

Inward FDI in East Asian & Pacific Developing Countries due to WTO Led Liberalisation

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Abstract

This research paper evaluates the relative significance of World Trade Organisation (WTO) accession in general and that of WTO led liberalisation in particular in increasing an East Asian and Pacific (EAP) developing country's desirability for foreign direct investors. Other FDI influencing factors such as economic development, macroeconomic stability, trade agreements, host market size, financial development and existence of intellectual property rights standards are also taken into consideration. Through the utilisation of annual aggregate observations for twenty eight years i-e 1988-2015, for a panel of eleven EAP developing countries, it was established that trade and investment liberalization, as well as size of local market, its extent of development, low inflation, steady depreciation of host currency and stringent IPR makes these developing nation states from East Asia and Pacific region more attractive for multinational investment. In contrast, trade agreements and financial development, though very important conventional FDI location pull factors, were insignificant in all the regression models. Moreover, it was established through the fixed and random effect panel estimation techniques that these findings are robust to the use of different empirical panel valuation methods.

Keywords: Liberalisation, FDI, WTO, East Asia and Pacific Developing Nations.

JEL Classifications: C330, F130, F150, F230 and F650

1. Introduction

The increasing share of multinational affiliate products in global merchandise and services trade post early 1980's has made investigating the factors causing this phenomenon imperatively important (UNCTAD, 2016). For example, fifty percent of the United States of America's trade is among the same multinational (MNC) affiliates and seventy percent of global trade is attributed to multinational enterprises (Irrarrazabal, Moxnes, & Opromolla, 2013). Moreover, among the total US imports

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and exports ninety percent involves one of the domestic multinational companies (Edwards, Marginson, & Ferner, 2013). Similarly, over eighty million employees work for multinationals throughout the world (Moran, 2012).

Researchers reviewing multinationals investment behaviour initially thought that their overseas investments are necessitated by high tariff barriers (Barry, Barry, & Menton, 2016). They hypothesised that the foreign production units established in the host markets enabled them to serve these distant markets cost effectively by circumventing the trade restrictions through foreign direct investment (FDI). The steady reduction in tariff duties during the late eighties, early nineties and finally due to the World Trade Organisation's (WTO) agreement in 1995 set the foundations of the transition away from market seeking tariff jumping FDI (Shah, 2017a). Hence, investment of this nature is usually not found in free market open economies, devoid of market distortions (Medvedev, 2012).

World Trade Organisation's possible influence on overseas investor's investment choice is scantily explored. Therefore, the current FDI literature shall certainly get enriched by specifically considering the WTO led liberalisation's role in effecting an EAP host economy's FDI potential as explored in this study.

The transcontinental spread of production by multinationals has made it essential for the host to provide a commerce friendly, investment enabling business environment that is free of the old rent seeking paradigms (Farla, De Crombrugghe, & Verspagen, 2016). Thus, developing countries around the globe has started offering incentives to lure foreign investors to make investment in activities, sectors and at locations, of the host choice (Gori, Lambertini, & Tampieri, 2014). This paper by examining specifically WTO induced liberalisation's effect on inflow of direct overseas investment into eleven developing countries from East Asia and Pacific for twenty eight years i.e 1988-2015 strives to answer this unexplored aspect for the first time. The developing countries included in the sample are the ones placed by the World Bank in the East Asian and Pacific region, namely: China, Fiji, Malaysia, Philippines, Indonesia, Solomon Islands, Papua New Guinea, Samoa, Thailand, Vietnam and Vanuatu. The likely impact of other conventional FDI contributing factors such as market size, macro stability, trade agreements, intellectual property rights (IPRs), financial development etcetera are also considered. The results show that WTO membership and the ensuing liberalisation of the EAP developing economies exert a significantly positive effect on inward FDI.

The next section of this paper explores the liaison among traditional FDI determining factors and WTO led liberalisation with FDI inflows. Section three discuss the empirical problems and provides the estimation model. The fourth one tabulates the results and analyse them. The paper ends with some conclusions and possible future extensions in section five.

2. Literature Review

Overseas production by multinational enterprises is a combination of global financial transactions, international political economics and multinational business and trade flows (Shah, 2017b). Multinational's overseas investment is termed as Foreign Direct Investment when it has a minimum 10% proprietorship in a foreign business with a long lasting perspective. Therefore, the choice of the overseas investment host is very important for them. This decision among many other factors requires the presence of sound macroeconomic environment, protection of physical and intellectual capital, market munificence, a liberalised commercial order, and the degree to which the host regime facilitates the overseas investors in the form of preferential market access (UNCTAD, 2016).

To measure the general influence of WTO membership a separate dummy variable is used. It will have a value of one if the country has become a member prior to 1st July and zero otherwise. The specific influences of the conventional FDI determinants and the trade and investment liberalisation brought by WTO are discussed in the following section.

2.1 Conventional FDI Location Determinants

Multinationals usually seek bigger markets due to prospects of greater expected sales and higher possibilities of economies of scale (Dunning, 2012). Nonetheless, the gradual lowering of tariff rates post eighties and especially due to WTO has led to increased liberalisation of the investment and trade around the world and made the earlier desirability of a large host market debateable. MNCs can easily achieve economies of scale in open economies through worldwide sales and are not exclusively dependent on local buyers. However, due to the international cross border immobility of the factors of production such as labour, the size of the host market remains relevant to some extent.

Furthermore, the extent of development made by a developing nation shall have a positive sway on investors FDI location choice as it is also indicative of the quality of the available infrastructure as well as human capital accumulation in the host's domestic market (Shah, 2014; Kandogan, 2016). Low inflation, stable interest rates, judicious fiscal and prudent monetary policy along with steady exchange rate regimes signals macroeconomic soundness of the host economy and encourage the investors to invest with confidence (Dell'Erba & Reinhardt, 2015; Shah, 2016). Similarly, the presence of a relatively efficient credit and financial services structure (Soumaré & Tchana, 2015) and the functionality and availability of an advanced commercial set up shall assist overseas investors particularly in the services sector (Becker, Chen, & Greenberg, 2013).

Trade agreements facilitating investors usually have plausible positive effects on vertical FDI investors and may deter horizontal ones (Medvedev, 2012; WTO World Trade Report, 2015; Shah & Khan, 2016). By the same token, the increase in knowledge intensive products in multinational trade have made the existence of intellectual property rights standards a priori for overseas investors investment choice (Mathew & Mukherjee, 2014).

2.2. World Trade Organisation (WTO) led Openness/Liberalisation

In 1970's and 80's nations from the developing world used to impose custom duties, quotas, tariffs and at times supplementary non-tariff barriers on overseas investors. The primary reasons for these restrictions were local procurement of raw material, to substitute imports, some spill over possibilities and potential transfer of latest technology (Shah, 2017a). The resultant cost considerations led the multinationals to make tariff jumping horizontal FDI into these economies. These regulatory constrictions, aimed for protecting specific sectors or markets, enabled the investing multinationals to reap higher returns. The host nations enacted additional limitations on repatriation of profits back home concerned by the fact that major share of the MNC gains were transferred abroad. These measures clipped the transitory tariff jumping FDI gains of overseas investors and reduced the host location advantage vis-à-vis other potential investment sites (Schröder & Sørensen, 2014).

The success of East Asian nations like Indonesia and Malaysia (Li, Cui, & Lu, 2014) as well as Mexico from the Americas in getting a lion share of FDI going towards the developing world as a result of investment, trade and fiscal liberalisation of their economies (Noria, 2015) has prompted many other developing states to take steps for opening and liberalising of their countries (Berger, Busse, Nunnenkamp, & Roy, 2013). Similarly, in terms of deregulation of the markets, openness and reforms concerning the liberalisation of the commerce regime Czech Republic, Hungary and Poland, are way ahead of the other Central Eastern European Countries (CEEC). These features have made them the primary recipients of inward FDI in CEEC (Benáček, Lenihan, Andreosso-O'Callaghan, Michalíková, & Kan, 2014). According to Ciešlik (2005) in the 1990's the growth of business, commerce and trade connections with its Western European neighbours and its reform policies have caused an enormous increase in Poland's FDI inflows. Morisset (2000) states that this phenomenon is not restricted only to the European and Asian economies and Sub-Saharan African nations particularly Mozambique and Mali by abolishing non-tariff barriers, decreasing the tariff rates and introducing other economic reforms saw a multi-fold increase in overseas investment.

Globalising these reforms the membership in WTO/GATT requires that all

participants equally reciprocate tariff, trade and investment concessions to one another. However, they are not legally required to extend or give similar treatment to non-members and usually charge a higher tariff from them (Borchert, Gootiiz, & Mattoo, 2014).

Moreover, the Trade facilitation Agreement concluded during the WTO Bali Ministerial Conference in December 2013 came into force on 22nd February, 2017. It has set new dimensions for trade facilitation beyond that of the original WTO agreement especially for trade promotion of the Least Developed Countries (LDCs). However, its probable effects on FDI can only be analysed in a few years' time to truly gauge its empirical impact, thus setting potential agenda for future researchers².

The WTO caused obligatory removal of trade and investment restrictions, among more than 150 members, is likely to engender competition, scale economies, product specialisation and an environment contributing to superior utilisation of multinational resources internationally (Reyes, Wooster, & Shirrell, 2014). The last three and half decades have witnessed that majority of the developing nations are progressively adopting reformist and liberal programmes governing FDI and relaxing their trade and investment regulations (Dunning, 2012). Consequently, they are witnessing greater multinational activity, a development that seems likely to linger at least for a few years (Brooks, Roland-Holst, & Zhai, 2008).

However, theoretically the impact of liberalisation apropos a nation's potential to draw more foreign direct investment is also dependent on the form and type of investment. Moreover, whether FDI and trade complement each other or generate supplementary effects is also important. Multinationals seeking access to the host market will make horizontal FDI. They will prefer high tariffs to avoid competition. On the contrary, a relatively liberalised and open trade regime in the host economy will benefit geographically fragmented, exports oriented vertical FDI (WTO, World Trade Report, 2015). The exports from the home country of finished goods will be replaced by affiliate's products in the host. However, the demand for intermediate products needed at the overseas affiliate will commence and gradually grow with increase in production. It is expected that the manufacturing of the initial set of products shall lead to generation of demand for other brands produced by the same parent company. Foreign affiliates in one nation often facilitate the distribution/marketing of many other product lines of the parent. This improves the competitiveness of the parent firm vis-à-vis native producers and the multinationals shipping their products from abroad (Damijan, Kostevc, & Rojec, 2017).

² For details visit WTO website at: https://www.wto.org/english/tratop_e/tradfa_e/tradfa_e.htm and please read WTO documents WT/L/931 and WT/L/940.

In other words market seeking multinationals make horizontal investments whereas the ones seeking efficiency undertake vertical FDI. Some exceptions do exist for example the ones seeking natural resources are primarily driven by the geography of these resources availability. Such MNCs are not concerned by the volume of anticipated domestic sales or labour costs (Johns et al. 2015).

Realising the fact that multinationals are getting increasingly sensitive to the product quality and input prices, these days less investments shall flow into the closed economies than they once witnessed (Büthe & Milner, 2014). Consequently, trade and investment liberalization is becoming an essential constituent of policies designed for encouraging overseas investors (Borchert, Gootiiz, & Mattoo, 2014). Therefore, expecting that WTO led liberalisation of the countries from East Asia and Pacific shall increase the possibilities of hosting additional FDI seems appropriate.

3. Estimation Model & Empirical Problems

In the following two subsections the estimation model and empirical problems are explored.

3.1 Estimation Model

As stated in the beginning of the literature review overseas production by multinational enterprises is a combination of global financial transactions, international political economics and multinational business and trade flows. Therefore, deriving from the theory an estimation model that shall encompass all these features is an onerous task. However, inferring from the discussion in introduction and the previous section the following reduced form equation is set to gauge the effect of conventional FDI variables and liberalisation engendered by WTO on the inward FDI into the eleven EAP developing republics:

$$FDI_{jt} = f \{MarketSize, EconomicDevelopment, MacroStability, Financial Development, Trade Agreements, Intellectual Property Rights, Openness, WTO\}_{jt} \quad (1)$$

Here j is used to denote all the East Asian and Pacific developing countries included by the World Bank in East Asian and Pacific regional group. It varies from one to eleven representing China, Fiji, Indonesia, Malaysia, Papua New Guinea, Philippines, Samoa, Solomon Islands, Thailand, Vanuatu and Vietnam. Subscript t representing time period 1988-2015 varies from one to twenty eight. This will give a total of $28 * 11 = 308$ observations for all the proxies used for the explanatory variables. The dependent variable FDI_{jt} denotes stock of FDI in each of the host. The data on FDI is collected from UNCTAD FDI Statistics database. Applying the seemingly suitable

proxies for all the independent variables and log-linearizing the first equation gives³:

$$\begin{aligned} \ln FDI_{jt} = & \alpha_0 + \beta_1 \ln Population_{jt} + \beta_2 \ln GDPPC_{jt} + \beta_3 \ln Inflation_{jt} \\ & + \beta_4 \ln ExchangeRate_{jt} + \beta_5 \ln FinancialDevelopment_{jt} \\ & + \beta_6 \ln TradeAgreements_{jt} + \beta_7 \ln TotalIndustrialDesign_{jt} \\ & + \beta_8 \ln Trade_{jt} + \beta_9 WTOmembership_{jt} + \xi_{jt} \end{aligned} \quad (2)$$

Ln over here denotes natural logarithm. Applying the natural logarithm to the variables usually reduces the heteroscedasticity in them and brings them closer to a normal distribution (Resmini, 2000). Population will proxy market size, GDPPC development level, inflation and exchange rate macroeconomic stability. A weighted measure of two stock market development and three banking sector growth proxies is used to represent financial development. The data for all of them as well as trade used as a proxy for the host economy's degree of openness is collected from World Bank, World Development Indicators. Total industrial designs are used for intellectual property standards, and it is collected from World Intellectual Property Organisation (WIPO) website. Data for trade agreements is taken from WTO regional trade agreements information system.

3.2 Empirical Problems

The likely empirical problems associated with panel data are discussed below along with the appropriate diagnostic tests.

3.2.1 Descriptive statistics

The summary of the descriptive statistics such as maximum, minimum, standard deviation, mean and the total number of available observations for all the variables utilised in the estimations are given in table one.

3.2.2 Hausman specification test

Having eleven countries for twenty eight years the best way is to arrange the data in a panel form. To choose the best suited empirical panel estimation technique between the random and fixed effects, the Hausman (1978) specification test is utilised for all the regressions undertaken. The results for the Hausman test are given in table two. As evident from the probability values it is obvious that the test rejects the null hypothesis in some of the regression models and fails to do so in others. The ones where the null is rejected shows that the results obtained with random and fixed effects are not the same. Consequently, fixed effect is used in the empirical regression models one, two, three and five. Whereas, in model four, six, seven, eight and nine it fails to reject the null implying that the efficient random effects method and the

3. This is a standard FDI equation such as equation (5) in Herzer, Hühne, and Nunnenkamp (2014).

Table 1: Descriptive Statistics

Descriptive Statistics					
Name of the Variable or Proxy	Observations Available	Mean	Standard Deviation	Minimum	Maximum
Ln FDIStock	308	21.46	2.59	13.99	28.04
Ln Population	308	16.03	2.94	11.67	20.99
Ln GDPPC	308	6.91	0.77	4.42	8.86
Ln Inflation	308	1.93	0.96	- 1.86	6.12
Ln Exchange Rate	308	3.13	2.64	0.51	9.68
Ln Financial Development	308	3.06	0.95	0.00	4.93
Ln Trade Agreements (TA)	308	0.87	0.61	0.00	2.30
Ln Total Industrial Designs (TID)	308	2.66	3.65	0.00	12.49
Ln Trade	308	4.39	0.50	2.66	5.40
All the numbers are reported up to two decimal places					

consistent fixed effects method gives the same results. Hence in these models random effects panel estimation technique is used.

3.2.3 Breusch Pagan / Cook Weisberg test for Heteroscedasticity

Checking for the possible existence of heteroscedasticity in the dependent as well as all the independent variables the Breusch Pagan / Cook Weisberg test is applied. The results given in table three clearly shows the presence of heteroscedasticity by rejecting the null hypothesis of homoscedastic standard errors. Hence, all the results of the empirical regressions are reported after controlling for it or in other words are robust to heteroscedasticity⁴. Though, the proxy for market size, that is, natural logarithm of population is homoscedastic but I have to apply the robust option with the first model as well because the dependent variable exhibits heteroscedasticity.

3.2.4 Multicollinearity

Excessive collinearity or association between the independent variables can make the results dubious econometrically. Therefore, it's essential to gauge for the extent of multicollinearity among the explanatory variables in all the models. One of the primary measure is to apply as an indicative statistic the variance inflation factor (VIF) $V = 1 / 1-R^2$. Wooldridge (2009) states that conventionally multicollinearity becomes

4. The theoretical underpinnings can be understood in detail from Wooldridge (2009), Chapter number 8.

a problem when $VIF > 10$ or the correlation between independent variables is greater than 90 percent, that is, $R^2 > 0.90$. The results for Variance Inflation Factor, given as appendix one, manifest the nonexistence of this problem. The weak correlations between the independent variables, provided as appendix two, also show its absence. Asteriou (2006) in chapter number six discusses multicollinearity in detail.

4. Results & Analysis

The results obtained through fixed affects are summarised in table four and with random effects in table five. Though, the Hausman (1978) specification test allows the use of random effects only for model four, six, seven, eight and nine. The purpose of carrying out both the techniques for all the models is that it will serve as a sensitivity check for the results obtained through the two alternative panel estimation methods.

It is evident from the results obtained for model one, two and three in table four through fixed effects panel estimation technique that multinationals exhibit a strong preference for larger markets, relatively developed economies and low inflation rates. These results are equally supported by random effects method as evident from table five. This is in consonance with majority of the earlier findings. Nonetheless, Palit and Nawani (2010) evaluating inflows of FDI in a sample of fourteen developing economies from Asia termed market size to be either immaterial or significantly undesirable for investors in these countries because their objective is resource extraction.

In model four of the random effects method the coefficient for gradual slow depreciation of the host economy is positively significant. It shows that predominantly FDI in East Asia and Pacific is vertical. If it would have been horizontal market seeking FDI depreciation of the host currency would have trimmed, in dollar terms, the value of dividends and profits repatriated. Further evidence of the vertical FDI comes from the introduction of the liberalisation proxy in model eight. With its inclusion the coefficient for exchange rate turns significantly negative showing the sensitivity of the multinationals to the increase in the cost of raw material imported from abroad for value addition in these rather developed developing economies (Flammer, 2015). Prudent multinationals can resort to hedging or making their import contracts in local currency. Still, if the MNC's are re-exporting their products this effect will be somehow less pronounced.

Controlling for the possible role of financial development and trade agreements in model five and six, manifests their insignificance in affecting the FDI location choice of overseas investors in the East Asia and Pacific region. In model seven I test for the effect of stringent IPR promulgation and the positively significant coefficient for total industrial designs show the importance of intellectual property protection for multinationals.

Table 2: Results for Hausman Specification Test

No	Model Tested	P-Value
1	$\alpha_0 + \beta_1 \ln \text{Population}_t + \xi_{it}$	0.0000
2	$\alpha_0 + \beta_1 \ln \text{Population}_t + \beta_2 \ln \text{GDPPC}_t + \xi_{it}$	0.0309
3	$\alpha_0 + \beta_1 \ln \text{Population}_t + \beta_2 \ln \text{GDPPC}_t + \beta_3 \ln \text{Inflation}_t + \xi_{it}$	0.0000
4	$\alpha_0 + \beta_1 \ln \text{Population}_t + \beta_2 \ln \text{GDPPC}_t + \beta_3 \ln \text{Inflation}_t + \beta_4 \ln \text{ExchangeRate}_t + \xi_{it}$	0.2215
5	$\alpha_0 + \beta_1 \ln \text{Population}_t + \beta_2 \ln \text{GDPPC}_t + \beta_3 \ln \text{Inflation}_t + \beta_4 \ln \text{ExchangeRate}_t + \beta_5 \ln \text{FinancialDevelopment}_t + \xi_{it}$	0.0000
6	$\alpha_0 + \beta_1 \ln \text{Population}_t + \beta_2 \ln \text{GDPPC}_t + \beta_3 \ln \text{Inflation}_t + \beta_4 \ln \text{ExchangeRate}_t + \beta_5 \ln \text{FD}_t + \beta_6 \ln \text{TradeAgreements}_t + \xi_{it}$	0.1907
7	$\alpha_0 + \beta_1 \ln \text{Population}_t + \beta_2 \ln \text{GDPPC}_t + \beta_3 \ln \text{Inflation}_t + \beta_4 \ln \text{ExRate}_t + \beta_5 \ln \text{FD}_t + \beta_6 \ln \text{TA}_t + \beta_7 \ln \text{Total IndustrialDesigns}_t + \xi_{it}$	0.0686
8	$\alpha_0 + \beta_1 \ln \text{Population}_t + \beta_2 \ln \text{GDPPC}_t + \beta_3 \ln \text{Inflation}_t + \beta_4 \ln \text{ExRate}_t + \beta_5 \ln \text{FD}_t + \beta_6 \ln \text{TA}_t + \beta_7 \ln \text{TID}_t + \beta_8 \ln \text{Trade}_t + \xi_{it}$	0.1918
9	$\alpha_0 + \beta_1 \ln \text{Population}_t + \beta_2 \ln \text{GDPPC}_t + \beta_3 \ln \text{Inflation}_t + \beta_4 \ln \text{ExRate}_t + \beta_5 \ln \text{FD}_t + \beta_6 \ln \text{TA}_t + \beta_7 \ln \text{TID}_t + \beta_8 \ln \text{Trade}_t + \beta_9 \text{WTO}_t + \xi_{it}$	0.6339

Table 3: Results for Breusch-Pagan / Cook - Weisberg test for Heteroscedasticity

No	Model Tested	P-Value
0	$\ln \text{FDI}_t$	0.0000
1	$\alpha_0 + \beta_1 \ln \text{Population}_t + \xi_{it}$	0.7801
2	$\alpha_0 + \beta_1 \ln \text{Population}_t + \beta_2 \ln \text{GDPPC}_t + \xi_{it}$	0.0000
3	$\alpha_0 + \beta_1 \ln \text{Population}_t + \beta_2 \ln \text{GDPPC}_t + \beta_3 \ln \text{Inflation}_t + \xi_{it}$	0.0000
4	$\alpha_0 + \beta_1 \ln \text{Population}_t + \beta_2 \ln \text{GDPPC}_t + \beta_3 \ln \text{Inflation}_t + \beta_4 \ln \text{ExchangeRate}_t + \xi_{it}$	0.0000
5	$\alpha_0 + \beta_1 \ln \text{Population}_t + \beta_2 \ln \text{GDPPC}_t + \beta_3 \ln \text{Inflation}_t + \beta_4 \ln \text{ExchangeRate}_t + \beta_5 \ln \text{FinancialDevelopment}_t + \xi_{it}$	0.0000
6	$\alpha_0 + \beta_1 \ln \text{Population}_t + \beta_2 \ln \text{GDPPC}_t + \beta_3 \ln \text{Inflation}_t + \beta_4 \ln \text{ExchangeRate}_t + \beta_5 \ln \text{FD}_t + \beta_6 \ln \text{TradeAgreements}_t + \xi_{it}$	0.0000
7	$\alpha_0 + \beta_1 \ln \text{Population}_t + \beta_2 \ln \text{GDPPC}_t + \beta_3 \ln \text{Inflation}_t + \beta_4 \ln \text{ExRate}_t + \beta_5 \ln \text{FD}_t + \beta_6 \ln \text{TA}_t + \beta_7 \ln \text{Total IndustrialDesigns}_t + \xi_{it}$	0.0000
8	$\alpha_0 + \beta_1 \ln \text{Population}_t + \beta_2 \ln \text{GDPPC}_t + \beta_3 \ln \text{Inflation}_t + \beta_4 \ln \text{ExRate}_t + \beta_5 \ln \text{FD}_t + \beta_6 \ln \text{TA}_t + \beta_7 \ln \text{TID}_t + \beta_8 \ln \text{Trade}_t + \xi_{it}$	0.0000
9	$\alpha_0 + \beta_1 \ln \text{Population}_t + \beta_2 \ln \text{GDPPC}_t + \beta_3 \ln \text{Inflation}_t + \beta_4 \ln \text{ExRate}_t + \beta_5 \ln \text{FD}_t + \beta_6 \ln \text{TA}_t + \beta_7 \ln \text{TID}_t + \beta_8 \ln \text{Trade}_t + \beta_9 \text{WTO}_t + \xi_{it}$	0.0000

The seven estimations through the random and fixed effects have effectually set a basic simple model for inflow of FDI in EAP to be a function of their market strength, macro stability, development level and health of intellectual property regime. Consequently, now I can investigate for the effect of World Trade Organisation led liberalisation. Worldwide trade of the host economies, that is, the aggregate of their exports of goods and services plus their imports of goods and services is used here as a proxy for the extent of their degree of liberalisation. It's strongly positive coefficient significant at one percent level in model eight highlights that increased openness leads to higher inward FDI. As discussed in section 2.2 complementation will ensue in vertical FDI as geographical fragmentation of the value addition causes the production of intermediate as well as final products within the same multinational. However, horizontal, market seeking FDI makers intending to economise or increase profits due to the existing trade barriers will be negatively affected as affiliate products will substitute the parent exports (WTO, World Trade Report, 2015). If this is true then it can be inferred from the strong positive coefficient of liberalisation that in East Asia and Pacific the multinationals are primarily making vertical FDI. This is also supported from the positive effect of development level. Multinationals prefer the existence and availability of somewhat skilled labour for value addition of their products, and increasing GDPPC besides the economic health of the host also signifies the education level and skill accretion of the population.

The WTO membership dummy is introduced in model nine to check for the effects of additional advantages associated with membership. It can be seen from table five model nine that joining the World Trade Organisation positively influences inward FDI potential of the host. Moreover, also evident from the same model is the comparatively weaker coefficient of liberalisation which shows that part of it was due to WTO membership which now is presented by the dummy itself. However, it shall be kept in mind that some countries from Africa with WTO membership opened their economies but still failed to lure sizeable inward FDI (Johnston, Morgan, & Wang, 2015). On the contrary, China even though a late entrant of the WTO club is the developing countries leader in terms of FDI inflows. Similarly, WTO membership requires equal treatment for local and foreign firms. China after becoming WTO member abolished local content procurement requirements and the tax benefits were equally given to the local as well as the foreign firms operating in China. These relaxations led to increased inward FDI. According to Bajona and Chu (2010) and Hong (2013) the revival of FDI in China post 1999-2000 is primarily due to its WTO membership associated reforms.

The consistent positive coefficient of liberalisation in both the fixed and random effect methods seems to emphasise the validity of the argument made in introduction

Table 4: Estimation Results FDI Inflows in East Asia and Pacific Developing Economies

Variable	Proxied By	Fixed Effects								
		1	2	3	4	5	6	7	8	9
Market Size	Ln Population	4.6726*** (1.2609)	1.7897** (0.6244)	1.5149** (0.5326)	1.2698* (0.5858)	1.2801** (0.5747)	1.2259* (0.6988)	1.0284* (0.6118)	1.2685** (0.4393)	0.7195 (0.5869)
Economic Development	Ln GDP/PC	1.8216*** (0.3535)	1.7512*** (0.3574)	1.7471*** (0.3574)	1.6865*** (0.4980)	1.6961*** (0.3966)	1.4375*** (0.3721)	1.2516*** (0.3421)	1.1682*** (0.3229)	
Macro Economic Stability	Ln Inflation		-0.2125** (0.0884)	-0.1805* (0.0935)	-0.1643* (0.0904)	-0.1659* (0.1005)	-0.1739* (0.0843)	-0.1603** (0.0663)	-0.1396** (0.0524)	
	Ln Exchange Rate		0.0926 (0.0736)		0.0593 (0.0729)	0.0584 (0.0824)	-0.0556 (0.0869)	-0.2203* (0.1033)	-0.2108** (0.0909)	
Financial Development	Ln FD				0.1214 (0.1162)	0.1178 (0.0974)	0.1561 (0.1020)	0.0277 (0.1002)	0.0532 (0.0909)	
Trade Agreements	Ln TA					0.0294 (0.3684)	0.0718 (0.2637)	-0.0081 (0.2554)	-0.0374 (0.2513)	
IPR Standards	Ln TID						0.1062* (0.0555)	0.0825 (0.0552)	0.0817 (0.0547)	
Liberalisation	Ln Trade							1.0809*** (0.2765)	1.0176*** (0.2376)	
World Trade Organisation (WTO) Membership									0.3163** (0.1522)	
Coefficient of Determination R-Squared		70.29 %	76.64 %	78.68 %	79.13 %	79.30 %	82.02 %	84.72 %	85.27 %	
No of Observations		308	308	308	308	308	308	308	308	308

*represents significance at 10%, ** at 5% and *** at 1%. Heteroscedasticity robust standard errors are reported under the coefficient estimations in parenthesis

Table 5: Estimation Results FDI Inflows in East Asia and Pacific Developing Economies

Variable	Proxied By	Random Effects								
		1	2	3	4	5	6	7	8	9
Market Size	Ln Population	1.1274*** (0.1489)	1.0096*** (0.1416)	0.9805*** (0.1346)	0.9055*** (0.1420)	0.9023*** (0.1399)	0.8631*** (0.1484)	0.7852*** (0.1445)	0.9359*** (0.1622)	0.8669*** (0.1606)
Economic Development	Ln GDPPP	1.9602*** (0.2799)	1.8321*** (0.3198)	1.7896*** (0.3078)	1.7445*** (0.3437)	1.6748*** (0.4974)	1.4371*** (0.3666)	1.2675*** (0.3366)	1.1742*** (0.3246)	
Macro Economic Stability	Ln Inflation		-0.2301** (0.0900)	-0.1825** (0.0896)	-0.1673* (0.0889)	-0.1709* (0.0918)	-0.1751** (0.0777)	-0.1625*** (0.0631)	-0.1332*** (0.0508)	
	Ln Exchange Rate			0.1163* (0.0662)	0.0909 (0.0632)	0.0795 (0.0862)	-0.0292 (0.0839)	-0.1733* (0.0998)	-0.1784* (0.0864)	
Financial Development	Ln FD				0.1046 (0.1190)	0.0905 (0.1032)	0.1256 (0.0977)	-0.0059 (0.0972)	0.0321 (0.0895)	
Trade Agreements	Ln TA					0.1200 (0.3018)	0.1282 (0.2249)	0.0629 (0.2322)	-0.0596 (0.2222)	
IPR Standards	Ln TID						0.1044* (0.0549)	0.0815 (0.0559)	0.0790 (0.0562)	
Liberalisation	Ln Trade							1.0179*** (0.2808)	0.9748*** (0.2299)	
World Trade Organisation (WTO) Membership									0.3008*** (0.0975)	
Coefficient of Determination R-Squared		70.34 %	77.09 %	78.68 %	79.21 %	79.30 %	82.02 %	84.72 %	85.27 %	
No of Observations		308	308	308	308	308	308	308	308	308
*** represents significance at 1 %, ** at 5 % and * at 10 %. Heteroscedasticity robust standard errors are reported under the coefficient estimations in parenthesis										

and literature review that reduction in trade and investment barriers improve the overall business and commercial environment. This helps in communicating to the business community internationally apropos the existence of the optimal investment regime in the host thus prompting the new ones to invest and current multinationals to expand their operations in East Asia and Pacific.

5. Conclusion

Applying panel fixed and random effects estimation models the paper have examined the potential effect of WTO accession led investment, business and trade liberalisation on inward FDI in eleven developing economies from East Asia and Pacific for the time period of 1988-2015, after adjusting for the conventional location determinants of overseas investment.

The results clearly manifests that eliminating some of the market biases altogether and reducing the other market distortions to a greater extent augments an economy's chances of receiving more investments from abroad. Market size and economic development, continues to exert a positive significant effect. Provision of enhanced intellectual property rights adds to a country's possibility to host additional FDI. However, macroeconomic stability measured through exchange rate is sensitive to model specifications. Financial development and trade agreements are insignificant altogether.

Using both the random and fixed effect methods also performed the task of sensitivity analysis of the results vis-à-vis the estimation technique. It can be seen from table four that fixed effects produces essentially the same estimates as random effect in table five. Thus, it can be said that WTO ensued liberalisation of the commercial, investment and trade environment positively affects the investors' choice of making FDI.

The significance of the WTO dummy, despite the existence of liberalisation variable on its own in model nine, table five shows that membership in WTO has a positive influence of its own in addition to liberalisation. This raises a question. What is causing this additional membership effect? One possible explanation might be the expected positive effects of General Agreement on Trade in Services (GATS), the Agreement on Trade Related Investment Measures (TRIMS), the Agreement on Trade Related Intellectual Property Rights (TRIPS), the agreement on Subsidies and Countervailing Measures (SCM) (Rubini, 2015), and the Trade Facilitation Agreement (TFA) that came into force on 22nd February, 2017. There may also be some additional effect emanating from the synergies of all these individual components. However, this asks for the need to explore the effect of these important World Trade Organisation

components individually with appropriate proxies especially the TFA when relevant micro data is available in future.

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Appendices

Appendix 1: Results for Variance Inflation Factor Test for Multicollinearity

No	Model Tested	VIF
1	$\alpha_0 + \beta_1 \ln \text{Population}_t + \xi_{1t}$	1.00
2	$\alpha_0 + \beta_1 \ln \text{Population}_t + \beta_2 \ln \text{GDPPC}_t + \xi_{2t}$	1.09
3	$\alpha_0 + \beta_1 \ln \text{Population}_t + \beta_2 \ln \text{GDPPC}_t + \beta_3 \ln \text{Inflation}_t + \xi_{3t}$	1.26
4	$\alpha_0 + \beta_1 \ln \text{Population}_t + \beta_2 \ln \text{GDPPC}_t + \beta_3 \ln \text{Inflation}_t + \beta_4 \ln \text{ExchangeRate}_t + \xi_{4t}$	1.30
5	$\alpha_0 + \beta_1 \ln \text{Population}_t + \beta_2 \ln \text{GDPPC}_t + \beta_3 \ln \text{Inflation}_t + \beta_4 \ln \text{ExchangeRate}_t + \beta_5 \ln \text{FinancialDevelopment}_t + \xi_{5t}$	1.82
6	$\alpha_0 + \beta_1 \ln \text{Population}_t + \beta_2 \ln \text{GDPPC}_t + \beta_3 \ln \text{Inflation}_t + \beta_4 \ln \text{ExchangeRate}_t + \beta_5 \ln \text{FD}_t + \beta_6 \ln \text{TradeAgreements}_t + \xi_{6t}$	1.78
7	$\alpha_0 + \beta_1 \ln \text{Population}_t + \beta_2 \ln \text{GDPPC}_t + \beta_3 \ln \text{Inflation}_t + \beta_4 \ln \text{ExRate}_t + \beta_5 \ln \text{FD}_t + \beta_6 \ln \text{TA}_t + \beta_7 \ln \text{Total Industrial Designs}_t + \xi_{7t}$	1.97
8	$\alpha_0 + \beta_1 \ln \text{Population}_t + \beta_2 \ln \text{GDPPC}_t + \beta_3 \ln \text{Inflation}_t + \beta_4 \ln \text{ExRate}_t + \beta_5 \ln \text{FD}_t + \beta_6 \ln \text{TA}_t + \beta_7 \ln \text{TID}_t + \beta_8 \ln \text{Trade}_t + \xi_{8t}$	2.33
9	$\alpha_0 + \beta_1 \ln \text{Population}_t + \beta_2 \ln \text{GDPPC}_t + \beta_3 \ln \text{Inflation}_t + \beta_4 \ln \text{ExRate}_t + \beta_5 \ln \text{FD}_t + \beta_6 \ln \text{TA}_t + \beta_7 \ln \text{TID}_t + \beta_8 \ln \text{Trade}_t + \beta_9 \text{WTO}_t + \xi_{9t}$	2.47

The Variance Inflation Factor Values reported are the mean VIF values of the model tested.

Appendix 2: Correlation Matrix

No	Name of the Variable or Proxy	1	2	3	4	5	6	7	8	9	10
1	Ln FDI Stock	100 %									
2	Ln Population	84 %	100 %								
3	Ln GDPPC	11 %	- 29 %	100 %							
4	Ln Inflation	- 20 %	02 %	- 46 %	100 %						
5	Ln Exchange Rate	34 %	37 %	- 32 %	13 %	100 %					
6	Ln Financial Development	50 %	23 %	60 %	- 56 %	- 10 %	100 %				
7	Ln Trade Agreements (TA)	45 %	22 %	31 %	- 17 %	03 %	34 %	100 %			
8	Ln Total Industrial Designs (TID)	70 %	67 %	- 01 %	- 16 %	32 %	39 %	36 %	100 %		
9	Ln Trade	02 %	- 40 %	70 %	- 38 %	- 11 %	45 %	38 %	- 05 %	100 %	
10		32 %	04 %	38 %	- 34 %	17 %	28 %	61 %	32 %	38 %	100 %

The values are rounded off to the nearest percentage.

