

The Effect of Population and Human Development Index (IPM) on The Open Unemployment Rate in West Nusa Tenggara Province in 2018-2023

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ABSTRACT

The purpose of this research is to ascertain the impact that population and the Human Development Index (IPM) will have on the rate of open unemployment in the province of NTB between the years 2018 and 2023. This research is a quantitative study that takes an associative approach to its methodology. The data collection for the study was carried out in a direct manner through the Central Statistics Agency (BPS) of the NTB Province. Considering the period of 2018-2023, using three different sets of data: population data, data on the Human Development Index, and data on the open unemployment rate for the province of NTB. Eviews 12.0 was utilized as the software for the analysis method that was utilized in this investigation, which was panel data regression. The findings of this research indicate that the population has a positive and insignificant effect on the open unemployment rate, while the Human Development Index (IPM) has a negative and significant effect on the open unemployment rate. Furthermore, the results of this study also indicate that both the population and the Human Development Index (IPM) have a significant effect on the open unemployment rate simultaneously. Based on the consequences of these findings, it is imperative that population growth be handled in an appropriate manner in order to prevent a rise in the likelihood of unemployment. Additionally, it has been demonstrated that improving the IPM can bring about a reduction in the unemployment rate; hence, the local government must continue to encourage efforts to enhance the quality of education, health, and living conditions.

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1. INTRODUCTION

The problem of unemployment is one of the macroeconomic issues that is always a serious concern, especially for developing countries like Indonesia. According to

Sutansyah Effendy (2018), Indonesia's large population should be a capital for development, but if not managed properly, it can actually cause employment problems. [1] stated that unemployment is a major problem that can hinder sustainable economic growth.

In this context, one of the primary indicators that is used to assess unemployment is the Open Unemployment Rate (TPT), which is the proportion of the population of working age that is not employed but is actively looking for work or preparing to start a business [2].

The unemployment phenomenon has a negative impact on people's income and can reduce social welfare in general [3]. When the number of unemployed increases, the chances of people falling into poverty also increase. Even in extreme conditions, high unemployment can trigger social and political instability [4]. This problem not only occurs nationally, but is also felt at the provincial level, including the Province of West Nusa Tenggara (NTB). This province has a population dynamics that continues to increase, but the challenge of creating adequate employment remains a serious obstacle.

Based on BPS data, the TPT in NTB fluctuated in the 2018–2023 period. 2020 was recorded as the peak of unemployment at 4.22% due to the impact of the COVID-19 pandemic. Meanwhile, 2023 showed a decline to 2.80%. This fluctuation reflects complex socio-economic dynamics and the imbalance between the number of workers and available job opportunities. The increasing population, reaching 5,560,287 people in 2023, also puts pressure on the labor market in the region (BPS NTB, 2023).

In economic literature, population growth is directly linked to an increase in the workforce, but is not always accompanied by an increase in demand for labor. According to [3], excess labor will increase the risk of unemployment if it is not balanced by the expansion of job opportunities. In line with that, the quality of human resources (HR) also determines how much of the population can be absorbed into the labor market. The Human Development Index (IPM), which reflects the quality of education, health, and purchasing power, is an important indicator in assessing the HR capacity of a region [5].

The NTB Province's IPM shows an increase from 67.30 in 2018 to 72.37 in 2023. This increase reflects improvements in the

dimensions of education, health, and community welfare. However, the relationship between IPM and unemployment is not always linear. Although the IPM has increased, the TPT in NTB continues to fluctuate, indicating that there are other variables that also influence the dynamics of unemployment in this region.

Based on the above explanation, it can be identified that although there is a positive trend in population growth and IPM, it is not certain that both have a direct impact on reducing unemployment. Therefore, an in-depth analysis is needed to understand the relationship between population, IPM, and open unemployment rate in NTB. The objective of this study is to address this deficiency by conducting a quantitative investigation of the impact of population and IPM on TPT in the province of NTB during the years 2018–2023..

2. LITERATURE REVIEW

2.1 Unemployment

Numerous places, particularly those that are still in the process of developing, are plagued by the issue of unemployment. According to [6], unemployment is a circumstance that occurs when an individual who is a part of the labor force is interested in finding employment but has not yet been successful in being hired. A person of working age who has not worked at all or has worked for a total of less than two days in the week prior to the census and is currently looking for work is considered to be unemployed, as stated in [7]. In the meanwhile, according to [8], people who are unemployed are in the following categories: those who do not have a job, those who are seeking for work, those who are preparing a business, those who are not looking for work

because they believe it is difficult to acquire a job, and those who already have a job but have not yet begun working [9].

2.2 Population

The term "population growth" refers to the increment in the total number of individuals residing in a particular region and at a particular moment in time in comparison to the prior time period. The more extensive the population expansion in a region, the greater the number of people who will be unemployed or unemployed due to the fact that the employment that are produced do not match the requirements for the growing population each year [3]. Because high population growth in an area is indicated to affect the availability of residential land, living needs and the abundance of labor. If this cannot be controlled properly, it will have a bad impact on the economy, the unemployment rate will increase. This statement is reinforced by the theory put forward by David Ricardo which states that population growth that is getting bigger until it doubles at some point will cause the number of workers to be abundant. Excess labor will result in high unemployment rates.

2.3 Human Development Index (IPM)

Based on a variety of fundamental aspects of quality of life, the Human Development Index (IPM) is a measurement of the level of human development achievement that has been achieved. In order to provide a measurement of the quality of life, the IPM is constructed using

a fundamental three-dimensional method, which includes health, education, and the purchasing power of individuals. Due to the fact that they are connected to a great deal of different aspects, these three dimensions have a very broad significance. The achievement of a long and healthy life is utilized as a measurement that is used to assess the health dimension. Furthermore, in order to assess the education dimension, a combination of indicators such as the literacy rate and the average length of schooling is utilized. Additionally, for the purpose of determining people's purchasing power for a variety of fundamental necessities, the average amount of expenditure per capita is utilized [10].

2.4 Hypothesis Formulation

1. The influence of population on the open unemployment rate

In the future, the rate of unemployment will be impacted by the growing number of people in the population. As the population continues to rise, there will be a corresponding increase in the number of workers and the workforce itself. Generally speaking, in developing countries, the population growth rate, which includes the workforce, is higher than the pace of job growth. As a result, not all workers are able to find employment, which leads to an increase in the unemployment rate. The workforce demands a diverse range of jobs [11].

The findings of a study by [12] titled "The Influence of Population and Economic Factors on Open Unemployment" are presented.

This study's results demonstrate that the population exerts a positive and considerable influence on the open unemployment rate in districts and cities of Central Java. From the aforementioned description, the subsequent hypothesis can be articulated:

H1: It is assumed that the population has a positive and significant effect on the open unemployment rate.

2. The influence of the human development index (IPM) on the open unemployment rate

The correlation between the human development index and the unemployment rate is elucidated by [13], asserting that human development constitutes the ultimate objective of progress. Human development is crucial in determining a nation's capability to assimilate current technologies, enhance its capabilities, generate employment opportunities, decrease unemployment, and ultimately foster sustainable growth and development. This shows that human development as measured by the value of the IPM will have an impact on the low unemployment rate in a region [9].

In the results of the study conducted by [5] with the title of the influence of economic growth, human development index (IPM), and poverty on the open unemployment rate in Aceh Province. The results of this study indicate that the human development index has a negative and significant effect on the open unemployment rate in Aceh Province. Based on the

description above, the following hypothesis can be formulated:

H2: It is suspected that the Human Development Index (IPM) has a negative and significant effect on the open unemployment rate.

3. METHODS

This study uses a quantitative approach with an associative research type, which aims to determine the relationship between two independent variables, namely population and Human Development Index (IPM), on the dependent variable, namely the open unemployment rate in West Nusa Tenggara Province (NTB) during the period 2018–2023. This method was chosen to obtain empirical evidence that can be tested statistically to test the formulated hypothesis.

3.1 Location and Time of Research

This research was conducted in the West Nusa Tenggara Province with secondary data collection sourced from the official publication of the Central Statistics Agency (BPS) of NTB Province. The data collection process took place in September 2024, with observation data covering ten districts/cities in the province for the past six years (2018–2023).

3.2 Data Types and Sources

In this particular investigation, the data that were utilized were secondary data in the form of panel data, which is a combination of data from time series and data from cross-sections. The data collected include population (in units of people), IPM value (in composite index), and open unemployment rate (in percentage) for ten districts/cities in NTB Province. All data were obtained from the official publication of BPS NTB.

3.3 Data Collection Techniques and Methods

Data was collected through documentation and literature study methods. Documentation was carried out by accessing statistical data from the official BPS website,

while literature studies were carried out to strengthen theoretical and methodological studies by referring to relevant literature. The data collection procedure follows systematic steps, including variable identification, data selection for the year of observation, and arranging the data in panel format for econometric analysis purposes.

3.4 Data Analysis Models and Techniques

This study uses a panel data regression model to analyze the relationship between research variables. Panel data is chosen because it can increase the number of observations and degrees of freedom, and allows control of individual heterogeneity between districts/cities.

The basic regression equation used in this study is formulated as follows:

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

Information:

- Y = Open Unemployment Rate
- X₁ = Population
- X₂ = Human Development Index (IPM)
- β_0 = Constant
- β_1, β_2 = Regression Coefficient
- e = error term
- I = Cross Section (District/City)
- T = Time Series (Time Period)

3.5 Classical Assumption Test and Hypothesis Test

To ensure the validity of the regression model used, a series of classical assumption tests were carried out, namely:

1. Normality test
2. Multicollinearity test
3. Heteroscedasticity test

In addition, hypothesis testing is carried out through:

1. F test (simultaneous significance)
2. t-test (partial significance)

3. Test the coefficient of determination (R^2) to see the contribution of the independent variable in explaining the variation of the dependent variable.

4. RESULTS AND DISCUSSION

4.1 Overview of Research Location

This particular research location is centered on the province of West Nusa Tenggara (NTB), which is comprised of the islands of Lombok and Sumbawa. In terms of administration, the NTB is made up of ten districts or cities, which are as follows: West Lombok, Central Lombok, East Lombok, North Lombok, Sumbawa, West Sumbawa, Dompu, Bima, Mataram City, and Bima City. According to the data from the year 2023, the population of this province reached 5,560,287 individuals. This study makes use of secondary data that was gathered from the NTB Central Statistics Agency (BPS). The study focuses on three primary variables, namely the open unemployment rate (TPT), population, and the Human Development Index (IPM) throughout the period of 2018–2023.

During that period, data shows that the open unemployment rate fluctuated in each district/city. Although there was a downward trend in several years, an increase also occurred in certain years. The inequality of unemployment distribution between regions is also an important issue that shows that open unemployment is still a serious challenge in regional development.

4.2 Research Data Description

The data used consists of:

1. **Open Unemployment Rate (TPT):** describes the proportion of the working age population who are unemployed and looking for work.
2. **Total population:** reflects demographic pressures on the labor market.
3. **Human Development Index (IPM):** represents the quality of

life of the community in terms of education, health and purchasing power.

4.3 Estimation Results and Model Selection

The Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM) methodologies were utilized in order to carry out the testing of the panel data regression model. As a consequence of the findings of the Chow and Hausman tests, it was determined that the Fixed Effect Model (FEM) was the most suitable model for this investigation. This is due to the fact that it offered a more precise estimation of the cross-regional and temporal characteristics.

4.4 Classical Assumption Test

Several classical assumption tests were performed to ensure the validity of the model:

1. **Normality Test** shows that the data is normally distributed ($p = 0.765 > 0.05$).
2. **Multicollinearity Test** shows that there is no high correlation between independent variables ($VIF X1 \text{ and } X2 = 1.41 < 10$).
3. **Heteroscedasticity Test** shows no symptoms of heteroscedasticity ($p > 0.05$).

4.5 Regression Results and Hypothesis Testing

Based on the results of the FEM analysis, the following findings were obtained:

1. **Total population** has a positive but insignificant effect on TPT ($p = 0.9849 > 0.05$; coefficient = 0.0192). This shows that the increase in population does not directly increase the open unemployment rate. This phenomenon can be explained by the dominance of the informal sector in NTB, which is able to absorb labor without being recorded in official statistics.

2. **Human Development Index (IPM)** has a substantial and negative impact on TPT ($p = 0.0237 < 0.05$; coefficient = -0.1810). A negative effect is observed. This indicates that the open unemployment rate is lower in a location that has a greater IPM than where it is located. This demonstrates that the level of education, health, and purchasing power of the community all play a significant impact in lowering the rate of unemployment.
3. **Simultaneously**, population and IPM have a significant effect on the open unemployment rate ($p\text{-value model} = 0.0000 < 0.05$), with a coefficient of determination (R^2) explaining that the variation in TPT can be explained by the two independent variables quite well.

Discussion

This finding indicates that the influence of population on open unemployment is not dominant. This can be associated with Arthur Lewis's Two Sector Theory, which divides the economy of developing countries into traditional and modern sectors. Most of the NTB population is absorbed in traditional sectors such as agriculture and small businesses, which tend not to be recorded in official unemployment statistics. Therefore, even though the population is increasing, the open unemployment rate does not experience a significant spike due to the existence of informal jobs.

On the other hand, the increase in IPM has been proven to be significant in reducing open unemployment. This finding is in line with the view of [13], who emphasized the importance of the quality of human development in increasing productivity and access to formal employment. The increase in IPM reflects the investment in education, health, and purchasing power that can create

a workforce that is more ready to compete in the job market.

Overall, the results of this study provide an understanding that regional development strategies must focus on improving the quality of human resources. Local governments are advised not only to control population growth, but also to improve access and quality of education and health services. Thus, efforts to reduce the open unemployment rate in NTB can be carried out more effectively and sustainably.

Research Implications

Within the time frame of 2018-2023, the purpose of this study is to ascertain the impact that population and the Human Development Index (IPM) have on the rate of open unemployment in the province of West Nusa Tenggara. The following are the implications of the research results found:

- 1) Population is one of the demographic factors that can affect employment conditions in a region. Over the period of 2018 to 2023, the findings of this study indicate that the population has a beneficial impact on the open unemployment rate in West Nusa Tenggara (NTB) Province, but that this impact is not statistically significant. The conclusion that can be drawn from this data is that an increase in the population does not necessarily have a direct influence on a rise in the unemployment rate. Therefore, it is anticipated that in the future, local governments will be able to control population expansion in a balanced manner and improve the quality of human resources in order to foresee prospective rises in the rate of unemployment.
- 2) The Human Development Index (IPM) is a significant indicator that is utilized in the process of evaluating the level of

development and quality of life in a certain region. According to the findings of this research, the implementation of the IPM has a detrimental and substantial impact on the rate of open unemployment in the province of West Nusa Tenggara (NTB) throughout the period of 2018 to 2023. On the basis of this conclusion, it can be deduced that the unemployment rate tends to fall in proportion to the growth in the IPM, which is a reflection of an improvement in the quality of education, health, and living conditions. Therefore, in the future, local governments need to focus more on increasing the IPM to create a more skilled and productive workforce, so that unemployment can be reduced and regional development goals can be achieved.

Research Limitations and Suggestions

This research has been attempted and carried out in accordance with scientific procedures, however, it has the following limitations:

- 1) The factors influencing the open unemployment rate in this study consist of only two variables, namely population and Human Development Index (IPM), while there are many other factors influencing the open unemployment rate.
- 2) Data Limitations: This study uses secondary data obtained from official sources such as the Central Bureau of Statistics (BPS). Although secondary data has advantages in terms of time and cost efficiency, there are several limitations that need to be noted. One of them is the dependence on the availability

and quality of existing data. The available data does not fully match the research needs, both in terms of time coverage, variable details, or suitability to the focus of the analysis.

5. CONCLUSION

This study provides evidence that population has a positive but insignificant effect on the unemployment rate in West Nusa Tenggara (NTB) Province in the period 2018 to 2023. This finding shows that although population growth tends to be followed by an increase in the unemployment rate, the effect is not statistically strong enough to be considered significant. Thus, the population factor is not the only or dominant factor that determines the fluctuation of the unemployment rate in NTB in that period.

This study provides evidence that the Human Development Index (IPM) has a

negative and significant effect on the open unemployment rate in West Nusa Tenggara (NTB) Province throughout the period of 2018 to 2023. The analysis was carried out in order to address the issue. This research demonstrates that the open unemployment rate has a tendency to decline greatly when the IPM is higher. This is because the IPM indicates a rise in the level of education, health, and living standards. It is possible to utilize these findings as a foundation for making the assertion that a significant contribution to lowering the unemployment rate is made by boosting human development opportunities. This finding is in agreement with the viewpoint expressed by [13], who noted that improved human development will lead to an improvement in labor productivity as well as an increase in job opportunities, which will ultimately serve to have an effect on lowering the unemployment rate.

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