetable oils and fats (SITC-4). Since palm oil is the biggest component in this product category where it comprises of about 73 per cent of the export in 2013, it is expected that TPPA would have its biggest impact on this

product.

It is not clear that whether Malaysia and other member countries will proceed with the implementation of the agreement or not. The impact on specific sectors of the economy should also be taken into account.

7. CONCLUSIONS

This study found that there are mixed results on the possible impacts of TPPA on Malaysia's export. Generally, the effects are positive on certain product categories and negative or insignificant for other categories.

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Table 1: OLS Regression Results (Impact of FTA on Malaysia's Export)

Dependent variable: Log Export	Total	SITC-0	SITC-1	SITC-2	SITC-3	SITC-4	SITC-5	SITC-6	SITC-7	SITC-8	SITC-9
Independent variable:											
Ln Distance	-1.104*** (0.061)	-1.842*** (0.071)	-1.731*** (0.091)	-1.265*** (0.078)	-2.089*** (0.152)	-1.298*** (0.089)	0.123 (0.125)	-1.552*** (0.066)	-1.009*** (0.066)	-0.912*** (0.054)	-1.276*** (0.064)
Abs(lnYPC _i -lnYPC _j)	-0.303*** (0.031)	-0.225*** (0.004)	-0.369*** (0.072)	-0.695*** (0.052)	-0.947*** (0.133)	0.236*** (0.048)	-0.323*** (0.056)	-0.377*** (0.034)	-0.354*** (0.041)	-0.401*** (0.030)	-0.505*** (0.037)
lnY _i Y _j	0.759*** (0.021)	0.615*** (0.023)	0.12*** (0.037)	0.528*** (0.032)	0.174** (0.074)	0.636*** (0.031)	-0.183*** (0.039)	0.678*** (0.021)	0.834*** (0.025)	0.859*** (0.018)	0.571*** (0.024)
ln(N _i + N _j)	0.615*** (0.058)	0.262*** (0.069)	0.636*** (0.105)	1.187*** (0.072)	1.549*** (0.153)	0.84*** (0.079)	0.347*** (0.118)	0.576*** (0.057)	0.061*** (0.079)	0.072 (0.051)	0.486*** (0.061)
FTA	0.839*** (0.131)	-0.139 (0.188)	2.296*** (0.213)	-0.072 (0.182)	1.508*** (0.367)	-0.783*** (0.201)	-0.275 (0.320)	0.557*** (0.151)	1.427*** (0.144)	0.785*** (0.129)	1.109*** (0.149)
lnE _{ijt}	-0.063*** (0.011)	-0.02 (0.014)	-0.059** (0.026)	-0.042** (0.017)	0.093** (0.043)	-0.027 (0.018)	-0.05** (0.023)	0.038*** (0.013)	-0.047*** (0.014)	-0.047*** (0.011)	-0.057*** (0.013)
Constant	-21.773*** (0.828)	5.192*** (1.011)	8.506*** (1.268)	-22.035*** (1.087)	-5.046** (2.263)	-20.404*** (1.136)	15.055*** (1.847)	-15.402*** (0.937)	-18.005*** (1.157)	-21.37*** (0.819)	-13.083*** (0.946)
Observation	3597	2691	1722	2149	1010	2483	2634	3007	3125	3084	3055
R-Squared	0.664	0.592	0.451	0.626	0.468	0.466	0.023	0.684	0.612	0.747	0.628
Root MSE	1.883	1.773	2.306	1.896	3.267	2.13	2.967	1.726	2.079	1.515	1.799

*** indicates significance at 1 per cent level, ** indicates significance at 5 per cent level and * indicates significance at 10 per cent level.

Table 2: Heckman Selection Model Regression Results (Impact of FTA on Malaysia’s Export)

Dependent variable: Log Export	Total	SITC-0	SITC-1	SITC-2	SITC-3	SITC-4	SITC-5	SITC-6	SITC-7	SITC-8	SITC-9
Independent variable:											
In Distance	-1.102*** (0.128)	-2.19*** (0.109)	-2.488*** (0.203)	-1.339*** (0.108)	-3.341*** (0.371)	-1.403*** (0.113)	-10.421 (36.540)	-1.603*** (0.077)	-1.247*** (0.188)	-0.891*** (0.067)	-1.337*** (0.086)
Abs(lnYPC _i -lnYPC _j)	-0.319*** (0.066)	-0.179*** (0.041)	-0.388*** (0.072)	-0.703*** (0.049)	-1.038*** (0.141)	0.286*** (0.056)	-0.828 (2.232)	-0.359*** (0.038)	-0.449*** (0.089)	-0.317*** (0.039)	-0.344*** (0.056)
lnY _i Y _j	0.707*** (0.083)	0.825*** (0.052)	0.539*** (0.074)	0.574*** (0.055)	0.615*** (0.131)	0.722*** (0.067)	-0.529 (1.513)	0.731*** (0.049)	1.109*** (0.115)	1.036*** (0.046)	0.819*** (0.061)
ln(N _i + N _j)	0.719*** (0.206)	0.192** (0.087)	0.533*** (0.128)	1.181*** (0.090)	1.992*** (0.249)	0.803*** (0.099)	1.829 (6.034)	0.549*** (0.077)	-0.065 (0.196)	-0.033 (0.080)	0.332*** (0.103)
FTA	0.723* (0.405)	-0.444** (0.220)	2.271*** (0.295)	-0.121 (0.216)	1.762*** (0.461)	-0.836*** (0.233)	-9.202 (31.917)	0.552*** (0.181)	1.73*** (0.489)	1.099*** (0.203)	1.109*** (0.149)
lnE _{ijt}	-0.092* (0.047)	-0.017 (0.015)	-0.057** (0.025)	-0.41*** (0.016)	0.093** (0.045)	-0.031* (0.017)	-1.052 (3.503)	0.033** (0.013)	-0.008 (0.035)	-0.047*** (0.013)	-0.076*** (0.017)
Constant	-20.816 (2.484)	-11.787*** (1.824)	-5.368* (2.959)	-23.667*** (1.996)	-26.846*** (6.133)	-23.324*** (2.436)	140.36 (435.485)	-17.27*** (1.856)	-28.28*** (4.632)	-28.89 (2.021)	-22.662*** (2.533)
Observation	3677	3677	3677	3677	3677	3677	3677	3677	3677	3677	3677
Censored observation	80	988	2019	1528	2678	1195	1043	670	552	592	622
Wald Statistics	1404.71	842.91	442.81	743.04	158.77	440.97	0.2	1681.74	183.5	2273.99	1466.96
Rho	-1	0.839	0.968	0.149	0.797	0.246	-1	0.319	1	1	1

*** indicates significance at 1 per cent level, ** indicates significance at 5 per cent level and * indicates significance at 10 per cent level.

Table 3: Sensitivity Analysis: Heckman Selection Model Regression Results (Impact of FTA on Malaysia's Export)

Dependent variable: Log Export	Total	SITC-0	SITC-1	SITC-2	SITC-3	SITC-4	SITC-5	SITC-6	SITC-7	SITC-8	SITC-9
Independent variable:											
In Distance	-1.061*** (0.090)	-2.101*** (0.217)	-2.379*** (0.266)	-1.621*** (0.135)	-3.247*** (0.438)	-1.471*** (0.149)	-5.254 (17.939)	-1.592*** (0.101)	-1.299*** (0.289)	-0.606*** (0.078)	-1.212*** (0.259)
Abs(lnYPC _i -lnYPC _j)	-0.241*** (0.049)	0.077 (0.104)	-0.477*** (0.122)	-0.575*** (0.065)	-0.981*** (0.188)	0.655*** (0.086)	-1.742 (3.555)	-0.221*** (0.058)	-0.325** (0.129)	-0.267*** (0.052)	-0.591*** (0.069)
lnY _i Y _j	0.766*** (0.048)	0.966*** (0.136)	0.479*** (0.102)	0.709*** (0.071)	0.711*** (0.155)	0.976*** (0.107)	-1.164 (2.431)	0.753*** (0.073)	1.214*** (0.165)	0.883*** (0.052)	0.525 (0.067)
ln(N _i + N _j)	0.633*** (0.158)	0.036 (0.221)	0.843*** (0.218)	1.131*** (0.122)	2.103*** (0.367)	0.551*** (0.155)	3.171 (7.050)	0.538*** (0.126)	-0.269 (0.331)	0.139 (0.106)	0.683*** (0.134)
FTA	0.783*** (0.270)	-0.365 (0.455)	2.579*** (0.491)	-0.454* (0.266)	2.429*** (0.630)	-0.588* (0.310)	-8.045 (25.296)	0.583** (0.232)	1.605** (0.675)	1.175*** (0.228)	0.952*** (0.259)
lnE _{ijt}	-0.045* (0.024)	-0.066 (0.033)	-0.071* (0.042)	-0.052** (0.022)	0.045 (0.059)	-0.043* (0.025)	-0.105 (0.516)	-0.049*** (0.018)	-0.028 (0.049)	-0.075*** (0.015)	-0.05*** (0.018)
Constant	-22.995*** (1.417)	-17.231*** (4.291)	-8.809*** (4.831)	-27.646*** (2.511)	-35.193*** (8.371)	-31.643*** (3.596)	79.982 (218.177)	-18.385*** (2.259)	-29.661*** (5.288)	-26.59*** (1.940)	-14.576*** (2.238)
Observation	2026	2026	2026	2026	2026	2026	2026	2026	2026	2026	2026
Censored observation	25	359	870	801	1341	492	596	279	254	208	180
Wald Statistics	3869.07	227.64	199.87	604.78	114.33	343.84	0.99	1194.2	120	2307.82	1958.7
Rho	-0.208	1	1	0.197	0.949	0.749	-1	0.244	1	0.223	0.117

*** indicates significance at 1 per cent level, ** indicates significance at 5 per cent level and

* indicates significance at 10 per cent level

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