The Impact of Intra Regional Trade Agreement on FDI Inflows in Southeast Asia: Case of Indonesia, Malaysia and Thailand

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Abstract

This study attempts to analyze the impact of intra regional trade agreement on FDI inflows in Southeast Asia. The agreement is ASEAN Free Trade Area (AFTA). The observed countries are Indonesia, Malaysia and Thailand. These three countries have been selected based on several considerations. Trade indicators of Revealed Comparative Advantage (RCA), Constant Market Share Analysis (CMSA) and Net Export (NX) show these three countries have intra trade advantage in primary products. These indicators are useful to assess how effective AFTA in accommodating her member's trade advantage products into her priority products list. Furthermore this study attempts to assess the impact of AFTA on FDI inflows as a proxy of its effectiveness on investment. This study adopts econometric model of Panel Data Analysis on both the Static Fixed Effects and Dynamic Panel Data (DPD) Analysis to find the impact of AFTA and other variables to FDI inflows.

Keywords: *Trade; Neoclassical Models of Trade; Long-Term Capital (FDI inflows); AFTA; Asian Economic Crisis*
JEL: F1; F11; F21

1. Background

Trade and investment are the essential factors for economic integration process (Balassa, 1961). In Southeast Asia, in order to enhance trade competitiveness at regional level, ASEAN attempts to realize comprehensive trade liberalization through the implementation of Common Effective Preferential Tariff (CEPT) under the ASEAN Free Trade Area (AFTA) framework.

Historically ASEAN was established in 1967 and signed her first Preferential Trade Arrangement (PTA) in 1977 but achieved her common free trade area named AFTA in 1992. Yet this was still ineffective until the Asian economic crisis hit Southeast Asia in 1998. The economic crisis has forced the member states of ASEAN to be fully committed and gradually implemented the AFTA agreements. This explains why AFTA came into effective in 1999 (Nesadurai, 2003, p.23).

Intra regional trade agreement such as AFTA creates trade discrimination between member states of ASEAN and non-member states. AFTA implements the CEPT (Common Effective Preferential Tariff) as the internal tariff only for member states. The implementation of CEPT of 0 (zero) percent tariff for the ASEAN-6 (ASEAN's original members which consist of Indonesia, Malaysia, Thailand, Philippines, Singapore and Brunei) is 2010 and for the ASEAN-4 (ASEAN's newer members which consist of Cambodia, Laos, Myanmar and Vietnam) will be in 2015.

Trade discrimination of AFTA is expected to enhance investment creation (FDI inflows) from non-members even though the main purpose of this agreement is basically intra regional trade (Plummer and Cheong, 2008). AFTA is expected to generate positive impact on member state's economy in particular in trade (trade creation) and investment (FDI inflows). *'Foreign investors favor liberalization and welcome the prospect of producing for a region-wide market'* (Ravenhill, 1995, p.856). AFTA manages product priorities since not all of her member state's trading products have been listed into her liberalized products directory.

Regional trade liberalization will attract FDI inflows (Viner, 1950, Balasubramanyam, V.N., D.Sapsford and D. Griffiths, 2002, Donnenfeld, 2003, Park & Park, 2008). Furthermore, comprehensive trade liberalization at regional level (0% of CEPT) and its positive impact on FDI inflows are an essential phase for ASEAN to have a solid regional economic integration.

2. Objective

Both the trade and investment are essentials for any regional economic coopeation including ASEAN in Southeast Asia. Therefore this study has two objectives regarding these essential factors:

(1) For trade issues, this study attempts to analyze the comparative and competitive advantage of trade of Indonesia, Malaysia and Thailand after the comprehensive implementation of AFTA in 1999. This analysis uses product level data (Harmonized System data set digit two, HS-2). This data has been analyzed with trade indicators of both the comparative and competitive analysis. This analysis is useful to link between the trade priority of AFTA and the condition of trade advantage in the observed countries, Indonesia, Malaysia and Thailand.

(2) For issues in investment, this study attempts to analyze significant factors that affect FDI inflows. This analysis uses macroeconomic data with panel data analysis to find the most significant factors which affect FDI inflows in these three observed countries. As its novelty this study attempts to test time-dummy variable of the comprehensive implementation of AFTA as one of the factors which affect FDI inflows. AFTA has been selected since she is the only vacant regional economic agreement in Southeast Asia which represents ASEAN intra-regional trade concurrence. AFTA is comprehensively implemented in year 1999 ((Nesadurai, 2003, p.23). The year of 1999 has been used as the point of reference of time-dummy variable of AFTA between before and after the comprehensive implementation of intra regional trade.

3. Research Question

Based on the objective this study attempt to respond the following question:

1. *What are the comparative and competitive trade product (HS-2) in Southeast Asia (observed countries of Indonesia, Malaysia and Thailand) after the implementation of AFTA?* This question is important in linking the priority products of AFTA and trade advantage products of the observed countries.

2. *What are the most significant factors that affect FDI inflows in those countries?* This question is chosen to find the most significant variables which affect FDI inflows in these three observed countries.

3. *How AFTA affects FDI inflows in these countries?* This question is a novelty of this study. This will lead the article to find the impact of AFTA on FDI inflows in these three countries. This will be a proxy to assess the role of AFTA in attracting external investment inflows for the member states of ASEAN considering that AFTA's long-run objective is to attract FDI inflows.

4. Scope of Analysis and Hypothesis

This study focuses on ASEAN's three founding members: Indonesia, Malaysia and Thailand. There are three reasons why this study focuses on these three particular member states:

(1) Among all ten ASEAN member states, the ASEAN-6 (Indonesia, Malaysia, Thailand, Philippines, Singapore and Brunei) are more advanced compared to the ASEAN-4 (Cambodia, Laos, Myanmar and Vietnam) in terms of trade liberalization in AFTA. ASEAN-6 group have a larger number of products on the Inclusion Lists (IL) than the ASEAN-4 group and their time-line and deadline for liberalization are also earlier than the ASEAN-4 group. Indonesia, Malaysia and Thailand are classified as the ASEAN-6 group.

(2) This study excludes outlier (advanced economy) member states to secure homogenous patterns of economic level of the observed countries. The outliers are those with high-income level (developed members) which main economic sectors are in non-manufacturing sectors. Member states that depend on Non-Oil and Gas manufacturing sectors such as mining and service sector tend to impose low tariff rates as they do not need to protect their domestic industries such as Singapore and Brunei. Singapore's main sector is services while Brunei's is oil and gas.

(3) In order to further secure a homogenous analysis, this study excludes Philippines from the analysis as its MFN tariffs are much more liberalized than those of Indonesia, Malaysia and Thailand.

Hypothesis is only attached with the econometric model as the index analysis does not require an initial hypothesis. In order to find the macroeconomic variables that affect FDI inflows this study applies macroeconomic analysis in constructing its econometric model. This model incorporates time-dummy variable of AFTA. This model applies panel data analysis that covers both cross-section analysis of countries and time series analysis of period. Table of selected variables, expected signs of hypothesis and sources of data are described below:

Table 1
Selected Variables, Hypothesis and Source of Data for FDI Inflows Model

DEPENDENT VARIABLE	INDEPENDENT VARIABLE	EXPECTED SIGN	SOURCE OF DATA
Value of FDI Inflows at country level (ADB Statistic and The World Bank – GDF)	1. Value of GDP(GDP)	+	1. ADB Statistic
	2. Value of Consumption (CONS)	+	2. ADB Statistic
	3. Percentage of Economic Growth (GR)	+	3. ADB Statistic
	4. Number of Population(POP)	+	4. ADB Statistic
	5. Number of Employed Worker(EMPL)	+	5. ADB Statistic
	6. Government Expenditure on Education (EDU)	+	6. The World Bank (World Development Indicator / WDI)
	7. Electricity Consumption (ELECONS)	+	7. The WB (WDI)
	8. Degree of Openness(DOO)	+	8. WTO Statistic
	9. Real Wage(RW)	+	9. ADB Statistic
	10. Exchange Rate(ER)	-	10. ADB Statistic and IMF (Country Economic Outlook)
	11. FDI Profit(FDIPROFIT)	+	11. The World Bank (Global Development Finance /GDF)
	12. Dummy of AFTA	+	12. Year of 1999 (Comprehensive implementation of AFTA, Nesadurai, 2003,p.23)

Source: Author's analysis based on various sources of international journal references

5. Methodology

5.1. Competitive and Comparative in Trade

As explained above this study analyzes both essential variables in international economic issues: intra regional trade and foreign direct investment. For intra regional trade issues, this study adopts the basis data of Harmonized System (HS) at digit 2 level. This study applies an index method to find competitive and comparative advantage products of Indonesia, Malaysia and Thailand. The period of analysis for this part has been focused in years after the comprehensive implemenation of AFTA which also after the Asian economic crisis. The three indexes have been adopted. They are Revealed Comparative Advantage (RCA), Constant Market Share Analysis (CMSA) and Net Export (NX).

The combination of RCA and CMSA is useful to identify the competitive product and combination of RCA and NX is useful to find the comparative advantage product (Salvatore, International Economics, 2004). The indexes are described as follows:
Revealed Comparative Advantage (RCA):

$$RCA_{ijtx} = \frac{\mathrm{Xij}_{\mathrm{tx}} / \mathrm{Xj}_{\mathrm{tx}}}{\mathrm{Xiw}_{\mathrm{tx}} / \mathrm{Xw}_{\mathrm{tx}}}$$

Variables: X_{ijtx} = Value of Export of commodity i in country j at *tx* time; Xj_{tx} = Total value of Export in country j at *tx* time; Xiw_{tx} = Value of Export of commodity i in the world (W) at *tx* time; Xw_{tx} = Total value of Export in the World (W) at *tx* time;

Constant Market Share Analysis (CMSA):

$$X_{ijwt1} - X_{ijwt0} = \sum m_{iwj\Delta t}.X_{ijwt0} + (m_{iwj\Delta t} - \sum m_{iwj\Delta t}).X_{ijwt0} + (X_{ijwt1} - X_{ijwt0} - m_{iwj\Delta t}.X_{ijwt0})$$

General Factor: $\sum m_{iwj\Delta t}.X_{ijwt0}$; Composition Factor: $(m_{iwj\Delta t} - \sum m_{iwj\Delta t}).X_{ijwt0}$;

Comparative Factor : $(X_{ijwt1} - X_{jmwt0} - m_{iwj\Delta t}.X_{ijwt0})$; Variables: X*ijwt0* = Value of Export of commodity i in country j to world at *to* time; X*ijwt1* = Value of Export of commodity i in country j to world at *t1* time; $\sum \mathrm{m}_{\mathrm{iw}\Delta \mathrm{t}} =$ changing in total world import; $\mathrm{m}_{\mathrm{iw}\Delta \mathrm{t}} =$ changing in world import on commodity i .

The combination of RCA and CMSA will reveal the competitive product. The most competitive product is the product with a high RCA and positive CMSA comparative index.

Net Export: $NX_{ijtx} = X_{ijtx} - M_{ijtx}$

Variables: X_{ijtx} = Value of Export of commodity i in country j at tx time; Xj_{tx} = Total value of Export in country j at tx time; Xiw_{tx} = Value of Export of commodity i in the world (W) at tx time; Xw_{tx} = Total value of Export in the World (W) at tx time; M_{ijtx} = Value of Import of commodity i in country j at tx time. If $NXijtx > 0$; $RCAijtx > 1$; then the commodity is classified as the trade absolute advantage product for the country.

5.2. Factors in FDI Inflows

The impact of AFTA on FDI inflows are constructed in a systems equation as follows: Output function (Q) which connects countries in economy can be divided into three orientations: domestic market, foreign market (export) and investment function (FDI). First two orientations belong to trade function. Profit function for each output function is defined as:

$$\pi_f = \left[\left(TR_f, TC_f\left(TFC_f, TVC_f\right)\right)\right]$$
$$\pi_f = \left[\left(TR'_f, TC'_f\left(TFC'_f, TVC'_f + t_m - d_{AFTA}\right)\right)\right]$$
$$\pi_{fNMS} = \left[\left(TR''_{fNMS}, TC''_{fNMS}\left(TFC''_{fNMS}, TVC''_f + t_m + d_{AFTA}\right)\right)\right]$$
$$\pi_{fMS} = \left[\left(TR''_{fMS}, TC''_{fMS}\left(TFC''_{fMS}, TVC''_f + t_m - d_{AFTA}\right)\right)\right]$$

where π_f is profit, TR_f is total revenue, TC_f is total cost, TFC_f is total fixed cost, TVC_f total variable cost, t_m import tariff rate and d_{AFTA} is time-dummy of AFTA.

These profit functions follow a transitivity function where the profit of trade under AFTA is higher than that of non-AFTA and profit of non-AFTA is higher than that of the domestic market. This is due to the fact that the market size abroad is always higher than

that of domestic. Profits from investment (FDI) can be either higher or lower depending on whether the impact of AFTA to FDI is vertical (FDI profit from member state increases) or horizontal (FDI profit from non member state decreases).

$$\pi_{AFTA} \geq \pi_{nonAFTA-GT} \geq \pi_{DomesticMarket}$$
$$\pi_{FDI} \; ? \; \pi_{AFTA}$$

FDI inflow is affected by economic crisis (as dummy variable). This study attempts to see the impact of Sub-Regional economic cooperation (IMT-GT) on FDI inflows. FDI inflows functions is adopted from profit function and described as follows:

$$FDI_r = f(\pi_r)$$
$$FDI_r = f\big(TR(AFTA, Crises, \bullet) - TC(TVC + TFC)\big) = OLS$$
$$FDI_r = f\big(TR(IRT_r(AFTA, Crises, \bullet) - TC(TVC + TFC)\big)$$

In more details, relation between FDI and other macroeconomic variables can be described as follows:

Total Profit and Cost Function

$$\pi_f = f(TR_f, TC_f(TFC_f, TVC_f))$$
$$TFC_f = f(Location, Kapital, \varepsilon_{TFC})$$
$$TVC_f = f(Wages, InfraTrans, InfraElectricity, ER, \varepsilon_{TVC})$$
$$Wage_f = f(Education, MPL, Inflation, \varepsilon_{Wage})$$

Revenue Function

$$TR_f^{"} = f(P,Q); f(.) \equiv f(marketsize, performance, consumption, \varepsilon_{TR^{ii}})$$
$$marketsize = f(Population, GDP, \varepsilon_{marketsize})$$
$$performance = f(GNPCAP, EconomicGrowth(GR), \varepsilon_{performance})$$
$$Consumption = f(Education, EmploymentRate, GovernmentSpending, \varepsilon_{consumption})$$
$$TR_f^{"} = f(Population, Consumption, GDP, GNPCAP, GR, AFTAdummy, \varepsilon_{TR})$$

Profit Function is combination of revenue function and cost function which is described in short as

$$\pi_f^{"} = f(Population, GDP, Growth, Consumption, Electriticy, RW, ER, \bullet, \varepsilon_f)$$

This profit function is utilized to construct a reduced form model in systems equation which connects FDI inflows and other macroeconomic variables with dummy variable of the implementation of AFTA. Econometric method for analyzing the factors of FDI inflows is panel data analysis on countries and time-series analysis. This study uses 21 years of period of time-series analysis (1988-2008) of 3 observed countries. This model requires a single equation with panel data of macroeconomic variables and time-dummy of AFTA and as its time dimension is higher than country dimension therefore this study adopts panel data with Fixed Effect for its static analysis and Dynamic Panel of DPD for its dynamic analysis.

The dependent variable is value of FDI inflows. This study applies time-dummy variable of the comprehensive implementation of AFTA in 1999. Based on the profit function model, FDI inflows equation for this study is constructed as follows:

$$\begin{aligned} FDI_{it} = {} & C + \beta 1.GDP_{it} + \beta 2.CONS_{it} + \beta 3.GR_{it} + \beta 4.ER_{it} + \beta 5.POP_{it} + \beta 6.EMPL_{it} + \beta 7.EDU_{it} \\ & + \beta 8.ELECONS_{it} + \beta 9.FDIPROFIT_{it} + \beta 10.DOO_{it} \\ & + \beta 11.RW_{it} + \beta 12.AFTA + e_t \end{aligned}$$

This study utilizes one time-dummy of AFTA of 1999 as benchmarking year after considering the Asian economic crisis. One time-dummy variable will reduce biased analysis of using two time-dummy variables.

The objective of using panel data analysis is to find the reduced-form factors of country-level data which significantly affect FDI inflows in both static and dynamic condition. The potential variables are applied in both panel data analysis (Static Fixed Effect and Dynamic DPD) and then follow the reduced-form methods to find the most significant variables which affect FDI inflows.

This means that not all variables are suitable to explain the model; therefore only selected variables are applied to find the most representative equation in each country depending on the condition of each country. The most significant macroeconomic

explanatory variables and dummy agreement are selected to determine the estimated model for each country.

For static panel data analysis the R^2 will represent the goodness of fit for the model. Regarding its quadratic form, the value of this indicator ranges between 0 (zero) and 1 (one). The closer the model is to 1 (one), the more appropriate and representative the model is. While for dynamic panel data analysis the Wald Chi^2 will represents the goodness of fit of the model. This analysis will adopt the GMM (Generalized Method of Moments) with one-step first difference model. All of the variables, including dependent and explanatory variables, have been selected from economic theories and previous academic studies published in prominent academic journals. Panel data analysis will select the most representative variables in the model, following a reduced-form method which needs power of the hypothesis test. It uses the t-statistic distribution test to select the most significant independent variables on Static Panel Data Analysis with Fixed Effect and z-statistic distribution test to select those on Dynamic Panel Data (DPD) to state flexible alternatives from complicated structure.

6. Analysis

6.1. Index Method: Competitive and Comparative Advantage of Trade

This study uses the WTO dataset of 6 years period of analysis (2003 - 2008) to calculate both the trade competitive and comparative advantage. This calculation period is started from 2003 for a stable economic reason, around five years after the Asian economic crises 1997/1998 and limited its period to year 2008 to avoid the impact of global economic crisis in 2008/2009.

Trade competitive advantage is analyzed from the combination of RCA and CMSA. Table 2 shows that the three founding member states of ASEAN (Indonesia, Malaysia and Thailand) have a competitive advantage in agriculture products. Indonesia has another competitive product in Fuels and Mining Products. Indonesia and Thailand have similar competitive products in Textiles and Clothing. Malaysia and Thailand have

similar competitive products in manufacturing. They are Machinery and Transport Equipment, Office and Telecom Equipment, Electronic Data Processing and Office Equipment, Telecommunications Equipment and Integrated Circuits and Electronic Components. The complete result is described as follows:

Table 2
Revealed Comparative Advantage (RCA) and
Constant Market Share Analysis (CMSA): Indonesia, Malaysia and Thailand
2003 - 2008

Commodities (2004-2008) Harmonized System Digit 2	Indonesia		Malaysia		Thailand	
	Average RCA	Competitive Index (CMSA)	Average RCA	Competitive Index (CMSA)	Average RCA	Competitive Index (CMSA)
Agriculture products	**2.49**	+	**1.15**	+	**1.86**	+
Fuels and mining products	**2.31**	+	0.64	+	0.30	+
Manufactures	0.72	+	0.82	+	0.99	+
Iron and steel	0.47	+	0.38	+	0.52	+
Chemicals	0.58	+	0.41	+	0.67	+
Pharmaceuticals	0.07	+	0.03	+	0.05	+
Machinery and transport equipment	0.44	+	**1.10**	+	**1.11**	+
Office and telecom equipment	0.61	+	**2.74**	+	**1.69**	+
Electronic data processing and office equipment	0.64	+	**2.94**	+	**2.28**	+
Telecommunications Equipment	0.81	+	**1.58**	+	**1.05**	+
Integrated circuits and electronic components	0.30	+	**4.01**	+	**1.77**	+
Automotive products	0.21	+	0.05	+	0.77	+
Textiles	**2.21**	+	0.37	+	**1.12**	+
Clothing	**2.39**	+	0.53	+	**1.16**	+
Competitive Product: RCA>1 and Competitive Index of CMSA>0						

Sources: Own calculation based on WTO Statistic data

Trade comparative advantage is analyzed from the combination of RCA and NX. Indonesia has comparative advantage with $NXinwtx > 0$; $RCAinwtx > 1$ in the following primary products: agriculture products including food, fuels and mining, and labor-intensive products: textiles and clothing. However, Indonesia has comparative

disadvantage of trade in manufacture products, chemicals and pharmaceuticals. Malaysia has comparative advantage in manufacture products with $NXinwtx > 0$; $RCAinwtx > 1$. However, Malaysia has comparative disadvantage in iron and steel, chemicals and pharmaceuticals. Thailand performs well in agriculture products, labor-intensive and high-end products. Thailand has $NXinwtx > 0$; $RCAinwtx > 1$ in agriculture products including food, machinery and transport equipment, office and telecom equipment, electronic data processing and office equipment, office and telecom equipment, textiles and clothing. However, Thailand depends on fuels and mining products, iron and steel, chemicals and pharmaceuticals. The complete result is described as follows:

Table 3
Revealed Comparative Advantage (RCA)
Net Export (NX): Indonesia, Malaysia and Thailand
2003 - 2008

PRODUCT	Indonesia		Malaysia		Thailand	
	Average RCA	NX	Average RCA	NX	Average RCA	NX
Agricultural products	**2.49**	+	**1.15**	+	**1.86**	+
Fuels and mining products	**2.31**	+	0.64	+	0.30	-
Manufactures	0.72	-	0.82	+	0.99	+
Iron and steel	0.47	-	0.38	-	0.52	-
Chemicals	0.58	-	0.41	-	0.67	-
Pharmaceuticals	0.07	-	0.03	-	0.05	-
Machinery and transport equipment	0.44	-	**1.10**	+	**1.11**	+
Office and telecom equipment	0.61	+	**2.74**	+	**1.69**	+
Electronic data processing and office equipment	0.64	+	**2.94**	+	**2.28**	+
Telecommunications equipment	0.81	+	**1.58**	+	**1.05**	+
Integrated circuits and electronic components	0.30	+	4.01	-	1.77	-
Automotive products	0.21	-	0.05	-	0.77	+
Textiles	**2.21**	+	0.37	+	**1.12**	+
Clothing	**2.39**	+	0.53	+	**1.16**	+
Comparative Advantage Product: RCA>1 and NX>0						

Sources: Own calculation based on WTO Statistic data

The calculation results of competitive advantage and comparative advantage are almost the same. Yet there is one product that has been classified as competitive product since its RCA is higher than 1 and its Competitive Index is positive but failed to be a comparative advantage product as its average import value is higher than its average export value. The product is Integrated Circuits and Electronic Components at which in the period of analysis, Malaysia and Thailand were net importers instead of net exporters. This analysis confirms some priority products at the earlier stages of the implementation of comprehensive AFTA. At her earlier stage of the implementation of comprehensive intra regional trade liberalizaiton, AFTA covered selected priority products such as Cement, Ceramic & Glass, Chemicals, Cooper Cathodes, Electronics, Fertilizers, Gems & Jewelry, Leather s, Pulp & Paper, Plastics, Pharmaceuticals, Rubber, Textiles, Vegetables Oils, Wooden & Rattan Furniture. In common these products are similar to the ASEAN's member state's trade advantage products. This shows the effectiveness of AFTA in accommodating her member's trade advantages.

6.2. Panel Data Analysis: Impacts of Reduce- Form Factors & AFTA on FDI Inflows

Analysis of FDI inflows at country level for these three observed countries is conducted using panel data model of both static and dynamic analysis. The results are:

Table 4
Selected Factors for FDI Inflows at Country Level: Panel Data Model

Dependent Variable: ***FDI Inflows*** Independent Variables:	**Panel Data with Fixed Effects (FE) Estimation** R-Squared: 0.64 F-stat 15.8	**Dynamic Panel Data (DPD) Estimation** **GMM-type**: L(2/.).fdi L(2/.).gdp L(2/.).pop L(2/.).er L(2/.).gnpcap, Standard: _cons Wald chi2(6): 146.92 Prob > chi2: 0.0
Constant coefficient t-statistic	-22,068*** -2.95	-27,654*** -3.89
Population	179* 1.89	248*** 2.79
Consumption	2.26e-08** 2.04	1.67e-07* 1.73
Degree of Openness	13,822*** 7.70	13,809*** 9.19
Exchange Rate	-1.09*** -3.94	-1.23*** -5.08
Electricity	-5.74*** -6.76	-5.72*** -8.26
AFTA	**-1,610*** **-1.91**	**-1,847***** **-2.60**

Source: Own calculation with E-views

Panel data analysis regression in this study finds that: Both model of Static Fixed Effect (FE) Estimation and Dynamic Panel Data (DPD) Estimation proves that the most significant variables of macroeconomic which affect FDI inflows on these three observed countries are Population, Consumption, Degree of Openness, Exchange Rate and Electricity. Time dummy of AFTA is significantly affect FDI inflows but in negative sign.

Number of Population (POP) is a proxy to demand capacity. Economists use number of population as an indicator that reflects demand capacity. Economic size is reflected by both the GDP and number of population. A country with a high number of population normally also have high nominal GDP. Regression results show that the higher

population growth the higher incentive for FDI inflows. Dynamic Panel Data (DPD) gives more significant in statistic for population than that of Static Fixed Effect (FE).

Consumption represents total output (CONS) at final prices which are consumed by the consumers at certain period. This variable is the value of nominal consumption which represents the equilibrium of supply and demand that is affected by the disposable income. This definition makes it able to describe the country's purchasing power. As part of GDP, consumption value is calculated at the final price together with investment, government expenditure and net export and import value. The regression result shows that the higher growth of consumption values, the higher the growth of FDI inflows. Panel data of Static FE gives more significant in statistic for consumption than that of Dynamic DPD.

In macroeconomics theory there are three definitions of Degree of Openness (DOO): openness in factor of production, in financial markets and in good markets. This study adopts the latest variable of openness (good). The formula is described as the percentage of total trade to GDP or TGDP. The formula is TGDP = $\frac{X_{it} + M_{it}}{GDP_{it}}$ where X_{it} is value of export of country i at time t; M_{it} value of import of country i at time t; GDP_{it} is Gross Domestic Product of country i at time t). This index could be higher than 1 (one) and the higher the index the more open is the economy of that country. This regression shows that the increase of trade openness increases FDI inflows. Both panel data analysis of Static FE and Dynamic DPD shows that DOO is highly significant affects FDI inflows.

Exchange Rate (ER) is a variable taken from the average exchange rate (domestic currency per US$) and represents economic stability. During Southeast Asia's economic crisis, exchange rates incurred unanticipated depreciation leading to devaluation. This study uses nominal exchange rate as local home currency per local host currency. Panel data analysis of both Static FE and Dynamic DPD proves that depreciation of local currency becomes a cost to FDI inflows. In other words, depreciation of local currency becomes disincentive for FDI inflows. Other studies found opposite direction emerge in

which the more depreciated the local currency of the host (developing) country, the more incentive there is for the investor in home (developed) country to invest. This is called 'the relative value of wealth approach'. As the impacts of exchange rate to FDI inflows are sometime inconsistent therefore according to recent studies, the most important effect of exchange rate does not lie in its depreciation (devaluation) or appreciation (revaluation) but on its volatility.

Study of Hayakawa, K and Kimura, F in 2008 found exchange rates to be the most important variable in describing economic uncertainty and competitiveness within production blocks in the regional production networks. Exchange rates also represent the cost of service link. This means that country with high volatility exchange rate will find it difficult to cooperate with other countries under the production networks as its exchange rate volatility may endanger the entire networks. A study by Kiyota and Urata (2004) shows that exchange rate volatility has significant negative impact to Japanese FDI inflows in East Asian countries.

Electricity Consumption (ELECONS), represents the availability of sound infrastructure, is a cost for FDI inflows as its sign is negative. This study uses Yearly KWh (kilowatt hour per capita) data. Both of panel data analysis the Static FE and Dynamic DPD shows that the electricity becomes a cost for FDI inflows. In other words this result shows that electricity capacity as the proxy of sound infrastructure in these three observed countries is still low and needs to be improved in order to attract FDI inflows.

Both panel data analysis of Static FE and Dynamic DPD shows that AFTA is the cost for FDI inflows as its sign to FDI is negative. Dynamic DPD analysis gives more significant in statistic for AFTA than that of Static FE. This study finds that Dynamic DPD has more level of significance on variables than Static FE. These results indicate that the most appropriate model to find the impact factor on FDI inflows together with time-dummy AFTA is Dynamic Panel

7. Conclusion

First, combination calculation of Revealed Comparative Advantage (RCA) and Constant Market Share Analysis (CMSA) in particular its Competitive Index and combination of RCA and Net Export Value (NX) shows that all the observed countries (Indonesia, Malaysia and Thailand) have both the competitive and comparative advantage of trade in Agriculture products. They all have intra trade advantage in primary products (raw materials). Furthermore, Indonesia has specific competitive and comparative products in Fuels and Mining. Indonesia and Thailand have both competitive and comparative advantage of trade in labor intensive products of Textiles and Clothing. Malaysia and Thailand have both competitive and comparative products in Manufacture Products such as Machinery and Transport Equipment, Office and Telecom Equipment, Electronic Data Processing and Office Equipment and Telecommunications Equipment. This calculation shows that priority products of AFTA in her earlier stage of comprehensive implementation had accommodated trade advantages of her member states.

Second, both of competitive and comparative advantage calculation shows that these three member states of ASEAN have large potential to link their economic networks as each of them have their own comparative advantage products which naturally can be connected to each other. For instance, Malaysia and Thailand are both competitive in manufactured products but faces a lack in fuels and mining. Indonesia is less competitive in manufactured products than Malaysia and Thailand but has competitive and comparative advantage in raw inputs of fuels and mining products. This advantage and disadvantage condition supports them in building solid complementary economic linkages. In order to have sustainable export and to link both competitive and comparative advantage products, Indonesia, Malaysia and Thailand need long run investment inflows from abroad (FDI inflows). Therefore this study did further analyses to find significant factors which affect FDI inflows in each observed country.

Third, each observed countries show unique factors on FDI inflows. Panel data analysis of static panel data of Fixed Effect (FE) and dynamic panel data (DPD) which

covers both cross-section analysis in observed countries and time-series analysis of data series show that FDI inflow is affected by population, consumption, degree of trade openness, exchange rate and electricity capacity as a proxy of sound infrastructure. Both panel data methods show that AFTA has negative effect on FDI inflows. This regression result indicates that AFTA can be classified as the cost for FDI inflows. The regional trade agreement has to be effective in boosting trade diversion and investement creation yet AFTA is only effective in enhancing trade advantage. Some previous studies show similar findings that AFTA is only effective in trade creation but not in trade diversion (Lim, 1994, Ravenhill, 1995, Urata and Okabe, 2007).

Fourth, Panel data analysis of both static FE and dynamic DPD confirms previous studies that FDI inflows is significantly affected by domestic factors such as population, consumption, degree of openness, etc rather than regional trade agreement of AFTA. Therefore countries in Southeast Asia have to increase their domestic factors to attract FDI inflows and not depend only on trade agreement such as AFTA.

In sum this article finds that AFTA is effective in trade. This can be found from the appropriateness between AFTA's priority products and ASEAN member state's advantage products. Yet AFTA is still ineffective in attracting external investment inflows. This can be identified from the negative effect of AFTA on FDI inflows. This study suggests that ASEAN needs more than AFTA to enhance comprehensive regional economic integration in trade and investment.

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