ABSTRACT: Growth in the economy is a measure of the degree to which a nation is developing. The purpose of this study is to ascertain the degree to which the population, HDI, poverty, PMDN investment impact economic growth in NTB Province. The variable data used is for 10 regencies/cities in NTB for the period 2010 – 2022. This kind of quantitative research employing panel data regression analysis approaches is conducted utilizing skunder data from the NTB province’s Central Statistics Agency (BPS). The findings demonstrated that economic growth is unaffected by the population and HDI, while economic growth is negatively affected and significantly by poverty, and economic growth is influenced positively and significantly by PMDN investment.

KEYWORDS: Number of Population, HDI, Poverty, PMDN Investment, Economic Growth

I. INTRODUCTION

Economic growth is one indicator of how well economic development is working in people's lives. Economic growth is a term used to describe how a region’s economic activity is reflected in the manufacturing of product and services has increased over a certain period. The prospect of regional development is getting better due to the rapid process of increasing regional output as a result of the high rate of economic growth. By knowing the sources of economic growth, we can determine which sectors should be development priorities (Magdalena & Suhatman, 2020).

A nation’s economy is growing when its output and income both rise. The Gross Domestic Product (GDP) produced annually in a nation can be used to measure national income and output, while the Gross Regional Domestic Product (GRDP) produced annually in a region can be used to measure regional income (Rizky, Agustin, & Mukhlis, 2016). GRDP is the amount of value added generated by all businesses operating within a given area (Hayet, 2016).

Figure 1. GRDP Based on Constant Prices by District/City in NTB Province (Million rupiah)

Source: BPS West Nusa Tenggara Province in Figures 2011 - 2023
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Based on the GRDP data above, the economic growth in the District/City of NTB Province in 2010-2022 fluctuates every year. In 2020, economic growth decreased in almost all districts/cities. This decrease is the impact of large-scale social restriction policies (PSBB) in various cities in Indonesia, including NTB. Then in 2021-2022, the economic growth of NTB Province increased again. Economic growth is seen as a macroeconomic problem in the long run, therefore NTB's economic growth must be maintained or find solutions on what actions can be taken as an effort to prevent a decline in economic growth.

The population has two impacts on the economy, namely an increase in population can increase economic turnover and can also cause losses to the area concerned (Malida & Marselina, 2023). Based on data from BPS West Nusa Tenggara, the population of NTB in 2010-2022 has increased every year. In 2022, the population of NTB is 5,473,970 people.

Theoretically, human development and economic growth are closely related and the development target is high economic growth (Iskandar, 2017). The Human Development Index (HDI) was first published by the United Nations Development Programme (UNDP) in 1996 through the Human Development Report and then applied annually. This publication defines human development as "a process of enlarging people's choices" or the process of improving aspects of people's lives. Adequate education, a decent standard of living, and a long and healthy life are important components of this life (Setiawan & Hakim, 2013). Based on data from BPS West Nusa Tenggara, the Human Development Index of NTB Province for the 2010-2022 time period continues to show an increase.

**Figure 2. Number of Poor People by Regency/City in West Nusa Tenggara (Thousand people)**

Being unable to maintain a minimal quality of living is a sign of poverty. Improved people's welfare and standard of living are directly correlated with better economic growth rates, which in turn decreases poverty rates in society. The higher the level of economic growth rate, the higher the standard of living of the community and welfare will increase which has an impact on reducing the level of poverty in society (Wibowo, 2014). In fact, the highest economic growth data occurred in West Sumbawa Regency in 2017 amounting to Rp. 19,773,720 million and followed by low poverty of 22.33 thousand people.

Adnan explained that one factor that contributes significantly to economic growth is investment. Investment has always been a buzzword in any discussion of economic concepts, and is an important component in economic growth and national income. Wati's opinion that Investment can help a country develop valuable goods and services, which in turn can create jobs. With the increase in people's incomes, people can get access to education and health services, so the development of investment is said to reduce the amount of individuals that are living in poverty (Lestari, Marhaeni, & Yasa, 2021).
Based on the graph above, it is known that the development of PMDN investment in NTB Province fluctuates, the highest investment occurs in 2022 in West Sumbawa Regency of Rp. 11,577,027,797,735 and is followed by increased economic growth, namely Rp. 20,379,440 million rupiah. This fact is interesting to study, whether investment has a positive effect on the economic growth of districts / cities in NTB Province.

Given the foregoing context, the author is motivated to carry out a study named "The Effect of Population, HDI, Poverty, and PMDN Investment on Economic Growth in NTB Province.

II. LITERARY REVIEW

A. Theory

1. Economic Growth

According to Simon Kuznets in Agustini & Kurniasih (2017), Economic growth refers to a country's capacity to offer an increasing variety of economic commodities to its citizens. This capacity develops with economic progress and necessary institutional and ideological changes. There are three main concepts included in this definition, namely the increasing supply of goods which shows the economic growth of a country. Furthermore, because modern technology plays an important role in economic growth, the level of public acceptance of various products is determined by this technology. Lastly, so that technology can be used widely and effectively and scientific progress can be exploited, changes are needed in the institutional and ideological fields.

Saad in Iskandar (2017) emphasized that the sustainable development approach would be based on economic expansion, so that the nation's leader could improve people's welfare by encouraging economic expansion. To achieve this goal, the nation's leader must prioritize infrastructure, health care and education. The nation's leader must also the construction of provides that attract domestic and foreign investment, offer affordable housing, and the need to strengthen and improve the environment in the agricultural industry.

2. Population

Adam Smith’s theory that if there is an increase in population, a financial system can increase and thrive. Population size is able to expand the market and can encourage specialization which ultimately drives economic growth. While on David Ricardo’s theory, that the labor force is becoming more and more plentiful if the population grows. this will be oriented towards the non-development of the economy as a result of wages that have decreased as a result of the abundant labor force (Malida & Marselina, 2023).

3. The index of human development (HDI)

The indeks of human development is one of the indicators to see the development of human resources that can run the conditions for successful development (Iskandar, 2017). The composite index measured based on income, literacy rate, life expectancy and other factors in several countries is the indeks of human development (Hoa, Liem, & Phuoc, 2016). The indeks of human development is used as a basis for evaluation, comparison of the degree to which a nation has developed. The theory that rapid indeks of human development will boost economic progress by enabling the society to make more contributions to raising productivity and creativity (Lestari et al., 2021).
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4. Poverty
Poverty is the condition of a population or part of the population that maintains a minimum level of living by only being able to meet the necessary food, clothing, and housing needs. Opinion by Poerwadarminta that poverty comes from the word poor literally which means “having no other property”. Poverty can be said to be a condition that is vulnerable to the emergence of other social problems due to a condition of incompetence of individuals, groups, and families (Hidayat, Madris, & Anwar, 2023). Theory that says a rise in economic growth can affect how much more people make than they did the year before, and if it happens, it can be predicted that a population is going to not experiencing poverty (Wibowo, 2014).

5. PMDN Investment
Sukirno’s opinion in Agustini & Kurniasih (2017) that the cost incurred by investors or businesses to purchase capital products as well as production machinery in order to boost the output of products and services offered to the market is referred to as investment. The Harrod-Domar theory states that investment is crucial to the expansion of the economy. Revenue may be generated as demand changes. Additionally, by raising capital stock as a result of supply, it can raise the economy’s potential for production (Rizky et al., 2016).

B. Review of Empirical Evidence
Agustini & Kurniasih (2017) investigated how workers absorption, FDI, and PMDN investment affected the Kalimantan Province of West Province’s economic growth as well as the number of impoverished cities and districts. Research discovered that employment, foreign and domestic investment, all significantly and favorably affect the economy’s expansion. Then the number of impoverished individuals in West Kalimantan’s regions and cities is negatively and significantly impacted by economic expansion.

The impact of foreign direct and local investment inflows on Turkey’s economic growth from 1980 to 2012. Researchers found that although domestic investment has long-term and short-term positive impacts on economic growth, foreign direct investment inflows have a negative impact (Bayar, 2014).

Investment and economic growth in provinces in Indonesia. It was found that FDI cannot increase economic growth but PMDN can increase it, while HDI has no effect on it (Hapsari & Prakoso, 2016).

The impact of poverty, economic growth, level of education, and financing for education in Central Java. The findings indicated that poverty rates are negatively impacted by financing for education, level of education, and economic growth (Wibowo, 2014).

Research on South Sulawesi’s economic growth and its impacts such as poverty, unemployment and population. In fact, the population and unemployment rate have a negative and significant effect on South Sulawesi’s economic growth. Meanwhile, poverty affects economic growth negatively and is not significant (Hidayat et al., 2023).

Malida & Marselina (2023) The impact of population, exports, and regulatory quality on the economic growth of ASEAN developing countries. Based on this analysis, population has a significant negative influence on the economic growth of ASEAN countries between 2015 and 2020, while exports have a significant and positive influence. Meanwhile, the quality of regulations is not significant but has a positive influence. In addition, exports, population and regulatory quality together have a significant influence on the economic growth of ASEAN countries.

III. RESEARCH METHODS
A. Type and Location of Study
Quantitative study is a type of study used and aims to explain the influence of independent variables, namely population, HDI, poverty, and PMDN investment on the dependent variable, namely economic growth. NTB Province was the location for this study.

B. Data Types and Sources
In this investigation, secondary data were employed. Data gathered by indirect means such as media, can be referred to as secondary data. This secondary data is time series data for the 2010-2022 period which was acquired from NTB province’s Central Statistics Agency (BPS).

C. Method for Gathering Data

Using a documentation approach, researchers document and collect information about the topic the researcher is working on from various documents, notes and archives.

D. Data Analysis Techniques
Regression analysis of panel data was employed in this study to ascertain whether one or more independent (free) variables had a substantial impact on the variable that was dependent (bound) partially or simultaneously. Gujarati’s opinion in Abrar et
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al., (2022), CEM (Common Effect Model), FEM (Fixed Effect Model), and REM (Random Effect Model) are three models that can be used to estimate panel data. To choose which model is appropriate, the chow test and hausman test are carried out.

Furthermore, according to Ghazali, statistical tests need to be carried out, including the t test, F test and coefficient of determination test. By using the T test, one can find out to what extent the free variable impact the bound variable. In conclusion, the following hypothesis is used: Ha indicates that the bound variable is significantly influenced by the free variable, while H0 indicates that the bound variable is not significantly influenced by the free variable. The characteristics used for testing are as follows, namely if the significance threshold is greater than alpha 5%, then Ho is accepted. If the significance threshold is less than 5% alpha, then Ha is accepted. By using significant values, the F test attempts to ascertain how the free variables in the model impact the bound variable as a whole. Measuring the model's ability to explain variations in the bound variable is the purpose of the coefficient of determination. If the free variable is small, then it can tell us only a little about how the bound variable, whereas if the number is close to one, then it can tell us almost everything we need to know to predict how the bound variable (Salsabila, Imaningsih, & Wijaya, 2021).

IV. RESULTS AND DISCUSSION

A. Model Selection Test

Model selection tests are carried out to select which model is appropriate for estimating panel data.

1. Chow Test

This test is performed to choose between a CEM model or a FEM model that is more suitable for estimating panel data. Here are the estimated results:

H0: CEM model
H1: FEM model

H1 is the hypothesis that is acknowledged and rejects H0 if the probability is below 0.05. Conversely, if the probability is above 0.05 then the hypothesis is accepted H0 and rejected H1.

**Figure 4. Chow Test**

<table>
<thead>
<tr>
<th>Effects Test</th>
<th>Statistic</th>
<th>d.f.</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-section F</td>
<td>40.754137</td>
<td>(9,116)</td>
<td>0.0000</td>
</tr>
<tr>
<td>Cross-section Chi-square</td>
<td>185.378162</td>
<td>9</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

A value of 0.0000 below 0.05 is a cross section Chi-square cross section value in accordance with the findings of the Chow test regression carried out. So that H0 is rejected, the FEM model is the most appropriate to use.

2. Hausman Test

The Hausman test is performed to show that the most suitable REM model or FEM model is used. Here are the estimated results:

H0: REM model
H1: FEM model

The accepted hypothesis is H1 and reject H0 if the probability is less than 0.05. Conversely, H0 is accepted and H1 is rejected if the probability is greater than 0.05.

**Figure 5. Hausman Test**

<table>
<thead>
<tr>
<th>Test Summary</th>
<th>Chi-Sq. Statistic</th>
<th>Chi-Sq. d.f.</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-section random</td>
<td>33.684319</td>
<td>4</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Since the probability of 0.0000 is below 0.05, H0 is rejected according to the results of the Hausman test. Therefore, it is better to use the FEM model rather than the REM model.
B. Statistical Test

Statistical tests such as the t test, F test, and determination coefficient test are then performed after the optimal model for panel data estimation has been chosen. The regression data from the FEM model are shown in the following manner.

![Regression Results](image)

Based on the test results above, the regression equation is obtained as follows:

\[ Y = 30.27783 - 0.986516 X_1 + 3.559625 X_2 - 4.162555 X_3 + 0.009020 X_4 \]

These results can be explained as follows:

- Growth in the economy is unaffected by population.
- Growth in the economy is unaffected by HDI.
- The Poverty regression coefficient is -4.162555 meaning that assuming all other variables remain constant, every 1% increase in poverty will result in a decrease in economic growth of -4.162555%, and vice versa.
- The PMDN investment regression coefficient of 0.009020, indicating that a 1% rise in PMDN investment will result in a 0.009020% improvement in economic growth, assuming that all other variables remain constant, and vice versa.

1. t Test

Following panel data regression with the FEM model, can be ascertained:

a) From the estimation results, the probability of the Population variable is 0.2569. Variable Y (Economic Growth) is not significantly influenced by variable X1 (Population) because the probability value is more than 5% or 0.2569 > 0.05.

b) The estimation results show that the HDI is 0.0722. It has a variable probability of 0.0722. Because the probability value is less than 5% or 0.0722 > 0.05, it can be concluded that the variable Y (Economic Growth) is not significantly influenced by the variable X2 (HDI).

c) The value 0.0000 is the probability of the Poverty variable based on the estimation findings. Because 0.0000 > 0.05 or the probability value is less than 5%, it can be concluded that the variable Y (Economic Growth) is significantly influenced by variable X3 (Poverty).

d) The value 0.00282 is the probability of the PMDN Investment variable based on the estimation findings. Because 0.00282 > 0.05 or the probability value is less than 5% it can be concluded that the variable Y (Economic Growth) is significantly influenced by variable X4 (PMDN Investment).
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2. **F Test**
   Using the FEM model, the panel data regression results show an F-statistic value of 51.26419 with a probability of 0.00000 which is lower than the confidence level of \( \alpha = 5\%\) (0.0000 < 0.05). This means that the independent variables, namely population, HDI, poverty, and PMDN investment collectively impact the economic growth of NTB in a significantly way in the calculation year 2010–2022.

3. **Coefficient of Determination (Adjusted R2)**
   As shown, 0.835130 or 83.51 is the coefficient of determination. This demonstrates that the population's variables, HDI, poverty, and PMDN investment can all be used to explain together 83.51\% of economic growth in NTB Province. Other variables not included in this analysis contributed 16.49\%.

**C. Discussion**

1. **Population Variables' Impact on Economic Growth**
   Economic growth is unaffected by the population. This indicates that the population will not be a major factor in driving growth in the economy. Economic growth is not only determined by population, but to increase economic growth can be done by increasing labor productivity.

2. **HDI Variables' Impact on Economic Growth**
   Economic growth is unaffected by the HDI. This indicates that HDI will not be a major factor in driving growth in the economy. In the perspective of income, one of the composite indicators for the formation of HDI is people's purchasing power. In this case, people's consumption patterns that increase purchasing power do not cause economic expansion. The findings of this investigation are consistent with those of Hapsari & Prakoso (2016) showing that HDI in Indonesia is not too high compared to other countries, so there is no optimal technology transfer or no development of workers in Indonesia. Therefore, HDI has no effect on the provincial economy.

3. **Poverty Variables' Impact on Economic Growth**
   Economic growth is negatively affected and significantly by poverty. The findings of this investigation are consistent with those of Wibowo (2014) research which resulted that economic growth negatively affects the poverty rate. This is also in accordance with Budiono's theory in Wibowo (2014) that the increase in output or per capita income of a region is growth in the economy. Increases in output and total economic activity that result in higher incomes for individuals compared to the previous year are referred to as economic growth. With higher incomes, people have the opportunity to meet basic needs and improve high welfare, so people are free from poverty. So when economic growth increases, there can be a decrease in poverty levels.

4. **PMDN Investment Variables' Impact on Economic Growth**
   Economic growth is influenced positively and significantly by PMDN investment. The findings of this investigation are consistent with those of Agustini & Kurniasih (2017) demonstrating the favorable and significantly impact of PMDN investment on economic growth.
   This result is in accordance with Harrod-Dommar’s theory in Rizky et al., (2016) that the importance of investment as the key to economic growth that can create income and increase production capacity. The existence of natural resources or energy potential in NTB Province that can be utilized for economic activities can raise investor appeal or encourage investment in connected industries to contribute to higher economic growth.

**V. CONCLUSIONS**

Based on the following testing and analysis, conclusions can be made about this study: a) Economic growth in West Nusa Tenggara Province is unaffected by the population. b) Economic growth in is unaffected by the HDI. c) Economic growth is negatively affected and significantly by poverty. d) Economic growth is influenced positively and significantly by PMDN investment.

**REFERENCES**


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