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# Distribution of Factors Affecting Foreign Direct Investment in ASEAN Countries

**Anh Thi Lan NGUYEN[1], Chau Thi Minh PHAM[2], Hanh Hong NGUYEN[3], Dat Ngoc NGUYEN[4], Duy Van NGUYEN[5*]**

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## Abstract

**Purpose:** Research on attracting foreign direct investment plays an important role in ASEAN countries. ASEAN has needed FDI capital for development and integration with many developing countries. **Research design, data and methodology:** This study is conducted to assess the impact of factors: inflation (INF), economic growth (GDP), population (POP), and trade (TRADE) on attracting foreign direct investment (FDI) of ASEAN countries. The study will find out how factors distribution contributes to FDI attraction. The study collects data from 10 ASEAN countries from 2010 to 2020. With data collected for ten countries from 2010 to 2020, data analysis with panel data will be used in this study. The Regression with Driscoll-Kraay standard errors correction model will be used in the study. **Results:** Panel data analysis shows that economic growth and population positively impact FDI attraction in ASEAN countries. However, two factors: INF and TRADE, do not affect FDI. **Conclusions:** Countries need to focus on economic development, create many good conditions for people and domestic enterprises and create opportunities for foreign investors to pay more attention. improving the quality of domestic human resources will help to better improve the working quality factor when the demand for high-quality human resources increases.

**Keywords :** Foreign Direct Investment, Factors Distribution, Economic Growth, Population, Inflation, Trade.

**JEL Classification Code:** A10, B22, B26

## 1. Introduction

Developing countries depend highly on foreign direct investment (Ngoc et al., 2021). FDI will help countries improve infrastructure development, economy, and especially employment and technology transfer (Markusen & Venables, 1999; Ngoc et al., 2021; Jayasekara, 2014; Udi et at., 2020). In general, FDI will contribute to boosting the economies of developed countries(Gui-Diby, 2015; Hansen & Rand, 2006; Murshed et al., 2022; Sabir et al., 2019; Sengupta & Puri, 2020). With FDI enterprises operating in host countries, the transportation system will be improved to facilitate the trade of FDI enterprises. When FDI enterprises invest, they will need a large amount of labor in construction and the company. This promotes employment for the

1 First Author. Lecturer, Faculty of Economics, Tay Bac University, Son La, Vietnam. Email: lananhnt@utb.edu.vn
2 Second Author. Lecturer, School of Economics and International Business, Foreign Trade University, Hanoi, Vietnam. Email: minhchaupham@ftu.edu.vn
3 Third Author. Lecturer, School of Economics and International Business, Foreign Trade University, Hanoi, Vietnam. Email: hanhnh@ftu.edu.vn
4 Fourth Author. Lecturer, School of Economics and International Business, Foreign Trade University, Hanoi, Vietnam. Email: nguyenngocdat@ftu.edu.vn
5 Corresponding Author. Lecturer, Faculty of Economics and Business , Phenikaa University, Hanoi 12116, Vietnam. Email: duy.nguyenvan1@phenikaa-uni.edu.vn

population of the business area (Brenton et al., 1999; Ngoc et al., 2021; Akin, 2009). In addition, high-quality human resources are also trained to match the operations of FDI enterprises. This will improve employment skills for domestic workers (Gui-Diby, 2015; Sengupta & Puri, 2020). The host country's human resources also receive new technology elements and new technology operations. This will benefit the technological development of the host countries (Jayasekara, 2014). The important role of FDI can be seen in developing countries.

ASEAN countries have seen an overall 25% decline in FDI inflows between 2019 and 2020 due to lockdown measures, supply chain disruptions, and delayed investment. The top FDI recipients in the region also recorded similar declines – Singapore down 21%, Indonesia down 22%, and Vietnam down 2%. These three countries accounted for over 90% of FDI inflows in 2020. In Thailand, foreign direct investment (FDI) fell to US$6 billion due to Tesco (United Kingdom) divesting capital to a group of investors. Thai investment worth 10 billion US dollars. In Malaysia, FDI fell 55% to $3 billion, while in Myanmar, FDI fell 34% to $1.8 billion. Investment activity in the region shrank across all categories. Announced investment in Greenfield fell 17% to $68 billion, international project funding dropped 21% to $53 billion, and cross-border mergers and acquisitions significantly declined. From $9.8 billion in 2019 to -4.7 billion dollars. Despite the decline, ASEAN remains an attractive investment destination; The region's share of global FDI has increased from 11.9% in 2019 to 13.7%. FDI inflows are still more than double the amount seen during the 2007-2008 global financial crisis and almost five times the annual average during the 2002–2004 SARS outbreak.

From 2020, the appearance of COVID-19 will also affect FDI attraction when lockdowns are implemented in almost all countries at different times. The interruption of production and product consumption makes FDI enterprises almost drip investment in countries. Even Laos, which is considered to have a low number of infections in the early stages of COVID-19, is affected by the economy as well as FDI attraction (Laos' export value in 2020 decreased by 7.68% compared to 2018 (before Covid-19). In addition, foreign investment (FDI) in Laos is forecasted to decrease because many foreign enterprises doing business in Laos have yet to make plans to deploy and expand their production scale in the coming period).

They attract FDI into more important countries with proven economic and social benefits. Therefore, ASEAN countries need to have policies to respond promptly to the macroeconomic situation to help better attract FDI capital. Some studies have shown several macro factors affecting FDI attraction (Anyanwu & Yameogo, 2015; Meyer & Nguyen, 2005). At the same time, studies on FDI attraction for ASEAN are limited. Therefore, this study is conducted to determine the impact of macro factors on FDI attraction in ASEAN countries from 2010 to 2020. The study will assess the effects of factors distribution, such as economic openness (TRADE), inflation (INF), population (POP), and economic growth (GDP), on FDI inflows into ASEAN countries.

## 2. Literature Review

Foreign direct investment is no longer a strange concept to researchers and businesses. FDI is a type of long-term investment by companies or individuals in another country. The main activity of FDI is to invest in production and business, and the investor is the owner of this investment. There are different definitions of FDI. Foreign direct investment is the movement of capital, technology, or any asset from a foreign country for investment to a host country to establish or control an enterprise for profitable business (Ngoc et al., 2021). Foreign direct investment occurs when an investor from one country (the host country) acquires an asset in another country (the attracting country) along with the right to manage that asset (Meyer & Nguyen, 2005).

FDI enterprises also decide to invest in other countries when they realize that many benefits are obtained, which outweigh the costs they have to spend (Buckley & Ghauri, 2015; Dunning, 1980; Rugman, 1981) pointed out three groups of advantages that firms gain from investing abroad: local benefits, internal advantages, and ownership advantages. Local advantage refers to the country-specific advantages that firms gain when investing abroad. These advantages include low labor costs, a productive workforce, tax benefits, low tax rates, good institutions, quality infrastructure, etc. Internal advantages related to the type of production (activities carried out by the company itself instead of licensing them to another party). An ownership advantage can include a company's superiority over its competitors in terms of marketing or technology) There are two main reasons to invest abroad: (1) market search- to serve the local market, and (2) efficient search- to obtain low-cost inputs.

Many factors influence a country's FDI attraction (Alam & Shah, 2013; Jayasekara, 2014). For example, FDI can be affected by market size factors, inflation rate; infrastructure; labor costs; economy, and political and tax risks (Demirhan & Sayilgan, 2021). Bende-Nabende & Ford (1998) studied the factors attracting FDI in the short and long run. They categorized their analysis into factors related to costs, improving the investment climate, and many other macroeconomic factors. At the same time, the study will help examine the distribution of the role of each factor in FDI attraction.

The inflation factor reflects the purchasing power of money over a period of time. An increase in inflation indicates a decrease in the purchasing power of money. Therefore, the government will now have tight monetary policies to control inflation. The money supply is also more limited at this time, and lending interest rates tend to increase. As a result, enterprises' ability to raise capital through financial intermediaries is adversely affected. Since then, businesses may face difficulties if they lack capital. But for FDI enterprises, when they have good capital and high preferential policies of the host country, they are likely to be stronger in their investment decisions. From that, the research hypothesis is as follows:

**H1:** Inflation has a positive effect on FDI attraction to countries.

The population is a factor that shows the supply of human resources in each country, especially countries with young folks. Some ASEAN countries have large populations, such as Indonesia, with about 270 million people, and Vietnam, with nearly 100 million people, promises to be a great source of human resources for businesses in general and FDI enterprises in particular. In addition to abundant supply, ASEAN countries also have low costs. FDI enterprises know and take advantage of young human resources in the ASEAN region. Therefore, they tend to invest more in countries with an ample and cheap labor supply. Thus, the authors hypothesized the following:

**H2:** Population has a positive effect on FDI attraction

Economic growth represents the health of each country's economy. Good economic growth will bring prosperity to the country. Infrastructure will be invested in and developed favorably for life as well as trade. Education and health are also invested more when economic growth is developing. Especially developing countries will be the favorite destinations of foreign businesses when these countries complete their infrastructure systems and have many policies to support foreign companies. At the same time, foreign companies also want to invest more in potential countries when the economy is developing well, with good supporting infrastructure and preferential policies. The research hypothesis is put forward as follows:

**H3:** Economic growth has a positive effect on FDI attraction.

A country's trade capacity represents a country's rate of import and export. The higher the commercialization rate, the greater the degree of integration and the better the ability to connect locally and with other countries. A high trade rate will be a positive sign for FDI businesses. The ability to connect to the system will not only domestically but internationally make the investment plan and development of products and services of FDI enterprises easier. The research hypothesis is put forward as follows:

**H4:** TRADE has a positive effect on FDI attraction.

# 3. Method

## 3.1. Research Model and Hypotheses

The author's research model is simulated as follows:

$$FDIit = \alpha + \beta0*INF_{it} + \beta1*POP_{it} + \beta2*GDP_{it} + \beta3*TRADE_{it} + u_i$$

In which:
*Dependent variable:*
$FDI_{it}$ - FDI flows to country i in period t
*Independent variables:*
$INF_{it}$: Inflation of country i in period t
$POP_{it}$: Popular of country i in period t
$GDP_{it}$: Economic growth of country i in period t
$TRADE_{it}$: Trade of country i in period t

## 3.2. Data Collection

Data is collected for each country in the ASEAN region. Data on FDI and independent variables will be collected from 10 countries, including Vietnam, Thailand, Indonesia, Singapore, Philippines, Laos, Cambodia, Brunei, Malaysia, Myanmar, and Timo-leste. In addition, data was collected from the world bank from 2010 to 2020. With annual macro data of ASEAN countries are reported at Worldbank. It is also a trusted source of publicly available data.

## 3.3. Data Analysis

With data collected for ten countries from 2010 to 2020, data analysis with panel data will be used in this study. The Fixed effect model (FEM) and the Random effect model (REM) are popular models used in panel data research. First, the Hausman test will be used to find the model that fits the research data between FEM and REM. Next are the model's stability tests: The autocorrelation and heteroscedasticity tests. If the model encounters these defects, it shows that it is unreliable for analysis. Therefore, the Regression with Driscoll-Kraay standard errors correction model will be used in the case of autocorrelation or heteroscedasticity (command: xtscc in STATA software).

# 4. Result

## 4.1. Descriptive Variables

After collecting research variables, they will be entered into STATA software for analysis. The results show that the mean_FDI in the whole period is 6.35% of GDP, of which the largest is 32.16% and the smallest is -0.96% of GDP. The common INF for the whole ASEAN region is 3.5, of which the largest is 18.76 and the smallest is -1.46. The region's general GDP reached 5.2% in the entire period, the largest was 19.53%/year, and the smallest was -9.5%/year. The mean_POP is 63 million people, the largest is 274 million people, and the smallest is 1.09 million. The mean trade-to-GDP ratio is 125, the largest is 379, and the smallest is 11.85. Details of the variables are in Table 1.

**Table 1:** Descriptive

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| FDI | 110 | 6.359 | 6.677 | -0.9658 | 32.169 |
| INF | 108 | 3.540 | 3.143 | -1.469 | 18.677 |
| GDP | 110 | 5.2004 | 3.715 | -9.57 | 19.535 |
| POP | 110 | 6.33E+07 | 7.41E+07 | 1093 | 2.74E+08 |
| TRADE | 106 | 125.351 | 87.416 | 11.85 | 379.098 |

## 4.2. Regression

This section will present the result of analysis the distribution of factors affecting foreign direct investment in ASEAN countries. The variables will be included in the regression analysis with two basic models, FEM and REM. Then Hausman test will be performed to find the model that fits the research data. The results show that the FEM model is more suitable than the REM model (p-value of Hausman test = 0.00). However, the FEM model suffers from heteroskedasticity. Therefore, the Regression with Driscoll-Kraay standard errors model was used in this study. Detailed results are in Table 3.

**Table 3:** Result of regression

| | (1) | (2) | (3) |
|---|---|---|---|
| **VARIABLES** | **FEM** | **REM** | **Regression with Driscoll-Kraay standard errors** |
| INF | 0.0910 | -0.0424 | 0.0910 |
| | (0.0811) | (0.0738) | (0.0569) |
| GDP | 0.0596 | -0.0135 | 0.0596** |
| | (0.0584) | (0.0574) | (0.0204) |
| LPOP | 11.02* | -1.055 | 11.02*** |
| | (5.732) | (0.848) | (2.470) |
| TRADE | -0.00251 | 0.0214** | -0.00251 |
| | (0.0118) | (0.00989) | (0.00732) |
| Constant | -183.1* | 21.95 | -183.1*** |
| | (98.69) | (14.87) | (42.72) |
| Observations | 104 | 104 | 104 |
| Number of countries | 10 | 10 | 10 |
| Hausman test | 0.000 | | |
| Heteroskedasticity test | 0.000 | | |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The final regression analysis results show that GDP has a positive effect on FDI (β=0.059 and p-value<0.05). POP also has a positive impact on FDI (β=11.02 and p-value <0.05). The factors INF and TRADE do not affect FDI (p-value is greater than 0.1).

Besides, the study also analyzed countries separately with higher and lower GDPs divided by the median GDP. The analysis results show differences in the impact of factors on FDI. For countries with lower GPD, the INF, GDP, and POP positively impact FDI attraction. As for countries with Higher GDP, only GDP positively affects FDI attraction. Details in Table 4.

**Table 4:** Result of regression with GDP Higher và GDP lower

| | (1) | (2) | (3) |
|---|---|---|---|
| **VARIABLES** | **FEM** | **REM** | **Regression with Driscoll-Kraay standard errors** |
| The regression with GDP lower | | | |
| INF | 0.287* | 0.0370 | 0.287*** |
| | (0.165) | (0.138) | (0.0497) |
| GDP | 0.107 | -0.0304 | 0.107** |
| | (0.131) | (0.109) | (0.0407) |
| LPOP | 17.89 | -1.343 | 17.89** |
| | (13.70) | (1.335) | (5.685) |
| TRADE | -0.0155 | 0.0192 | -0.0155 |
| | (0.0218) | (0.0168) | (0.0136) |
| Constant | -296.6 | 27.39 | -296.6** |
| | (233.7) | (23.73) | (97.06) |

The regression with GDP Higher

| | (1) | (2) | (3) |
|---|---|---|---|
| **VARIABLES** | **FEM** | **REM** | **Regression with Driscoll-Kraay standard errors** |
| INF | -0.0354 | -0.0472 | -0.0354 |
| | (0.0664) | (0.0638) | (0.0235) |
| GDP | 0.254** | 0.299*** | 0.254** |
| | (0.118) | (0.115) | (0.0939) |
| LPOP | 3.501 | -0.460 | 3.501 |
| | (5.015) | (0.777) | (2.939) |
| TRADE | 0.00688 | 0.0277*** | 0.00688 |
| | (0.0129) | (0.00933) | (0.00516) |
| Constant | -57.14 | 8.301 | -57.14 |
| | (86.50) | (13.97) | (50.95) |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The analysis results show that the positive impact of GDP on FDI attraction at all of coutries (GDP lower and GDP higher). It can be seen that ASEAN countries have the ability to attract FDI when GDP has good growth. Good infrastructure will make it easier for FDI enterprises to operate and connect more easily. In addition, well-developed countries often have favorable FDI attraction policies for FDI enterprises (such as tax reductions or administrative procedures for businesses in Vietnam). The results of this study are similar to previous studies in developing countries (Meyer & Nguyen, 2005). For example, when the economy began to develop in Vietnam, better infrastructure development and well-trained labor helped attract stronger investment. From 1988 to the end of 2020, the total registered capital is expected to reach over 400 billion USD, and the realized capital is estimated at 234 billion USD.

Next, the POP factor has a positive effect on FDI attraction. This result shows that countries with larger populations are more attractive to FDI enterprises. This study is similar to previous studies that have shown a positive effect of pop on FDI attraction (Anyanwu & Yameogo, 2015; Anyanwu & Yaméogo, 2015; Meyer & Nguyen, 2005). For countries with large populations, such as Indonesia and Vietnam, abundant and cheap labor is the focus of the attention of FDI investors. The factor of cheap labor has almost been established as an important indicator for FDI enterprises investing in any country. As a populous country (Vietnam is nearly 100 million people, Indonesia is almost 300 million people) with a large labor force, in other words, the labor supply is always large. This leads to labor costs in these countries being considered cheap compared to Asian countries. The benefit of labor cost is excellent for businesses. Therefore, the labor pressure also becomes an advantage in attracting FDI in ASEAN countries. For example, Vietnam is a country in the golden population period with a large labor force. This has helped the human resources problem in FDI enterprises be fully met. In addition, this makes FDI enterprises more interested in countries with abundant human resources.

## 5. Conclusion and Implications

The study has achieved the set objectives and answered the research questions. The study will help examine the distribution of the role of each factor in FDI attraction. First, the study has systematized the theoretical basis for attracting FDI and the relationship between macro factors to FDI attraction. Secondly, the study synthesized and built a research model to assess the influence of factors on FDI attraction, including inflation, economic growth, population, and trade. Third, the study uses data collected from 10 ASEAN countries to find two factors that have a positive impact on FDI attraction in ASEAN countries: (1) economic growth has a positive effect on FDI, and (2) population has a positive effect on FDI. From the results of this study, the authors also suggest some policy implications as follows to increase FDI attraction in ASEAN countries:

Firstly, to attract FDI, countries need to focus on economic development to create many good conditions for domestic people and enterprises and create opportunities for foreign investors to pay more attention. Second, population advantage will be the driving force for FDI enterprises to invest more in the country. Therefore, improving the quality of domestic human resources will help better improve the employment factor when the demand for high-quality human resources increases.

## 6. Limitations and Future Reseach

Although the study has found the distribution of factors affecting FDI attraction in ASEAN countries, the study also demonstrates some limitations. Firstly, the study has yet to use other scales to measure FDI attraction (the study only uses variables to measure FDI inflows into countries). Measuring attractiveness in different scales (attracting from major countries such as Korea, Japan, or Europe) will make the research more prosperous and meaningful. Second, although the study corrected autocorrelation and variable variance, endogenous phenomena should still be considered if necessary. The new research stops at model calibration but has yet to focus on regression analysis with endogenous cases. Endogenous phenomena, if present, can cause the estimates to be biased.

From the above limitations, the authors also suggest further studies. First, future research can use the measure of endogeneity that may occur when estimating regression. Second, the study considers measuring other research variables to supplement the measurement of FDI attraction, such as FDI from countries such as Korea, Japan, or European countries. In addition, the measurement based on the evaluation of FDI enterprises (assess the perception of investment) is also a scale that may be of interest.

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