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The Influence of PMA, PMDN and Labor Force on GDRB in DKI Jakarta Province

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A B S T R A C T

This study aims to analyze the effect of FDI, PMDN and the number of labor force on economic growth in DKI Jakarta province. The data used are secondary data from the Central Statistics Agency in the 2018-2022 period in districts / cities in DKI Jakarta province. The dependent variable in this study is GRDP while the independent variables used in this study are PMA, PMDN and the number of labor force. The data analysis method applied is panel data regression analysis with a random effect model. The results showed that PMA, PMDN and the number of labor force had a positive and significant effect on GDP.

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INTRODUCTION

One indicator that shows the economic progress of a region is economic growth. GDP shows how much added value a region generates in a certain period, usually one year. This added value reflects the productivity, efficiency, and competitiveness of the region in producing goods and services. GRDP can be influenced by various factors, both from within and from abroad. One of the influential factors is investment, both from foreign capital (PMA) and from domestic capital (PMDN). Investment can increase production capacity, create jobs, and expand markets. In addition, investment can also increase the transfer of technology, knowledge, and skills that can increase productivity and efficiency.

In addition to investment, another factor that affects GDP is the labor force. The labor force is the number of people who are of productive age and ready to work. The labor force can be a potential human resource to move the wheels of the economy. However, the workforce also needs adequate education, training, and health in order to have qualities and skills that match market needs. A quality workforce can increase productivity and efficiency, and encourage innovation and creativity.

DKI Jakarta Province is the capital of the country and as the center of business and trade, GRDP in DKI Jakarta Province has an important role in contributing to the national GDP of the center of the Indonesian economy. This province has a fairly high GDP compared to other provinces. In addition, this p
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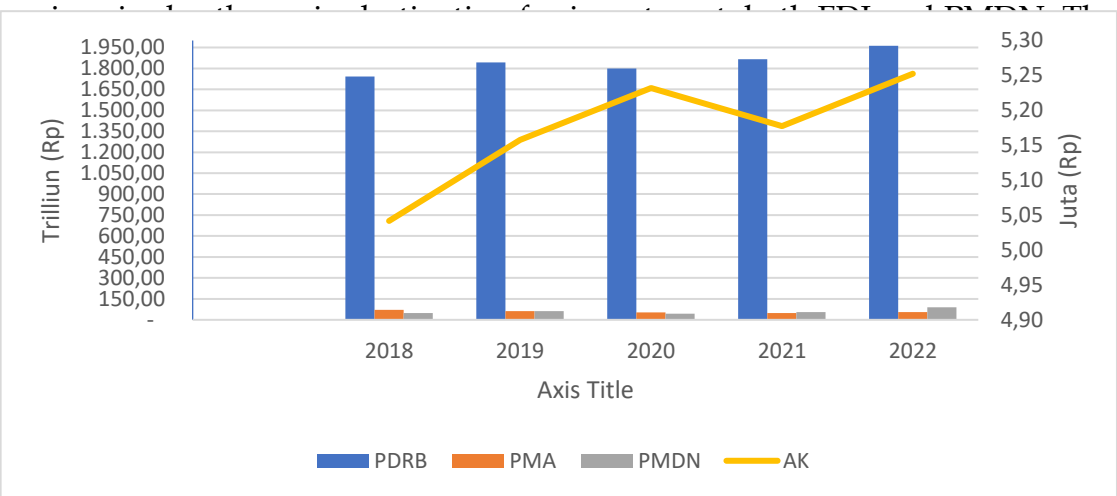

Figure 1. Number of PDRB, PMA, PMDN and DKI Jakarta Provincial Labor Force in 2018-2022

In figure 1, it can be seen that the highest GDP of DKI Jakarta Province is IDR 1,963,045.00 billion, however, the growth rate of DKI Jakarta's GDP has decreased from 6.11% in 2018 to 5.82% in 2019 then decreased again to -2.39% in 2020, increasing to 5.25% in 2022. This significant decline in 2020 was caused by

the impact of the Covid-19 pandemic which hampered economic activity in the capital city. Likewise, the growth rate of PMDN, PMA and labor force in DKI Jakarta also decreased in 2020 due to the Covid-19 pandemic

Thus, this study aims to analyze the effect of PMA, PMDN, and labor force on GRDP in DKI Jakarta Province. This research is expected to provide useful information and input for the government, investors, workers, and the general public regarding the factors that affect GRDP in DKI Jakarta Province.

THEORETICAL REVIEW

Solow-Swan's Neoclassical Economic Growth Theory was developed in the 1950s. In neoclade growth theory, Solow explained that economic growth comes from the increase and development of factors that affect aggregate supply.

The growth model proposed by Solow describes a country's economy where output growth is the result of two types of inputs, namely capital and labor. Solow assumed that there is a constant relationship between capital and labor so that the production function is obtained as follows:

$$Y = f (K, L)$$

Where:

Y is the output,

K is capital or capital,

L is labor or labor.

Workforce efficiency will be achieved if there are improvements in education, health, and skills for each community. This can then also have an impact on the level of productivity produced by the workforce

In Solow's neoclassical growth theory, output growth is always sourced from one or more of three factors. Among them are increasing the quantity. and quality of labor (through population growth and improving education), increasing capital (through savings and investment), and improving technology (Todaro and Smith, 2006).

Gross Regional Domestic Product

One way to assess economic development in a region is to use the Gross Regional Domestic Product (GDP). GRDP shows the total value of goods and services produced by residents in a region in a certain period of time. GRDP is also useful as an indicator of community welfare in the region (Dama et al., 2016). GRDP can also be used to determine budget allocation, development

planning, and policy evaluation. GDP can be calculated by three approaches, namely production, income, and expenditure.

According to the Central Statistics Agency (2019), GDP is the amount of gross value added arising from all economic sectors in a region, which is meant by added value, namely the value added to goods and services used by production units in the production process as inputs.

According to neoclassical theory, GDP can be increased by increasing the factors of production, namely capital, labor. Capital is the means of production used to produce goods and services, such as machinery, factories, buildings, and others. Labor is the amount and quality of human resources involved in the production process, such as education, skills, experience, and motivation. By increasing these factors of production, GDP will increase because production output will increase. This will reflect higher economic well-being for the people of the region.

Foreign Direct Investment (FDI)

Foreign direct investment (PMA) is a form of investment made by foreign parties in the country to run a business or manage company operations with the aim of making a profit. FDI has an important role in Indonesia's economic development, as it can increase capital, technology, employment, and exports. However, FDI also has negative impacts, such as dependence on foreign capital, foreign exchange leakage, and competition with local businesses.

According to Salim (2012), FDI is an activity to enter capital or investment, with the aim of conducting business activities with a composition of fully foreign capital or joint venture with domestic investors. The percentage of shares owned by foreign investors is a maximum of 95%. While domestic investors, the minimum capital is 5%.

In neoclassical theory, foreign investment can increase productivity because FDI can bring more sophisticated and modern technology into the country, so as to increase productivity and production efficiency. The transferred technology can be machinery, equipment, raw materials, production methods, management, or knowledge. Technology transfer can improve the quality of goods and services produced, so as to increase competitiveness and market demand which will then have a positive impact on economic growth

Several researchers have conducted studies to examine the effect of FDI on GRDP. In research conducted by Maitridani, et al (2023), Septiana, et al (2023), Nadzir and kenda (2023), Feriyandri (2023), Anfasa (2021) found that foreign investment has a positive effect on economic growth.

Domestic Investment (PMDN)

Domestic investment (PMDN) is an investment activity to do business in the territory of the Republic of Indonesia carried out by domestic investors using domestic capital. According to Dhanieswara K Harjono (2007), investment is the submission of a sum of money used as capital in a company or project with the aim of obtaining profits or profits. Domestic capital is an asset in the form of money or other forms that are not money owned by investors who have economic value.

According to neoclimate theory, investment such as domestic investment has an important role in national economic development, because it can increase the production of goods and services, create jobs, and expand markets.

Mardiasmo (2012) explained that domestic investment is an investment activity to do business in the territory of the Republic of Indonesia carried out by domestic investors using domestic capital. Domestic investment has an important role in national economic development, including as a source of investment financing, a source of economic growth, a source of job creation, a source of state revenue, and a source of technology transfer.

Several researchers have conducted studies to examine the effect of PMDN on GRDP. In research conducted by Maitridani, et al (2023), Andriyani (2023), Nadzir and kenda (2023) found that domestic investment has a positive effect on economic growth.

Workforce

The labor force is the working-age population (15 years and over) who are employed, or have a job but are temporarily unemployed and unemployed. The labor force is one of the important factors in economic development, since they are human resources involved in productive activities that produce goods or services.

The relationship between the labor force and the relationship are mutually influencing and dependent on each other. A large, skilled, and educated workforce will be able to increase productivity and efficiency in producing goods and services. This will have a positive impact on economic growth, because the output produced will be more abundant and of higher quality.

Conversely, high GDP will also increase demand for goods and services, thus encouraging companies to increase production capacity and expand markets. For this reason, companies need a larger workforce to fill available job vacancies. This will have a positive impact on the labor force, because job opportunities will be more and income will increase.

Several researchers have conducted studies to examine the effect of the labor force on GDP. In research conducted by Tondok, et al (2023), Feriyandri

and Maimunah (2023), Nurl (2021), Zeno (2022), Laelawati (2021), Khasanah (2021), Anfasa (2021), Feriyandri (2023), that the labor force has a positive effect on economic growth.

METHODOLOGY

The research method used in this article is a quantitative method using secondary data in the form of panel data. Panel data is data that combines cross section and time series data. Cross section data is data that observes many subjects at one particular time, while time series data is data that observes one subject at many times. Panel data was used to analyze the effect of Foreign Direct Investment (PMA), Domestic Investment (PMDN) and Labor Force (AK) on the GRDP of 6 districts/cities in DKI Jakarta Province during the 2018-2022 period.

The model used in this study is a multiple linear regression model of panel data with the following equation form:

$$\text{Ln PDRBit} = \alpha + \beta 1 \text{ Ln PMAit} + \beta 2 \text{ Ln PMDNit} + \beta 3 \text{ AKit} + Ґit$$

Where:
GDP = Gross Regional Domestic Product
PMA = Foreign Investment
PMDN = Domestic Investment
AK = Labor Force
α = constant
β = regression coefficient
Ж = error term

RESULTS

Test Model

This test is carried out with three regression test approach models to choose which model best matches the data in this study will be selected based on the analysis below:

Table 1. Model Determination Test Results

Test Chow	Cross-section Chi- square	116.048863
	Prob	0.0000
Hausman Test	Cross-section Random	3.536199
	Prob	0.4724
Lagrange Multiplier Test	Cross-section	4.4826333
	Prob	0.0342

Source: data processed, 2023

1. Chow Test

The Chow test is conducted to determine which approach model is best suited between the common effect model and the fixed effect model. Based on testing the regression approach model between the common effect model and fixed effect model with the Chow Test, it shows that the probability value is (0.000) which means smaller than alpa (0.05). This shows that the CEM (common effect model) model is the best model compared to FEM.

2. Hausman Test

The Hausman test is conducted to determine the best model between the fixed effect model and the random effect model. As shown by testing the regression approach model between the fixed effect model and the random effect model using the Hausman Test, the probability value obtained is (0.4724), meaning greater than a (0.05). From the Hausman test shows that the REM model (random effect model) is the best model.

3. Lagrange Multiplier Test

To determine which model is better between the random effect model or cammon effect model, the last one is the Lagrange Multiplier test. Based on the analysis conducted on the model, the regression method used to compare the random effect model with the cammon effect model, using the Lagrange Multiplier test which produces a Prob value of < chi2 (0.0342) which means the value is smaller than α (0.05). This shows that the random effects (REM) model is the best model.

Based on three previous tests conducted to determine the best model to use. So it can be concluded that the best model in this study will use a random effect (REM) model.

Classical Assumption Test

1. Normality Test

A normality test is performed to determine whether the residual values of the regression are normally distributed. The decision is based on significant values, values > 0.05 indicate normally distributed data, while values < 0.05 indicate non-normally distributed data. The results of the normality test are shown in the following table:

Table 2. Normality test results

		Unstandardized Residual
Normal Parametersa.b	Mean	0.132766
	Median	-0.036306
	Maximum	1.382094
	Minimum	-0.928360
Most Extreme Difference	Std.Dev	0.665269
	Skewness	0.602891
	Kurtosis	2.277420
Jarque- Fallow		2.140700
Prob		0.342888

Source: data processed, 2023

Table 2 above shows the results of the Kolmogorov-Smirnov normality test. If the probability value of the JB test > 0.05, then the residuals are normally distributed. Conversely, if the probability value of the JB test < 0.05, then the residuals are not normally distributed. The result of the significance value in this test is 0.342 greater than 0.05, which means that the residual value is normally distributed.

2. Multicollinearity Test

The multicollinearity test shows that there is a significant correlation between the independent variables tested by linear regression. Different conditions with the assumption of linear regression are known as multicollinearity. The correlation coefficient in view of the correlation for each independent variable is more than 0.8, the data shows multicollinearity. If the correlation coefficient is less than 0.8, the data do not show multicollinearity. The following are the results of the multicollinearity test conducted:

Table 3. Multicollinearity test results

	PMA	PMDN	AK
Ln_PMA	1.000000	0.713513	0.366952
Ln_PMDN	0.613513	1.000000	0.098864
AK	0.366952	0.098864	1.000000

Source: data processed, 2023

The results of the multicollinearity test show that the coefficient of each independent variable is less than 0.8, which indicates that the data does not show multicollinearity. These results showed that there was no significant correlation between the independent variables in the regression analysis.

3. Heteroscedasticity Test

A heterosced a city test is performed to determine if there are devia tio ns in the model caused by different disturbance variants from one variable to

another. Heteroscedasticity does not occur if the significance between the residual independent and absolute variables is more > 0.05, according to its decision-making basis. The results of the hetero s c e d acity test are shown in the following table:

Table 4. Hetero s c e d acity t e s t results

Independent Variables	Prob.	Alpha	Result
Ln_PMA	0.9396	0.05	Prob > 0.05
Ln_PMDN	0.2433	0.05	Prob > 0.05
AK	0.1393	0.05	Prob > 0.05

Source: data processed, 2023

If the probability value of the Glejser test < 0.05, then we can conclude that there is hetero s c e d acity in the regression model. Conversely, if the probability value > 0.05, then we can conclude that there is no heteroscedasticity in the regression model. The results of this t e s t show that the value of Prob>chi2 with a value greater than the alpha value of 0.05, it can be concluded that this data does not occur heteroscedacity.

Multiple Linear Regression Test

Table 5. Multiple Linear Regression Results

	Coefficient	Tstatistic	Prob	R-squre	Fstatatistic	Prob (Fstatistic)
C	13.96234	60.25904	0.0000	0.739534	20.82138	0.000001
Ln_PMA	0.116462	10.35374	0.0000			
Ln_PMDN	0.116379	8.669166	0.0000			
AK	1.810006	15.64962	0.0000			

Source: data processed, 2023

1. Test T (Partial)

According to the hypothesis test conducted based on the data used, the PMA variable shows a probability value of 0.0000 for GRDP in DKI Jakarta Regency / City which means a more < α (0.05) prob value with a coefficient of 0.116462 and has a positive effect on the dependent variable. Meanwhile, the prob variable value of PMDN is the same as PMA with a different coefficient value of 0.116379. And labor force is the last variable that has a prob value of 0.0000 which means smaller than < 0.05 with a coefficient of 1.810006.

2. F Test (Simultaneous)

Based on the results of multiple linear regression analysis (F-test) carried out simultaneously shown in table 5, the F-Statistic value is 20.82138 and the

Prob value is 0.000001 which means more < 0.05. So it can be concluded that the variables of foreign investment, domestic investment and labor force are jointly influenced by GRDP in DKI Jakarta Regency / City.

3. Determination Coefficient Test

From the results of the Coefficient Determination test, it can be seen that the R-squared value of 0.739534 or 7.39%, this value illustrates that the variables of foreign investment, domestic investment and labor force have a positive relationship and have a significant effect on GRDP in DKI Jakarta Regency / City.from 2018 to 2022.

DISCUSSION

The relationship of FDI to GRDP

Based on the results of FDI research, this has a positive and significant impact on GRDP in the province of DKI Jakarta. This research is in line with previous research conducted by Maitridani, et al (2023) Septiana, et al (2023) Nadzir and kenda (2023) Feriyandri, et al (2023) Anfasa, et al (2021). The results of this study are also in accordance with Solow-Swan's neoclassical economic growth theory where FDI can increase the stock of physical capital and human capital in the country, because FDI brings capital, technology, management, and skills that can be used to produce goods and services. FDI can also increase labor productivity, as it can provide training, education, and knowledge transfer to local workers. Thus, FDI can increase per capita output and economic growth.

Fo reign direct investment (PMA) is one of the sources of income for the Indonesian economy, including in the DKI Jakarta province. In 2022, FDI in DKI Jakarta reached 55.61 trillion rupiah, an increase of 11% compared to the previous year. FDI in DKI Jakarta comes from various sectors, such as the manufacturing industry, trade, financial services, and property. FDI in DKI Jakarta has a positive impact on the Gross Regional Domestic Product (GRDP) in the province. GDP is the total value of goods and services produced by a region in a certain period of time. GDP in DKI Jakarta in 2022 reached 1,963.05 trillion rupiah, growing 4.98% compared to the previous year. This FDI contributes to the increase in GRDP in DKI Jakarta, showing that foreign investment has an important role in driving GRDP in the capital city. This shows that FDI can increase production capacity, innovation, employment, income and foreign exchange in this area.

The relationship of PMDN to GRDP

Based on the results of PMDN research, it has a positive and significant effect on GRDP in DKI Jakarta Province. This research is in line with previous research conducted by Maitridani, et al (2023), Andriyani, et al (2023), Nadzir and kenda (2023). The results of this study are also in line with neoclassical economic

growth theory where the theory explains that economic growth depends on the availability of factors of production: labor, and capital accumulation. PMDN which is one form of investment that can increase capital stock. According to the solow-swan model, the greater the per capita capital stock, the greater the economic output. This is because PMDN can increase the capital stock in the economy, which means increasing output. In addition, PMDN can also encourage technological innovation, which means increasing labor productivity.

According to data from the Central Statistics Agency (BPS) PMDN in DKI Jakarta Province of IDR 89.22 trillion in 2022, this shows that there was a significant increase from the previous year, which was 38.68%, as well as the GDP of DKI Jakarta also increased in 2022 by 4.98% compared to the previous year. This shows that PMDN can increase economic independence, strengthen the real sector, diversify products, and balance development between regions.

The Relationship of the Labor Force to GRDP

Based on the results of research, the labor force has a positive and significant effect on GRDP in DKI Jakarta Province. This research is in line with previous research conducted by Tondok, et al (2023) Feriyandri and Maimunah (2023) Nurl, et al (2021) Zeno (2022) Laelawati, et al (2021) Khasanah, et al (2021) Anfasa, et al (2021) Feriyandri, et al (2023). In Solow-Swan's neoclassical economic theory, one of the factors that affect output or GDP is the labor force. Where the labor force positively affects output, assuming that labor productivity and capital stock remain constant. That is, the more labor force available and working, the higher the output produced.

In 2022, the labor force in DKI Jakarta is estimated to reach 5.25 million people, an increase of 1.43 percent compared to 2021. The increasing labor force in DKI Jakarta has a positive impact on the GRDP in the province. In 2022, DKI Jakarta's GDP is estimated to grow 4.98% percent when compared to 2021. This shows that the labor force is an important and potential factor of production to support GDP in this area.

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CONCLUSIONS AND RECOMMENDATIONS

From the research that has been done, it can be concluded that PMA, PMDN and AK simultaneously have a significant effect on GRDP in DKI Jakarta Province. Partially, PMA, PMDN and labor force have a positive and significant effect on GRDP in DKI Jakarta Province. Therefore, researchers recommend that

local governments can improve the quality and quantity of FDI by providing adequate incentives, facilities, and legal protection. In addition, the government also needs to direct FDI to strategic, export-oriented, and environmentally friendly sectors. Encourage PMDN by providing ease of licensing, financing, and technical assistance and improve the quality and productivity of the workforce by improving education, training, health, and welfare. In addition, the government also needs to create decent jobs and in accordance with market needs**.**

FURTHER STUDY

Suggestions for further research are analysis of certain sectors, such as in-depth analysis of certain economic sectors that are most influenced by PMA and PMDN investment, as well as their impact on economic resilience.

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