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The Effect of Investment, Per Capita Income, and Population on Economic Growth of 34 Provinces in Indonesia

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KEYWORDS

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A B S T R A C T

Economic growth seen from GDP value will always be an important topic in projecting a country's progress, the many factors that drive economic growth in a country need to be studied further for the real impact that will occur on the economic growth of a region. This study examines the influence of several factors driving economic growth: investment projected by Foreign Direct Investment and Domestic Investment, per capita income, and population. This study analyzes panel data obtained from 34 provinces in Indonesia in the period 2019-2023 and found a positive influence on the level of investment and per capita income on economic growth, but the analysis carried out showed that the total population hurts the level of economic growth in the area studied.

1. Introduction

From now until the next few years, the growth of a country is certainly something that both the government and the people highly desire, all programs and efforts that are considered effective in encouraging the growth of the country will be taken into account and attempted as much as possible so that the ideals that are seen together can be realized. One factor that significantly influences a country's growth is the economic sector. National economic growth is predicted to change from the value of Gross Domestic Product (GDP) at the national level in few year, the success of the development of a region can be seen based on the rate of the economic growth. In addition, in a more precise scope, economic growth can be seen in each province of a country. Each province will always set a target for a better economic growth rate than the previous year with each region's planning and development goals (Yuniarti et al., 2020).

According to Indonesia Central Statistics Agency, Indonesia's economic growth experienced a fairly drastic decline in 2020, whereas from 2020 to 2021, the economic situation was quite bad due to the COVID-19 pandemic. The impact created by the COVID-19 pandemic resulted in the enactment of several policies regarding restrictions on human activities, which impacted economic activities, causing a weak economic cycle (Digdowiseiso et al., 2023). However, COVID-19 has not only paralyzed the economy in Indonesia and developing countries, but this effect has attacked almost all parts of the world due to limited activities by the community. However, with the end of the Covid-19 pandemic, the global economic growth rate has gradually improved from year to year. The level of economic growth in a country will remain the main driver for the welfare of the nation and the continuity of a country's political system, when restrictions on community activities occur, the condition of economic growth in developing countries is not much different from other countries (Goel et al., 2021). Nevertheless, economic growth in Indonesia provides a gradually improving position. The improvement in the Gross Domestic Product (GDP) value has increased in 2021 and the following years, even in 2022 economic growth in Indonesia can reach 5.31%. This is a good sign for the future of the nation's economy because it means that the Indonesian government has chosen the right path to deal with the problem of threatened economic growth figures.

However, this effort is not enough to create the level of economic growth expected by all levels of society. The development of globalization forces us to continue to make more efforts so that the economy that is aspired to has stable growth or even better. For that, further identification is needed regarding the things that influence economic growth in a country. One of the efforts to encourage economic growth is to grow the investment sector. Investment is the initial step in production activities and an important factor in increasing economic growth, which means that investment is the initial step in economic development activities. (Alvaro, 2021). The income level of people in a country certainly has a close relationship to the level of welfare of a country. Investment is considered important as state revenue, which can improve the economy by supporting infrastructure development and industrial development of a country (Hromádka et al., 2021).

Based on data from the Indonesia Ministry of Investment the realization of investment obtained by Indonesia in the last five years, Domestic Investment (DI) has a constant increase in investment value from year to year, the investment value was recorded to have the highest increase in 2022. The increase in domestic capital stock has the potential to increase community productivity, production capacity, and quality, which will encourage economic growth and increase labor absorption in a country (Purba, n.d. 2020). However, the value of the increase in Domestic Investment in 2022 has not been able to match the level of value obtained by Foreign Direct Investment (FDI) in the same year. Foreign Direct Investment give an important role in developing countries' economic growth. This affects the scenario of employment, production, income, prices, exports, imports, and general welfare in the recipient country, as well as the balance of payments, which is an important source of economic growth.

In addition to development factors derived from investment data, the welfare of a country with a high per capita income value is also related to the economic growth of a country. Per capita income in society is determined by the assets owned by each individual to generate income and productivity in improving the welfare of society, especially at the lower middle-class level (Şen et al., 2024). In the data presented by the Indonesia Central Statistics Agency, the growth in per capita income in the last five years has a good signal, namely an increase every year, although there was a slight decline in 2020. High income in society will affect changes in commodity prices because the market is becoming more integrated, and good income equality requires cooperation in formulating national policies (Şen et al., 2024). However, in this case, income distribution also needs to be considered, if income is concentrated among a handful of people, the purchasing power of the majority may remain low. Per capita income has always received attention among policymakers, researchers, and development-oriented institutions. Throughout the world, especially in developing countries, governments are encouraged to develop strategies and regulations to ensure they can reach all aspects of society and access valuable and affordable financial services that meet their needs (Afonso, 2024). Countries with high per capita income can generally provide regular public services. To improve the community's welfare, efforts are needed to encourage inclusive economic growth, reduce dependence on single commodities, and increase access to public services. That way, per capita income in the future will be an effective tool in improving the community's quality of life to be more decent.

In addition to focusing on income equality, another thing that needs to be considered in realizing the stability of the economic growth rate is in terms of human resources, namely population growth, because with uneven population

growth, the concept of income equality that has been aspired to will be challenging to achieve. Population is a driver of development because the large population is a potential market that will be a source of demand for various goods and services, which will then drive various economic activities so that it can create an economy of scale in production that can benefit all parties, increasing the supply of labor can stimulate an increase in community welfare which means poverty will decrease (Simarmata, 2022). Population growth experiences a constant increase every year, this will be a good sign if an increase in the productivity of each individual accompanies it. In the economic context, controlled population growth can be an asset because it can enlarge the market, increase productivity, and encourage innovation. The large population in a country will have an impact on its economic growth. In order to achieve successful development, which then overcomes population problems, including the composition, number, and distribution of the population, a solution must be created to control the population (Tumaleno, 2022).

With the existence of factors that are directly or indirectly related to economic growth, namely a large amount of foreign direct Investment and Domestic Investment, which will later have the potential to support development and industry, with the development of industry that will later encourage increased employment and increase the value of per capita income, this will improve the welfare of the community. In all these factors, of course, it cannot be separated from the role of the community itself. Therefore, the increase and decrease in the number of residents in an area will also affect economic growth. With the fluctuations in the value of GRDP that have occurred in the last five years, the author assumes that the factors that have been mentioned will have a relatively strong impact on increasing economic growth in Indonesia, but of course, concrete evidence is needed so that this assumption can be relevant information for readers.

2. Methodology

This study uses data obtained from 34 provinces in Indonesia from 2019 to 2023 for further analysis. The 34 provinces studied include Aceh, North Sumatra, West Sumatra, Riau, Jambi, South Sumatra, Bengkulu, Lampung, DKI Jakarta, West Java, Central Java, DI Yogyakarta, East Java, West Kalimantan, Central Kalimantan, South Kalimantan, East Kalimantan, North Kalimantan, North Sulawesi, Gorontalo, South Sulawesi, Southeast Sulawesi, Bali, West Nusa Tenggara, East Nusa Tenggara, Maluku, North Maluku, West Papua, Papua. The 34 provinces were chosen because of the availability of relevant data for research in the form of the influence between dependent variables, namely economic growth, and dependent variables containing foreign Investment, domestic Investment, per capita income, and population in each province. The technique of collecting the data needed for this study was carried out by searching for data available at BPS and in this study in the form of literature so that it is not separated from other sources such as scientific journals, books, papers, and images to form reports with relevant information. The following is specific information regarding the variables used in the analysis:

Table 1. Data description

No.	Research Variables	Definition	Unit	Data source
1.	EG	Economic growth is measured using the Gross Regional Domestic Product (GRDP) value in 34 provincial regions in Indonesia.	Million Rupiah	Indonesia Ministry of Investment/ BKPM
2.	FDI	Foreign Direct Investment is an investment activity carried out by investors from abroad.	Million Rupiah	Indonesia Ministry of Investment/ BKPM
3.	IN	Domestic investment is an activity carried out by investors from within the country.	Rupiah	Indonesia Central Statistics Agency/ BPS
4.	PCT	Per capita income is the income individuals earn from a particular area within a certain period.	People	Indonesia Central Statistics Agency/ BPS
5.	TP	Population is the total number of individuals living in a specific area over a certain period. It is the result of demographic processes, namely fertility, mortality, and migration.	Rupiah	Indonesia Central Statistics Agency/ BPS

The technique used in collecting data from each variable studied is the multiple linear regression analysis method, which is then processed using a statistical data analysis tool, Eviews 12 SV. In terms of function, the initial equation of the statistical model to be developed in this study is as follows:

$$Yit = \alpha + \beta 1X1it + \beta 2X2it + \beta 3X3it + \beta 4X4it + Eit \ldots\ldots\ldots\ldots (1)$$
$$EGit = \alpha + \beta 1FDIit + \beta 2DIit + \beta 3PCIit + \beta 4TPit + Eit \ldots\ldots\ldots\ldots\ldots (2)$$

Where EG describes Economic Growth as the dependent variable and α is a constant, the independent variables in this model are FDI which describes Foreign Direct Investment, DI which describes Domestic Investment, PCI which describes Per Capita Income, and TP which describes Total Populations. This model assumes that Economic Growth (EG) results from a combination of the influence of these four factors. The regression coefficients (β1, β2, β3, and β4) in this model provide quantitative information about the strength and direction of the relationship between each independent variable (FDI, DI, PCI, and TP) with the dependent variable (EG).

3. Result and Discussion

From the research that has been conducted, the impact between the EG variable and the independent variables (FDI, DI, PCI, and TP) correlates with the level of relationship between different variables. This will be explained in the Hausman test using the Fixed Effect Model, and this study also displays the descriptive nature and pairwise correlation analysis of each variable in the initial section and the slope homogeneity test for each variable to check the data distribution.

Analysis

In the discussion of this study, the main topic discussed is economic growth, which is also a dependent variable in this study in addition to the explanatory variables in the form of three independent variables, namely Foreign Direct Investment, Domestic Investment, and Per Capita Income. In the statistical description that has been processed, the average economic growth (EG) of 12.45795% indicates quite high economic growth. Foreign Direct Investment (FDI), which reached an average of 22.3853, shows the interest of foreign investors to invest in these countries. Domestic investment (DI), which is 15.75687, also shows significant investment activity from within the country, Per capita income (PCI) of 10.97053 provides an overview of the level of public welfare in these countries. However, it should be remembered that per capita income does not always reflect an even income distribution. Finally, the total population (TP) shows the size of each country in the sample. In the standard deviation that has been studied, the variables EG, FDI, DI, and TP have a relatively high standard deviation, which means that the values in the variables are quite diverse in the sample areas studied, there are several areas with very high economic growth while others have very slow growth, while the PCI variable has a relatively low standard deviation, which means that per capita income in countries in the PCI sample shows a lack of variation in data values. In addition, in the values obtained from the skewness test, EG, PCI, and TP have positive skewness, which means that several areas have very high EG, PCI, and TP values while most others have low values. On the other hand, the FDI and DI variables have negative skewness, which means that several areas in the study have very low values while most others have higher values. In addition, regarding the distribution of the data obtained, it can be indicated that the Jarque- Bera values in several variables do not follow a normal distribution.

Table 2 (Source: Authors' calculation)

Statistics/ Variables	EG	FDI	IN	PCI	TP
Mean	12.45795	22.38530	15.75687	10.97053	8.40261
Median	12.28041	22.46053	15.75077	10.89560	8.35343
Maximum	15.05185	25.54561	18.37151	12.68421	10.82666
Minimum	10.58899	18.30210	12.44093	9.884814	6.544775
Std. Dev.	1.136568	1.694577	1.279984	0.566373	1.002409
Skewness	0.506158	-0.239751	-0.146212	0.943805	0.607892
Kurtosis	2.540803	2.322502	2.789614	3.868641	3.134212
Jarque-Bera	8.752497	4.8779898	0.919236	30.58308	10.59767
Probability	0.012572	0.087165	0.631525	0	0.004997
Observation	170	170	170	170	170
EG	1	0.683515	0.742551	0.445905	0.8622
FDI	0.683515	1	0.563394	0.374931	0.538262

IN	0.742551	0.563394	1	0.309567	0.646097
PCI	0.445905	0.374931	0.309567	1	-0.049743
TP	0.8622	0.538262	0.646097	-0.049743	1

To further analyze the relationship between the dependent variable and the independent variable, this study uses a regression table with the Chow and Hausman test obtained by the Effect Model (FEM) as a table model. In this analysis, the FDI coefficient showed the magnitude of the influence of each variable. Table 2 shows that the FDI, DI, and PCI variables have a positive influence on economic growth, which means that when Investment, either Foreign Direct Investment or domestic Investment obtained by a country, experiences an increase, this will then have an impact on increasing GDP, as well as an increase in per capita income figures in society in a country showing an upward trend, this could mean an increase in the standard of living in a society which will also have a good impact on economic growth. At the same time, the TP variable negatively influences the economic growth variable. This means that when the population level in a country increases, this will have a destructive impact on the level of economic growth in a country. In the probability value, it can be explained that the variables EG, FDI, DI, and PCI have very small p-values (far below 0.05), which means that the coefficients of these variables statistically impact the dependent variable, namely economic growth. The TP variable has a p-value greater than 0.05, which means that the coefficient of this variable statistically does not have a significant impact on the level of economic growth.

Table 2 (Source: Authors' calculation)

Variables	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
EG	3.449521	1.184165	2.913041	0.0042
FDI	0.067747	0.018339	3.694097	0.0003
IN	0.109518	0.012187	8.986143	0.0000
PCI	0.579549	0.069789	8.304326	0.0000
TP	-0.103372	0.106668	-0.969094	0.3343

Empirical Outcomes

In the analysis that has been carried out on the FDI variable, it is explained that with the interest of foreign investors to invest in the domestic sector, an increase in FDI by 1% will impact a 0.06% increase in economic growth. Previous research states that FDI inflows contribute to economic growth by increasing domestic capital, technology transfer, and human capital formation, more substantial FDI inflows also occur in countries with a minimum threshold. (Johnathon et al., 2023).This finding is reinforced by research (Han et al., 2023;Hoa et al., 2023)that validates that FDI inflows drive economic growth, but the impact given will depend significantly on the sectoral composition in it. On the sectoral side, it is explained in another study shows that FDI growth in developing countries is influenced by the sectoral composition of the country, which can then be concluded that FDI in the manufacturing sector has a significant positive impact on economic growth, but FDI in the tertiary and primary sectors has a significant negative impact on economic growth (Emako et al., 2022).

On the other hand, domestic investment shows similar results where significant activity from domestic investment was found, and the impact of a 1% increase in investment increased economic growth by 0.1%. Increase in economic growth. This is by previous research which also stated that there was a significant contribution from domestic investmentInvestment to economic development, especially in developing countries. (Shabbir et al., 2021)This research is supported by (Kasmando et al., 2019), which states that the higher the domestic Investment, the higher the domestic economic growth. However, the study (Patriamurti & Septiani, 2020) states that even so, the government is expected to maintain stability in investment and pay attention to priority sectors to attract domestic investors.

Apart from Investment, Per Capita Income also shows significant results. The analysis shows that the PCI level reflects the community's welfare in a region. Every 1% increase in per capita income impacts 0.57% on increasing economic growth. The impact of per capita income on economic growth is supported by previous findings with similar things stating that increasing per capita income has an effect on the rate of economic growth in a region, as well as research owned (Muda, 2019; Syahri, 2020) which provides an income that tends to indicate that the increase in the rate of economic growth is by the Kuznet hypothesis which states that when development shows an increase, this will have an impact on the equal distribution of per capita income and high per capita income will cause the gap between the poor and the rich to widen.

However, different results are found in the total population variable, the results of the analysis that has been carried

out can show that the total population does not have a significant effect on economic growth, every 1% increase in the total population will have an impact on decreasing economic growth by 0.10%. This is by research conducted by (Strulik, 2024), which states that the population in a country will affect the country's welfare, which can then affect the country's economic conditions. This opinion is reinforced by research (Kurniawan, 2024) that argues that the population level in a country will affect the welfare of the population, where the higher the population level, the welfare of the population will decrease, which will have an impact on poverty and inequality which refers to a decrease in economic growth in a country.

4. Conclusion

This study examines whether investment investment involving foreign direct investment and direct investment, per capita income, and total population affects economic growth as known by the GRDP value taken from 34 provinces in Indonesia from 2019 to 2023. This study uses multiple linear regression analysis on panel data so that the significance and magnitude of the influence on the independent variables are found.

The scientific evidence shows that there is an impact on the increase in investment, per capita income, and population on the increase or decrease in economic growth. In addition, the analysis that has been done shows that investment and per capita income have a more substantial influence on economic growth compared to the population's economic growth. In addition, the impact caused by the increase in investment and per capita income on economic growth is positive, in contrast to population growth, which hurts economic growth in the sample studied.

Based on the results of the analysis, several policies can be implemented by the government, including efforts to increase investment attractiveness by improving the investment climate that has been constrained, especially in sectors with specific priorities. In addition, the government also needs to make efforts to improve the quality of human resources and control the population in a country. Good coordination between the central and local governments in formulating and implementing agreed policies is a good step to support the increase in GRDP growth rates. In addition, periodic evaluation of the policies taken also needs to be monitored to ensure that policies remain relevant and effective in driving the desired economic growth goals.

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