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The Influence of Population, Investment on Economic Growth In Indonesia 2018-2022

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Abstract:

In this study, we aim to examine the impact of population and investment on economic growth in Indonesia from 2018 to 2022. The independent variables in our analysis include population, investment, and economic growth, with the dynamic panel data method used for estimation. Specifically, we apply the panel data regression, utilizing 102 observations across 34 provinces. Our empirical results show that population does not have an effect on economic growth, while investment has a significant influence. Additionally, the combined effects of population and investment failed to pass the data processing checks, including tests for instrument validity, custom tests, and consistency tests.

JEL: D63, O33

1. Introduction

Currently, no country has closed itself off from other countries. This openness makes dependency between countries high and gives rise to a reciprocal nature between developed countries, developing countries or both (Djiwandono, 1983). This condition occurs in all aspects, including the economic aspect. Indonesia as a developing country which is not too different from other developing countries has several economic characteristics, namely high levels of population growth and unemployment, quite low levels of productivity and quality of life, dependence on the agricultural sector, imperfect markets and information, and still relying on the primary sector. on export commodities. Developing countries must be able to develop and develop all their potential so that they do not always depend on developed countries. However, in this process developing countries are often faced with the problem of limited capital as a development investment cost.

Lee (2005) identifies at least two possible relationships between financial variables and real variables. The first relationship is that the development of the financial sector follows economic growth. As the economy grows, the demand for financial sector products increases, leading to more activity in the financial and credit markets. In this regard, the financial sector can be viewed as demand-following. The second relationship suggests that the development of the financial sector is a determinant of economic growth. In this case, financial development plays a key role in promoting sustained economic growth.

The development of the financial sector, particularly the banking sector, is crucial in providing investment capital to stimulate a country's economy, thereby fulfilling its role as an intermediary institution. This process traces its roots to the June 1983 policy package, which granted banks the freedom to set deposit and credit interest rates. Additionally, the October 1988 package sought to enhance competition within the financial sector by reducing barriers to the creation of new banks.

The financial sector plays a vital role in driving economic growth. One key indicator of successful development is the achievement of high economic growth, which is reflected in significant real output growth. To support such growth, funding sources are essential, especially for the business sector. Banks, in particular, are crucial in providing the substantial amounts of development capital necessary to fuel this growth. One of the key roles of credit in supporting economic growth is its ability to allocate resources in line with economic development priorities, thereby expanding the distribution of development benefits. Based on existing data on economic development, banking credit has at least two significant effects. First, it boosts people's consumption and purchasing

power through consumption credit, which helps meet personal needs. Second, banking credit encourages increased investment financing and capital for business units, leading to greater economic capacity and productivity. As a result of these two factors, the subsequent effect of banking credit is the growth of national income, driven by higher consumption and increased investment across society, ultimately contributing to economic growth.

Research by Azomahou, et al (2008) shows that there is only an influence on economic growth. Frontiers research (2023) shows that there is no significant influence on economic growth. Research by Xin Dui, et al (2022) shows that investment has a significant influence on economic growth. Meanwhile, research by Abouelfarag, et al (2015) shows that investment has no influence on economic growth. The focus of this research is to look at the influence of population and investment on economic growth

2. Literature Review

2.1 Economic Growth

Definitions of economic growth vary among economists. Gross Domestic Product (GDP) data is commonly used by economists to measure economic growth, based on the total income of each individual in the economy (Mankiw, 2007). According to Todaro and Smith (2004), economic growth refers to the long-term increase in a country's capacity to provide economic goods for its population. Positive economic growth in a country signifies an increase in both national income and per capita income. This aligns with Salvatore's (1997) view that economic growth is essentially a process in which real GDP per capita rises due to increased productivity per capita. Achieving higher national income and real income per capita is a key goal, which can be accomplished through the provision and mobilization of production resources.

High and sustainable economic growth is essential for ongoing economic development and improved welfare (Tambunan, 2003). National economic growth can be driven by an increase in the value of Gross Domestic Product (GDP). GDP represents the final value of goods and services produced within a specific area over a designated period, typically one year. From a macroeconomic perspective, economic growth is reflected in the increase of GDP. GDP can be measured using three approaches: the production approach, the income approach, and the expenditure approach. The first two approaches focus on the aggregate supply side, while the expenditure approach examines the aggregate demand side.

2.2 Total Population

Population is an important indicator in a country. Classical economists pioneered by Adam Smith even considered that population was a potential input that could be used as a production factor to increase the production of a household company. The more people

there are, the more labor that can be used. Because the population continues to increase, many things must be planned to overcome the situation of the increasing population.

Population growth is calculated based on the difference between the number of births and deaths as well as the number of immigration and emigration. Impact of population growth: A large population can provide sufficient labor for the economy, but it can also cause problems such as unemployment and poverty. Population density can affect the quality of life, health facilities and education. A high population can increase pressure on natural resources and the environment

2.3 Acceleration Theory: The Relationship Between National Income and Investment

This theory was originally developed by JM Clark and Bickerdike in the 1910s and further developed by Keynes. Acceleration theory is an investment theory based on a rigid relationship between the amount of capital goods and the level of national income that can be produced. This theory also explains net investment in terms of aggregate expenditure growth. It is assumed that the country as a whole maintains a certain relationship between the capital stock and the level of aggregate output (Diulio, 1993).

Waluyo (2016) explains that the main view of this theory is expressed in two formulations, firstly there is a proportional relationship between the amount of capital goods available and the level of national production that can be realized and secondly the need to increase future production requires investment whose value is several times greater. of production increases that need to be made. However, each investment period will not add goods according to the investment value because part of the investment is used to replace capital goods that have been depreciated and are no longer used.

3 Data and Methodology

3.1 Operational Definition and Measurement of Research Variables

The variables in this research are the dependent variable, independent variable, and control variable.

1. Dependent Variable

According to Jaya (2021), the dependent variable is the variable that is influenced or caused by the independent variable. The dependent variable used in this research is the economic growth of 34 provinces in Indonesia with a proxy for changes in GDP each year expressed as a percentage. GDP data is obtained from the Central Statistics Agency

2. Independent Variable

According to Jaya (2021), independent variables are variables that influence or cause changes in the dependent variable. The independent variables used in this research

are population, investment, data on population and investment were obtained from the Central Statistics Agency.

3.2 Analysis Method

The research method used in this research is descriptive analysis method, and quantitative analysis in the form of panel data regression results in describing the relationship between economic growth, investment, population in 34 Indonesian Provinces.

Testing this hypothesis uses an α level of 5%. The equation used is as follows:

$$Y_t = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + e_{it}$$

- Y_t : Economic growth (percent)
 β_0 : coefficient regression
 β_{1-2} : coefficient regression independent
x₁ : total population
x₂ : investment
e_{it} : Error term
i : Data Cross Section 34 provinces in Indonesia
t : Data Time Series 2018-2022

4 Result and Discussion

4.1 Result

Table 1. Fixed Effect Model Test Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(Y(-1))	-0.030867	0.056307	-0.548190	0.5848
LOG(X1)	1.347210	1.437753	0.937025	0.3510
LOG(X2)	0.132559	0.164737	0.804671	0.4229
C	-5.702853	11.47545	-0.496961	0.6203

Source: Author's Calculation (2024)

The regression results indicate that none of the independent variables, including lagged economic growth, total population, and investment, are statistically significant predictors of current economic growth. While the coefficients suggest some relationships between these variables and economic growth, the corresponding t-statistics and p-values show that none of them have a statistically significant effect. Specifically, lagged economic growth indicates a small negative effect, population shows a positive effect, and investment also demonstrates a positive effect, but none of these effects are statistically

significant at the 5% level. The intercept is negative, suggesting that economic growth would be negative if all variables were zero, but it is also not statistically significant. The following are the results of the pooled least squares test.

Table 2. Pooled Least Square Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(Y(-1))	-0.030867	0.056307	-0.548190	0.5848
LOG(X1)	1.347210	1.437753	0.937025	0.3510
LOG(X2)	0.132559	0.164737	0.804671	0.4229
C	-5.702853	11.47545	-0.496961	0.6203

Source: Author's Calculation (2024)

Based on the pooled least square test results on the dependent coefficient value of 0.11. From table 2, the dynamic model panel data regression equation can be obtained as follows:

$$Y_t (\text{pdrb}) = -0.706984 - 25.24447*(x_1) + 3.270428*(x_2)$$

4.2 The Influence of Population on Economic Growth

The population variable does not have a significant effect and has a negative relationship on economic growth. This is very contrary to the reality in society that the higher the population, the higher the economic growth. The cause does not have a significant effect due to the presence of Covid 19, unemployment

4.3 The Effect of Investment on Economic Growth

The investment variable also has a significant influence and a positive relationship on economic growth. The investment variable used is Gross Fixed Capital Formation (PMTB), which is an investment that can be in the form of buildings or non-buildings and is not goods for consumption, such as roads, airports or infrastructure related to improving community welfare. PMTB is the amount of investment spent by each region to improve the welfare of the community concerned.

Even though statistically it has a significant and positive effect on economic growth, there are several things that need to be taken into account that in real numbers, investment is not spread across all provinces of Indonesia quite evenly, investment value tends to be on the island of Java, while other regions also require more investment. so that it can develop even better.

5 Conclusion

Population size does not have a significant effect on economic growth, but has a negative relationship. Conditions like this are caused by the lack of unemployment in Indonesia. The influence of investment is statistically significant in influencing economic growth and has a positive relationship. Conditions like this can be interpreted as meaning that the inflation and investment variables have a positive contribution to economic growth in Indonesia during the observation period. In the short term, investment can provide a positive touch to economic growth because it is an activity that can stimulate the economy.

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