

CAN FOREIGN DIRECT INVESTMENT REDUCE UNEMPLOYMENT IN HOME COUNTRIES? ANALYSIS FOR ASEAN COUNTRY

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Abstract

Direct Foreign Investment (FDI) has been considered as one of the important strategies in long-term economic development. FDI is seen not only as a capital transfer but also has an important effect on increasing the host economy. FDI then became popular in many countries, so it was interesting to analyze the effects produced, both positive and negative. This research focuses on countries in the Association of Southeast Asian Nations (ASEAN) with the aim of conducting empirical studies on opportunities for employment creation by FDI. However, due to limited data in several countries, this study only involved Indonesia, Singapore, Malaysia and Thailand. The type of data used in this study is annual data covering from 1980-2017. Using estimation Vector Error Correction Model (VECM) allows to see short-term and long-term effects. The test results prove that the influence between variables is more visible in the long run.

Keywords: FDI, Unemployment, VECM

INTRODUCTION

The growth of Foreign Direct Investment (FDI) throughout the world has shown rapid growth since 1970. In 2015 growth reached \$ 1.76 trillion, with almost one third of total FDI inflows received by countries in Asia, including ASEAN (UNCTAD, 2016). ASEAN is an organization in the Southeast Asian country whose aim is to focus on the issue of economic improvement in Member States. Besides being rich in resources, the population in ASEAN is one of the drivers for investors for reasons of market expansion.

This was supported by report from United Nations Conference on Trade and Development (UNCTD) (2005) which concluded that market expansion was the main motive for donor countries rather than reducing production costs. ASEAN consists of 10 member countries, with Singapore ranked first with the largest number of FDI inflows (Figure 1). Through the implementation of free trade and investment, Singapore has achieved the fastest economic growth in Southeast Asia. This strategy then makes Singapore the main country for investment, because lending rates

benefit foreign investors, implement simple regulatory systems, availability of tax incentives, high-quality infrastructure, political stability, strong financial markets, and no corruption (Doing Business Report, 2018). In the recent world investment report by UNCTAD (2015) Singapore became a role model for other Asian countries. All ASEAN member countries actually have their advantages and disadvantages. Indonesia is the largest country among ASEAN countries, allowing it to dominate the internal market. Indonesia also has abundant resources but according to the World Bank Doing Business Report (2018), the country's legal and economic framework is less effective, so Indonesia has 72 ratings from 190 countries. Malaysia and Thailand ranked 24 and 26 making them the top scorers in ASEAN after Singapore. Malaysia has succeeded in creating a healthy business environment and Thailand is an easy place to do business (World Bank Doing Business Report, 2018).

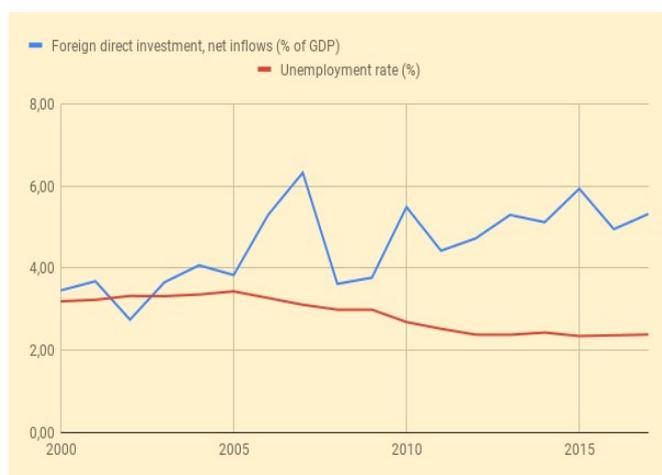


Figure 1. Average Ratio of FDI and Unemployment Rate in ASEAN

Source : World Bank data

The development of FDI is increasingly popular because the stimulus provided is not only related to capital but also labor (Balcerzak and Zurek, 2011). The entry of investment through multinational companies is expected to reduce unemployment in the host country. Where in some countries with large populations are vulnerable to this problem. The average ratio of the unemployment rate in ASEAN is illustrated in Figure 1.

REVIEW OF LITERATURE

However, the issue of FDI remains a topic of debate among policy makers. In theory, FDI does have a positive impact, but in reality there are still some countries that have the opposite. FDI is believed to contribute positively to the economic growth of destination countries (Effendi and Soemantri, 2007). This positive impact can be seen in technology transfer and managerial expertise, the introduction of new production technologies and access to international networks. For developing countries, the entry of FDI also means it is easy to get soft loans. Furthermore, Adam and Mirosławafound that FDI had a positive effect on the labor market but only in the short term. A number of previous studies that have suggested policies to increase FDI are Rahlan (2006); Mun *et al.*, (2008). Whereas Denisia (2010) believes that FDI can increase productivity and competitiveness.

But on the other hand, some countries also

believe that FDI is not profitable. This is because developed countries have the technology left behind so that domestic enterprises are not able to compete with foreign companies. This unfavorable situation can cause domestic companies to close their operations. Monopolies of foreign companies also often occur and cause unemployment to increase. Aktar and Latif (2009) states that FDI is not the key to resolving unemployment because it does not contribute to reducing unemployment.

RESEARCH METHODOLOGY

The type of data used in this study is annual data covering from 1980-2017. The variables used are FDI inflows, unemployment rates, inflation, exchange rates, and population size. The data used is obtained through the World Bank and the IMF. Due to the limitations of data in several countries, this study only addresses 4 countries, namely Indonesia, Malaysia, Singapore and Thailand which are estimated to use the Vector Error Correction Model (VECM) which is a special form of the Vector Autoregressive Model (VAR).

The VAR model describes a system of equations in which each variable is a function of its own lag and lag of other variables in the system. VECM is a special form of VAR, which is used when two non-stationary variables and are found to have cointegration (Engle and Granger, 1987). The occurrence of cointegration illustrates

the existence of long-term relationships in the series (Gujarati, 2004). So that in VECM it is possible to know long-term relationships and short-term relationships in the series. The main idea of VECM is to include error correction terms that adjust short-term fluctuations, thus allowing the model to capture both long-term and short-term properties (Nikolic and Zoroja, 2016)

This study uses the Vector Error Correction Model (VECM) method because it uses macro and monetary variables, making it difficult to separate between independent and dependent variables. VAR has a general form using the OLS equation (Gujarati, 2004).

$$Y_t = \alpha_1 + \sum_{j=1}^k \beta_j \Delta Y_{t-j} + \sum_{t=1}^p \gamma_j \Delta X_{t-j} + u_{1t} \tag{1}$$

$$\Delta X_t = \alpha_2 + \sum_{j=1}^k \theta_j \Delta Y_{t-j} + \sum_{t=1}^p \gamma_j \Delta X_{t-j} + u_{1t} \tag{2}$$

So, to find the relationship between foreign direct investment (FDI) and unemployment rate, the general form of the VAR/VECM equation used is:

$$FDI_t = \alpha_1 + \sum_{j=1}^k \beta_j FDI_{t-j} + \sum_{j=1}^k \gamma_j UNEMP_{t-j} + \sum_{j=1}^k \delta_j GDP_{t-j} + \sum_{j=1}^k \varepsilon_j ER_{t-j} + \sum_{j=1}^k \tau_j Pz_{t-j} + U_{1t} \tag{3}$$

$$UNEMP_t = \alpha_2 + \sum_{j=1}^k \beta_j FDI_{t-j} + \sum_{j=1}^k \gamma_j UNEMP_{t-j} + \sum_{j=1}^k \delta_j GDP_{t-j} + \sum_{j=1}^k \varepsilon_j ER_{t-j} + \sum_{j=1}^k \tau_j Pz_{t-j} + U_{2t} \tag{4}$$

$$GDP_t = \alpha_3 + \sum_{j=1}^k \beta_j FDI_{t-j} + \sum_{j=1}^k \gamma_j UNEMP_{t-j} + \sum_{j=1}^k \delta_j GDP_{t-j} + \sum_{j=1}^k \varepsilon_j ER_{t-j} + \sum_{j=1}^k \tau_j Pz_{t-j} + U_{3t} \tag{5}$$

$$ER_t = \alpha_4 + \sum_{j=1}^k \beta_j FDI_{t-j} + \sum_{j=1}^k \gamma_j UNEMP_{t-j} + \sum_{j=1}^k \delta_j GDP_{t-j} \tag{6}$$

ER and Pz.

$$+ \sum_{j=1}^k \epsilon_j ER_{t-j} + \sum_{j=1}^k \tau_j Pz_{t-j} + U_{4t}$$

RESULT AND DISCUSSION

Stationary test

$$Pz_t = \alpha_5 + \sum_{j=1}^k \beta_j FDI_{t-j} + \sum_{j=1}^k \gamma_j UNEMP_{t-j} + \sum_{j=1}^k \delta_j GDP_{t-j} \tag{7}$$

$$+ \sum_{j=1}^k \epsilon_j ER_{t-j} + \sum_{j=1}^k \tau_j Pz_{t-j} + U_{5t}$$

The statistical test used in this study is Augmented Dickey-Fuller (ADF). The stationary test results in table 1 give different results for each country. But in this test it can be explained that all variables in the 4 countries are stationary in the first difference. Next we can proceed to the optimal lag test stage.

Where FDI is a foreign direct investment, UNEMP is an unemployment rate, GDP is the gross domestic product, ER is an exchange rate, Pz is population size and u is the term stochastic error. K is the lag value of FDI, UNEMP, GDP,

Table 1. Test Stationary Augmented Dickey-Fuller (ADF)

| Variabel | Indonesia | | Malaysia | | Singapura | | Thailand | |
|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | Test |
| | Statistic |
| FDI | -2.30 | -5.47** | -2.95** | -6.57** | -1.28 | -8.00** | -2.06 | -9.85** |
| UNEMP | -1.51 | -3.99** | -1.49 | -3.80** | -2.67* | -3.67** | -1.60 | -6.16** |
| GDP | 0.13 | -5.11** | -4.90** | -8.36** | -2.22 | -4.37** | -2.24 | -3.07** |
| ER | -0.83 | -6.89** | 0.09 | -4.53** | -1.17 | -3.43** | -1.65 | -4.93** |
| PZ | -20.8** | -4.85** | 3.49 | -2.94** | -0.24 | -2.91** | -3.66 | -3.17** |

Notes: ** and * show significant at 5% and 10% levels respectively.

Lag Length Selection Criterion

Some information criteria are used in determining the optimal lag, including Likelihood Ratio (LR), Final Prediction Error (FPE), Akaike Information Criterion (AIC),

Schwarz Information Criterion (SIC), and Hannan Quinnon Criterion (HQ). Optimal lag lies in the criteria that most choose the lag. Thus, the optimal lag used in the next estimation stage is lag 2.

Table 2. Lag Test Results of the Length Criteria

| Indonesia | | | | | | |
|-----------|---------|---------|----------|----------|-----------|----------|
| lag | LL | LR | FPE | AIC | HQIC | SBIC |
| 0 | -27.569 | | 4.40E-06 | 1.861 | 1.9377 | 2.083 |
| 1 | 98.081 | 251.3 | 1.40E-08 | -3.8903 | -3.4301 | -2.557 |
| 2 | 156,15 | 116.14* | 2.4e-09* | -5.7800* | -4.93635* | -3.335* |
| Malaysia | | | | | | |
| lag | LL | LR | FPE | AIC | HQIC | SBIC |
| 0 | -616.21 | | 2.90E+10 | 35.441 | 35.5021 | 3.56E+01 |

| | | | | | | |
|------------------|-----------|-----------|------------|------------|-------------|-------------|
| 1 | -569.58 | 93.275 | 5.10E+09 | 33.6903 | 33.9971 | 3.46E+01 |
| 2 | -518.04 | 103.07* | 6.9e+08* | 31.6597* | 32.2119* | 33.2595* |
| Singapura | | | | | | |
| lag | LL | LR | FPE | AIC | HQIC | SBIC |
| 0 | -42.100 | | 0.0001 | 2.69144 | 2.76814 | 2.91364* |
| 1 | -8.6049 | 66.991 | 6.40E-06 | 2.206 | 2.6662* | 3.54E+00 |
| 2 | 18.085 | 53.382* | 6.30E-06 | 2.10938* | 2.95309 | 4.55E+00 |
| Thailand | | | | | | |
| lag | LL | LR | FPE | AIC | HQIC | SBIC |
| 0 | -475.87 | | 5908.35 | 27.4786 | 27.5553 | 2.77E+01 |
| 1 | -408.83 | 134.08 | 54389.9 | 25.0762 | 25.5364 | 2.64E+01 |
| 2 | -358.13 | 101.4* | 13745.7* | 23.6078* | 24.4515* | 26.0519* |

Notes: ** and * show significant at 5% and 10% levels respectively

Cointegration Test

Cointegration tests need to be done to ensure the right model. The decision to use VAR or VECM is determined through this test. If

there is cointegration, the model used is VECM.

If estimation have no cointegration, the analysis is continued by using the VAR model.

Table 3. The Results of the Johansen Cointegration Test

| max. Rank | Indonesia | | Malaysia | | Singapura | | Thailand | |
|-----------|-----------------|-------------------|-----------------|-------------------|-----------------|------------------|-----------------|-------------------|
| | trace statistic | 5% critical value | trace statistic | 5% critical value | trace statistic | 5%critical value | trace statistic | 5% critical value |
| 0 | 130.175 | 68.5 | 139.6 | 68.52 | 109 | 68.5 | 109.3 | 68.52 |
| 1 | 62.27 | 47.2 | 80.88 | 47.21 | 67 | 47.2 | 66.88 | 47.21 |
| 2 | 33.71 | 29.7 | 40.95 | 29.68 | 33 | 29.7 | 37.05 | 29.68 |
| 3 | 15.22* | 15.4 | 14.12* | 15.41 | 14.75* | 15.4 | 8.57* | 15.41 |
| 4 | 3.00 | 3.76 | 0.132 | 3.76 | 5.6 | 3.76 | 0.656 | 3.76 |

The Trace Test in cointegration tests implies a long-term relationship or balance between a set of variables. The cointegration test results are reported in table 3 above. It is seen that the trace statistic value in this ranking is greater than the critical value, so H_0 is rejected and accepted H_1 means there is cointegration. It can be concluded that based on the Johansen Cointegration Test results using trace test there are 3 cointegration in this equation (marked

with*). So because of the cointegration, the VECM estimation is the most appropriate model to use.

VECM Estimation

Table 4. Cointegrating Equations

| | Indonesia | Malaysia | Singapura | Thailand |
|----------|------------|------------|------------|------------|
| equation | chi2 | chi2 | chi2 | chi2 |
| _ce1 | 197.5496** | 122.2892** | 18.50627** | 101.2893** |

Notes: ** and * show significant at 5% and 10% levels respectively

In table 4 it can be seen that $p > \text{chi2}$ is smaller

than 5%, reinforcing that there is cointegration or a long-term relationship in the VECM equation. To see the cointegration relationship in the equation, we can use the limitation of normalization of johansen applied in table 5. The results of the VECM estimation with two lags are presented in Table 5 below. This table explains that in the long run the unemployment rate has a

significant and negative impact in three countries, except Malaysia. Basically, the four countries give different results, seen in the variables GDP, ER and PZ. GDP has a positive and significant influence in 3 countries except Thailand. Meanwhile population size has a positive and significant impact in Malaysia and Thailand but with very small coefficients.

Table 5. Long Term VECM equation

| beta | Indonesia | | Malaysia | | Singapura | | Thailand | |
|--------|-----------|------|----------|-------|-----------|-------|------------|-------|
| | coef | p>z | coef | p>z | coef | p>z | coef | p>z |
| dfdi | 1 | | 1 | | 1 | | 1 | |
| dunemp | -0.34 | 0.01 | -40.8 | 0.363 | -3.55 | 0.000 | -8.95 | 0.000 |
| dgdgdp | 6.16 | 0.02 | 86.99 | 0.000 | 2.13 | 0.000 | 0.29 | 0.616 |
| der | 0.11 | 0 | -0.06 | 0.195 | 1.91 | 0.83 | -0.62 | 0.000 |
| dpz | -1.66 | 0.59 | 0.001 | 0.022 | 0.07 | 0.13 | 0.00000737 | 0.000 |
| _cons | -0.58 | | 462 | | -2.07 | | -11.4 | |

Notes: ** and * show significant at 5% and 10% levels respectively.

Whereas in the short term the results given are not the same. This explains that in the short term the unemployment rate has a negative impact on the status of the four countries, but the results are not significant at the level of 5%. So that this study proves that FDI does have a good impact on the economy, but unfortunately the impact is only seen in the long term. In addition, this test also proves that the population also has an influence on FDI even though it is only proven in two countries.

CONCLUSION

This study uses VECM estimation, and allows to see the influence of variables in the long and

short term. The results of the study explain that the variable influence is felt more in the long run. In the long run the effect of the unemployment rate on FDI in Indonesia, Singapore and Thailand has a negative and significant impact. With considerable coefficient indicates that the Unemployment rate has a large impact on FDI. But in the short term, estimates give different results, on average, showing insignificant results. Except for Thailand, the unemployment rate affects FDI but in a small proportion compared to the long term. The influence of FDI at the unemployment rate in the short term also gives insignificant results.

Based on the findings of this study, we recommend that ASEAN (representing 4 countries) not only encourage proactive policies to attract FDI but also maintain an appropriate environment, one of which is macro issues and political stability to maintain inflows. We prove that the unemployment rate can affect FDI negatively in the long run but has no effect in the short term. This means that various macro issues affect investors' decisions to invest their capital.

Finally, ASEAN countries are expected to implement regulations regarding the use of skilled and unskilled labor if they want to invest. because it cannot be denied that the skills of workers in some countries are still relatively low because technology is still lagging behind.

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