ANALYSIS OF FACTORS AFFECTING FOREIGN DIRECT INVESTMENT (FDI) IN EAST KALIMANTAN PROVINCE (2015-2019)

A THESIS

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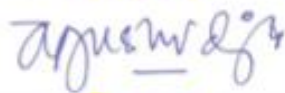## A BACHELOR DEGREE THESIS

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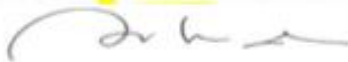
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DECLARATION OF AUTHENTICITY

Herein, I declare the originality of this ; I didn't and haven't presented someone else's work to obtain my bachelor degree in University, nor I have presented someone else's words, ideas, or expressions without any of the acknowledgements. All quotations are cited and listed in the bibliography of this thesis. If in the future this statement is proven to be false, I am willing to accept any sanction complying with the determined regulation or its consequence.

Yogyakarta, 9th February 2021
Author,

Natasya Rahma

MOTTOS

Waktu bagaikan pedang. Jika kamu tidak memanfaatkannya
dengan baik, maka ia akan memanfaatkanmu.
(HR. Muslim)

The Seeking of knowledge is obligatory for every muslim
(Prophet Muhammad , Sunan Ibn Majah 224)

The price of anything Is the amount of life you exchange for
it.
(Henry David Theoreau)

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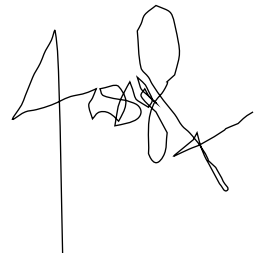
Finally, I hope that this study will be helpful to anyone who reads, and will make a positive contribution to potential researchers, the world, and the future.

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Author,

Natasya Rahma

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ABSTRACT

This analysis aims to find out the factors that influence FDI in East Kalimantan Province. The data used in this analysis is secondary data, which means that the researcher does not independently gather data, but rather collects data from reliable sources, in this case the researcher uses data from the Central Bureau Statistics of East Kalimantan (BPS Kaltim). The data were taken from 9 regencies / municipalities. The dependent variable is FDI and the independent variables are GRDP per capita, Human Development Index (HDI), Electricity Infrastructure, Communication Infrastructure, Road Infrastructure Length, and Government Expenditure, which fulfilled the criteria for this research data from 2015-2019. This study model is a regression of panel data that is a mixture of cross-section data and time series data and is analyzed using Eviews 9 software, with multiple linear regression models of fixed effect analysis as the chosen model. There are several tests used in this analysis, such as the t test (testing individual variables), F test (overall hypothesis test for regression coefficient), and R^2 (goodness of fit).

The research findings showed that the GRDP per capita, HDI, communication infrastructure, and length of road infrastructure variables have a positive and significant impact on FDI in East Kalimantan. Meanwhile, the electricity infrastructure and government expenditure variables do not have a significant effect on FDI in East Kalimantan.

Keywords: *FDI, GRDP per capita, HDI, Electricity Infrastructure, Communication Infrastructure, Length of Road Infrastructure, Government Expenditure.*

ABSTRAK

Analisis ini bertujuan untuk mengetahui faktor-faktor yang mempengaruhi FDI di Provinsi Kalimantan Timur. Dalam hal ini peneliti menggunakan data dari Badan Pusat Statistik Kalimantan Timur (BPS Kaltim). Data diambil dari 9 kabupaten / kota dengan Investasi Asing Langsung sebagai variabel terikat dan variabel bebasnya adalah PDRB perkapita, Indeks Pembangunan Manusia (IPM), Infrastruktur Ketenagalistrikan, Infrastruktur Komunikasi, Panjang Infrastruktur Jalan, dan Pengeluaran Pemerintah, yang memenuhi kriteria data penelitian dari 2015-2019. Model penelitian ini merupakan regresi data panel yang merupakan campuran data cross section dan data time series dan dianalisis menggunakan software Eviews 9, dengan model regresi linier berganda menggunakan analisis fixed effect sebagai model terpilih. Ada beberapa pengujian yang digunakan dalam analisis ini, seperti uji t (menguji variabel individual), uji F (uji hipotesis keseluruhan untuk koefisien regresi), dan R^2 (uji kesesuaian).

Hasil studi menunjukkan bahwa variabel PDRB per kapita, IPM, infrastruktur komunikasi, dan panjang infrastruktur jalan berpengaruh positif dan signifikan terhadap Investasi Asing Langsung di Kalimantan Timur. Sedangkan variabel infrastruktur ketenagalistrikan dan pengeluaran pemerintah tidak berpengaruh secara signifikan terhadap Investasi Asing Langsung di Kalimantan Timur.

Kata Kunci: *Investasi Asing Langsung, PDRB perkapita, IPM, Infrastruktur Ketenagalistrikan, Infrastruktur Komunikasi, Panjang Infrastruktur Jalan, Pengeluaran Pemerintah.*

CHAPTER I
INTRODUCTION

1.1.Background of Study

In essence, developing countries, including Indonesia are very dependent on investment as an effort to improve the standard of living of their citizens. Besides that, investment is also being one of the stages to develop a country's economic condition. According to Noor (2007), there are 2 types of investment activities, direct investment and indirect investment (portfolio investment). Direct investment is an investment in the development factors for the conduct of the business. In general, it is also known as investments in real estate, or investment that is transparent and easy to be seeing. In addition, direct investment has a large multiplier impact on the broader society because it would have a backward impact, in the form of a business input and, in the future, in the form of a business output which is an input for other companies. Meanwhile, indirect investment is investment in capital assets, not in assets or output factors. Examples of indirect investment include: deposits, investment in securities, mutual funds, etc. Investments of these financial instruments are often expected to have potential profits in the form of interest.

Generally, national investment is divided into two types, Domestic Investment (DI) and Foreign Direct Investment (FDI). Domestic investment is an investment activity to run a business in the territory of a country, which is carried out by domestic investors or local investors, either individuals or business entities by relying on domestic capital. Meanwhile, Foreign Direct Investment is an investment activity to run a business in the territory of one country, which is carried out by foreign investors, it can be fully foreign capital or joint ventures with domestic investors. Both types of national investment have the same objective, which is to develop the national economy.

Almost all developing countries cannot fulfil their funding needs on their own, so the foreign investments are needed. According to Ambarsari & Purnomo (2005), due to limited funds owned by the government, to drive economic growth, the role of investment is good in terms of investment from abroad (FI) and from within the country (DI) are highly expected. Funds originating from abroad can come from foreign debt and foreign investment. However, foreign investment seems more profitable because there is no need to return the funds that have already been given. Therefore, industries and companies in Indonesia, both private and state-

owned enterprises, continue to strive to attract the attention of foreign investors' interest in order to invest their capital in Indonesia. According to Dorozynska & Dorozynski (2015), FDI would open up employment in a country and contribute to tax revenue so as to increase the government's revenue and spending . FDI is seen as a significant driver of economic development, growing resources to increase productivity, jobs, innovation and technology. Meanwhile, according to Soltanpanah and Karimi (2013), the FDI that enters the country collectively contributes to the macro-environment of the country through taxes. The results of taxes may be in the form of infrastructure to sustain business operations or may be in the form of infrastructure that facilitates the development of human resources, such as education and health infrastructure.

Attracting foreign investors' attention is not an easy task, especially for developing countries, because a country has to convince investors that the country has a potentially beneficial effect for investors. Therefore, to achieve this goal, a country must have a good economic climate. In Indonesia, there are still so many dubious factors for foreign investors. As stated by Tambunan (2006), these factors range from what is often mentioned in the mass media, such as, security issues, the absence of legal certainty, and poor infrastructure conditions, until worsening labor conditions.

Figure 1.1.

Ranking of Barriers to Doing Business in Indonesia

Source : WEF (2017)

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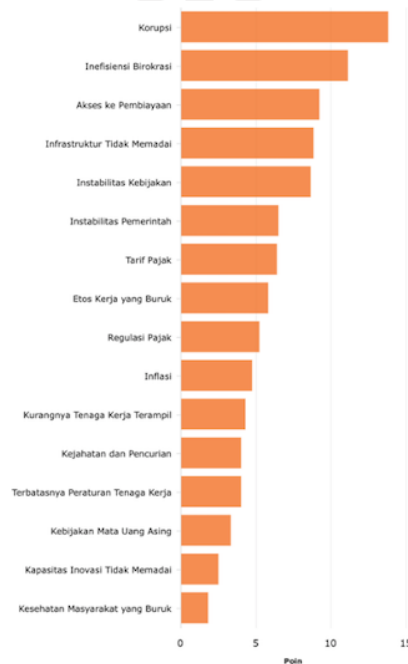
According to the data from the World Economic Forum (WEF) in the 2017-2018 global competitiveness report, the main problem that hinders investment in Indonesia are corruption (13.8%) and followed by bureaucratic inefficiency (11.1%) , which taken from International Monetary Fund; World Economic Outlook Database (2017). With the high level of corruption in Indonesia, it certainly makes investors hesitate to invest. This also makes the cost of investing in Indonesia very high. However, the government is gradually starting to improve these impediments by reducing the level of corruption with tighter supervision, improving infrastructure to facilitate production processes, also improving related regulations, and many others. Fortunately, this ultimately led to slowly improvement of economic condition in Indonesia.

With the improved investment climate in Indonesia as well as the images of the country's geographic condition and a wealth of natural resources attractive to foreign investors, they have started competing to invest their capital in the nation's regions. Such conditions are opportunity for the country, especially its underdeveloped regions to stand more in the eyes of investors, so they can improve their people's standard of living step by step. However, there are still some minority regions that are not following the strategy and not really consider about how important it is to increase their Foreign Direct Investment, and this has become an issue until now. In the other side, some regions, especially on Java Island, already have positive trend after applying some changes to reduce the resistances in doing business.

Table 1.1.

Investment Ranking of 33 Provinces in Indonesia year 2019

No	Province	Investment (US$)
1	Jawa Barat	5,881,000
2	DKI Jakarta	4,123,000
3	Jawa Tengah	2,723,000
4	Banten	1,868,000
5	Sulawesi Tengah	1,805,000
6	Kep. Riau	1,363,000
7	Riau	1,034,000
8	Maluku Utara	1,008,000

9	Sulawesi Tenggara	987,000
10	Papua	941,000
11	Jawa Timur	866,000
12	Kalimantan Timur	861,000
13	Sumatera Selatan	736,000
14	Kalimantan Barat	523,000
15	Bali	426,000
16	Sumatera Utara	379,000
17	Kalimantan Selatan	372,000
18	Sulawesi Selatan	302,000
19	Kalimantan Tengah	283,000
20	Nusa Tenggara Barat	270,000
21	Sulawesi Utara	220,000
22	Gorontalo	171,000
23	Sumatera Barat	157,000
24	Lampung	155,000
25	Bengkulu	144,000
26	Aceh	137,000
27	Nusa Tenggara Timur	126,000
28	Kep. Bangka Belitung	88,000
29	Kalimantan Utara	81,000
30	Jambi	54,000
31	Papua Barat	46,000
32	Maluku	33,000
33	DI Yogyakarta	14,000

Source : Provinces FDI Realization, Badan Pusat Statistik

In table 1.1 , it can be seen that the province of West Java is still the most attractive province to foreign investors with an investment value of US $ 5,881,000 in 2019. This is evident as a result of the government policy to loosen regulations for investing in West Java, also supported by the increasingly advanced infrastructure so that the process of production and transfer of goods and services is also getting easier. After West Java, DKI Jakarta is the second-ranked province that has attracted the attention of investors with foreign investment

totaling US $ 4,123,000 in 2019. This is common considering that DKI Jakarta is the capital city of Indonesia, which means everything including the economy is centered in DKI Jakarta so that foreign investors are not reluctant to invest in this province. Based on the table above, it can be seen that, the island of Java and its surroundings still dominate FDI in Indonesia, considering all kinds of aspects of industry, economy, and even business are more developed than any other provinces in Indonesia. In addition, the infrastructure development on the island of Java is always ahead than other provinces. According to Maimunah (2010), the construction of road infrastructure in Indonesia focuses more on the island of Java that the development is unevenly distributed throughout Indonesia. Thus, it is believed that there are variations in economic development between the regions of Indonesia.

According to Hanifa (2019), rapid development will certainly be supported by adequate infrastructure. Meanwhile, areas in other islands, such as Kalimantan Island tend to be left behind in terms of infrastructure, so that the economic growth is also far behind compared to the regions on the island of Java. Infrastructure growth requires the allocation of government resources. Without sufficient allocation of government capital, development process would be hindered or delayed. Infrastructure plays an important role in promoting access for people in remote areas far from cities, as well as in facilitating the mobilization of the manufacturing process in order to minimize the cost of production and reduce the time spent. The examples of infrastructures constructions in East Kalimantan are the APT Pranoto Airport in the city of Samarinda, the Balikpapan-Samarinda toll road, the Kipi Maloy Port in East Kutai and the Marangkayu Dam in Kutai Kartanegara. The constructions of these infrastructures have been able to raise the standard of living of the population and enhance labor productivity. According to Muta'ali and Kusuma (2019), the provinces of East Kalimantan and North Kalimantan are provided with high infrastructure, given that these areas are the centre of national strategic area so that the infrastructure are encouraged to develop for supporting trade processes.

In East Kalimantan, petroleum and gas mining industry is still one of the most prominent sectors and even in Indonesia. Petroleum and gas mining products are the two largest export commodities in Indonesia. Mining products in East Kalimantan are petroleum, natural gas, coal, water, crude oil, tin, bauxite, gold, nickel, etc. One of them, coal, as one of the non-renewable natural resources, can be turned into a new source of energy. Based on its material, coal can be converted into a new energy source through a process of gasification or liquefaction. According to Siburian (2012), coal supplies cover almost the entire of East

Kalimantan Province, even though many settlements in the province are built on coal itself. East Kalimantan's coal reserves are the highest of the three other provinces on the Kalimantan island. East Kalimantan, with its relatively large coal reserves, is more likely to generate alternative fuel oil or alternative energy sources by using coal liquefaction technology to become fuel oil. According to EITI (Extractive Industries Transparency Initiative), East Kalimantan Province is the second largest province in Indonesia after Papua Province and the fifth-largest contributor to PDBR with the ability to develop after the island of Java. Based on the data collected by the Mining and Energy Office of East Kalimantan Province, East Kalimantan coal production accounts for around 60% to 70% of national production. Therefore, in recent years, local and national governments have continued their efforts to improve growth in the East Kalimantan province.

Given that the geographical conditions of East Kalimantan are very favorable, with a wide area potential, these can make natural resource management a major regional income in that province, this gives rise to development optimism because of the increase in exports in the form of commodities such as, coal, CPO, fisheries, manufacturing and others. According to Daniah (2014), East Kalimantan is a province with great foreign investment prospects, seen from the high potential of existing natural resources. Until the end of 2019, 30 countries invested in the province, with the mining sector still holding the highest foreign investment realization volume. According to data from DPMPTSP Kaltim, British Virgin Island, South Korea and Singapore are the three countries with relatively high investments in East Kalimantan.

Table 1.2.

Rank of Foreign Investment Realization of 9 regencies / municipalities in East Kalimantan province (thousand US$)

Regency/ Municipality	2015	2016	2017	2018	2019
KUTAI TIMUR	237863.9	289147	711562.6	205675.8	304294.3
BALIKPAPAN	147521.5	401808.6	171762.1	237549.8	384974.2
KUTAI KARTANEGARA	169538.8	124770.9	230618.6	141441.7	129568.7
SAMARINDA	80416.3	25685.6	56054.3	102099.1	231280.4
KUTAI BARAT	52728.8	67079.6	42137.6	33957.6	67924.5
PENAJAM PASER UTARA	16719.5	18052.8	14916.5	10989.2	14765.6
BONTANG	13182	15265.5	18914.8	114775.1	280755.5
PASER	13051.1	17961.6	31559.4	12336.4	26060.9

| BERAU | 15730.4 | 18526.7 | 20904.1 | 19383.6 | 27950.9 |

In the table 1.2. It can be seen that East Kutai Regency is still the favorite for foreign investors in East Kalimantan, with foreign investment hitting US$711,562,600 in 2017, because the East Kutai Regency is one of the largest coal producers in East Kalimantan and one of the largest open pit mining companies in the world, namely PT Kaltim Prima Coal. In addition East Kutai also has an oil palm plantation sector that is the driving force for the economy of the citizens of East Kutai. Meanwhile, the second-ranked is placed by Balikpapan, which is also still attractive to foreign investors, with a total of US$ 401,808,600 in 2016. This is because Balikpapan is Indonesia's largest oil producing city. In addition, the city is also a liveable city, which is why foreign investors are interested in investing in building property infrastructure such as hotels and housing, followed by investment in the tourism sector. Additionally, investors also see a strong opportunity to do business in Balikpapan, which in turn makes Balikpapan an enticing city for foreign investors. It can therefore be inferred that the province of East Kalimantan is attracting the most foreign investment in the oil and gas mining industry. The Kutai Kartanegara regency is ranked 3rd in East Kalimantan, the investment movement of Kutai Kartanegara continues to increase every year, and in 2017 the investment value of Kutai Kartanegara reached US$ 230,618,600, which was higher than the previous year. Whereas in the fourth position there was Samarinda, in which the investment continued to increase steadily in 2018 and 2019, the investment value of Samarinda was US$102,099,100, higher than the previous year, which was only US$56,054,300. Samarinda's strategic geographic position and East Kalimantan capital, with very exciting mining resources, are still the city's mainstay in attracting foreign investors, dominated by the mining and manufacturing sectors. There are also the other five Regencies and Municipalities, which are Kutai Barat, Penajam Paser Utara, Bontang, Paser and Berau (according to rank), which also participate in foreign investment in East Kalimantan, with Berau Regency having the lowest foreign investment in East Kalimantan.

The economic condition of East Kalimantan is increasingly promising for investors and the improvement of the economic environment has increased the GRDP per capita of the East Kalimantan Province in each area. According to data from the Central Statistics Agency or BPS (2019), the GRDP per capita in the province reached IDR 175,690,000 in 2019, compared to IDR 146,950,000 in 2015. Meanwhile, based on current prices, the GRDP reached IDR 653,800,880 trillion in 2019, with Kutai Kartanegara as the largest contributor with IDR

162,739,380 trillion in 2019. This number continues to increase from year to year and is projected to continue to increase over the following years, taking into account the improvement of all facets of the economy in the province of East Kalimantan.

Economic development in terms of human resources development in the eastern province of Kalimantan continues to rise from 2015 to 2019, which is marked by an increase in the Human Development Index (HDI). HDI in East Kalimantan was 73.82% in 2015, while HDI rose to 76.61% in 2019. HDI is an indicator used to track trends in the long term. There are two things that need to be addressed in order to see the advancement of human development, namely speed and the status of achievement. Overall, the HDI in East Kalimantan continues to increase from 2015 to 2019. This means that human development has been very well carried out in the province and, of course, the quality of human capital has also improved. HDI in East Kalimantan has the potential to continue to keep increasing in the upcoming years.

In addition to human resource growth, there is also a rise in infrastructure development in the province of East Kalimantan. The growth of electricity infrastructure, which can be shown by an indicator of the number of electricity users, has shown that in 2019 the number of users in the province reached 987772, ranging from households, businesses, government, etc. in 2015, there were 7,84932 electricity customers. This suggests that the distribution or growth of electricity networks in the province will continue to increase. In addition to electricity infrastructure, communication infrastructure has also continued to increase from 2015 to 2019, as shown by the increase in the number of BTS towers built from 848 in 2015 to 978 in 2019, suggesting that the expansion of electricity infrastructure will continue to increase. In addition, road infrastructure also continues to undergo growth, as can be seen from a road length of 14038.61 km in 2015 to 14615.47 km in 2019, which shows that road construction in East Kalimantan continues to improve. The three infrastructures listed above are the ones that can spur economic activity. Without adequate electricity, communication and road infrastructure, production process will be likely to be impeded and require more resources, costs and time.

A sufficient government budget allocation is required for economic growth, to carry out the needs of the development process, such as the improvement in infrastructure. If the government budget is adequate, this means that there is a well running economic growth in a region. In the province of East Kalimantan, using a measure of the amount of Total Government Expenditure, it can be seen that there is a very high level of government

expenditure in each year which continuing to boost infrastructure, human capital and even economic development in the province. Government expenditure hitted IDR 243,632,409 trillion in 2019. With such a large amount, it can be inferred that economic development continues to be encouraged in East Kalimantan.

It is therefore important, on the basis of the above-mentioned problems, to know the factors relating to foreign direct investment. Thus, this research study intends to investigate the differences in investment value in the province's nine regencies/municipalities , and the factors affecting FDI in the province. Therefore, the title of this research is entitled "*Analysis of Factors Affecting Foreign Direct Investment in East Kalimantan 2015-2019*".

1.2. Problem Formulation

Based on the study background that has been stated above, a few problems can be formulated as follows.

1. How does Gross Domestic Regional Product (GDRP) per capita affect the Foreign Direct Investment (FDI) in East Kalimantan ?
2. How does Human Development Index (HDI) affect the Foreign Direct Investment (FDI) in East Kalimantan ?
3. How does Electricity Infrastructure affect the Foreign Direct Investment (FDI) in East Kalimantan ?
4. How does Communication Infrastructure affect the Foreign Direct Investment (FDI) in East Kalimantan ?
5. How does Length of Road affect the Foreign Direct Investment (FDI) in East Kalimantan ?
6. How does Government Expenditure affect the Foreign Direct Investment (FDI) in East Kalimantan ?

1.3. Research Objectives

Based on the problem formulation that has been mentioned, the objectives of this study are as follows.

1. To analyze whether the Gross Domestic Regional Product (GDRP) per capita affect Foreign Direct Investment (FDI) in East Kalimantan Province.
2. To analyze whether the Human Development Index (HDI) affect Foreign Direct Investment (FDI) in East Kalimantan Province.

3. To analyze whether the Electricity affect Foreign Direct Investment (FDI) in East Kalimantan Province.

4. To analyze whether the Communication Infrastructure affect Foreign Direct Investment (FDI) in East Kalimantan Province.

5. To analyze whether the Length of Road affect Foreign Direct Investment (FDI) in East Kalimantan Province.

6. To analyze whether the Government Expenditure affect Foreign Direct Investment (FDI) in East Kalimantan Province.

1.4. Research Contributions

This research provides benefits theoretically and practically. Theoretically it would make a significant contribution to the field of economics, especially the factors that affect Foreign Direct Investment (FDI). Thus, students can expand their horizons by learning the research findings. Furthermore, it can be a reference for other researchers to conduct further research on FDI in other regions. Practically, the society may take advantage of the research findings as they can be a reference for future economic activities.

1.5.Problem Limitation

Based on the background and problems that have been formulated, it is necessary to limit the research problems. The problem limitations of this research are as follows.

1. This research will be limited to the analysis of the factors that affect foreign direct investment (FDI) in East Kalimantan Province in 2015-2019.

2. The factors analyzed are limited to several independent variables, which are, Gross Domestic Regional Product (GDRP) percapita, Human Development Index (HDI), Electricity, Communication Infrastructure, Length of Road, and Government Expenditure.

3. The data used in this research is secondary data, taken from Badan Pusat Statistik Indonesia.

4. Methods in data collection are Cross Section Data and Time Series Data. Cross Section Data is in the form of Regencies and Municipalities in East Kalimantan, there are 10 Regencies/Municipalities, while the Time Series Data is in the form of the period under this research, which is 2010-2015.

5. This is a quantitative research using Eviews 9. The processing method uses the Regression Analysis with Panel Data Model. The results will be analyzed with the

statistical test by testing the partial regression coefficient (t test), testing the regression coefficient (F test), and the coefficient of determination (R2).

1.6.Systematics of Writing

Chapter I : Introduction

This chapter presents the Research Background, Problem Formulation, Research Objectives, Problem Limitation, and Systematics of Writing.

Chapter II : Review of Related Literature

This chapter addresses the theories of foreign direct investment, along with the explanation, factors, relationship among research variables and references to the research problems being analyzed. At the end of this chapter, the analysis of hypotheses is discussed.

Chapter III : Research Method

This chapter explains the type and purpose of this analysis, the sample data, the data collection method, the research variables and the observational methodology.

Chapter IV : Data Analysis and Discussions

This chapter examines and analyzes data in the form of hypotheses and research results.

Chapter V : Conclusions and Recommendations

This chapter discusses the results and the observations, study limitations and suggestions for institutions and future researchers.

CHAPTER II
REVIEW OF RELATED LITERATURE

2.1. Theoretical Framework

2.1.1. Investment

The term investment comes from the word "invest", which means to consume or to use. The concept of investment is to create something that brings benefits that can be shared with others in the future. According to the economists, investment is the procurement of capital goods and industrial machinery to increase the capacity of individuals or business actors to generate goods and services available in the market. In addition, investment means expenditure on products which are not directly consumed but may increase production resources or production materials. Investment in Indonesia is provided for by Law No.25 of 2007 on foreign investment. Foreign investment in this Act shall be an investment activity in the territories of the Republic of Indonesia carried out by foreign investors, either using foreign capital as a whole or in partnership with domestic investors (Article 1 of Law No.25 of 2007 concerning Capital Investment). According to Sukirno (2013), investment can be defined as the expense or capital spending of a corporation to buy capital products and production equipment in order to increase the production capacity of good and services available in the economy. The rise in the amount of capital goods helps the economy to produce more goods and services in the future. Investments are often made to replace old capital goods that need to be depreciated. Thus, investment can encourage capital accumulation, such as increasing stocks of machines, buildings, raw materials, and other important equipment to increase the potential output of a region and stimulate economic growth over the long term. Therefore, if an area has a high level of investment, the economic growth in the area will increase.

Investments focused on the subject are split between public and private investment. Public investment is a government investment. The federal government, as well as local government, is supposed to be the government. In brief, public expenditure is not made by personal individuals. Meanwhile, private investment is the opposite of public investment. Private investment is made up of individuals and business organizations listed in Law No. 25 of 2007. In the case of private investment, elements such as income to be gained, potential revenue and so on play a very significant role in deciding the amount of investment when determining the volume of investment. Public spending considerations are more geared towards serving or building welfare for the common society. On the basis of its origin,

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investment is divided into domestic investment and foreign investment. Domestic investment is any investment that is done by the local people inside the country, meanwhile foreign investment is any investment that is done by foreigners or foreign business into another country. A country that has a lot of natural resource factors or human labor production factors, but does not have enough capital production factors to process resources, would invite foreign capital to make full use or maximize the use of existing resources.

Mankiw (2019) claimed that the investment role relates to the sum of the investment or the real interest rate(r). Investment depends on the real interest rate, since the interest rate is the interest cost. The investment role is declining as the interest rate increases, less investment ventures are profitable. Meanwhile, according to Sukirno (1994), the amount of profit to be gained will play a major role in deciding the degree of investment to be made by entrepreneurs. Apart from deciding potential expectations for benefit, a variety of other factors often play an important role in determining the amount of expenditure to be made in the economy.

2.1.2. Foreign Direct Investment (FDI)

Foreign investment is an operation aimed at converting potential opportunities into actual economic strengths. The resources in question are regional resources that are processed and used fairly and equitably to improve the welfare of all citizens. Investment in Indonesia is regulated by Law Number 25 of 2007 concerning Investment. According to Law No. 25 of 2007 Article 3, foreign investment is an investment activity carried out by foreign investors in the territories of the Republic of Indonesia, either entirely using foreign capital or joining domestic investors. The use of foreign investment, both indirect and direct, not only increases production capital but also overcomes technological backwardness and also adds new skills for the labor so that it will accelerate economic development in developing countries (Jhingan, 2000). According to Krugman (2004), the presence of relative differences in the amount of labor and capital kept between countries creates differences in the rate of return of capital reflected by interest rates. This triggers the transfer of capital from rich countries to poor countries.

Indonesia's foreign investment can be split into two types, which are direct and portfolio investment. According to Anoraga (1995), foreign investment in Indonesia can be made in two types of investment, which are portfolio investment and direct investment. Portfolio investment

is an investment made in the capital market of financial instruments such as stocks and bonds. Portfolio investment is carried out through the capital market with securities instruments such as stocks and bonds. In portfolio investment, the funds that go to companies that issue securities (issuers) do not necessarily create new jobs opportunities. Meanwhile, direct investment, known as foreign investment, is a type of investment made through the construction, purchase or acquisition of companies. Krugman (2004) asserts that what is meant by foreign direct investment is the flow of international capital in which companies from one country create or develop their companies in other countries. The main characteristic of foreign direct investment is that it requires not just the movement of capital, but also the imposition of controls. According to Ningrum,et al (2018), foreign direct investment (FDI) consists of real assets, i.e. the purchase of land used as a means of production, the construction of factories, the purchase of inventories followed by established management functions

Foreign direct investment has more benefits than portfolio investment, since foreign direct investment is in terms of a permanent nature or long-term type and invests in the labor, improvement in technology, and job creation sector in a responsible way. According to UNCTAD (United Nations Conference on Trade and Development), FDI will lead to economic growth in a more conventional way by raising the investment rate and expanding the capital stock in the host economy. Thus, it can be concluded that why most developing countries, including Indonesia, are very interested in increasing FDI in each of their region, because of the multiplier effect that FDI is likely to generate, such as the increase in employment rate as the effect of the capital accumulation which will also decrease the unemployment rate, and will increase the national income of a country.

The theory of economic growth developed by the Neo-Classics emphasizes the role of capital in a country. Domestic and foreign investment will help the economy of a country. Domestic investment (DI) is considered capable of encouraging the economy of a developing country very well, if the investment that occurs in the country increases. For Indonesia, in addition to domestic investment, Foreign Direct Investment (FDI) has a big role in complementing domestic investment needs. FDI has a constructive position for developing countries in the study of traditional neoclassical theory and endogenous growth theory. The presence of foreign investment is expected to fill the gap between the recipient country's supply of savings, foreign exchange reserves, government revenue and management skills and the amount of supply required for growth and development target to be achieved. FDI increases

production capabilities and becomes a medium for technology transfer from abroad to the target country (read : developing country). In terms of production, FDI can increase the productivity of domestic companies by transferring technology that is brought along with the entry of FDI. The presence of a foreign investment in the form of FDI can also increase the competitiveness and superiority of domestic products.

Law No.1 of 1967 is one of the policies that has been established by the government regarding Foreign Investment. In this Law, what is meant in Foreign Investment is only investment which includes Foreign Direct Investment (FDI) which is carried out based on the provisions of the Law stipulated in operating companies in Indonesia. One of the discussions in the law states that foreign direct investment in this case is not only money but also power and decision-making by foreign parties, as long as all their needs do not breach the laws in place in Indonesia and are approved by the Government of Indonesia. Thus, the lender is entirely responsible for the use of credit and the risk.

According to Salvatore (1996), there are numerous explanations why foreign individuals or companies are investing directly in the economy of a country, including horizontal integration and vertical integration. In horizontal integration, or extension of production activities to a wider region, large businesses that already dominate the domestic market in their home countries have specific manufacturing expertise and management abilities that can be used to make greater profits if their excellences are implemented abroad. In such a scenario, a company would make foreign direct investment. In vertical integration, foreign direct investment corporation continues to gain access and control over the supply chain of raw materials or primary commodities it needs in the investment. International direct investment destinations are typically in developing countries and a handful of developed countries that are rich in mining materials.

There are several motives for FDI to take part in a country or region, according to Cohen (1993), depending on the goal, there are three types of FDI, which are FDI that is looking for a market (market-seeking), FDI looking for resources or assets (resource or asset-seeking) and FDI looking for performance (efficiency seeking). On the basis of market orientation, there are two types of FDI, namely domestic market orientation FDI and export market orientation FDI. For market-oriented FDI, market size, market growth opportunities, and the pace of economic growth in foreign investment destination countries are main factors

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that can attract FDI. The higher the business share, the quicker the growth of the economy. A higher level of economic growth will provide the manufacturing industry with greater opportunities to exploit its benefits and draw foreign direct investment to domestic markets.

Factors that can motivate foreign investors to undertake FDI in a country are the ability to access natural resources in Indonesia, avoid tariffs, extract profits in foreign countries, and increase the relatively low wages of workers in developing countries like Indonesia. FDI can be used as a way to access natural resources in a country or region. The orientation of foreign investment is to obtain natural resources that are cheaper and more efficient in which the resources in the origin country are no longer sufficient. However, it can be trade-oriented in which the investors wish to import commodities that have lost their comparability if produced in the investor's country of origin. FDI can also be used as a way to avoid tariffs for incoming products that can obstruct trade routes and reduce profit levels, so that establishing a company in that country is an effort to avoid these rates. In addition, FDI is also carried out with the motive of getting more profit than sales in the home country. Finally, most wages in developed countries are already too high compared to capital and the development of new products that are more capital and knowledge intensive so that alternatives to opening or establishing industrial businesses in other countries are more profitable, especially if the destination country or developing country has labor wages cheaper than their home country, such as Indonesia.

2.1.2. The Relationship Between FDI and GRDP Per Capita

The Gross Regional Domestic Product (GRDP) is an important metric, either at current prices or at constant prices, to determine economic conditions in the country over a period of time. GRDP is the basis for the added value produced by all business units in a given area or the amount of the value generated by all economic units in that region of the final goods and services. The GRDP data is generally provided in per capita form. GRDP per capita is a summary and average income earned by each resident for a period of one year in an area. This per capita GRDP may be derived from the quotient between the GRDP and the mid-year population concerned. The data provided in this form is an indicator that can be used to calculate the stability of a province. It can therefore be inferred that the higher the GRDP per capita level of the region, the higher the level of prosperity of the people in the area.

GRDP per capita, or sometimes referred to as per capita income, is the average income of the people in the region. According to Lincolin, A (1997), per capita income is still one of

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the best measures of economic growth since it focuses on the raison d'etre of development, which means growing living standards and eliminating poverty. GRDP Per Capita is useful for understanding the average income of the citizens of the country and as an indicator for carrying out regional economic development activities. According to Muta'ali (2015), rising per capita income is expected to solve economic problems such as unemployment, poverty, and income distribution disparities in the nation. On the basis of the GRDP per capita concept, it can be seen that the sum of income is produced by each resident in the area. The higher the per capita income, the more likely the region is to have a high level of growth and average income for the population.

There is a very close relationship in a particular region between investment and GRDP. If the GRDP increases, investment spending will also increase, and there will be a positive relationship. Similarly, the rise in regional income (GRDP) appears to increase demand for consumer goods and services, which means that it would cause more consumer goods and services to be produced. This means that additional existing capital is needed with the addition of investment projects. Thus, the rise in the amount of GRDP results in an increase in the number of investment ventures carried out by the community (Todaro, 2000).

Investment serves as a means and incentive for economic growth, in particular with a view to extending the use of labor to increase production or productivity. The Classics found the accumulation of capital to be an absolute necessity for economic growth. As a consequence, revenue is projected to rise with the existence of economic growth. So, indirectly, it can be assumed that investing can increase GDP (Boediono, 1998).

If the region has a high GRDP, investors would choose to invest in the area. On the other hand, the more investment is made, more goods and services generated in the region will increase so that the GRDP will increase. Investment is also a means and motivation in the implementation of economic development, especially in an effort to expand the use of labor in increasing production (output). The classical theory consider the accumulation of capital as an absolute condition for economic development, so that economic development is expected can increase the national income. So indirectly it can be said that investment can increase the GRDP and vice versa (Sabono & Kusreni, 2013).

Keynes argues that an increase in the amount of investment would expand production and the use of labor. There is a positive relationship if the GRDP increases, investment spending will also increase. Likewise, on the other hand, the increase in income of a region (GRDP) has a tendency to increase the demand for consumer goods and services, which means that it will require the production of more consumer goods and services. This means that it requires additional existing capital by adding investment projects. Investment is part of the GRDP, meaning that if one part rises, the entire part is also too (Samuelson and Nordhous, 1998).

Therefore, based on the above different opinions of some economic theorists, it can be inferred that the higher the per capita GRDP value or GRDP amount, the greater the region's FDI inflows value.

2.1.7. The Relationship Between FDI and Human Development Index (HDI)

For all countries in the world, the Human Development Index (HDI) is a comparative measure of life expectancy, literacy, education and working standards. HDI is used to classify whether a nation is a developed country, a developing country or an underdeveloped country and also to measure the influence of economic policies on the quality of life. The philosophy of human development as a whole is a concept which calls for an improvement in the quality of life of the people, both physically, mentally and spiritually. Indeed, it is specifically stated that the development carried out focuses on the development of human capital in line with economic growth. The Human Development Index uses a new method that is calculated on the basis of data that can be used to describe four components, namely the rate of life expectancy, the length of school expectations, the average length of schooling, and the amount of public expenditure for the consumption of basic needs, namely per capita expenditure, as the approach used as benchmarks for success in the development of a decent life.

The flow of FDI in a country is affected by many factors, including interest rates, exchange rates, natural resource conditions and the quality of human resources (including labor productivity) of the target country. In other words, there are a number of directions for multinational corporations to enter the country, including: resource-seekers, market-seekers, efficiency-seekers, strategic asset-seekers, escape from investment and investment support (Dunning, 1993).

The amount of human capital has a positive impact on the inflow of FDI. This is because one of the goals of the FDI to join a country is the level of competence or skill of the workforce or labor. Thus, the higher the amount of human resources quality in Indonesia, the higher the inflow of FDI, since foreign firms would be more effective in carrying out development activities with a productive workforce (Ramzy, 2018).

As opposed to domestic investment, FDI contributes the most to economic development and is a key determinant of technology transition. Transferring technology improves manufacturing efficiency and stimulates economic growth. It improves expertise by acquiring new skills and labor preparation, as well as implementing new business strategies. Economic growth is positively correlated with FDI, but it depends on human resources. FDI investment would not favor countries with a low level of human resources (Borensztein et al., 1998).

It is stylised in the literature on foreign direct investment that one of the most significant determinants of its inward FDI flow is the stock of human capital in a nation. Many nations see attracting FDI as an essential component of their strategies for economic growth. FDI is one of the key avenues for the technology revolution across national boundaries. FDI will increase competitiveness in the host economy, increase productivity for domestic companies and stimulate sectoral and product diversification (Eicher and Kalaitzidakis,1997).

The findings cited above indicates that several authors have empirically verified the important position of human capital as a factor attracting FDI. The quality of human capital itself can be defined by an increase in the level of HDI, so that it can be inferred from some of the above opinions that the higher the level of HDI in the region, the higher the level of FDI that can be produced in a region.

2.1.8. The Relationship Between FDI and Electricity Infrastructure

Electrical energy plays an important role in daily life and in the conduct of production activities. The rise in economic efficiency is also influenced by the supply of electrical energy. In the presidential regulation of the republic of Indonesia number 4 of 2006 concerning the acceleration of electricity infrastructure development article 1, Electricity infrastructure is all things related to electric power generation, electricity transmission, electricity distribution, substations, and other supporting facilities. Based on this following presidential regulation, the

presence of electricity infrastructure would promote practices requiring a source of electrical energy, and it is undeniable that all people do on a daily basis needs a source of electricity, even in the manufacturing process. Without the existence of an source, the production capacity of a business in a region would be decreased. Adequate electricity infrastructure is therefore required to increase the productivity of the region.

Electricity is the key energy used to drive a number of production machines in a number of factories, and to drive an essential communication infrastructure for selling goods via an online system. Given that economic activity has evolved into a digital environment, the Internet is the key to facilitating trade flows (Muta'ali and Kusuma, 2019).

The greater the amount of electricity sold represents the amount of electricity consumed by the population, which means that the availability of regional access to electricity will help to improve the movement of the regional economy. The amount of energy use is also rising due to the rise in population from year to year. However, demand for electricity usage is not commensurate with the quality achieved by customers, as there are regular blackouts in some areas that can interrupt economic activity which in turn potentially leads to declining economic development. If infrastructure declines, it will result in reduced production which will have an impact on declining welfare. Adequate electricity infrastructure encourages development in the region because it can increase production in the construction sector and increase people's income. It is therefore important to build a more equitable electrical energy system in order to enhance the quality of life and productivity of the population. The availability of electricity definitely makes it very convenient for people to carry out manufacturing operations, both goods and services (Anggraeni, 2016).

In conclusion, according to research findings from several theories, electricity infrastructure will boost the economic condition of the region, thereby it will also increase the flow of FDI in a region.

2.1.9. The Relationship Between FDI and Communication Infrastructure

Today, telecommunications is inseparable from daily life, and has also become a necessity. Many people have felt the benefits of telecommunications services, including business actors, households, and even children in fulfilling their aspect of life. According to the Secretary-General of the Ministry of Communication and Information, there is a total need

for information in a country because it can improve economic development, the standard of living and the quality of society. It therefore needs the availability of sufficient information infrastructure, such as access, capacity, quality and coverage. According to Tamara (2011), telecommunications services have helped to make business processes more accessible and effective. Prior to the existence of telecommunications networks, contact between financial institutions could only take place via physical meetings, which would, of course, often require travel costs, which would cost a lot of money, particularly for remote areas. This does not happen again in the telecommunications age, as it is now, because convenient access to long-distance contact between individuals has improved cost and time productivity in business activities. Nevertheless, the rise in the number of telecommunications subscribers or users and teledensity, should be accompanied by a sufficient infrastructure.

In Indonesia, the users of telecommunication services, experienced the always increasing amount from year-to-year. This indicates that the distribution of communication infrastructure in Indonesia already covers almost the entire region, and it also indicates that the use of telecommunications networks is no longer a taboo topic for the public. According to Ngatono (2016), in response to high customer growth and in order to extend telecommunications services to all regions of Indonesia, operators are expected to provide telecommunications infrastructure, in particular cellular, which can meet the needs of all citizens, including rural and remote areas. This can be fulfilled by improving the aspect of communication infrastructure in every region. This can be achieved by increasing the number of Base Transceiver Station Towers (BTS Towers) in inland or remote areas that do not yet have BTS Towers. BTS works to connect the user's network communication system to another network. Therefore, in this research, the author uses the number of BTS tower as the indicator of communication infrastructure.

Countries in the Asia-Pacific region, like Indonesia, have shown that the spread of ICT (Information and Communication Technology) has a clear positive association with the pace of economic development. Research in Asia on the effect of ICT on economic growth is measured with a focus on the role of communication tools. The results showed that the capital accumulation of communication equipment had a positive effect in all Asian countries during 1990, and the positive side was similar in Asian countries (Kanamori et al,2004).

Many experts have argued that broadband infrastructure affects economic growth directly and indirectly. Others contend that the development of broadband infrastructure is a prerequisite for the utilization of other infrastructure technologies that are essential for economic growth, such as transport, education and remote sensing (Koutroumpis, 2009).

These cases show that there is a beneficial link between communication infrastructure and economic growth, as this will raise production levels, which in turn will increase the flow of FDI in a nation or region as a result of economic development.

2.1.10. The Relationship Between FDI and Length of Road Infrastructure

Road infrastructure will promote the economic activities and smooth delivery of goods. An effective, reliable, secure and smooth transport system will be built with the presence of an adequate road infrastructure. Roads are one of the most widely used infrastructures and are a predictor of the region's economic development. Poor road conditions will impede commercial traffic in an environment that impact the smooth access of the community economy, resulting in difficult mobility between regions and the delivery of goods. Easier transportation will have an impact on the flow of people and goods. According to Sukwika (2018), as a support for public welfare and development investment, various infrastructure is needed, including road networks, electricity networks, telecommunications networks, clean water, and so on. Infrastructure also has a major effect on raising the value of consumption, increasing labor productivity and access to jobs, as well as increasing real prosperity and achieving macroeconomic stability, such as, fiscal sustainability, improving credit markets and their impact on the labor market.

According to Law No. 38 of 2004 on Roads Infrastructure, roads serve as transport infrastructure, which plays an important role in the economy, which is the lifeblood of the city, nation and state, socio-culture, climate, politics, protection and security, and is used for people's greatest prosperity, as an infrastructure for the delivery of goods and as a unitary road. As a result, the faster the development of the region's road infrastructure, it would increase the region's output growth, and vice versa. Therefore, a region should boost or accelerate its road infrastructure development to boost the region's economic growth.

If a country does not have these modes of transport, it will be less effective for the domestic private sector and foreign companies to operate. Any attempt to have their own

networks on their part would result in resource duplication and waste. In the same vein, economists claim that transport can be a key factor in attracting foreign direct investment (FDI) and can stimulate growth. Indeed, improved roads infrastructure will reduce the costs of constructing of a new factory or transporting heavy machinery. Furthermore, if a private company uses the public road network to receive and transport its goods, it will increase productivity by integrating its own resources with the public ones, which in turn decreases the unit cost of production and increases performance (Saidi, 2016).

The results of road infrastructure research indicate a strong and substantial effect on foreign direct investment. It is because the longer the road, the easier it is to move goods and services. Longer road with good quality would make it easier for economic sectors to operate (Cahyaningsih, 2015).

Transport system infrastructure is also conducive to FDI, as it offers better conditions in terms of lower costs, efficiency, punctuality and reliability, which in turn lets global companies better access their inputs and serve their output markets. In particular, transportation infrastructure also allows them to reach and tap new markets within the host country and also in neighboring countries (Seetanah & Khadaroo, 2008).

In conclusion, with decent infrastructure - the length of roads that are in great condition, production to distribution processes for customers would be faster in order to make their activities more efficient. If the performance of the infrastructure has not improved significantly and has even tended to decline, this is thought to be one of the causes of low productivity and investment attractiveness.

2.1.11. The Relationship Between FDI and Government Expenditure

According to Sukirno (2002), government spending is the consumption of goods and services by the government, as well as government support for government administration and development activities. Since further government expenditure would increase the well-being of the society, attempts are made to ensure that the proportion of growth or government expenditure is greater than that of staff or regular expenditure. Regional government expenditure expressed in the government budget and the state budget is divided into two main categories, namely routine expenditure or expenditure on regional equipment and construction or public service expenditure. Of the two forms of spending, regular expenditure or regional expenditure is the primary form of expenditure for construction expenditure. Routine spending

or expenditure for regional officials includes expenditure on workers, goods, repairs, official travel, loans, interest and subsidies. Both forms of spending are expenditure on consumption. In the meantime, construction spending or public service expenditure is divided into development sectors which are more of an accumulation of capital stock, for example is the building of new infrastructure.

Government expenditure should be geared towards productive economic activities, for example, building infrastructure, research and development, training and education. Subsequently, it will contribute to rapidly evolving and emerging economies aimed at creating a favorable business climate to draw FDI inflows (He & Sun, 2014).

Large FDI inflows to the country lead to higher profitability, especially in the long-term, and lead to higher economic growth (Othman, Andaman, Yusop, & Ismail, 2018).

These instances suggest that there is a positive relationship between government expenditure and FDI. To put it simply, the higher the government expenditure, the higher the FDI inflow to the country.

2.2. Literature Review

This literature review contains various studies that have been carried out by other researchers. The issues discussed in this research have also been discussed by several other researchers in previous times, both through journal research and thesis.

Lodhi, M Ayub Siddiqui, & Umie Habiba (2013), analyzed the factors influencing foreign direct investment in Pakistan using the ARDL methodology. This research is published in an online journal. This research uses independent variables such as GDP, Energy Generation and Gross Capital Development and Industrial Value Addendum. Meanwhile, the dependent variable is Foreign Direct Investment. In this study, the researchers wanted to know the short-term and long-term relationships between those different macroeconomic variables with the Foreign Direct Investment. Therefore, the method used by researchers is the Autoregressive Distributive Lag (ARDL) approach. Autoregressive Distributed Lag (ARDL) is a method that can estimate linear regression models in analyzing long-term relationships that involve a cointegration test between time series variables. The researchers used time-series data, which is from 1976 until 2010 of Pakistan. Based on the results of the study, gross capital

development and electricity generation have a substantial and positive effect on FDI inflows over the long term. In the meantime, the Industrial Value Addendum in the previous year and the current year has had a positive impact on Pakistan's inflows in the short term. Based on the findings, the researchers concluded that if local investors invest in Pakistan, they would directly attract foreign investors. However, due to the lack of electricity generation, the amount of FDI inflows has decreased from year to year and the government of Pakistan needs to generate more electricity in order to increase FDI. Contributions from industry and value added may also increase FDI.

Rasheed (2019) analyzed the macroeconomic factors affecting FDI in 14 asian countries. In this research, the researcher examined the relationship between foreign direct investment and macroeconomic factors that could affect foreign direct investment in Asian economies between 2003 and 2017. The independent variables used, such as trade openness, exchange rate, GDP, labour costs and tax rates, are also these macroeconomic metrics. The approach used in this analysis is the Pooled Ordinary Least Squares (OLS) model with fixed effects as the chosen model, which consists of macro-economic variables and foreign direct investment variables. Based on the results of the study, it was found that the variables GDP, trade openness and exchange rate had a substantial impact on foreign direct investment in China, Indonesia, Jordan, Pakistan and Vietnam. Meanwhile, the labor cost and tax rate had a positive significant effect on FDI in Hong Kong and the Philippines. From this research, the researcher concluded that macroeconomic factors have a significant role in attracting foreign investors to increase FDI in Asian countries.

Tran et al (2020), conducted a study entitled "Factors Affecting Foreign Direct Investment: Evidence on Tay Ninh Province". This study uses independent variables such as the Consumer Price Index, Infrastructure, Human Resources, Trade Openness, and Private Credit. Meanwhile, the dependent variable used is Foreign Direct Investment (FDI) in Tay Ninh province. The data used by the researchers is secondary data obtained from the Tay Ninh Statistical Office. The method used is Ordinary Least Squares (OLS) and uses Eviews software to analyze the data that has been collected. Based on the research results, it was found that human resources, infrastructure, and private credit had a significant and positive effect on FDI in Tay Ninh province, while the Consumer price index proved to decrease FDI. According to the researchers, the Tay Ninh government must further stabilize market prices and improve its

human resources so that it may attract foreign investors. Tay Ninh province should also pay more attention to investments in their infrastructure such as information technology systems.

Aini, et al (2019), analyzed the factors that affect FDI in the province of Bali using a partial adjustment model. This study used independent variables such as regional autonomy, the US dollar exchange rate and the previous year's foreign investment. In the meantime, the dependent variable used in Bali is foreign direct investment (FDI) at the same time and partially. The research used time-series data from 1993 to 2017 using the Dynamic Econometrics Measurement Model of the Partial Adjustment Model. Based on the findings of the study, it was found that the exchange rate of the previous year's regional autonomy, the US dollar and foreign investment has a simultaneous effect on FDI. The exchange rate of the US dollar does not have a major effect on FDI, while regional autonomy and foreign investment has an important and positive impact on FDI in the previous year. According to the source, the Bali Government needs to lay down rules to resolve the current problems with FDI in Bali. The government needs to make the exchange rate, regional autonomy and foreign investment indicators affecting FDI in Bali. Increased FDI is required to accelerate the economy and achieve economic growth in Bali.

Tsen (2005), analyzed the factors that can cause an increase in FDI in the manufacturing industry in Malaysia. In this study, the researcher used independent variables such as education, production cost, infrastructure, inflation, exchange rate, and market size. Meanwhile, the dependent variable used is Foreign Direct Investment in the manufacturing industry, the researcher used the manufacturing industry as a field of this research because the researcher thinks that the manufacturing industry is the most important engine in driving economic growth. The methods used in this research are the Johansen co-integration method and the Philips and Hansen fully modified least squares (FMLS), estimator. Based on study findings, growing education, technology and the size of the economy will increase FDI, while increasing inflation and the exchange rate will decrease FDI. The researcher concluded that, on the other hand, the larger the size of the economy, the higher the amount of FDI, the higher the inflation and the exchange rate would decrease FDI. In addition, it is also necessary to improve the quality of human resources in the form of education. According to the researcher, Malaysia's success in attracting FDI can be used as an example for other developing countries.

Lestari (2018), conducted a study entitled "Analysis Determinants of Foreign Direct Investment in Indonesia period of 1987 - 2017". In this analysis, GDP, inflation, interest rates, and exchange rates are the independent variables used, while Foreign Direct Investment is the dependent variable used. The data used was time-series data for 31 years, from 1997 to 2017. The analysis used the Error Correction Model (ECM) method. The findings of this analysis show that the GDP variable has a positive and significant effect on foreign direct investment, inflation variable has a negative and significant impact on foreign investment, interest rate has a positive and insignificant impact on foreign investment, and rupiah currency has a negative impact over the USD exchange rate.

Indiani (2018), analyzed the factors that influence the increase of FDI in Indonesia. In this study, the independent variables used are the BI Rate, GDP, and exports, while the dependent variable used is Foreign Direct Investment. The data used are secondary data and processed into time-series data of 40 observations starting from 2006q1-2015q4. The method used in this research is linear MWD test and linear log to determine the data used, then processed using Autoregressive Distributed Lag (ARDL) to determine the effect of each variable in the long and short term. The results of the study indicate that the BI Rate does not affect FDI in the long and short term, GDP has no effect on FDI in the short term but has an impact on the long run, exports have an effect on FDI in the short and long term. Overall, the independent variable affects the dependent variable.

Asiamah, Ofori, Jacob Afful (2019) analyzed the factors that influence the increase in FDI in Ghana. In this study, the independent variables used are inflation, exchange rate, interest rate, GDP, electricity production, and telephone subscription, while the dependent variable used is Foreign Direct Investment. The method used is Johansen's approach to cointegration The results of the analysis indicate that FDI and its independent variables have a long-term and short-term co-integration relationship. Ghana's interest rate, inflation rate and exchange rate have a significant negative effect on FDI, while GDP, electricity supply and telecommunications consumption have a considerable positive impact on Ghana's FDI. According to the researchers, through its policy recommendations, this study has the ability to boost Ghana's economy, which, if adopted, would increase the contribution of capital to the economy.

Table 2.1.

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Previous Research

AUTHOR	TITLE	DEPENDENT & INDEPENDENT VARIABLES	METHOD	RESULT
Wong Hock Tsen (2005)	The Determinants of Foreign Direct Investment in the Manufacturing Industry of Malaysia	• Dependent : Foreign Direct Investment (FDI) • Independent Variable : Education, Production cost, Infrastructure, Inflation, Exchange rate, Market size	Johansen co-integration method Philips and Hansen fully modified least squares (FMLS)	Education, Infrastructure, and market size have significant positive impact to FDI Inflation, exchange rate, and production cost have significant negative impact on FDI.
Rab Nawaz Lodhi, M Ayub Siddiqui, & Umie Habiba (2013)	Empirical Investigation of the Factors Affecting Foreign Direct Investment in Pakistan: ARDL Approach	• Dependent : Foreign Direct Investment (FDI) • Independent Variable : Electricity Production, GDP, Gross Capital Formation, and Industrial Value Addition.	Autoregressive Distributive Lag (ARDL) Time Series data	In the Long-term, Electricity Production and Gross Capital Formation have a significant and positive effect on Foreign Direct Investment in Pakistan. In the short term, the previous year Industrial Value Addition and current year Industrial Value Addition have a

				significant positive effect on Foreign Direct Investment in Pakistan.
Guesty Indiani (2018)	Analisis Penanaman Modal Asing di Indonesia dan Faktor-Faktor yang Mempengaruhinya	• Dependent : Foreign Direct Investment (FDI) • Independent Variable : BI Rate, GDP, and exports	Autoregressive Distributed Lag (ARDL) Time Series data	BI Rate does not affect FDI in the long and short term GDP has no effect on FDI in the short term but has an impact on the long run Exports have an effect on FDI in the short and long term. Overall, all independent variable affects the dependent variable.
Indah Aji Lestari (2018)	Analysis Determinants of Foreign Direct Investment in Indonesia period of 1987 - 2017	• Dependent : Foreign Direct Investment (FDI) • Independent Variable : GDP, inflation, interest rates, and exchange rates	Error Correction Model (ECM) method Time Series data	GDP has a positive and significant effect on foreign direct investment Inflation has a negative and significant effect on foreign direct investment

				Interest rate has a positive and non significant effect on foreign direct Investment
				Rupiah exchange rate on the US dollar exchange rate has a negative effect and significant to foreign investment.
Qamar Rasheed (2019)	Macroeconomic Factors of FDI Inflows in Asian Economies: A Study of 14 Asian Countries	• Dependent : Foreign Direct Investment (FDI) • Independent Variable : trade openness, exchange rate, GDP, Labor cost, and tax rate	Pooled Ordinary Least Squares (OLS) Fixed effects model Panel Data	GDP, trade openness, and the exchange rate had a significant effect on Foreign Direct Investment in Indonesia, China, Jordan, Pakistan, and Vietnam. Labor cost and tax rate have a positive significant effect on FDI in Hong Kong and the Philippines.
Putu Krisna Adwitya Sanjaya, et al (2019)	Analisis Beberapa Faktor yang Berpengaruh terhadap Penanaman Modal Asing di Provinsi Bali : Analisis	• Dependent : Foreign Direct Investment (FDI) • Independent Variable : US	Dynamic Econometrics Analysis Model of Partial Adjustment Model Time series data	US dollar exchange rate does not significantly affect FDI Previous year's foreign investment

	Partial Adjustment Model	Dollar exchange rate, Previous year foreign investment , and regional autonomy		and the regional autonomy have a significant and positive effect on FDI.
Michael Asiamah, Daniel Ofori, and Jacob Afful (2019)	Analysis of the Determinants of Foreign Direct Investment in Ghana	• Dependent : Foreign Direct Investment (FDI) • Independent Variable : inflation, exchange rate, interest rate, GDP, electricity production, and telephone subscription	Johansen co-integration method	Inflation rate, exchange rate, and interest rate have a significant negative effect on FDI in Ghana GDP, Electricity production, and telephone usage have a significant positive effect on FDI in Ghana.
Thinh Quoc, et al (2020)	Factors Affecting Foreign Direct Investment: Evidence on Tay Ninh Province	• Dependent : Foreign Direct Investment (FDI) • Independent Variable : Consumer Price Index, Infrastructure, Human Resources, Trade Openness,	Ordinary Least Squares (OLS)	Human resources, infrastructure, and private credit had a significant and positive effect on FDI in Tay Ninh province. Consumer price index has significant negative effect on FDI, it is proved to decrease FDI.

		and Private Credit		

Based on Table 2.1 above, the difference between this study and previous research lies in:

1. This research uses a case study of East Kalimantan Province from 2015 to 2019, in which such research area has not been conducted before.

2. This research uses the instruments such as GRDP per capita, Human Development Index (HDI), the number of electricity customers, the number of BTS towers, the length of the road, and government expenditures, which have not been used in previous studies.

3. This study uses a panel data model regression method with a fixed-effect model with Ordinary Least Squares (OLS) estimator.
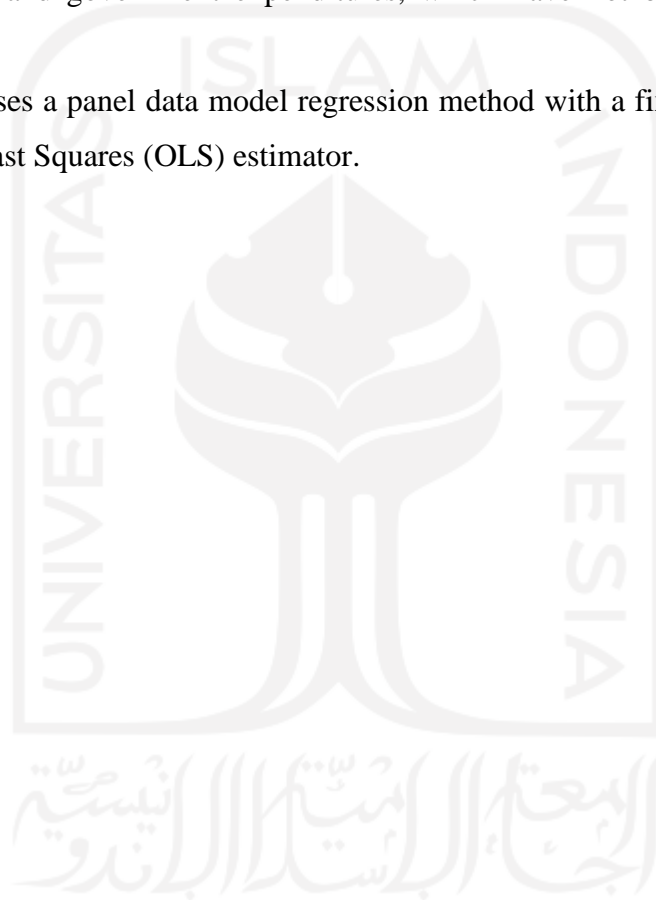
2.3. Research Framework

The purpose of this research is to examine separately the presence or level of control of the dependent variable. The following is a description of the context for this study.

Figure 2.1.

Research Framework
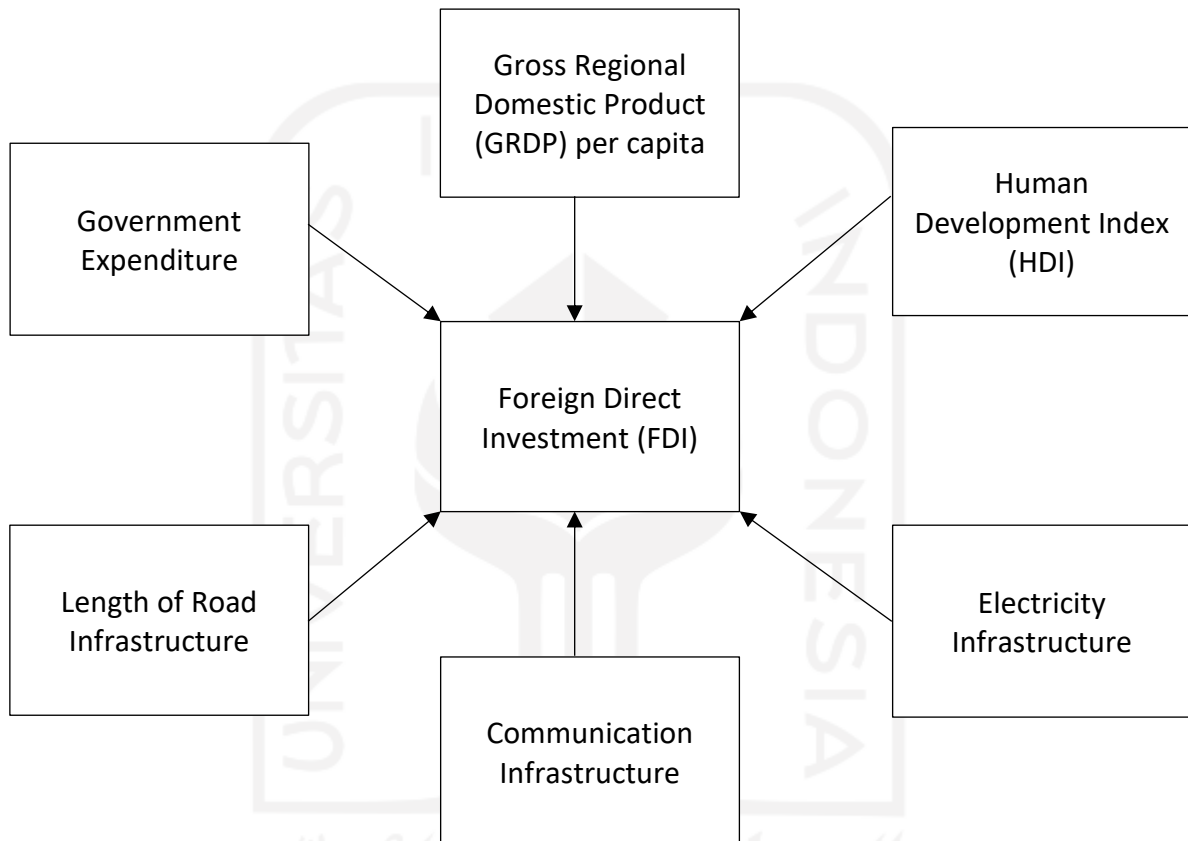
2.4. Hypotheses Formulation

Hypotheses are hypotheses that are preliminary in nature and are considered correct, so that logical consequences can be drawn and, in this way, evaluations of their correctness can be carried out using research data. Based on the literature review and the theoretical basis of the related previous study, the hypotheses to be examined are as follows :

H1 : GRDP per capita has a positive impact on Foreign Direct Investment in the East Kalimantan Province from 2015 to 2019.

H2 : HDI has a positive impact on Foreign Direct Investment in the East Kalimantan Province from 2015 to 2019.

H3 : Electricity Infrastructure has a positive impact on Foreign Direct Investment in the East Kalimantan Province from 2015 to 2019.

H4: Communication Infrastructure has a positive impact on Foreign Direct Investment in the East Kalimantan Province from 2015 to 2019.

H5: Length of Road Infrastructure has a positive impact on Foreign Direct Investment in the East Kalimantan Province from 2015 to 2019.

H6 : Government Expenditure has a positive impact on Foreign Direct Investment in the East Kalimantan Province from 2015 to 2019.

CHAPTER III
RESEARCH METHOD

3.1. Data Collection Method and Tools

This research uses secondary data, which originate from Central Bureau of Statistics of East Kalimantan. According to Sugiyono (2008), secondary data is a stream of data that does not send data exclusively to data collectors. The data used consist of:

1. Data on Realization of Foreign Direct Investment (FDI) of East Kalimantan Province according to the 2015-2019 period (in thousand US $).
2. GRDP data per capita by regencies / municipalities in East Kalimantan Province according to the period 2015-2019 (in million IDR).
3. Human Development Index (HDI) data according to regencies / municipalities in East Kalimantan Province for the period 2015-2019 (in percentage).
4. Electricity infrastructure data according to the number of electricity customers in regencies / municipalities in East Kalimantan Province for the period 2015-2019.
5. Data on communication infrastructure according to the number of BTS towers in regencies / municipalities in East Kalimantan Province for the period 2015-2019.
6. Data on road length infrastructure based on the level of government authority in the province of East Kalimantan for the period 2015-2019 (in km).
7. Data on government spending by regencies / municipalities in East Kalimantan Province for the period 2015-2019 (in thousand IDR).

3.2. Data Analysis Method

This research was conducted to examine the factors that affect foreign direct investment in the province of East Kalimantan. Quantitative analysis was conducted using multiple linear regression methods. The data used in this analysis is panel data which is a mixture of time series and cross-section data and has been analyzed using E-Views 9 software. The purpose of this regression analysis is to determine the coefficient of variables influencing the significance of foreign direct investment as the dependent/affected variable. In general, the model of the panel data regression equation is as follows:

$$Y_{it} = \beta_0 + + \beta_1 X_{1it} + \beta_2 X_{2it} + \ldots + \beta_n X_{nit} + e\text{it}$$

OR

$$logY_{it} = \beta_0 + +\beta_1 logX_{1it} + \beta_2 logX_{2it} + \ldots + \beta_n logX_{nit} + eit$$

Where :

Y_{it} = Dependent Variable

X_{it} = Independent Variable

log = Change of a Unit to a Percent

β_0 = Constant

e = Variable outside the model

N = Amount of observations (i = 1,2,…N)

T = Period of t (t = 1,2,….T)

N x T = Panel Data

The use of panel data in economic analysis has many substantial benefits over time series and cross-section data.

1. Panel data is a mixture of data from time series data and the cross-section and able to provide adequate data so there would be a greater degree of freedom.
2. By integrating time-series data with cross-section data, panel data offers more detailed, more varied data, reduces the collinearity between variables, increases the degree of freedom and increases performance.
3. By studying the iterative cross-section method of observation, panel data is best suited to understanding the evolution of transition.
4. Panel data can help detect unobservable effects in cross-section and time-series data.
5. Panel data facilitates the analysis of more complex behavioral models.

There are three kinds of analysis in the panel data estimation model - a common effect approach, a fixed effect approach, and a random effect approach. The function model used for FDI in East Kalimantan Province is as follows:

$$logY_{it} = \beta_0 + +\beta_1 logX_{1it} + \beta_2 X_{2it} + \beta_3 logX_{3it} + \beta_4 logX_{4it} + \beta_5 logX_{5it} + \beta_6 logX_{6it} + eit$$
Where :

Y = Foreign Direct Investment (thousand US$)

X1 = GRDP per capita (million IDR)

X2 = Human Development Index (%)

X3 = Electricity Infrastructure

X4 = Communication Infrastructure

X5 = Length of Road Infrastructure (km)

X6 = Government Expenditure (thousand IDR)

i = Cross Section

t = Time Series

β_0 = Constant

β_1 ,β_2 ,β_3 ,β_4 ,β_5 ,β_6 = Coefficient

According to Pindyck and Rubinfeld (1981), there are three types of estimation methods in the data panel model, such as the pooled least squares or common effect, fixed effects, and random effects. The pooled least square approach simply combines both time-series and cross-section data and then estimates the model using the OLS (Ordinary Least Squares) process. The fixed-effect method illustrates the difference in time-series or cross-section interception. In the meantime, the random effect method increases the performance of the least square procedure by taking into account time-series or cross-section errors.

3.2.1. Pooled Least Squares (PLS) or Common Effect Model

Estimation in common effect is a simple regression technique for estimating panel data. According to Widarjono (2018), the common effect estimation only combines time series data with cross section data without checking out the differences in time and individuals, so that the OLS method can also be used in estimating the panel data model. The assumption is that the data behavior is considered the same regardless of the time period. The regression equation model is:

$$logY_{it} = \beta_0 + +\beta_1 logX_{1it} + \beta_2 X_{2it} + \beta_3 logX_{3it} + \beta_4 logX_{4it} + \beta_5 logX_{5it} + \beta_6 logX_{6it} + e_{it}$$

3.2.2. Fixed Effect Model

Fixed Effect Model is a model that assumes that there are various interceptions in the panel data regression. According to Widarjono (2018), a fixed effect model technique is a method for estimating panel data using dummy variables to identify any intercept differences.

The fixed effect model is based on the presence of different interceptions between variables, but the interception is the same between time intervals (time invariant) and there is a regression coefficient or slope that remains the same between variables and between times. In order to estimate the different intercepts for each variable, the fixed effect model uses the dummy variable technique method to describe the variations in the intercept. This analysis model is called Least Squares Dummy Variables (LSDV). The fixed effect model with the variable dummy method can be written as follows:

$$logY_{it} = \beta_0 + +\beta_1 logX_{1it} + \beta_2 X_{2it} + \beta_3 logX_{3it} + \beta_4 logX_{4it} + \beta_5 logX_{5it} + \beta_6 logX_{6it} + \sum_{i=1}^{n=8} \propto_i D_i + e\text{it}$$

3.2.3. Random Effect Model

The decision to use dummy variables in the fixed effect model reduces the number of degrees of freedom which, in turn, lowers the efficiency of the calculated parameters. Panel Data Model, which includes similarity between error terms due to time shifts resulting from different observations can be resolved with an error component model approach or can also be referred to as a random effect model. This approach to estimating the Random Effect uses the terminology of error. This disruption or error component is likely to be between periods (time series) and between regions (cross section). According to Widarjono (2018), In the random effect model, β_{0i} is no longer fixed or non-stochastic but it is random so that it can be expressed in the form of the following equation :

$\beta_{0i} = \bar{\beta}_0 + \mu_i$ where $i = 1,2,..,n$

$\bar{\beta}_0$ is unknown parameter indicating the average intercept of the population. μ_i is a random disturbance variable that explains the differences in individual company behavior.

Therefore, Writing constants in the Random Effects model is no longer set but random so that it can be written in the following equation :

$$logY_{it} = \bar{\beta}_0 + \beta_1 logX_{1it} + \beta_2 X_{2it} + \beta_3 logX_{3it} + \beta_4 logX_{4it} + \beta_5 logX_{5it} + \beta_6 logX_{6it} + v\text{it}$$

Which is vit $= e\text{it} + \mu_i$

3.3. Selection of Estimation Model

There are three methods that can be used in estimating panel data regression, which include the Common Effect Model Model, the Fixed Effect Model and the Random Effect Model. It is very crucial to determine a model to be used in an analysis based on statistical

considerations for achieving an efficient estimation. And some of the best approaches to be used are:

1. **Chow Test (F-statistical test)** is a test to select the Common Effect model (without dummy variables) or the Fixed Effect model.

   H0 : Choose to use Common Effect Model (CEM)

   H1: Choose to use Fixed Effect Model (FEM)

   The test is carried out by looking at the p-value, if the p-value is significant (less than 5%) then the best model to use is Fixed Effect Model. On the other hand, if the p-value is not significant (greater than 5%) then the best model to use is Common Effect Model.

2. **Lagrange Multiplier (LM)** or full Test Breusch-Pagan LM. Used to pick either the Common Effect model (without dummy variables) or the Random Effect model.

   H0 : Choose to use Common Effect Model (CEM)

   H1 : Choose to use Random Effect Model (REM)

   The test is carried out by looking at the p-value, if the p-value is significant (less than 5%) then the best model to use is Random Effect Model. On the other hand, if the p-value is not significant (greater than 5%) then the best model to use is Common Effect Model. However, this test will be skipped if the chosen model in chow test is Fixed Effect Model.

3. **Hausman test** is to compare between Fixed Effect or Random Effect models that are best to use.

   H0 : Choose to use Random Effect Model (REM)

   H1 : Choose to use Fixed Effect Model (FEM)

   This test is done by looking at the p-value, if the p-value is significant, which is less than 10% or 0.1, then the model used is Fixed Effect Model estimation. On the other hand, if the p-value is not significant, which is greater than 10% or 0.1, then the best model use is Random Effect Model estimation.

3.4. Statistic Test

Multiple linear regression analysis is an analysis method that seeks to describe the dependency of the dependent variable in estimating or projecting the additional mean value based on the fixed value of the independent variable (Gujarati, 1988). Multiple linear analysis

model is used in this study. Statistical analyses were conducted by measuring the coefficient of determination (R^2), the regression coefficient together (F test), and the partial regression coefficient (t test).

3.4.1. Coefficient of Determination (R^2)

Coefficient of Determination is a computation used to measure the goodness of the regression line, which is to provide the proportion or percentage of the total variance of the dependent variable Y as described by the independent variable X. The higher the value of R2, the greater the difference in the dependent variable that can be described by the independent variables. Conversely, the smaller the R2, the smaller the difference in the dependent variable, which can be explained by independent variables. The coefficient of determination of R^2: $0 \leq R2 \leq 1$. The higher the R^2 value, the more reliable the regression line is when explaining the observed values.

3.4.2. F-Test

The F test is used to assess if the independent variables jointly influence the dependent variable. By using F-table statistics probability obtained, if F statistics probability < Significance level, H0 is rejected. Meanwhile, if probability of F statistics probability > Sig level, H0 is accepted. By using the F-table statistics obtained if F-count <F-table then H0 is accepted and if F-count> F-table then H0 is rejected. The formula for F-count is as follows :

$$\text{F-Count} = \frac{R^2/(k-1)}{(1-R^2)/(n-k)}$$

Where,

R^2 = Coefficient of Determination

k = amount of independent variables

n = amount of samples

Hypothesis being used is as follows :
   a. H0 : $\beta1 = \beta2 = \beta3 = \beta4 = \beta5 = \beta6 = 0$, shows that all independent variables cannot influence the dependent variable together in the model.
   b. H1 : $\beta1 = \beta2 = \beta3 = \beta4 = \beta5 = \beta6 \neq 0$, shows that all independent variables can influence the dependent variable together in the model.

c. Determine the value of F count and significance of F

d. Determine the level of significance (α) which is equal to 1%.

3.4.3. T-Test

The t test is used to see whether the dependent variable is partly influenced by each independent variable. The research hypothesis is as follows:

1. If hypothesis has positive and significant effect

   $H0 : \beta1 = 0$

   $H1 : \beta1 > 0$

2. If hypothesis has negative and significant effect

   $H0 : \beta1 = 0$

   $H1 : \beta1 < 0$

3. Determine the significant level with alpha (α) which is 1%, 5%, and 10%

4. Testing Criteria :

   a. If the test value is prob. T-statistic> α then, H0 is accepted, meaning that the independent variable does not significantly influence the dependent variable

   b. If the test value is prob. T-statistic $\leq$ α then, H0 is rejected, meaning that the independent variable has a significant effect on the dependent variable.

CHAPTER IV
DATA ANALYSIS AND DISCUSSIONS

4.1. Data Description Analysis

This quantitative research aims to determine the factors that influence foreign direct investment in East Kalimantan Province in the years 2015-2019. This quantitative research uses econometric tools in the form of Eviews 9 software. In conducting this research, the data used is a combination of Time Series data and Cross-Section data which will ultimately produce Panel Data, and the data is obtained using secondary data from Central Bureau of Statistics of East Kalimantan. The dependent variable in this study is Foreign Direct Investment (FDI) and is symbolized by Y. Meanwhile, there are 6 independent variables used and symbolized by X, namely GRDP per capita (X1), Human Development Index (X2), Electricity infrastructure (X3), Communication infrastructure (X4), Length of Road (X5), and Government Expenditure (X6).

The population in this study is 9 out of 10 regencies/municipalities in East Kalimantan province. The regency excluded in this study is the district newly split from the Kutai Barat district and was just being legalized in 2012, and this regency has never received investment in 2015-2019, so this study does not include this regency. The data sample in this study was regencies/municipalities whose data from all variables were available from 2015 to 2019. Based on the sample criteria, the sample in this study was 9 out of 10 regencies/municipalities in East Kalimantan province from 2015 to 2019.

4.2. Research Variables Descriptive Analysis
4.2.1. Foreign Direct Investment

In the economic sector, the word investment is commonly used and is often interpreted as investing money in the expectation of getting benefits or return in the future. Investment is divided into two types – domestic and foreign investments. Investment can encourage capital accumulation. The addition of buildings, raw materials, building stocks, machinery, and other important equipment will increase the potential output of a region and stimulate economic growth in the long run. In conclusion, investment plays an important role in developing an economy by increasing the output or production of final goods in a country so that it can increase aggregate demand and also aggregate supply. As a result, the investment, both domestic investment and foreign investment can increase the country's economic growth rate.

Table 4.1.

FDI Realization of 9 regencies / municipalities in East Kalimantan(in thousand US$)

Regency/ Municipality	2015	2016	2017	2018	2019
PASER	13051.1	17961.6	31559.4	12336.4	26060.9
KUTAI BARAT	52728.8	67079.6	42137.6	33957.6	67924.5
KUTAI KARTANEGARA	169538.8	124770.9	230618.6	141442	129568.7
KUTAI TIMUR	237863.9	289147	711562.6	205676	304294.3
BERAU	15730.4	18526.7	20904.1	19383.6	27950.9
PENAJAM PASER UTARA	16719.5	18052.8	14916.5	10989.2	14765.6
BALIKPAPAN	147521.5	401808.6	171762.1	237550	384974.2
SAMARINDA	80416.3	25685.6	56054.3	102099	231280.4
BONTANG	13182	15265.5	18914.8	114775	280755.5

Source : Kaltim dalam Angka, BPS

Table 4.1 above shows the foreign direct investment climate in East Kalimantan province from 9 regencies / municipalities in East Kalimantan from 2015 to 2019 in the form of a thousand US dollars (US $). In the data above, it can be seen that the province of East Kalimantan has a fairly good investment climate with the highest amount achieved by the city of Balikpapan with the realization of foreign direct investment of US $ 401,808,600 in 2016. Regencies/municipalities in the province of East Kalimantan have a fairly fluctuating investment trend from year to year. In 2018-2019, all provinces experienced an increase in the amount of FDI with ; Balikpapan is still in the top position very attractive to foreign investors. Another factor that contribute to the city's attractiveness is Balikpapan is the largest petroleum-producing city in Indonesia, as well as the largest city in the East Kalimantan province with a population of more than 700 thousand people, and also near to the capital city of East Kalimantan. East Kalimantan does have a large amount of petroleum potential and also many other natural resources, making it a major oil contributor in Indonesia, and this is one of the reasons why foreign investors are willing to allocate their capital in this province.

4.2.2. Gross Regional Domestic Product per capita

GRDP is an important indicator to evaluate economic condition in a region, both at current prices and at constant prices, over a certain period of time. GRDP is the amount of value added generated in an area by all business units or the sum of the value of the final goods and services produced in an area by all economic sectors. Meanwhile, the GRDP per capita value is obtained by dividing the GRDP value by the midyear population. This indicator can

describe the level of welfare of the population in an area within a certain period. In conclusion, a high or increasing per capita GRDP value indicates that the welfare of the population in an area has also increased, and vice versa.

Table 4.2.

GRDP of 9 Regencies/Municipalities in East Kalimantan (million IDR)

Regency/ Municipality	2015	2016	2017	2018	2019
PASER	116.05	139.01	160.3	151.44	150.51
KUTAI BARAT	158.04	160.51	194.43	177.34	195.01
KUTAI KARTANEGARA	197.14	173.97	210.41	176.48	167.02
KUTAI TIMUR	292.2	305.34	396.12	323.3	345.55
BERAU	153.98	158.44	161.63	166.17	167.11
PENAJAM PASER UTARA	50.32	49.24	54.77	43.53	52.47
BALIKPAPAN	130.78	148.12	132.92	138.76	156.28
SAMARINDA	162.52	163.56	169.29	194.49	178.57
BONTANG	358.79	301.04	345.15	338.38	359.05

Source : Kaltim dalam Angka, BPS

Table 4.2. shows the GRDP growth rate per capita in nine regencies/municipalities in East Kalimantan province in the 2015-2019 period. Based on the data above, the growth rate in the province of East Kalimantan is fluctuating. The regions with the highest GRDP per capita are East Kutai in 2019 with a value of IDR 345,550,000 and Bontang in 2019 with a value of IDR 359,050,000. Meanwhile, the region that has the lowest per capita GRDP growth rate for five consecutive years is Penajam Paser Utara with the highest value reaching only IDR 54,770,000 in 2017.

4.2.3. Human Development Index

For all countries in the world, the Human Development Index (HDI) is a comparative indicator of life expectancy, literacy, education, and living standards. HDI is used to classify whether a nation is a developed country, a developing country, or an underdeveloped country, and to assess the impacts of economic problems on the people's life. The philosophy of human development as a whole is a concept that calls for a physical, emotional, and moral improvement in the quality of life of the population. It is specifically stated that the

development undertaken focuses on human capital development, which is consistent with economic growth.

Table 4.3.

HDI of 9 Regencies/Municipalities in East Kalimantan Province (in percentage %)

Regency/ Municipality	2015	2016	2017	2018	2019
PASER	70.1	71	71.16	71.31	72.69
KUTAI BARAT	69.94	69.99	70.18	70.69	71.83
KUTAI KARTANEGARA	71.98	72.09	72.75	72.85	73.08
KUTAI TIMUR	70.26	71.6	71.91	72.16	72.29
BERAU	71.92	72.05	73.26	73.31	73.48
PENAJAM PASER UTARA	69.36	69.96	70.69	70.83	71.14
BALIKPAPAN	77.08	78.97	79.01	79.11	79.91
SAMARINDA	78.79	78.81	79.06	79.93	80
BONTANG	75.78	76.92	77.47	79.86	79.91

Source : Kaltim dalam Angka, BPS

According to Table 4.3, Human Development Index in East Kalimantan Province always experienced a slight increase in five consecutive years, from 2015-2019. It indicates that, the quality of human resources, quality of life of the population are always getting better, and it also means that the government was successful in carrying out community development programs in this province even though the increase was not very significant. Based on the data above, Samarinda has the highest increase in the human development index in East Kalimantan with a value of 78.89% in 2015, and increased to 80% in 2019.

4.2.4. Electricity Infrastructure

Electricity infrastructure is one of the supports for all activities in a country. The less electricity in an area will cause the area to be unproductive due to the obstacles that occur because of lack of electricity. As is well known, to produce a product, a factory or company needs sufficient availability of electricity to produce as much production as possible. If the electricity is not adequate, manufacturers/companies, households cannot carry out their operations as they should. To find out how well the condition of electricity infrastructure in East Kalimantan province is, the approach of the number of electricity users in each region is used, higher amount indicates that a province or region has an almost even level of electricity

distribution and indicates that there will be no obstacles in the process of production. One important factor that investors consider in choosing industrial estates is the availability of electricity. If there is no guarantee that the electricity will not go out, the industrial development process will be disrupted. Thus, the stability of electricity supply is the key to the growth of modern industry which will spur the improvement of the national economy.

Table 4.4.

Number of Electricity Consumers of 9 Regencies/Municipalities

in East Kalimantan Province

Regency/ Municipality	2015	2016	2017	2018	2019
PASER	56730	58433	62921	63557	66053
KUTAI BARAT	27930	28624	30313	31051	32744
KUTAI KARTANEGARA	148600	149445	158263	167336	170172
KUTAI TIMUR	46450	52613	59925	60182	61458
BERAU	42945	46793	50815	56058	61101
PENAJAM PASER UTARA	37656	40114	43092	46170	49154
BALIKPAPAN	178469	200771	215679	217083	236019
SAMARINDA	206402	210387	220331	245650	251622
BONTANG	39750	41167	43181	53479	59449

Source : Kaltim Dalam Angka, BPS

According to the table 4.4, the amount of consumers used the electricity in East Kalimantan Province from year 2015-2019 keep increasing, it means that the distribution of electricity in this province is increasingly widespread from time to time. The regions with the most electricity users are Samarinda and Balikpapan which are the 2 largest cities in East Kalimantan Province which have a high amount of population, while the area with the lowest electricity usage is Kutai Barat, due to the small population in this district. It can be concluded, the more the population in an area, the wider the distribution of electricity in that area will be.

4.2.5. Communication Infrastructure

Communication infrastructure is needed in the modern era to facilitate all activities and make all productivity more effective and efficient. According to the Ministry of Communication and Information, there are many benefits of communication infrastructure, which are as a driver of the digital economy, the key to industry 4.0, encouraging new

investment, growing economy, equalizing education, encouraging competitiveness, supporting the environment, implementing new technology, new jobs, the start-up industry, unifying the nation, and increasing the quality of life (Ismail, 2019). So indirectly, this will also have an impact on the level of investment that enters a region because adequate communication infrastructure will make easier for businesses to carry out their activities and facilitate long-distance communication between producers and consumers outside the region and the country.

Table 4.5.

Number of Broad Transceiver Station (BTS) Tower

in East Kalimantan Province

Regency/ Municipality	2015	2016	2017	2018	2019
PASER	70	70	70	70	70
KUTAI BARAT	64	64	64	64	64
KUTAI KARTANEGARA	205	206	206	206	206
KUTAI TIMUR	110	111	111	111	111
BERAU	65	67	67	67	67
PENAJAM PASER UTARA	53	54	54	54	54
BALIKPAPAN	124	139	139	139	124
SAMARINDA	134	148	148	148	134
BONTANG	23	33	33	33	148

Source : Kaltim Dalam Angka, BPS

Table 4.5. shows the large number of Broad Transceiver Tower (BTS) towers in Regencies/Municipalities in East Kalimantan province. Based on the data above, the regions that have the highest number of BTS towers are Kutai Kartanegara, East Kutai, Balikpapan, and Samarinda districts. This indicates that the greater the number of BTS towers available, the wider the availability of communication infrastructure in the area.

4.2.6. Length of Road Infrastructure

Among all the physical development, the most vital infrastructure in increasing economic development activity is road infrastructure development. Road is in some way a ground transport system covering all sections of the road including complementary structures and traffic-related facilities.

Table 4.6.

Length of Road in 9 Regencies/Municipalities in East Kalimantan Province

(in KM)

Regency/ Municipality	2015	2016	2017	2018	2019
PASER	1284.04	1383.91	1089.52	1103.97	1115.94
KUTAI BARAT	3036.87	1791.16	2962.03	3604.28	3452.13
KUTAI KARTANEGARA	3289.79	2750.47	2626.37	2639.91	2728.2
KUTAI TIMUR	1807.24	1768.26	1717.46	1624.89	1828.87
BERAU	1785.53	2243.98	2046.87	2145.77	2210.06
PENAJAM PASER UTARA	1197.41	1279.14	1374.17	1452.17	1435.12
BALIKPAPAN	573.08	659.46	668.94	658.63	595.84
SAMARINDA	858.44	159.42	1036.48	1052.66	1042.58
BONTANG	206.21	339.77	339.96	339.93	206.73

Source : Kaltim Dalam Angka, BPS

Table 4.6. shows data of the length of roads in the province of East Kalimantan based on governmental or state ownership authority in terms of kilometers. Based on the data above, the area with the best road infrastructure development is Kutai Barat Regency with the longest total number of 3452.13km in 2019. Meanwhile, Bontang experienced the lowest development among the other regencies and municipalities with only 206,73km in 2019.

4.2.7. Government Expenditure

Government expenditures refer to spending on goods and services by the government. The examples are the purchase of goods for operations and investment for public goods. Government expenditures contribute to increasing potential GDP of a country and also GRDP in a province. Investment in infrastructure creates a multiplier effect on the economy, the higher the level of spending on infrastructure, the higher the level of national income of a country resulting from increased output or movement of goods and services. Such investments also increase the productive capacity of the economy in the long run**.**

Table 4.7.

Government Expenditure of 9 Regencies/Municipalities in East Kalimantan Province

(in thousand IDR)

Regency/ Municipality	2015	2016	2017	2018	2019
PASER	2012884588	2542198490	782274253	1902473193	2390757924
KUTAI BARAT	2143841249	2606440556	669154458	2005905295	2421408565
KUTAI KARTANEGARA	8381630602	6980371046	2016701026	3697248441	5105955650
KUTAI TIMUR	3337856870	3960454565	843837422	3166757794	3509225714
BERAU	2786759264	2793638032	885990137	2121999968	2642342000
PENAJAM PASER UTARA	1391575604	1493318846	447443181	1505316439	1588749272
BALIKPAPAN	2907590320	3112335120	644341493	2120970177	2437774009
SAMARINDA	3238561121	3201521660	951304862	2517192821	2815797101
BONTANG	1664595109	1910307740	305175410	1185941596	1451230694

Source : Kaltim Dalam Angka, BPS

Based on Table 4.7, Government Expenditure in East Kalimantan Province always had different fluctuative level in each year from 2015-2019, this happen due to the amount that required by each region has to spend within a certain period of time. According to the data above, Kutai Kartanegara has arguably the most expenditure compared with other regencies and municipalities in the province. This is also in line with the development of electricity, communication and road infrastructure in Kutai Kartanegara which continues to increase. Meanwhile, Bontang is a city that has the least government expenditure, this is also in line with the not so fast infrastructure development in this city.

4.3. Results

4.3.1. Panel Data Regression Result

In order to choose the best model used in the data panel regression, it is important to evaluate the data with each model to find out which model is best for the estimation. The models used are Common Effect Model, Fixed Effect Model, and Random Effect Model.

4.3.1.1. Common Effect Model (CEM) Result

The common effect model means integrating cross-sectional data with time series and using the OLS method to estimate the panel data model, and this model assumes that data behavior among firms is the same in different time periods (Widarjono, 2018). Compared to the other two models, which are FEM and REM, this model is the simplest one. According to (2012), the variation between cross section and time series cannot be differentiated by this model since it has a fixed intercept and does not differ randomly.

Table 4.8.

CEM Estimation Result

Dependent Variable: LOG(FDI)
Method: Panel Least Squares
Date: 12/22/20   Time: 07:49
Sample: 2015 2019
Periods included: 5
Cross-sections included: 9
Total panel (balanced) observations: 45

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.226070	6.259255	-0.515408	0.6093
LOG(X1)	0.686879	0.261784	2.623845	0.0124
X2	0.132066	0.077721	1.699241	0.0974
LOG(X3)	-0.641288	0.462406	-1.386851	0.1736
LOG(X4)	1.904555	0.464881	4.096868	0.0002
LOG(X5)	0.177771	0.238550	0.745216	0.4607
LOG(X6)	-0.075012	0.203633	-0.368368	0.7146

R-squared	0.686743	Mean dependent var	11.01284
Adjusted R-squared	0.637282	S.D. dependent var	1.218978
S.E. of regression	0.734143	Akaike info criterion	2.361809
Sum squared resid	20.48071	Schwarz criterion	2.642846
Log likelihood	-46.14071	Hannan-Quinn criter.	2.466577
F-statistic	13.88438	Durbin-Watson stat	0.918874
Prob(F-statistic)	0.000000		

Source : Processed data

4.3.1.2. Fixed Effect Model (FEM) Result

This model is known as the Fixed Effect regression model. The fixed effect here means that one object has a constant level which remains in magnitude for a certain period. Likewise with the regression, it remains large over time. According to Kuncoro (2012), this model assumes that, between each subject, the intercept is different while the slope remains the same between subjects. Dummy variables are used to distinguish one subject from another.

Table 4.9.

FEM Estimation Result

Dependent Variable: LOG(FDI)
Method: Panel Least Squares
Date: 12/22/20   Time: 07:47
Sample: 2015 2019
Periods included: 5
Cross-sections included: 9
Total panel (balanced) observations: 45

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-21.29756	8.626415	-2.468877	0.0195
LOG(X1)	2.061536	0.879182	2.344835	0.0258
X2	0.302670	0.173076	1.748773	0.0906
LOG(X3)	-1.040136	1.536963	-0.676747	0.5038
LOG(X4)	1.159179	0.319910	3.623453	0.0011
LOG(X5)	0.426631	0.225542	1.891579	0.0682
LOG(X6)	0.133486	0.124287	1.074016	0.2914

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.926558	Mean dependent var	11.01284
Adjusted R-squared	0.892286	S.D. dependent var	1.218978
S.E. of regression	0.400067	Akaike info criterion	1.266833
Sum squared resid	4.801610	Schwarz criterion	1.869053
Log likelihood	-13.50373	Hannan-Quinn criter.	1.491334
F-statistic	27.03484	Durbin-Watson stat	2.136210
Prob(F-statistic)	0.000000		

Source : processed data

4.3.1.3. Random Effect Model (REM)

The model of random effect is a model induced by differences in the value and direction of the relationship between subjects that are presumed to be random, described in the form of a residual. This model calculates panel data where a relationship between time and between subjects is assumed to have the residual variable. The random effect model is used to resolve the shortcomings of the fixed effect model that utilizes dummy variables. Widarjono (2018)

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claimed that, the random effect model panel data analysis approach must satisfy the specifications, which are that the number of cross-sections must be greater than the number of study variables.

Table 4.10.

REM Estimation Result

Dependent Variable: LOG(FDI)
Method: Panel EGLS (Cross-section random effects)
Date: 12/22/20   Time: 07:50
Sample: 2015 2019
Periods included: 5
Cross-sections included: 9
Total panel (balanced) observations: 45
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-14.05151	4.936399	-2.846509	0.0071
LOG(X1)	0.907274	0.352285	2.575401	0.0140
X2	0.192827	0.071441	2.699106	0.0103
LOG(X3)	-0.386895	0.427654	-0.904690	0.3713
LOG(X4)	1.302631	0.279873	4.654365	0.0000
LOG(X5)	0.491722	0.178497	2.754799	0.0090
LOG(X6)	0.056110	0.114840	0.488595	0.6279

Effects Specification			
		S.D.	Rho
Cross-section random		0.538132	0.6440
Idiosyncratic random		0.400067	0.3560

Weighted Statistics			
R-squared	0.623424	Mean dependent var	3.474494
Adjusted R-squared	0.563965	S.D. dependent var	0.652993
S.E. of regression	0.431191	Sum squared resid	7.065166
F-statistic	10.48488	Durbin-Watson stat	1.809682
Prob(F-statistic)	0.000001		

Unweighted Statistics			
R-squared	0.647497	Mean dependent var	11.01284
Sum squared resid	23.04665	Durbin-Watson stat	0.554775

Source : processed data

4.3.2. *Chow Test* **Result**

This test is used to select the model to be used between the Common Effect estimation model and the Fixed Effect estimation model by testing the hypothesis:

H0   : Choose to use Common Effect Model (CEM)

H1   : Choose to use Fixed Effect Model (FEM)

The test is carried out by checking out the p-value, if the p-value is significant (less than

5%) then the best model to use is Fixed Effect Model. On the other hand, if the p-value is not significant (greater than 5%) then the best model to use is Common Effect Model.

Table 4.11.

Chow Test Result

Redundant Fixed Effects Tests
Equation: FEM_FDI
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	12.245192	(8,30)	0.0000
Cross-section Chi-square	65.273955	8	0.0000

Source : processed data

According to the result of chow test, the value of Cross-section F distribution from the calculation of using Eviews 9 is 12.245192 with probability 0.0000 which is less than the significance level of 5% or 0.05, which means that the H0 is rejected, and H1 is accepted, so the best model to use in this research is Fixed Effect Model.

4.3.3. Hausman Test Result

This test is used to select the model to be used between the Fixed Effect estimation model or the Random Effect estimation model by testing the hypothesis:

H0   : Choose to use Random Effect Model (REM)

H1   : Choose to use Fixed Effect Model (FEM)

This test is done by checking out the p-value. If the p-value is significant, which is less than 10% or 0.1, then the model used is Fixed Effect Model estimation. On the other hand, if the p-value is not significant, which is greater than 10% or 0.1, then the best model use is Random Effect Model estimation.

Table 4.12.

Hausman Test Result

Correlated Random Effects - Hausman Test
Equation: REM_FDI
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	12.142478	6	0.0589

The distribution value of chi-square statistic from the calculation using Eviews 9 is 12.142478 with probability 0.0589 which is less than 10%. Therefore, statistically H0 is rejected and H1 is accepted, so the best model to use in this research is Fixed Effect Model. Having compared the results of chow test and Hausman test, the researcher chose to use Fixed Effect Model to estimate the data of this research.

4.3.4 Determination Coefficient (R2)

The coefficient of determination (R2) is a value that shows the extent to which the dependent variable-FDI, can be explained by the independent variables- GRDP per capita, Human Development Index (HDI), Electricity infrastructure, Communication infrastructure, Length of Road, and Governments expenditure. From the regression results of the effect of the GDRP per capita (X1), HDI (X2), Electricity Infrastructure (X3), Communication Infrastructure (X4), Length of Road Infrastructure (X5), and Government Expenditure (X6) on FDI investment in nine regencies / municipalities in East Kalimantan Province in years 2015-2019 with the Fixed Effect estimation model, the R2 value is 0.926558 or 93%. This proves that the variations in the variables X1, X2, X3, X4, X5, and X6 can be explained by these variables by 93%. Meanwhile, the remaining 7% is explained by other variables excluded in this research.

4.3.5. F-Test Hypothesis

The F test is conducted to determine whether the independent variables jointly affect the dependent variable or not. Based on calculations using Eviews 9, the F-Statistic is 27.03484 and the probability is 0.00000 which is less than 1%, then, H0 is rejected. It can be concluded that with Fixed Effect estimation, the independent variables (GRDP per capita, HDI, electricity infrastructure, communication infrastructure, length of road infrastructure, and government expenditure), together affect the dependent variable (Foreign Direct Investment).

4.3.6. T-Test Hypothesis

1. GRDP Percapita Variable

GRDP percapita variable coefficient is 2.061536 and t-statistic 2.344835, while the probability is 0.0258, which is less than 5% or 0.05. It means that H0 is rejected and H1 is accepted. So according to Fixed Effect Model estimation result, GRDP percapita has a positive significant effect on the Foreign Direct Investment in East Kalimantan. The coefficient of GRDP percapita variable which is 2.061536 means that if GRDP percapita increase by 1%, the Foreign Direct Investment will increase by 2.06%.

2. Human Development Index Variable

The coefficient of HDI is 0.302670, and t-statistic 1.748773, meanwhile the probability is 0.0906, which is less than 10% or 0.1. It means that H0 is rejected and H1 is accepted so according to Fixed Effect Model estimation result, HDI has a positive significant effect on the Foreign Direct Investment in East Kalimantan. The coefficient of HDI which is 0.302670 means that if HDI increase by 1%, the Foreign Direct Investment will increase by 0.3%.

3. Electricity Infrastructure Variable

The coefficient of this variable is -1.040136 and t-statistic -0.676747, meanwhile the probability is 0.5038, which is greater than 10% or 0.1. It means that H0 is accepted and H1 is rejected. So according to Fixed Effect Model estimation result, Electricity Infrastructure has a non-significant negative effect on the Foreign Direct Investment in East Kalimantan, this is because the increase in the number of electricity customers is stable and always increasing regardless of the quality of the infrastructure.

4. Communication Infrastructure Variable

The coefficient of communication infrastructure is 1.159179, and t-statistic 3.623453, meanwhile the probability is 0.0011, which is less than 1% or 0.01. It means that H0 is rejected and H1 is accepted. So according to Fixed Effect Model estimation result, Communication Infrastructure has a positive significant effect on the Foreign Direct Investment in East Kalimantan. The coefficient of Communication Infrastructure which is 3.623453 means that if the number of BTS towers increase by 1%, the Foreign Direct Investment will increase by 1.16%.

5. Length of Road Infrastructure Variable

The coefficient of this variable is 0.0426631, and t-statistic 1.891579, meanwhile the probability is 0.0682, which is less than 10% or 0.1. It means that H0 is rejected and H1 is accepted. So according to Fixed Effect Model estimation result, Length of Road has a positive significant effect on the Foreign Direct Investment in East Kalimantan. The coefficient of Length of Road which is 0.0426631 means that if Length of Road increase by 1% , the Foreign Direct Investment will increase by 0.04%.

6. Government Expenditure Infrastructure Variable

The coefficient of this variable is 0.133486, and t-statistic 1.074016, meanwhile the probability is 0.2914, which is greater than 10% or 0.1. It means that H0 is accepted and H1 is rejected. So according to Fixed Effect Model estimation result, Government Expenditure has an insignificant positive effect on the Foreign Direct Investment in East Kalimantan. Such insignificant effect is because the increase in the total government expenditure is always at safe and secure condition even at some period of time and some region and municipalities experienced the decrease in government expenditure. So, it may be concluded that, even though government expenditure is skyrocketing or decreasing drastically, or even constant, it will not affect the growth of Foreign Direct Investment in East Kalimantan Province.

4.3.7. Constant Value Interpretation

Based on the regression equation that has been conducted using the Fixed Effect Model, it is explained that a constant of -21.29756 shows that if the nine regencies/municipalities in the province currently do not have a GRDP per capita, the Human Development Index, Electricity infrastructure, communication infrastructure, length of road infrastructure, and government expenditure, or briefly all X variables amount to 0 (X = 0), then the FDI will decrease by 21.3%.

4.4. Discussions

4.4.1. Economic Analysis of GRDP per capita on FDI in East Kalimantan

The results of the statistical tests show that the growth in GRDP per capita has a significant positive effect on foreign direct investment in East Kalimantan, in which the probability value of the t-statistic is 0.0258 or less than 5%. The GRDP per capita coefficient is 2.061536, meaning that every increase in GRDP per capita of 1% will increase Foreign Direct investment by 2.06% . This is because the increasing GRDP per capita in East

Kalimantan indicates that the value of production of goods and services also increases because it is followed by an increase in consumption by all economic sectors in the province. This has encouraged potential investors having a great interest in areas in the province of East Kalimantan by seeing the high GRDP per capita growth rate.

Based on the results of the analysis, it can be concluded that GRDP has a significant positive effect on FDI, this is in line with the research conducted by Sabono and Kusreni (2013), who identified that a high GRDP will attract investors to invest in the area. Thus, with the higher level of FDI created, the greater the amount of goods and services produced in a region. So that there is a reciprocal effect between FDI and GRDP.

This makes GRDP per capita as one of the factors influencing investment decisions in East Kalimantan, because the higher the level of public consumption in an area, the more profitable it will be for investors to invest in that area. This is because, with the high level of consumption, the return on capital and profits achieved by investors will be faster, this condition will certainly be very beneficial for foreign and domestic investors. This condition is following the hypothesis saying that there is a significant positive influence between GRDP per capita and FDI in East Kalimantan.

4.4.2. Economic Analysis of Human Development Index on FDI in East Kalimantan

Based on the results of statistical tests, it shows that the increase in the Human Development Index has a significant positive effect on foreign direct investment in East Kalimantan, in which the probability value of the t-statistic is 0.0906 or less than 10%. The HDI coefficient is 0.302670, meaning that every 1% increase in the Human Development Index will increase foreign direct investment by 0.3%. This is because the increase in the Human Development Index (HDI) in East Kalimantan indicates that the quality of human resources has increased and all aspects such as education, mental health, physical health as well. This certainly attracts investors because one of the production factors or input in producing an item is labor, and to get good quality goods, good quality labor is needed. Indicators to determine how well the quality, performance, skills, and knowledge of workers are based on HDI calculations, HDI is influential in attracting investors in a province.

Based on the results of the analysis, it can be concluded that HDI has a significant positive effect on FDI, this is in line with research conducted by Ramzy (2018), who identified

that a high HDI will attract foreign investors to invest in terms of FDI in Indonesia. This is because one of the goals of a country in doing FDI is to get workers or labors with qualified competencies and skills, in order to carry out the production process. Human resource is one of the most supportive factors of production, so with a high HDI level, it is believed that all kinds of development processes will run maximally and effectively.

This is due to the continuous increase in HDI in 9 regions in East Kalimantan for the past 5 years and is seen to continue to increase every year. Improving the quality of human resources in East Kalimantan continues to be maximized while continuing to improve the quality of teachers, providing free school subsidies for public schools, and also providing scholarship assistance for high-achiever students, including those who want to continue their study to higher education or universities. This obviously will have a positive impact on improving the quality of human resources in East Kalimantan province. The higher the quality of human resources, the higher the ongoing productivity, and it will also maximize the natural resources available in the area to be processed to increase the value of production. Consequently, it can expand employment rate, and can also attract foreign investors to invest in the province. This condition is under the hypothesis saying that there is a significant positive effect between the increase in HDI on FDI in East Kalimantan.

4.4.3. Economic Analysis of Electricity Infrastructure on FDI in East Kalimantan

Based on the results of statistical tests, it shows that the increase in electricity infrastructure has a negative and insignificant effect on foreign direct investment in East Kalimantan, in which the probability value of the t-statistic is 0.5038 or more than 10%. This indicates that any increase or decrease in the aspect of electricity infrastructure will not affect investment interest in East Kalimantan.

From the results of the analysis tests that have been carried out, it can be seen that the results do not corroborate Anggraeni (2016), who revealed that electricity infrastructure has a positive and significant effect on FDI. Based on previous research, it was found out that the decreasing electricity infrastructure condition can reduce the productivity of a company and will decrease the welfare level of an area. Therefore, an adequate supply of electricity is needed to support the production activities.

In East Kalimantan province, the amount of electricity infrastructure wouldn't affect the level of FDI, this is because the condition of electricity infrastructure in 9 regions in East Kalimantan has always experienced a significant increase and has never experienced a decline. This shows that the availability of electricity supply in East Kalimantan is efficient or will not interfere with the productivity that the company want to run. Based on the data in table 4.4, it also shows that electricity users in nine regencies/municipalities in East Kalimantan have a large number or to put it another way the distribution of electricity in East Kalimantan is evenly distributed according to the size of each area. So it can be concluded that the condition of electricity in East Kalimantan always increases significantly every year and can be said to be safe or have minimum problem so that it does not affect the considerations of potential investors to invest in East Kalimantan.

4.4.4. Economic Analysis of Communication Infrastructure on FDI in East Kalimantan

Based on the results of statistical tests, it shows that the improvement of communication infrastructure has a significant positive effect on foreign direct investment in East Kalimantan, in which the probability value of the t-statistic is 0.0011 or less than 1%. The communication infrastructure coefficient is 1.159179, meaning that every 1 unit increase in communication infrastructure will lead to an increase in foreign direct investment of US $ 1.159179. This is due to improvements in aspects of communication infrastructure such as Base Transceiver Station (BTS) towers or transmitting stations that function to transmit and receive radio signals to communication devices such as landlines, cellular phones, and other types of gadgets. The increasing number of BTS towers in an area indicates that the telecommunications system has worked efficiently to facilitate all activities that take place, and of course in the aspect of the digital economy some spaces facilitate communication between businesses and consumers to communicate in the context of implementing digital transactions.

This research finding is in line with research conducted by Fujiwara et al (2004), who found out that Asian countries such as Indonesia have a positive and significant relationship between the condition of communication infrastructure and economic growth. With better economic growth, it can attract foreign and local investors in Indonesia and reduce their hesitation to do business in Indonesia.

With the development of the communication infrastructure in a region, it will also attract investors because communication not only influences the social life of the community

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but also in almost all aspects, including the economy. The most obvious impact is that currently, the economy tends to work towards the digital economy. Meanwhile now there are so many developing industries that take advantage of technology in carrying out transactions such as in online communication functions, for example buying and selling online activity. To make it easier for producers and consumers to transact remotely, adequate communication infrastructure is also needed. Seeing the relatively constant development of communication infrastructure in the province of East Kalimantan in the past 5 years with a large number of BTS towers in each region, this certainly makes investors confident to invest in the province. This condition is under the hypothesis which assumes that there is a positive relationship between the development of communication infrastructure and the growth of Foreign Direct Investment in East Kalimantan province.

4.4.5. Economic Analysis of Length of Road on FDI in East Kalimantan

Based on the results of statistical tests, it shows that the increase in road length infrastructure has a significant positive effect on foreign direct investment in East Kalimantan, in which the probability value of the t-statistic is 0.0682 or less than 10%. The road length infrastructure coefficient is 0.426631, meaning that each additional 1% of length of road will increase foreign direct investment by 0.43%.

This research finding is in line with research conducted by Seetanah & Khadaroo (2008), who found that better condition of road infrastructure will reduce production costs and increase the productivity effectiveness of a company in the area, and which in turn increase access to inputs and provides a larger output. In addition, better road infrastructure will facilitate the distributions of goods and services from one place to another.

As it is well known in the past few years the condition of road length infrastructure in East Kalimantan has fluctuated and continues to experience a significant increase and decrease in some areas, however, there are still some areas that have slow road construction when compared to other areas in the province. Additionally, the length of roads of the nine regencies/municipalities in East Kalimantan is at a state of continuous improvement in recent years and has been built more innovatively by the government to accelerate economic development. So it can be concluded that there is a significant influence of road infrastructure on the growth of foreign direct investment in East Kalimantan. This condition is following the

hypothesis with the assumption that there is a significant effect on the length of roads and FDI, the longer the road infrastructure, the higher the foreign direct investment in East Kalimantan.

4.4.6. Economic Analysis of Government Expenditure on FDI in East Kalimantan

Based on the results of statistical tests, it shows that the increase in Government Expenditure has a positive and non-significant effect on foreign investment in East Kalimantan, in which the probability value of the t-statistic is 0.2914 or more than 10%. This shows that an increase or decrease in aspects of government spending will not affect the interest in foreign direct investment in the province.

This research finding study is not in line with research conducted by Othman et al (2018), who found that a high amount of government spending will increase the amount of FDI in an area. Meanwhile, this study also draws the conclusion that there is a reciprocal effect between FDI and Government Expenditure because a high amount of government expenditure will increase economic growth in a region.

In East Kalimantan, the amount of government expenditure wouldn't affect the level of FDI, this occurs due to the extraordinary changes every year from all nine regencies/municipalities in the province. The increase and decrease in the government expenditure are due to the need of each regional governments to develop their respective regions and have no relationship with foreign direct investment. In conclusion, the condition of foreign direct investment in East Kalimantan is maintained every year regardless the Government Expenditure chart factor. How high or how low the level of government expenditure in East Kalimantan will not reduce investors' intention to invest in East Kalimantan.

CHAPTER V
CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

Based on the outcome of the data analysis and economic analysis, a few conclusions are drawn.

1. GRDP per capita has a significant positive influence on FDI in East Kalimantan. This means that an increase in GRDP per capita, the FDI will also increase and vice versa, following changes to the GRDP per capita. This is because a high GRDP per capita implies a high level of welfare and social consumption, which would encourage foreign investors to invest in the East Kalimantan Province.

2. HDI in East Kalimantan has a significant positive effect on FDI. This means that as the HDI level increases, FDI will also increase and vice versa when HDI changes. This is because high HDI demonstrates that there is a high level of human resources quality in the region. With a high level of quality human resources, the level of profitability of the firm can increase, since it needs competent and highly skilled labor to help create the production. Therefore, a high level of HDI in a region would also increase the FDI in the region.

3. The electricity infrastructure in East Kalimantan does not have a significant effect on FDI. This could happen because the electricity infrastructure condition in East Kalimantan is distributed equally and has been very well developed, and it would not be a problem for companies to carry out their production processes. Therefore, the investors do not really consider electricity infrastructure as one of the factors in deciding to invest in East Kalimantan.

4. The communications infrastructure in East Kalimantan has a significant effect on FDI. This shows that FDI will also increase as the communication infrastructure increases and vice versa, following changes in the communication infrastructure. This is because East Kalimantan's communication infrastructure in every region has been well established, which is increasingly attracting investors to invest in East Kalimantan.

5. The length of the road infrastructure in East Kalimantan has a significant effect on FDI. This implies that FDI will also increase as infrastructure for length of road increases and vice versa, following changes in infrastructure of length of road. This is due to East Kalimantan's length of road infrastructure, which continues to expand and develop in each region. This is the very appeal to invest in East Kalimantan.

6. Government expenditure in East Kalimantan does not have a significant effect on FDI. This is because East Kalimantan government expenditure seems to be in driven by the growing demand and relies on the government's targeted development prospects by adjusting the needs of each region. Up to this point, government expenditure is not a barrier to do investment in East Kalimantan. Consequently, investors do not take into account the value of government expenditure in making an investment in East Kalimantan.

5.2. Recommendations

The following suggestions can be given based on the research results:

1. GRDP per capita has the strongest effect on FDI in East Kalimantan, as shown by the GRDP per capita variable having the highest coefficient value compared to other variables in this research. The government should therefore sustain the GRDP per capita at a good level, as this variable will indicate economic conditions in the region. As a result, the higher the GRDP per capita, the higher the FDI the region can achieve. GRDP per capita can describe the average income of the entire population of the region so that it can provide an overview of the conditions of demand and supply of goods and services in a region that can attract investors.

2. The Human Development Index is one of the variables that has a significant and positive effect on FDI inflows in East Kalimantan. This means that HDI, which is a measure of the quality of human capital, is a key factor that must be monitored by the East Kalimantan Government, since the human resources labor is the driving force behind all development activities for industries to achieve their profitability. Indeed, foreign investors, reflecting their decision to invest directly in the form of FDI, they will see the HDI pattern in East Kalimantan. HDI would seem to be an important predictor for raising the level of FDI.

3. Electricity infrastructure is a variable that has no major influence on FDI in East Kalimantan. This is because the development and the distribution of electricity in East Kalimantan Province is already quite decent and equal, then it is not a reference for

investors to do any investments. Therefore, the government and the Indonesian electricity company, which is PT.PLN, must continue to improve the electricity infrastructure and maintain the good state of the electricity infrastructure in East Kalimantan.

4. Communication infrastructure is a variable that has a significant positive influence on FDI. In other words, communication infrastructure is an essential factor that must be improved and expanded by the Government of East Kalimantan. The well-improved communication infrastructure can facilitate access to economic activities as it is of crucial importance for all operational activities, including industries' activities.

5. Road Length Infrastructure is a variable that has a significant positive effect on the FDI. This means that the length of road infrastructure is an important aspect that the government must continue to construct because, with the increase in the length of road infrastructure, it will accelerate the mobilization and minimize the cost of production for companies. As a result, the longer the road, the more attractive it is for investors to undertake FDI in East Kalimantan.

6. Government Expenditure is a variable that has no significant impact on FDI in East Kalimantan. The East Kalimantan Government must therefore prioritize variables that have a substantial impact on FDI in East Kalimantan thus that they might optimize FDI growth without ignoring other variables.

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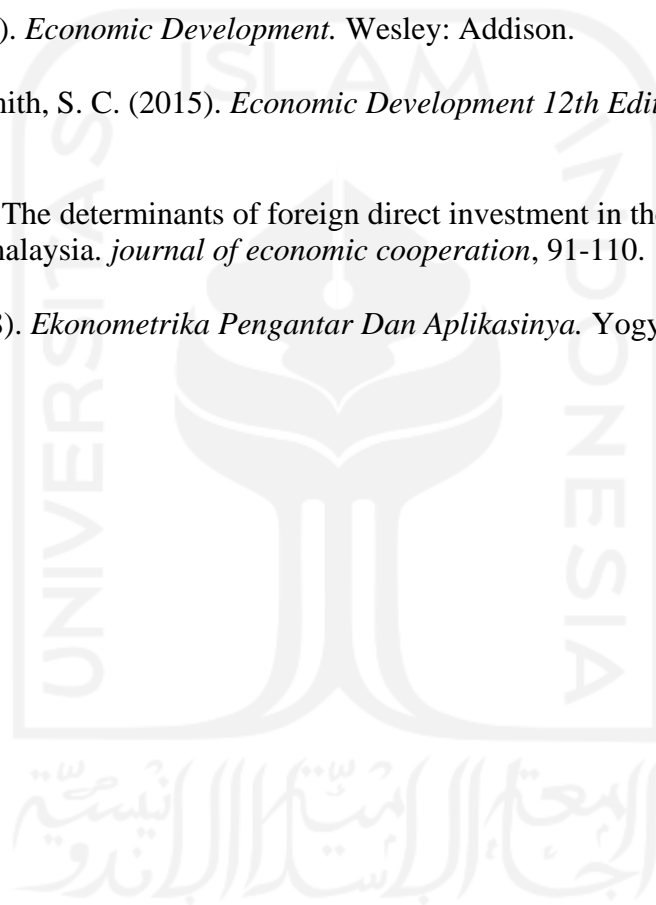
APPENDICES

Appendix I
Panel Data

Regency / Municipalities	Year	FDI (in thousand US$)	GRDP Percapita (in million IDR)	HDI (%)	Electricity consumer	Communication Infrastructure (Number of BTS tower)	Length of Road (km)	Government Expenditure (in thousand IDR)
Paser	2015	13051.1	116.05	70.1	56730	70	1284.04	2012884588
Paser	2016	17961.6	139.01	71	58433	70	1383.91	2542198490
Paser	2017	31559.4	160.3	71.16	62921	70	1089.52	782274253
Paser	2018	12336.4	151.44	71.31	63557	70	1103.97	1902473193
Paser	2019	26060.9	150.51	72.69	66053	70	1115.94	2390757924
Kutai Barat	2015	52728.8	158.04	69.94	27930	64	3036.87	2143841249
Kutai Barat	2016	67079.6	160.51	69.99	28624	64	1791.16	2606440556
Kutai Barat	2017	42137.6	194.43	70.18	30313	64	2962.03	669154458
Kutai Barat	2018	33957.6	177.34	70.69	31051	64	3604.28	2005905295
Kutai Barat	2019	67924.5	195.01	71.83	32744	64	3452.13	2421408565
Kutai Kartanegara	2015	169538.8	197.14	71.98	148600	205	3289.79	8381630602
Kutai Kartanegara	2016	124770.9	173.97	72.09	149445	206	2750.47	6980371046
Kutai Kartanegara	2017	230618.6	210.41	72.75	158263	206	2626.37	2016701026
Kutai Kartanegara	2018	141441.7	176.48	72.85	167336	206	2639.91	3697248441
Kutai Kartanegara	2019	129568.7	167.02	73.08	170172	206	2728.2	5105955650
Kutai Timur	2015	237863.9	292.2	70.26	46450	110	1807.24	3337856870
Kutai Timur	2016	289147	305.34	71.6	52613	111	1768.26	3960454565
Kutai Timur	2017	711562.6	396.12	71.91	59925	111	1717.46	843837422
Kutai Timur	2018	205675.8	323.3	72.16	60182	111	1624.89	3166757794
Kutai Timur	2019	304294.3	345.55	72.29	61458	111	1828.87	3509225714
Berau	2015	15730.4	153.98	71.92	42945	65	1785.53	2786759264
Berau	2016	18526.7	158.44	72.05	46793	67	2243.98	2793638032
Berau	2017	20904.1	161.63	73.26	50815	67	2046.87	885990137

Berau	2018	19383.6	166.17	73.31	56058	67	2145.77	2121999968
Berau	2019	27950.9	167.11	73.48	61101	67	2210.06	2642342000
Penajam	2015	16719.5	50.32	69.36	37656	53	1197.41	1391575604
Penajam	2016	18052.8	49.24	69.96	40114	54	1279.14	1493318846
Penajam	2017	14916.5	54.77	70.69	43092	54	1374.17	447443181
Penajam	2018	10989.2	43.53	70.83	46170	54	1452.17	1505316439
Penajam	2019	14765.6	52.47	71.14	49154	54	1435.12	1588749272
Balikpapan	2015	147521.5	130.78	77.08	178469	124	573.08	2907590320
Balikpapan	2016	401808.6	148.12	78.97	200771	139	659.46	3112335120
Balikpapan	2017	171762.1	132.92	79.01	215679	139	668.94	644341493
Balikpapan	2018	237549.8	138.76	79.11	217083	139	658.63	2120970177
Balikpapan	2019	384974.2	156.28	79.91	236019	124	595.84	2437774009
Samarinda	2015	80416.3	162.52	78.79	206402	134	858.44	3238561121
Samarinda	2016	25685.6	163.56	78.81	210387	148	159.42	3201521660
Samarinda	2017	56054.3	169.29	79.06	220331	148	1036.48	951304862
Samarinda	2018	102099.1	194.49	79.93	245650	148	1052.66	2517192821
Samarinda	2019	231280.4	178.57	80	251622	134	1042.58	2815797101
Bontang	2015	13182	358.79	75.78	39750	23	206.21	1664595109
Bontang	2016	15265.5	301.04	76.92	41167	33	339.77	1910307740
Bontang	2017	18914.8	345.15	77.47	43181	33	339.96	305175410
Bontang	2018	114775.1	338.38	79.86	53479	33	339.93	1185941596
Bontang	2019	280755.5	359.05	79.91	59449	148	206.73	1451230694

Source : Processed Data

N.B :

East Kalimantan Province has 10 regencies / municipalities, however, researcher only include
9 regencies/municipalities because the limited data available for the rest one regency.

APPENDIX II
Common Effect Estimation Result

Dependent Variable: LOG(FDI)
Method: Panel Least Squares
Date: 12/22/20   Time: 07:49
Sample: 2015 2019
Periods included: 5
Cross-sections included: 9
Total panel (balanced) observations: 45

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.226070	6.259255	-0.515408	0.6093
LOG(X1)	0.686879	0.261784	2.623845	0.0124
X2	0.132066	0.077721	1.699241	0.0974
LOG(X3)	-0.641288	0.462406	-1.386851	0.1736
LOG(X4)	1.904555	0.464881	4.096868	0.0002
LOG(X5)	0.177771	0.238550	0.745216	0.4607
LOG(X6)	-0.075012	0.203633	-0.368368	0.7146

R-squared	0.686743	Mean dependent var	11.01284
Adjusted R-squared	0.637282	S.D. dependent var	1.218978
S.E. of regression	0.734143	Akaike info criterion	2.361809
Sum squared resid	20.48071	Schwarz criterion	2.642846
Log likelihood	-46.14071	Hannan-Quinn criter.	2.466577
F-statistic	13.88438	Durbin-Watson stat	0.918874
Prob(F-statistic)	0.000000		

Source : Processed Data using Eviews 9.0

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APPENDIX III
Fixed Effect Estimation Result

Dependent Variable: LOG(FDI)
Method: Panel Least Squares
Date: 12/22/20   Time: 07:47
Sample: 2015 2019
Periods included: 5
Cross-sections included: 9
Total panel (balanced) observations: 45

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-21.29756	8.626415	-2.468877	0.0195
LOG(X1)	2.061536	0.879182	2.344835	0.0258
X2	0.302670	0.173076	1.748773	0.0906
LOG(X3)	-1.040136	1.536963	-0.676747	0.5038
LOG(X4)	1.159179	0.319910	3.623453	0.0011
LOG(X5)	0.426631	0.225542	1.891579	0.0682
LOG(X6)	0.133486	0.124287	1.074016	0.2914

Effects Specification				

Cross-section fixed (dummy variables)

R-squared	0.926558	Mean dependent var	11.01284
Adjusted R-squared	0.892286	S.D. dependent var	1.218978
S.E. of regression	0.400067	Akaike info criterion	1.266833
Sum squared resid	4.801610	Schwarz criterion	1.869053
Log likelihood	-13.50373	Hannan-Quinn criter.	1.491334
F-statistic	27.03484	Durbin-Watson stat	2.136210
Prob(F-statistic)	0.000000		

Source : Processed Data using Eviews 9.0

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APPENDIX IV
Random Effect Estimation Result

Dependent Variable: LOG(FDI)
Method: Panel EGLS (Cross-section random effects)
Date: 12/22/20   Time: 07:50
Sample: 2015 2019
Periods included: 5
Cross-sections included: 9
Total panel (balanced) observations: 45
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-14.05151	4.936399	-2.846509	0.0071
LOG(X1)	0.907274	0.352285	2.575401	0.0140
X2	0.192827	0.071441	2.699106	0.0103
LOG(X3)	-0.386895	0.427654	-0.904690	0.3713
LOG(X4)	1.302631	0.279873	4.654365	0.0000
LOG(X5)	0.491722	0.178497	2.754799	0.0090
LOG(X6)	0.056110	0.114840	0.488595	0.6279

Effects Specification

		S.D.	Rho
Cross-section random		0.538132	0.6440
Idiosyncratic random		0.400067	0.3560

Weighted Statistics

R-squared	0.623424	Mean dependent var	3.474494
Adjusted R-squared	0.563965	S.D. dependent var	0.652993
S.E. of regression	0.431191	Sum squared resid	7.065166
F-statistic	10.48488	Durbin-Watson stat	1.809682
Prob(F-statistic)	0.000001		

Unweighted Statistics

R-squared	0.647497	Mean dependent var	11.01284
Sum squared resid	23.04665	Durbin-Watson stat	0.554775

Source : Processed Data using Eviews 9.0

APPENDIX V
Chow Test Result

Redundant Fixed Effects Tests
Equation: FEM_FDI
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	12.245192	(8,30)	0.0000
Cross-section Chi-square	65.273955	8	0.0000

Cross-section fixed effects test equation:
Dependent Variable: LOG(FDI)
Method: Panel Least Squares
Date: 12/22/20   Time: 07:48
Sample: 2015 2019
Periods included: 5
Cross-sections included: 9
Total panel (balanced) observations: 45

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.226070	6.259255	-0.515408	0.6093
LOG(X1)	0.686879	0.261784	2.623845	0.0124
X2	0.132066	0.077721	1.699241	0.0974
LOG(X3)	-0.641288	0.462406	-1.386851	0.1736
LOG(X4)	1.904555	0.464881	4.096868	0.0002
LOG(X5)	0.177771	0.238550	0.745216	0.4607
LOG(X6)	-0.075012	0.203633	-0.368368	0.7146

R-squared	0.686743	Mean dependent var	11.01284
Adjusted R-squared	0.637282	S.D. dependent var	1.218978
S.E. of regression	0.734143	Akaike info criterion	2.361809
Sum squared resid	20.48071	Schwarz criterion	2.642846
Log likelihood	-46.14071	Hannan-Quinn criter.	2.466577
F-statistic	13.88438	Durbin-Watson stat	0.918874
Prob(F-statistic)	0.000000		

Source : Processed Data using Eviews 9.0

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APPENDIX VI
Hausman Test Result

Correlated Random Effects - Hausman Test
Equation: REM_FDI
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	12.142478	6	0.0589

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
LOG(X1)	2.061536	0.907274	0.648856	0.1519
X2	0.302670	0.192827	0.024851	0.4859
LOG(X3)	-1.040136	-0.386895	2.179368	0.6581
LOG(X4)	1.159179	1.302631	0.024014	0.3546
LOG(X5)	0.426631	0.491722	0.019008	0.6368
LOG(X6)	0.133486	0.056110	0.002259	0.1035

Cross-section random effects test equation:
Dependent Variable: LOG(FDI)
Method: Panel Least Squares
Date: 12/22/20   Time: 07:50
Sample: 2015 2019
Periods included: 5
Cross-sections included: 9
Total panel (balanced) observations: 45

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-21.29756	8.626415	-2.468877	0.0195
LOG(X1)	2.061536	0.879182	2.344835	0.0258
X2	0.302670	0.173076	1.748773	0.0906
LOG(X3)	-1.040136	1.536963	-0.676747	0.5038
LOG(X4)	1.159179	0.319910	3.623453	0.0011
LOG(X5)	0.426631	0.225542	1.891579	0.0682
LOG(X6)	0.133486	0.124287	1.074016	0.2914

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.926558	Mean dependent var	11.01284
Adjusted R-squared	0.892286	S.D. dependent var	1.218978
S.E. of regression	0.400067	Akaike info criterion	1.266833
Sum squared resid	4.801610	Schwarz criterion	1.869053
Log likelihood	-13.50373	Hannan-Quinn criter.	1.491334
F-statistic	27.03484	Durbin-Watson stat	2.136210
Prob(F-statistic)	0.000000		

Source : Processed Data using Eviews 9.0