INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS & SOCIAL SCIENCES
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ISSN: 2222-6990

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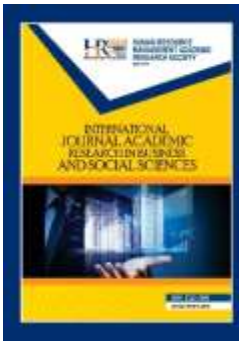
**To Link this Article:** http://dx.doi.org/10.6007/IJARBSS/v8-i1/3799 DOI: 10.6007/IJARBSS/v8-i1/3799

***Received:*** *05 Dec 2017,* ***Revised:*** *10 Jan 2018,* ***Accepted:*** *15 Jan 2018*

**Published Online:** 29 Jan 2018

**In-Text Citation:** (Ridzuan et al., 2018)

**To Cite this Article:** Ridzuan, A. R., Khalid, M. W., Zarin, N. I., Razak, M. I. M., Ridzuan, A. R., Ismail, I., & Norizan, N. (2018). The Impact of Foreign Direct Investment, Domestic Investment, Trade Openness And Population on Economic Growth: Evidence from Asean-5 Countries. *International Journal of Academic Research in Business and Social Sciences*, *8*(1), 128–143.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# The Impact of Foreign Direct Investment, Domestic Investment, Trade Openness And Population on Economic Growth: Evidence from Asean-5 Countries

Abdul Rahim Ridzuan[a*], Muhammad Waqas Khalid[b], Nur Izzati Zarin[c], Mohd Idham Md Razak[a], Abdul Rauf Ridzuan[a], Irzan Ismail[a], Norsabrena Norizan[a]

Faculty Business Management, Universiti Teknologi MARA, Melaka Campus, Malaysia[a]
Department of Economics, PMAS Arid Agriculture, University Rawalpindi, Pakistan[b]
Department of Education, Faculty of Language and Education, Kolej Universiti Islam Melaka, Malaysia[c]
Email: rahim670@staf.uitm.edu.my

**Abstract**

This paper aims to evaluate the determinants of growth in ASEAN5 countries (Malaysia, Indonesia, Thailand, Philippines and Singapore) with a special highlight is given to the foreign direct investment (FDI). ASEAN5 have received a significant amount of FDI inflow from the past three decades. The FDI inflows bring several contributions to the economies of the host countries. For example, the presence of foreign firms often implies transfers of technological capacity to the domestic countries. Besides, the competition, standard and knowledge of foreign markets can induce positive spillover effects on the productivity and competitiveness of the local firms. Other potential driver of growth such as gross domestic investment (GDI), trade oppness (TO) and population (POP) were also tested in this research paper. Therefore, the main objective of this paper is to identify the relationship between GDP and its independent variables (FDI, GDI, TO, and POP) based on classical, neo classical and neo liberal school of thoughts using annual data starting from 1970 to 2013. The findings showed that there is a long run cointegration exist for Malaysia, Indonesia, Thailand and Philippines. FDI is found to have positive relationship with growth in Malaysia, Thailand and Indonesia. Moreover, GDI is also found to be significantly influence the growth of these countries besides POP and TO. But in this case, the effect of GDI is larger than the effect of FDI thus confirming dependency theory. Overall, we can conclude that all the variables used in these studies are indeed very important towards generating growth in ASEAN5 countries. As for the case of Singapore, although there is no long run cointegration

detected, the short run estimation revealed that FDI and GDI still play significant roles in determining the growth in this country.
**Keywords:** FDI, Economic growth, ASEAN5, ARDL

## Introduction

Over the past decades, since 1970, foreign direct investment (FDI) inflow has become a major source for funding capital projects and has played an important role in the rapid economic development of Southeast Asia. Realizing the importance of FDI, the ten member of the Association of South East Asian Nations (ASEAN) consist of Malaysia, Indonesia, Thailand, Singapore, Philippines, Brunei, Cambodia, Myanmar, Laos, Vietnam are among the Asian countries who are actively seeking for more FDI to generate growth. ASEAN was established on the 8th August 1967 as the five foreign ministers of Malaysia, Indonesia, Philippines, Thailand and Singapore signed a document known as ASEAN declaration in Bangkok, Thailand. ASEAN covers a land area of 4.46 million km², with a population of approximately 700 million people, 9.0% of the world population. In 2012, the organization's combined nominal GDP had grown to US$2.3 trillion and expected to reach a double amount of US$4 trillion in year 2020.

The motivation for increasing the efforts to attract more FDI from this economic bloc stems from the expectation of an overall positive impact of FDI resulting from direct capital financing, generate positive externalities, and consequently stimulate economic growth through technology transfer, spillover effects, productivity gains and the introduction of new processes and managerial skills, Lee (2013). Based on previous studies, it appears that a fall in FDI is strongly connected to growth levels among the ASEAN5 nations (Tamajaj, 2000). If indeed there is a strong association between FDI flows and growth levels, than the trend of falling FDI share of the individual ASEAN5 nations in both the developing nations and world blocs coupled with decreasing values of FDI inflows per se for some nations would be problematic in sustaining growth levels in these nations. Hence, it would appear that the ASEAN5 nation's growth levels are affected by FDI inflows and world FDI share [Bende-Nabende et al. (2001), Choe (2003) and Chowdhury and Mavrotas (2003)].

These observations suggest that the growth levels of ASEAN5 nations are strongly depending on the MNC that transmit FDI to these nations. The ASEAN5 nations have to use the best strategies to attract more FDI into their country besides improving their domestic investment to achieve sustainable development. Domestic capital is regarded as the more sustainable capital if FDI-led growth nations are unable to master from the FDI technology when it declines significantly over time. At another level of argument, while ASEAN5 nations expand a great deal of effort and resources to attract FDI, dependency theorists postulate that Gross Domestic Investment is the more potential capital than the neo-liberal FDI in impacting growth.

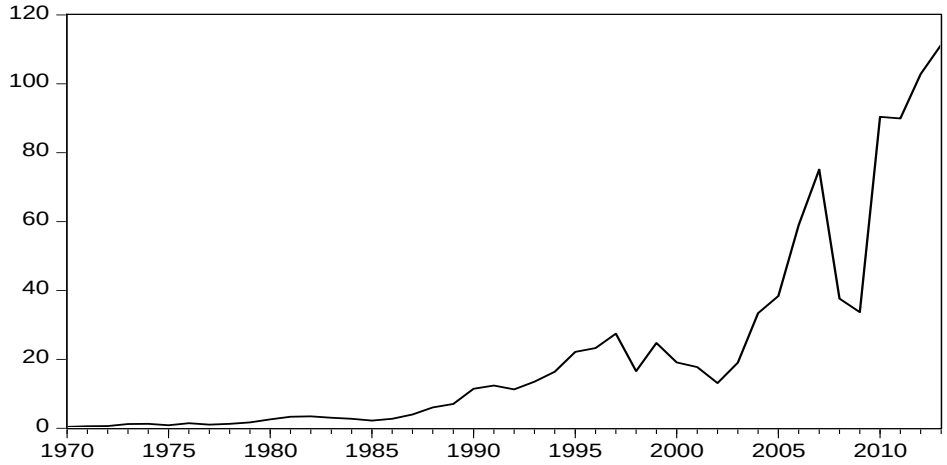
## FDI inflows in ASEAN5

The last three decades have witnessed a sustained expansion in FDI inflow into ASEAN5 (figure 1). FDI inflows in ASEAN5 increased gradually from only US $ 0.37 billions in ealier 1970s to US $ 2.2 billions in 1985. The slow phase of FDI from 1970s to 1980s was detected in the region except for Singapore due to the practise of protecting manufacturing activities from foreign competition

as these countries are mostly commodity exporters. Later after 1980s, the countries has followed Singapore to liberalize their trade and investment policies that resulted in accelaration of FDI inflow in this region (Chen and Drysdale 1995). The trend of FDI inflow has increased more rapidly between 1980s to 2013 where the value of FDI in 2013 is three hundread times larger as compared to the value of FDI in 1970s.

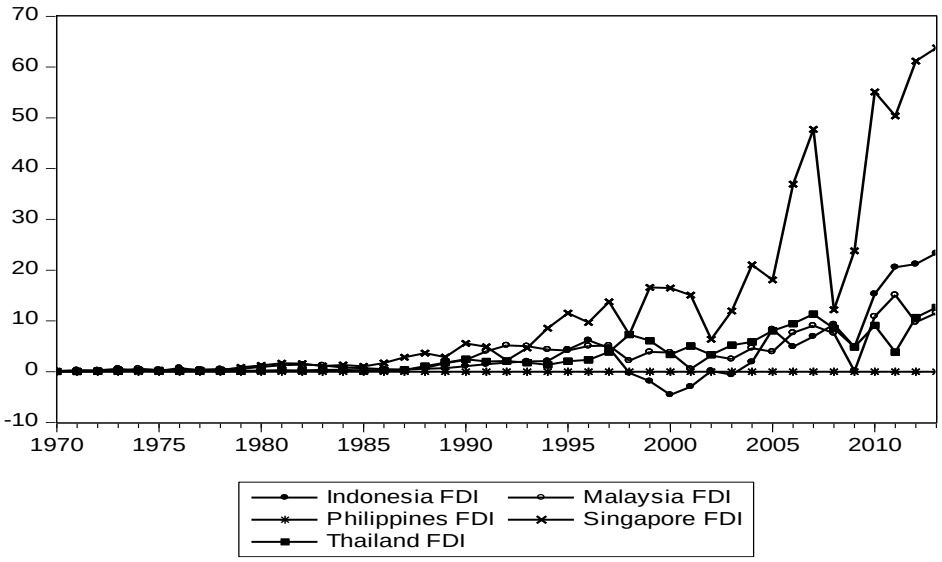
The scale trend of FDI inflow is varied across economics as shown in Figure 2. Singapore has received the largest amont of FDI inflow followed by Malaysia, Indonesia and Thailand. The flow of FDI in Philippines was relatively moderate. The success of Singapore and Malaysia in attracting FDI relates to their stable macroeconomic conditions. Besides, the availability of skilled labor and modern infrastructure have also contributed to this factors. Political instability in Thailand and Philippines might be the major deterrent to FDI inflows. The upward trend of FDI in ASEAN5 region is the result of the improved economic condition as well as market oreintation reform that led towards more liberal trade and investment policies making these countries more condusive and accomodating towards the environment for FDI inflow.

Figure 1:
Annual FDI inflow into ASEAN5
(US$ billions)




Source: World Development Indicator 2015 and UNCTAD 2014

Figure 2:
FDI inflows into each member of ASEAN5 countries
(US $ billions)




Source: World Development Indicator 2015 and UNCTAD 2014

**Past Empirical Studies**

Earlier studies based on theoretical literature examining the relationship between FDI and growth suggest a negative relationship for developing countries (Singer, 1950; Griffin, 1970). The idea of this study is that FDI was concentrated on low-priced primary exports to developed countries, and had a negative impact on overall growth. However, studies by Rodan (1961) and Chenery and Strout (1966) showed that FDI had a positive impact on productivity and growth in developing countries. Furthermore, a positive impact from the effect of FDI on improving growth and per capita growth is found in studies such as Caves (1974); Globerman (1979) and Blomstrom and Persson (1983). The past findings of the impact of growth from FDI are also mostly following different school of thought.

The more recent studies support the empirical studies and show ambiguous findings. For example, Andreas (2006), and Lumbila (2005) find that FDI has a positive significant effect on economic growth while others suggest a nonsignificant or negative effect of FDI on economic growth (Lougani and Razin, 2003; Akinlo, 2004; Ayanwale, 2007). Few studies have proven that FDI can contribute to growth through capital formation and technology transfer (Blomström et al. 1996) along with accumulation of knowledge due to labor training and skill acquisition (De Mello, 1999).

Most of the previous studies also show a positive impact of FDI on the host country economy (De Mello, 1999; Bende-Nebende et al. 2000; Durham, 2004; Nair-Reichert and Weinhold, 2001; Xu, 2000; Ridzuan, Ismail and Che Hamat, 2017, Ridzuan et al. 2017). However, the impact varies from country to country {UNTAD, 1999; 2003; Borensztein et al., 1998; Bende-Nabende et al. 2001}. For example, Chowdhury and Mavrotas (2003) found unidirectional causality running from growth to FDI in the case of Chile but found bidirectional causality for Thailand and Malaysia.

Bashir (1999) demonstrates that FDI improves growth in MENA countries, though the effect varies from country to country. Bende-Nebende and Ford (1998) found that the output of less developed countries responds more positively to FDI. Blomstrom et al. (1994) found that FDI has a positive impact on growth in rich countries.

These massive finding of FDI impact towards growth are adopting various econometric testing such as panel estimation but yet not many papers tested on cross countries time series were done before. The country-specific analysis will enable us to capture and account for the complexities of the economic determinant in the respective countries, of which panel analysis is unable to capture. Furthermore, country-specific analysis such as ours is needed to provide consistent resultsPrevious paper more likely using the panel estimation and this was Perhaps, by using more recent techniques, this paper is able to fill up the literature gap of studies on FDI impact towards GDP especially in ASEAN region.

## Methodology

### The Model

In this study, the short and long-run dynamic relationships between economic growth and FDI as the main highlight are estimated by using the proposed ARDL bound testing approach which was initially introduced by Pesaran et al. (2001). The ARDL has numerous advantages. Firstly, the ARDL approach can be applied regardless of the stationarity properties of the variables in the samples and allows for inferences on long-run estimates, as it is not possible under the alternative cointegration procedures. In other words, this procedure can be applied irrespective of whether the series are I(0), I(1), or fractionally integrated (Pesaran and Pesaran, 1997); and Bahmani-Oskooee and Ng, 2002), thus avoids problems resulting from non-stationary time series data (Laurenceson and Chai, 2003). Secondly, the ARDL model takes sufficient numbers of lags to capture the data generating process in a general-to-specific modelling framework (Laurenceson and Chai, 2003). It estimates $(p+1)^k$ number of regressions in order to obtain optimal lag-length for each variables, where p is the maximum lag to be used, k is the number of variables in the equation. Finally, the ARDL approach provides robust results for a smaller sample size of cointegration analysis. Since the sample size of this study is 41, this provides more motivation for the study to adopt this model.

**Following the simple model introduced by Sahoo and Mathiyayazhagan (2003),**

$$\textbf{GDP} = \beta_0 + \beta_1 FDI_t + \beta_2 EXP_t + \varepsilon_t \quad \text{----------(1)}$$

**we expand the model by incorporating domestic investment from Sun (1998) and Dixon and Boswell (1996) and replacing export with trade openness.**

$$\textbf{GDP} = \beta_0 + \beta_1 FDI_t + \beta_2 GDI_t + \beta_3 TO_t + \beta_4 POP + \varepsilon_t \quad \text{----------(2)}$$

$GDP_t$ = Real gross domestic product per capita in US (2005) Dollars

$FDI_t$ = FDI inflows in terms of % GDP

$GDI_t$ = Gross fixed capital formation in terms of % GDP (as a proxy for gross domestic investment)

TO = Exports + Import / GDP (trade openness)
POP = Total population

Generally, all independent variables ($\beta_1, \beta_2$ $\beta_3$ $\beta_4$ $\beta_5$ and $\beta_6$) proposed in the model are expected to have a positive influence with GDP. The main highlight is given based on the following expectation:-

Based on dependency theory (level of investment hypothesis), it is expected that:
$\beta_1 < \beta_2$
Based on neo-classical and neo-liberal theory, it is expected that:
$\beta_1 > \beta_2$

**While there is a postulation that FDI promotes domestic investment [Sahoo and Mathiyayazhagan (2003), Sun (1998)] there is also contestation that FDI crowds out domestic investment (Sun, 1998).**

**Let the long run relationship between the four variables in log linear form is given as follows:**

$LnGDP_t = \alpha + \beta_1 LnFDI_{t-1} + \beta_2 LnGDI_{t-1} + \beta_3 LnPOP_{t-1} + \beta_4 LnTO_{t-1} + \varepsilon$ ----------(3)

Equation 4 below basically incorpates the short run dynamics into the adjustment process.

$\Delta LnGDP_t = \alpha + \sum_{i=1}^{v} \sigma_i \Delta LnGDP_{t-i} + \sum_{i=0}^{s} \beta_i \Delta LnFDI_{t-i} + \sum_{i=0}^{r} \epsilon_i \Delta LnGDI_{t-i} + \sum_{i=0}^{q} \in_i \Delta LnPOP_{t-i} + \sum_{i=0}^{t} \partial_i \Delta LnTO_{t-i} + d\varepsilon_{t-1} + u_t$ ---------- (4)

**Finally, the model was transformed into Bound testing approach in equation (5) below:**

$\Delta LnGDP_t = \alpha + \sum_{i=1}^{v} \sigma_i \Delta LnGDP_{t-i} + \sum_{i=0}^{s} \beta_i \Delta LnFDI_{t-i} + \sum_{i=0}^{r} \epsilon_i \Delta LnGDI_{t-i} + \sum_{i=0}^{q} \in_i \Delta LnTO_{t-i} + \sum_{i=0}^{t} \partial_i \Delta LnPOP_{t-i} + \beta_0 LnGDP_{t-1} + \beta_1 LnFDI_{t-1} + \beta_2 LnGDI_{t-1} + \beta_3 LnPOP_{t-1} + \beta_4 LnTO_{t-1} + u_t$ ---------(5)

where $\Delta$ is the first-difference operator, $u_t$ is a white-noise disturbance term and all variables are expressed in natural logarithms. The above final model also can be viewed as an ARDL of order, (v s r q t). The model indicates that economic growth in terms of real GDP per capita tends to be influenced and explained by its past values, so it involves other disturbances or shocks. From the estimation of ECMs, the long-run elasticities are the coefficient of the one lagged explanatory variable (multiplied by a negative sign) divided by the coefficient of the one lagged dependent variable (Bardsen, 1989). For example based on the final model above, the long-run FDI, GDI, TO and POP elasticities are ($\beta_2$ / $\beta_1$), ($\beta_3$ / $\beta_1$) , ($\beta_4$ / $\beta_1$) and ($\beta_5$ / $\beta_1$) respectively. The short-run effects are captured by the coefficients of the first-differenced variables. The null of no cointegration in the long run relationship is defined by: $H_0$ : $\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$ is tested against the alternative of $H_1$ : $\beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 \neq 0$, by means of familiar F-test. However, the asymptotic distribution of this F-statistics is non-standard irrespective of whether the variables are I(0) or I(1).

The main objective of this model is to verify FDI led growth nexus in ASEAN5. Besides, the impact of GDI on growth is also tested in this study. Furthermore, the model will also test if TO and POP are positively associated with growth in the ASEAN5 countries. Since this study utilizes annual

data with only 44 numbers of observations, the possible maximum optimal lag-length to be considered is 4 and has automatically been determined by the eviews9 system.

**Sources of Data**

The main sources of data used in this research are collected from World Development Indicator 2015 published by World Bank. The sample data used is annual data starting from 1970 up to 2013 comprising 44 years. All the result of this paper is run by using Eview9.

**Result and Analysis**

**Testing the Stationarity of the Data**

The analysis began with testing the unit root for every variable for each country in ASEAN5 which can be seen in Table 1. Unit root test such as augmented Dickey-Fuller (ADF) and the Phillip Perron (PP) test are performed to determine the order of integration of the variables. The selection of lag is based on Schwarz Info Criterion (SIC), given a small number of obervation used in this study.Overall, the results displayed in the table 1 revealed a mix stationarity in the variables used in this study. For example, based on Malaysia unit root test, it is found out that GDP, GDI and TO are not stationary at level but stationary at first difference for both ADF and PP unit root test. Meanwhile, FDI and POP are found to be significant at level either 5% or 1 % significant level. Similar result occur in other ASEAN countries where there is a mix evidence of stationairty of the variables at level and at first difference. Given that there is a mixed evidence of stationarity for the explanatory variables, it can be concluded that the data used in this study fulfill the requirement to proceed to the analysis using ARDL test.

Table 1: Result of ADF and PP unit root tests

| Country | | Variable | ADF test statistic | | PP test statistic | |
|---|---|---|---|---|---|---|
| | | | Intercept | Trend and intercept | Intercept | Trend and intercept |
| Indonesia | Level | LnGDP | -1.28 (0) | -2.22 (1) | -1.20 (1) | -1.92 (2) |
| | | LnFDI | -1.59 (7) | -2.31 (7) | -2.23 (4) | -2.44 (3) |
| | | LnGDI | -2.28 (1) | -2.52 (1) | -1.78 (1) | -1.96 (1) |
| | | LnPOP | -3.74 (4)*** | -1.57 (4) | -16.72 (5)*** | -2.61 (5) |
| | | LnTO | -2.66 (0)** | -2.65 (0) | -2.84 (4)** | -2.83 (4) |
| | First difference | LnGDP | -4.73 (0)*** | -4.76 (0)*** | -4.73 (0)*** | -4.76 (0)*** |
| | | LnFDI | -1.87 (5) | -2.21 (5) | -9.84 (4)*** | -10.80 (3)*** |
| | | LnGDI | -4.48 (0)*** | -4.45 (0)*** | -4.42 (5)*** | -4.39 (5)*** |
| | | LnPOP | -1.35 (3) | -3.46 (3)** | -0.88 (5) | -1.14 (5) |
| | | LnTO | -8.17 (0)*** | -8.07 (0)*** | -8.29 (2)*** | -8.18 (2)*** |
| Malaysia | Level | LnGDP | -1.52 (0) | -1.99 (0) | -1.48 (1) | -2.08 (2) |
| | | LnFDI | -2.84 (8)** | -5.54 (0)*** | -5.58 (1)*** | -5.54 (1)*** |
| | | LnGDI | -2.48 (1) | -2.50 (1) | -2.40 (2) | -2.37 (1) |
| | | LnPOP | -2.98 (4)** | -0.54 (4) | -2.38 (5) | 1.17 (5) |
| | | LnTO | -0.89 (0) | -0.86 (0) | -0.89 (2) | -0.86 (0) |
| | First difference | LnGDP | -5.61 (0)*** | -5.77 (0)*** | -5.62 (1)*** | -5.77 (0)*** |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | LnFDI | -2.84 (9)** | -2.64 (9) | -25.10(24)*** | -24.83 (25)*** |
| | | LnGDI | -4.71 (0)*** | -4.64 (0)*** | -4.65 (3)*** | -4.58 (3)*** |
| | | LnPOP | -0.36 (3) | -2.09 (3) | -0.02 (4) | -1.08 (4) |
| | | LnTO | -5.70 (0)*** | -5.75 (0)*** | -5.67 (2)*** | -5.72 (3)*** |
| Philippine | Level | LnGDP | -0.19 (1) | 1.32 (1) | 0.02 (3) | -0.93 (3) |
| | | LnFDI | -2.99 (0)** | -3.63 (0)** | -3.08 (3)** | -3.86 (3)** |
| | | LnGDI | -3.28 (1)** | -3.45 (1)** | -2.56 (1) | -2.67 (2) |
| | | LnPOP | -3.87 (8)*** | -4.24 (9)** | -10.43 (5)*** | 2.62 (4) |
| | | LnTO | -1.12 (0) | -0.89 (0) | -1.12 (2) | -1.04 (2) |
| | First difference | LnGDP | -3.43 (0)** | -3.56 (1)** | -3.52 (1)** | -3.59 (1)** |
| | | LnFDI | -9.14 (0)*** | -9.04 (0)*** | -9.12 (3)*** | -9.28 (4)*** |
| | | LnGDI | -4.79 (0)*** | -4.75 (0)*** | -4.58 (5)*** | -4.53 (5)*** |
| | | LnPOP | -0.60 (9) | -2.85 (7) | 0.01 (4) | -2.06 (4) |
| | | LnTO | -5.90 (0)*** | -5.99 (0)*** | -5.90 (1)*** | -5.99 (0)*** |
| Singapore | Level | LnGDP | -2.97 (0)** | -1.94 (0) | -5.53 (9)*** | -1.86 (4) |
| | | LnFDI | -3.10 (0)** | -5.31 (4)*** | -3.10 (0)** | -6.76 (14)*** |
| | | LnGDI | -1.70 (1) | -2.72 (1) | -1.38 (2) | -2.62 (2) |
| | | LnPOP | 0.24 (1) | -3.31 (1)** | 0.78 (1) | -2.19 (1) |
| | | LnTO | -3.78 (0)*** | -2.55 (0) | -3.52 (3)** | -2.58 (3) |
| | First difference | LnGDP | -5.64 (1)*** | -6.67 (1)*** | -5.34 (2)*** | -7.91 (10)*** |
| | | LnFDI | -6.76 (4)*** | -6.66 (4)*** | -26.58 (41)** | -26.11 (41)*** |
| | | LnGDI | -4.56 (0)*** | -4.49 (0)*** | -4.56 (3)*** | -4.50 (3)*** |
| | | LnPOP | -3.52 (0)** | -3.52 (0)** | -3.59 (2)** | -3.54 (3)** |
| | | LnTO | -4.81 (0)*** | -5.46 (0)*** | -4.78 (3)*** | -5.39 (5)*** |
| Thailand | level | LnGDP | -1.12 (1) | -1.57 (1) | -0.92 (3) | -1.40 (3) |
| | | LnFDI | -1.94 (0) | -3.21 (0)* | -1.86 (1) | -3.22 (1)* |
| | | LnGDI | -2.57 (1) | -2.49 (1) | -1.84 (1) | -1.77 (1) |
| | | LnPOP | -1.88 (8) | -1.90 (8) | -11.34 (4)*** | -1.78 (4) |
| | | LnTO | -0.28 (0) | -2.49 (0) | -0.20 (4) | -2.54 (1) |
| | First difference | LnGDP | -4.29 (0)*** | -4.35 (0)*** | -4.29 (0)*** | -4.33(1)*** |
| | | LnFDI | -7.62 (0)*** | -7.52 (0)*** | -7.70 (3)*** | -7.60 (3)*** |
| | | LnGDI | -4.41 (1)*** | -4.44 (1)*** | -3.69 (6)*** | -3.60 (7)** |
| | | LnPOP | -1.94 (7) | -1.07 (7) | -1.34 (4) | -2.18 (4) |
| | | LnTO | -6.70 (0)*** | -6.60 (0)*** | -6.77 (5)*** | -6.66 (5)a*** |

Note: 1. ***, ** and * are 1%, 5% and 10% of significant levels, respectively. 2. The optimal lag length is selected automatically using the Schwarz information criteria for ADF test and the bandwidth is selected using the Newey–West method for the PP test. 3. Number in parentheses is standard errors.

**Detecting the Long Run Relationship**

In order to proceed with the ARDL testing, the results were first tested for the existence of long run relationship between the series of the variables. Table 2 above display the results of F-statistic for each ASEAN5 countries by setting the max lag to 4. The critical value is also reported in Table 2 based on the critical value suggested by Narayan (2004) for a small sample size between 30 and 80. If the F-statistic falls below the bound level, the null hypothesis cannot be rejected. On the other hand, if the F-statistic lies exceed upper bound level, the null hypothesis is rejected, which indicated the existence of cointegration. If however, it falls within the band, the result is inclonclusive.

The test outcome showed that the null hypothesis of no cointegration for Malaysia (3.957 > 3.52) and Indonesia (3.941 > 3.52) are rejected at 10% level while Philippine (8.191 > 5.06) and Thailand (5.209 > 5.06) are rejected at 1% significant level given their F-statistic value is larger than the upper bound critical value stated in the table. This implies that the null hypothesis of no cointegration is rejected and therefore proving that there is a tendency for the variables to move towards long run equilibrium.

For the case of Singapore, the F statistics valued at, 3.046 lies between 2.45 and 3.52 (10% significant level) meaning it is under inconclusive area. Following Kremers et al. (1992), an alternative approach to determine cointegration is to estimate the model with lag of error-correcting term ($ECT_{t-1}$). They argued that a significant and negative coefficient obtained for $ECT_{t-1}$ will indicate the adjustment of the variables towards equilibrium hence the cointegration. The results indicated that $ECT_{t-1}$were significant and negative in all cases except for Singapore thus, a more emphasis on the existence of the cointegration. Specifically, the estimated values of ECT equal to -0.67, -0.34, -0.209 and -0.204 for Malaysia, Indonesia, Thailand and Philippines respectively. The significant of ECT suggest that more than 67, 34, 21 and 20% of disequilibrium caused by previous years shock will be corrected in the current year and converges back to long run equilibrium for the countries respectively. These results show that speed of adjustment for those countries are rapid especially for Malaysia.

Table 2: Result of ARDL cointegration

| ASEAN5 | Maximum lag imposed | SIC (v,s,r,q,t) | F Statistic at SIC-Selected Optimal Lags | $(EC_{t-1})$ (t-Ratio) | Result |
|---|---|---|---|---|---|
| Indonesia | 4 | (2,0,0,0,0) | 3.941* | -0.344*** | Cointegration |
| Malaysia | 4 | (1,2,0,2,0) | 3.957* | -0.671*** | Cointegration |
| Philippines | 4 | (1,1,0,0,1) | 8.191*** | -0.204*** | Cointegration |
| Singapore | 4 | (3,0,0,0,0) | 3.046 | -0.030 | No Cointegration |
| Thailand | 4 | (2,1,0,0,0) | 5.209*** | -0.209*** | Cointegration |
| Critical Values for *F*-statistics# | | | Lower I(0) | | Upper I(1) |
| 1% | | | 3.74 | | 5.06 |
| 5% | | | 2.86 | | 5.01 |
| 10% | | | 2.45 | | 3.52 |

Note: # The critical values are obtained from Narayan (2004), Critical values for the bounds test: case III: unrestricted

intercept and no trend. *, **, and *** represent 10%, 5% and 1% level of significance, respectively.

**Diagnostic Checking**

Table 3 shows the results of some major diagnostic statistics such as the LM statistics which tests for serial correlation, and the misspecification was checked by RESET test, heteroscedasticity and normality tests. The stability of coefficients by testing the CUSUM and CUSUMSQ tests were also examined. Based on critical value of for one degree of freedom, the null hypothesis of normality of residuals, null hypothesis of no first order serial correlation and null hypothesis of no heteroscedasticity were accepted in all the selected countries. Based on the critical values of for two degrees of freedom, the null hypothesis of no misspecification of the functional form can be accepted in all the cases. Furthermore, stability was supported in all countries because the plots of both CUSUM and CUSUMSQ fell inside the critical bounds of five percent significance level. The plots of CUSUM and CUSUMSQ tests are available upon request. Finally, the size of the adjusted R2 indicated a good fit in all the models.

Table 3: Result of Diagnostic Checking

| Country | Serial correlation $\chi^2(1)$ [p-value] | Functional form $\chi^2(1)$ [p-value] | Normality $\chi^2(2)$ [p-value] | Heteroscedasticity $\chi^2(1)$ [p-value] | CUSUM | CUSUMSQ | Adjusted $R^2$ |
|---|---|---|---|---|---|---|---|
| Indonesia | 0.18 [0.91] | 2.80 [0.10] | 0.75 [0.68] | 21.06 [0.11] | S | S | 0.89 |
| Malaysia | 4.50 [0.10] | 0.22 [0.79] | 0.59 [0.74] | 11.06 [0.19] | S | S | 0.88 |
| Philippine | 5.76 [0.11] | 0.18 [0.83] | 0.30 [0.85] | 12.16 [0.10] | S | S | 0.88 |
| Singapore | 0.27 [0.87] | 0.16 [0.85] | 1.25 [0.53] | 8.63 [0.27] | S | S | 0.67 |
| Thailand | 3.86 [0.14] | 6.41 [0.34] | 0.09 [0.95] | 7.40 [0.38] | S | S | 0.79 |

Note. S signifies stable model. The numbers in brackets [ ] are p-values.

**The Short Run Analysis**

The results of the ECM-ARDL for short run analysis showed (Table 4) that most of the coefficients in the short run derived from Malaysia, Thailand, Singapore, Philippines and Indonesia are mostly significant. Based on Malaysia's and Thailand model, the GDI, FDI, POP and TO are significant but the expected sign with the country's GDP per capita in the short run are mixed. Malaysia GDI and POP are found to have negative impact on real GDP per capita in the short run while FDI is found to have negative impact on Thailand economy.

Other countries in this study show a mix evidence of relationship between their independent variables and the dependent variables. For example, Singapore's GDI and FDI is positively

associated with GDP per capita. Meanwhile, all variables in Philippines are significant except for POP which have negative impact on real GDP per capita. As for Indonesia, all variables have a correct expected between the independent variables towards dependent variable and significant at 1 and 5% level.

Table 4: Estimation of Short Run Restricted Error Correction Model (ECM)

| Dependent variable: LnGDP | Malaysia | Thailand | Singapore | Philippines | Indonesia |
|---|---|---|---|---|---|
| ΔLnGDP | / | / | / | / | / |
| $\Delta LnGDP_{-1}$ | / | -0.302** | -0.09 | / | 0.316** |
| $\Delta LnGDP_{-2}$ | / | / | - 0.372*** | / | / |
| ΔLnGDI | 0.180*** | 0.295*** | 0.073** | 0.120** | 0.082** |
| $\Delta LnGDI_{-1}$ | -0.083** | / | / | / | / |
| $\Delta LnGDI_{-2}$ | / | / | / | / | / |
| ΔLnFDI | 0.009** | -0.016** | 0.034** | 0.001 | 0.016*** |
| $\Delta LnFDI_{-1}$ | / | / | / | / | / |
| $\Delta LnFDI_{-2}$ | / | / | / | / | / |
| ΔLnPOP | -4.848*** | 0.324** | 0.150 | -0.218** | 0.648*** |
| $\Delta LnPOP_{-1}$ | / | / | / | / | / |
| $\Delta LnPOP_{-2}$ | / | / | / | / | / |
| ΔLnTO | 0.107** | 0.175*** | 0.045 | 0.222** | -0.049 |
| $\Delta LnTO_{-1}$ | / | / | / | / | / |
| $\Delta LnTO_{-2}$ | / | / | / | / | / |

Note: Dependent variable is ΔLnGDP. (*),(**),(***) indicate significant at 10%,5% and 1% significant level respectively.

**The Long Run Elasticities**

Having found a long run relationship for all the ASEAN5 countries, the estimation was generated for the long run model from equation 3 by normalizing the output growth. Singapore was withdrawn from this estimation given that there is no long run cointegration occur in the model as revealed in Table 2. Based on Malaysia result, GDI, FDI, POP and TO have significant effect on real GDP per capita of the country. Every 1 per cent increase in GDI lead to 20.8 per cent increase in output which its coefficient value is relatively higher and significant at 5 per cent level. While for FDI, 1 per cent increase in its value shows that there will be 1.4 per cent increase in output which is relatively very low as compared to the impact of GDI. 1% increase in both POP and TOT will eventually increase the real GDP percapita of the country by 24% and 16% respectively. The significantly positive values for coefficient FDI ($\beta_1$), GDI ($\beta_2$), POP ($\beta_3$) and TO ($\beta_4$) confirm both neo-liberal and dependency. However the neo-liberal and dependency theorist differ in their postulation of the size of β. A more robust coefficient for GDI as opposed to FDI means that GDI contributes more to growth than FDI. Hence, GDI flows are better than FDI in promoting growth in Malaysia which validate the postulation of FDI flows are not as good as Domestic Investment flows in promoting growth as hypothesized by the dependency side. This finding is unable to

support Wong and Jomo (2005) finding who extolled the virtue of FDI and its necessity to the Malaysian economy.

For case of Thailand, GDI, FDI, POP and TO are strongly significant at 1 per cent level and it is revealing a positive relationship with it output. As such, 1 per cent increase in GDI, FDI, POP and TO will lead to increase in GDP per capita by 7.7% , 55.3%, 55.0% and 83.6% respectively. Hypothesis that FDI is not as good as Domestic Investment in promoting growth also reveal in this model. Hence, this finding supports the idea of Dependency theory and challenges the view point that capital is capital regardless of its origin as put forth repeatedly by the neoliberal (Chang, 2003). For the case of Philippines, it was found that GDI, POP and TO are strongly significant at 1% significant level and can influence the country's GDP per capita. 1% per cent increase in GDI and TO lead to 67% and 75% increase in output which reveal that the country growth is quite heavily depending on the domestic investment as well as in trading activities. However, FDI is found to be insignificant and therefore does not fit to explain the model. This finding has obviously challenged the postulation made by neo-liberal and dependency theorist as the FDI does not really influence the growth of the country. Lastly, Indonesia also shows that all the variables are significantly influenced the growth of Indonesia economy. 1 percent increase in GDI, FDI, POP and TO lead to 4.7%, 23.9% and 14.92% increase in their GDP per capita. POP is found to be the highest contributor for the growth of the country besides GDI. This result is contradicted with the evidence from Sjoholm (2002) which stated that FDI is better than Domestic Investment in promoting growth.

Table 5: Estimation of Long Run Elasticities

| Country/ ARDL (v,s,r,q,t) | Malaysia ARDL(1,2,0,2,0) | Thailand ARDL(2,1,0,0,0) | Philippines ARDL(1,1,0,0,1) | Indonesia ARDL(2,0,0,0,0) |
|---|---|---|---|---|
| Dependent variable: LnGDP | | | | |
| LnGDI | 0.208*** | 0.553*** | 0.669*** | 0.239** |
| LnFDI | 0.014*** | 0.077*** | -0.005 | 0.047*** |
| LnPOP | 0.244*** | 0.550*** | 0.064*** | 0.879*** |
| LnTO | 0.160** | 0.836*** | 0.753*** | 0.142* |
| Constant | -13.089*** | -21.844*** | -11.092** | -29.768*** |

Note: (*),(**),(***) indicate significant at 10%,5% and 1% significance level respectively.

**Conclusion**

This paper has assessed the determinant of growth using FDI, GDI, TO and POP for ASEAN5 countries by referring to classical, neo classical and neo liberal theories that act as the foundation of the model proposed in this study. Based on the long run estimation on Malaysia, Thailand, Philippines and Indonesia, it shows that GDI for have larger impact on growth as compared to FDI inflow except for Philippines where the FDI does not influence the growth of this country. This result has similar result by Tvaronaviciene and Tvaronavicius (2007) who also found out that fixed investment or GDI is one of the major determinant for economic growth. The result also confirm that the dependency theory is valid in the case of ASEAN5 countries. Another strong determinant for long run growth in these countries is TO and POP. Past studies revealed that the openness of a country is beneficial because country can catch up the technological progress of other

progressive countries. Besides, according to Parkin (2010), increase in labor productiviy and increase in population could also increase the GDP of the country. ASEAN countries should be diversifying their economy so that the potential growth is not depending too much on FDI. With the rising of China and India as new economy power, the current FDI inflows could diverted into these countries and it is very challenging for the ASEAN countries to compete with them. Thus, the policy makers of each country need to revise its current policies that could favourably address all the needs of investors such as low business tax rates, the exclusion of tarif on the raw materials, sufficient skill labors and many others.

**References**

Akinlo, A. (2004). Foreign direct investment and growth in Nigeria: An empirical investigation, *Journal of Policy Modeling*, 26, 627-639.

Alfaro, L., Chanda, A., Kalemli-Ozcan, S., and Sayek, S. (2004). Foreign direct investment and economic growth: The role of local financial markets, *Journal of International Economics*, 64, 89–112.

Andreas, J. (2006). The effects of foreign direct investment inflows on host country economic growth, *CESIS Electronic UK. Working Paper Series No. 58*.

Ayanwale, A. B. (2007). FDI and economic growth. Evidence from Nigeria, *AERC Research Paper 165, April, Nairobi Kenya.*

Bahmani-Oskooee, M., and Ng, R. C. W. (2002). Long-run demand for money in Hong-Kong: An application of the ARDL model. *International Journal of Business and Economics*, 1(2), 147-155.

Bardsen, G. (1989). Estimation of long-run coefficients in error correction models, *Oxford Bulletin of Economics and Statistics*, 51, 345-50.

Bashir, A. M. (1999). Foreign direct investment and economic growth in some MENA countries: Theory and evidence, Paper presented at MENA Annual Meeting in conjunction with the ASSA.

Balasubramanyam, V. N., M. Salisu, and Dapsoford, D. (1996). Foreign Direct Investment and Growth in EP and IS Countries. *Economic Journal,* 106, 92-105.

Bende-Nabende, A., Ford, J., and Slater, J. (2001). Foreign direct investment, regional economic integration and endogenous growth: Some evidence from Southeast Asia, *Pacific Economic Review,* 6 (3), 383-399.

Bende-Nebende, A., and Ford, J. (1998). Foreign direct investment, policy adjustments and endogenous growth: Multiplier effects from a small dynamic model for Taiwan, 1959-1995, *World Development*, 26(7), 1315-1330.

Blomström, M., Lipsey, R. E., and Zejan, M. (1996). Is fixed investment the key to economic growth?, *Quarterly Journal of Economics,* 111, 269–76.

Blomstrom, P. (1983). Foreign investment and spillover efficiency in an underdeveloped economy: Evidence from the Mexican manufacturing industry, *World Development*, 11, 6.

Borrnztein E., Gregrio, J., and Lee, J. (1998). How does foreign direct investment affect economic growth?, *Journal of International Economics,* 45(1), 115-135.

Caves, R.E. (1974). Multinational firms, competition and productivity in host country, *Market Economics*. 41,176-193.

Chang, H. J. (2003). Globalisation, economic development, and the role of the state, Penang, Malaysia: Third World Network.

Chase-Dunn, C. (1975). The effects of international economic dependence on development and inequality: A cross-national study, *American Sociological Review,* 40, 720–38.

Chen, E., and Drysdale, P. (1995). Corporate links and foreign direct investment in Asia and the Pacific. NSW: Harper Educational.

Chenery, H. B., and Strout, A. M. (1996). Foreign assistance and economic development, *American Economic Review*, 56, 679-733.

Chowdhury, A., and Mavrotas, G. (2003). Foreign direct investment and growth: What causes what?. Paper presented at the Wider Conference, September.

Choe, J. I. (2003). Do foreign direct investment and gross domestic investment promote economic growth?, *Review of Development Economics*, 7(1),44-57.

De Mello, L. (1999). Foreign direct investment led growth: Evidence from time series and panel data. *Oxford Economic Papers*, 51,133-151.

Dixon, W. J. and Boswell, T. (1996). Dependency, disarticulation, and denominator effects: Another look at foreign capital penetration, *American Journal of Sociology*, 102(2), 543-562.

Durham, J. (2004). Absorptive capacity and the effects of foreign direct investment and equity foreign portfolio investment of economic growth, *European Economic Review*, 48(2), 285-306.

Griffin, K. B. (1970). Foreign capital, domestic savings and development, *Oxford Bulletin of Economics and Statistics*, 32, 99-112.

Globerman, S. (1979). Foreign direct investment and spillover efficiency benefits in Canadian manufacturing industries, *Canadian Journal of Economics*, 12, 42- 56.

Helpman, E., and Grossman, G. M. (1991). Innovation and growth in the global economy. Cambridge MA, MIT Press.

Jomo, K. S. (2001). Southeast asia's industrialization: Industrial policy, capabilities, and sustainability. New York: Palgrave.

Kruger, A. O. (1999). East asian growth: Restrospect and prospect. Structural aspects of the East asian crisis. Paris: OECD

Nair-Reichert, U., and Weinhold, D. (2001). Causality tests for cross-country panels: A new look at foreign direct investment and economic growth in developing countries. *Oxford Bulletin of Economics and Statistics*, 63, 153–171.

Narayan, P. K. (2004). Reformulating critical values for the bound f-statitistic approach to cointegration: An application to the tourism demand model for Fiji, Discussion Paper, Department of Economic, Monash University, Australia.

Laurenceson, J., and Chai, J. C. H. (2003). Financial reform and economic development in China. Cheltenham, U.K, Edward Elgar.

Lee, W. J. (2013). The contribution of foreign direct investment to clean energy use, carbon emission and economic growth. *Energy Policy*, 55,483-489.

Loungani, P., Razin, A. (2001). How beneficial is foreign direct investment for developing countries? *Journal of Finance and Development*, 38, 6-10.

Lumbila, K. N. (2005). What makes foreign direct investment work? A panel analysis of the growth effect of foreign direct investment in Africa. Africa Region Working paper Series No. 80.

Parkin. (2010). Economic growth. Pearson Education. Retrived May 13, 2015 from http://wps.aw.com/aw_parkin_economics_8/65/16893/4324624.cw/index.html

Pesaran, M., Hasem and Pesaran, B. (1997). Working with Microfit 4.0: Interactive Econometric Analysis. Oxford, Oxford University Press.

Ridzuan, A. R., Ismail, N. A., and Che Hamat, A. F., Razak, M. I., and Pardi, F. (2017). The impact of foreign direct investment and trade liberalization on economic growth, income distribution and environmental quality: The comparative analysis between France and South Korea, *International Journal of Academic Research in Business and Social Sciences*, 7(6), 163-182.

Ridzuan, A. R., Ismail, N. A., and Che Hamat, A. F. (2017). Does foreign direct investment successfully lead to sustainable development in Singapore?, *Economies*, 5(3), 1-20.

Rodan, R. P. N. (1961). International aid for underdeveloped countries, *Review of Economics and Statistics*, 43, 107-138.

Sahoo, D., & Mathiyazhagan, M. K. (2003). Economic growth in India: Does foreign direct investment inflow matter? *The Singapore Economic Review*, 48 (2), 151-171.

Sun, H. (1998). Macroeconomic impact of direct foreign investment in China: 1979-1996, *World Economy*, 21(5), 675-694.

Singer, H. (1950). The distribution of gains between investing and borrowing countries, *American Economic Review*, 473-485.

Singh, A. (1995). The causes of fast economic growth in East Asia. *UNCTAD Review*. Geneva and New York: United Nations.

Sjoholm, F. (2002). The challenge of combining foreign direct investment and regional development in Indonesia, *Journal of Contemporary Asia*, 31(3), 381-393.

Sylwester, K. (2005). Foreign direct investment, growth and income inequality in less developed countries, *International Review of Applied Economics*, 19, 289–300.

Tamajaj, A. (2000). The impact of capital inflows on Asian economic growth (Doctoral dissertation, Fordham University, 2000) (UMI Ni. 9981409).

Tvaronaviene, M., and Tvaronavicius, V. (2007). Change of relationhsip between fixed investments and economic growth as country develop: evidence from Lithuania and Austria. Global conference on Business and Economics. ISBN: 978-0-9742114-9-7.

UNCTAD. (1999). Trends in international investment agreements: An overview, United Nations Publication, Sales No. E.99.11.D.23.

UNCTAD. (2003). Investment policy review of Nepal, New York.

World Bank. (2015). World development indicators & global development finance (WDI). Washington, DC.

Xu, B. (2000). MNEs, Technology diffusion and host country productivity growth, *Journal of Development Economics*, 16, 477-493.