EXPLORING POVERTY IN WEST NUSA TENGGARA:
A CALL FOR ACTION

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Abstract. *This study evaluates the relationships between poverty, education, unemployment, and economic growth in West Nusa Tenggara from 2017 to 2023 using panel data regression analysis. Three regression models—pooled least squares (PLS), fixed effects model (FEM), and random effects model (REM)—were compared to select the most appropriate. The FEM was chosen over PLS due to its significant results, while REM was deemed inferior based on Hausman test outcomes. Despite violating classical assumptions such as non-normality and multicollinearity, adjustments were made, leading to a refined regression model. Findings indicate that higher regional GDP and education levels correlate with lower poverty rates, while unemployment shows minimal impact. This underscores the importance of addressing income inequality and implementing inclusive policies to maximize the poverty-reducing potential of economic growth.*

Keywords: *Poverty Rate, Unemployment, Regional GDP, Educational Level*

I. INTRODUCTION

Nestled within the picturesque landscapes of Indonesia lies West Nusa Tenggara, a region of stunning natural beauty and cultural richness. However, behind this facade of natural splendour, a stark reality persists: West Nusa Tenggara remains among the ten provinces with the highest poverty rates in Indonesia. This troubling statistic underscores the pressing need to delve deeper into the factors contributing to persistent poverty in this region.

Despite Indonesia's strides towards economic development and poverty alleviation on a national scale, West Nusa Tenggara continues to grapple with significant socioeconomic challenges. The reasons behind this disparity are multifaceted, ranging from economic limitations and inadequate infrastructure to social inequalities and environmental vulnerabilities. Understanding these complexities is crucial not only for shedding light on the lived experiences of its residents but also for formulating targeted interventions that can uplift communities and pave the way towards sustainable development.

In this article, we embark on a journey to unravel the layers of poverty gripping West Nusa Tenggara. By examining key economic, social, and environmental factors, we aim to provide a comprehensive overview of the obstacles facing the region and highlight potential pathways towards positive change. Through this exploration, we hope to ignite dialogue, inspire action, and advocate for policies that prioritize the well-being and prosperity of all those who call West Nusa Tenggara home.

2. LITERATURE REVIEW

Economic Factors Affecting Poverty in West Nusa Tenggara

Understanding the economic dynamics that contribute to persistent poverty in West Nusa Tenggara requires a comprehensive examination of various interrelated factors. This literature review synthesizes existing research to highlight key economic drivers of poverty in the region, emphasizing the need for targeted interventions and policy reforms.

a. *Income Inequality and Employment Opportunities*

Income inequality is a critical issue exacerbating poverty in West Nusa Tenggara. Studies by Nuning P. dan Catus S. (2020) and Leonita, L., & Sari, R. K. (2019) have shown that disparities in income distribution significantly impact poverty levels, with marginalized communities and rural populations facing limited access to economic opportunities. The informal sector dominates the local economy, characterized by low-wage jobs and seasonal employment, further perpetuating income instability and poverty traps.

b. Government Policies and Social Protection Programs

The role of government policies in poverty alleviation cannot be understated effectiveness of social protection programs such as conditional cash transfers and food assistance schemes in mitigating the impact of economic shocks on vulnerable populations, Azriyansyah, Z (2022). However, the coverage and targeting of these programs often fall short, necessitating reforms to ensure equitable access and sustainable outcomes.

c. Human Development Index (HDI) and Quality of Life

Beyond economic indicators, the Human Development Index (HDI) provides a holistic measure of well-being, encompassing health, education, and income. In West Nusa Tenggara, Fajriah, N. A. (2021). highlights disparities in HDI indicators between urban and rural areas, indicating unequal access to healthcare and educational opportunities. Improving HDI outcomes requires investments in health infrastructure, education facilities, and social services to enhance human capital and overall quality of life.

d. Education

Education plays a crucial role in shaping socio-economic outcomes, particularly evident in its impact on poverty rates. Research consistently highlights that higher levels of education are associated with lower poverty rates. Individuals with more years of education tend to have better job prospects, higher incomes, and greater financial stability, thereby reducing their likelihood of falling into poverty. Moreover, education fosters skills and knowledge that empower individuals to navigate economic challenges and seize opportunities for upward mobility. Thus, investing in education emerges as a pivotal strategy in addressing and alleviating poverty by equipping individuals with the tools needed to achieve economic independence and resilience.

e. Unemployment

Unemployment and underemployment significantly contribute to poverty rates by disrupting individuals' economic security and stability. When individuals experience unemployment or are forced into underemployment, their income levels often plummet, making it difficult to meet basic needs such as food, housing, and healthcare, Choirur, R. (2021). Moreover, prolonged periods of unemployment can erode savings and assets, pushing individuals further into poverty. Underemployment, where individuals work part-time or in low-wage jobs despite seeking full-time employment, also limits their earning potential and financial security. These conditions not only impact individuals directly but can also have broader societal implications, straining social safety nets and exacerbating economic inequality. Addressing unemployment and underemployment through policies that promote job creation, skills development, and fair wages is crucial for reducing poverty and fostering economic resilience among vulnerable populations.

3. RESEARCH METHODOLOGY

This article employs quantitative research methods. The data source used is secondary data, specifically public reports from BPS provinces and mass media containing information related to the research variables. The data collection technique involved annual documentation available at BPS NTB, published on its official website www.BPS.go.id. The study utilizes panel data regression analysis to predict the impact

of GDP, Human Development Index, Years of Study, and Unemployment Rate on poverty levels.

A simple panel data model is constructed to analyse factors affecting poverty, focusing on a province-level dataset over multiple years. Suppose we are interested in how various economic, social, and demographic factors influence the poverty rate in West Nusa Tenggara (NTB).
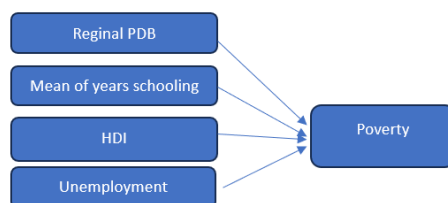

Figure 1. Research Model

Dependent Variable:

Poverty Rate (PR): The percentage of the population living below the poverty line in West Nusa Tenggara in year t .

Independent Variables:
a. Gross Domestic Product per capita (GDPpc): Proxy for economic development and income levels in WNT.
b. Human Development Index (HDI): Measure of overall well-being, including health, education, and income.
c. Unemployment Rate (UR): Percentage of the labor force that is unemployed.
d. Education Index (EDU): Average years of schooling or literacy rate.

The panel data model can be specified as follows:

$$PR_{it} = \beta o + \beta_1 GDP_{rit} + \beta_2 HDI_{it} + \beta_3 UR_{it} + \beta_4 EDU_{it} + \varepsilon_{it}$$

Where:
- PR_{it}: Poverty rate in region i at time t.
- GDP_{rit}, HDI_{it}, UR_{it}, and EDU_{it}: Independent variables measured for region i at time t.
- βo: Intercept capturing the average poverty rate in the base year.
- β_1, β_2, β_3, dan β_4: Coefficients representing the marginal effect of each independent variable on the poverty rate.
- ε_{it} : Error term capturing unobserved factors affecting poverty not included in the model.

4. RESULT AND DISCUSSION

4.1 Regression Model Selection

There are three regression models available for panel data: pooled least squares (PLS), fixed effects model (FEM), and random effects model (REM). To determine the best model, the first step involves comparing PLS and FEM. This can be achieved by initially conducting a regression using the fixed effects method. If the regression results are not significant, PLS is chosen; however, if they are significant, FEM is preferred. The next step is to compare FEM and REM to select the model with the better significance level. The output of the fixed effects model test using the redundant fixed effect ratio shows that F statistic 139.6 with degree of freedom 9 and probability 0.0000. This in indicates that the test results using FEM are significant, indicating that FEM is chosen over PLS. The testing of REM using correlated random effects or the Hausman test shows that the test summary statistics are not significant, the probability is 0.2444 which means that the REM model is not better than FEM so it was decided to use FEM.

Classical Assumptions Test:

The decision to use FEM for regression yielded a table that did not produce an ideal regression model due to several violated classical assumptions:

a) Normality of data: The collected data are not normally distributed, indicated by the Jarque-Bera test at a 5% significance level, showing a JB value greater than the significance level, and a p-value of 0.00000, which is less than α = 0.05. Thus, the assumption of normality in residual distribution is not satisfied;

b) Autocorrelation test: Autocorrelation was assessed using the Durbin-Watson statistic from the regression results. The Durbin-Watson statistic ranges from 0 to 4, with values less than 1 or greater than 3 indicating the presence of autocorrelation. The test result yielded a Durbin-Watson statistic of 0.08, suggesting the presence of autocorrelation.

c) Multicollinearity test: The multicollinearity test indicated multicollinearity between the Human Development Index and Education index variables, with a correlation exceeding 0.8. Consequently, the Human Development Index variable was excluded.

 d) Heteroskedasticity test: The heteroskedasticity test results showed no violations of assumptions."

Panel Data regression after the assumption violation is fixed:

The regression test of the panel data after the HDI variable is omitted shows the output as follows:

$$logPov_{it} = \beta o - 0,087 logPDRB_{kit} + 0,009 logUR_{it} - 0,250 logEDU_{it} + \varepsilon_{it}$$

The dependent variable, $logPov_{it}$, represents the logarithm of the poverty rate in region *i* at time *t*.

- $logPDRB_{kit}$ (logarithm of GDP):

This variable has a coefficient of -0.087. A one-unit increase in $logPDRB_{kit}$ is associated with a decrease of 0.087 units in $logPov_{it}$, holding other variables constant.

This suggests that higher regional GDP tends to be associated with lower poverty rates, indicating that economic growth can potentially reduce poverty.

- $logUR_{it}$ (logarithm of unemployment rate):

This variable has a coefficient of 0.009. A one-unit increase in $logUR_{it}$ is associated with a very small increase (0.009 units) in $logPov_{it}$, holding other variables constant. This suggests that unemployment rates have a minor positive association with poverty rates, implying that higher unemployment rates might slightly increase poverty levels.

- $logEDU_{it}$ (logarithm of education index):

This variable has a coefficient of -0.250. A one-unit increase in $logEDU_{it}$ is associated with a decrease of 0.250 units in $logPov_{it}$, holding other variables constant. This indicates that higher levels of education are strongly associated with lower poverty rates, suggesting that improving the education index can significantly reduce poverty.

4.2 Discussion

The Effect of Regional Gross Domestic Product (GDP_Rate) on the Poverty Rate (PRit)

In analyzing the relationship between regional GDP (PDRB) and poverty reduction rates, particularly in a region characterized by varying income levels due to a prevalent gold mining industry, the role of income inequality emerges as pivotal in shaping the outcomes. The presence of lucrative sectors such as gold mining can significantly bolster regional GDP by stimulating economic activity and wealth creation. However, the distribution of this prosperity across different segments of the population varies widely, influencing income inequality and thereby affecting poverty levels.

The lack of a significant relationship observed between regional GDP (PDRB) and poverty reduction rates suggests that despite overall economic growth driven by the gold mining industry, the benefits may not be equitably distributed throughout the region. High-income earners and businesses directly involved in mining activities may

experience substantial income gains, potentially leading to improved living standards and reduced poverty among those directly benefiting from the industry.

Conversely, other segments of the population, particularly those in peripheral or less directly connected sectors, may not witness comparable improvements in income or living conditions. Income inequality within the region could exacerbate disparities, concentrating wealth among a few while leaving others vulnerable to poverty or limited economic opportunities.

Furthermore, the impact of income inequality on poverty rates can be exacerbated by regional policies and social dynamics. Insufficient infrastructure, social programs, or regulatory frameworks to equitably distribute and reinvest mining revenues may contribute to persistently high poverty rates despite the overall economic growth indicated by regional GDP.

Therefore, while regional GDP growth associated with a gold mining industry suggests potential economic benefits for poverty reduction, the lack of a significant statistical relationship underscores the necessity of addressing income inequality and implementing inclusive policies. These measures are crucial for ensuring broader wealth distribution and sustainable development across all segments of the population in the region. Efforts to enhance education, skills training, infrastructure, and social welfare programs are essential to mitigate the adverse effects of income inequality and maximize the poverty-reducing potential of regional economic growth.

The Effect of the Education Index on Poverty Levels

The regression results indicate a significant relationship between the education index and poverty rate. This suggests that as the education index increases, there is a corresponding decrease in the poverty rate. In other words, areas or populations with higher levels of education tend to have lower poverty rates. This relationship underscores the importance of education in socioeconomic outcomes, implying that improving educational attainment could potentially contribute to reducing poverty levels in the studied context.

The Effect of the Unemployment Rate on the Poverty Rate

The regression findings indicate that the unemployment rate does not have a significant impact on reducing the poverty rate. This implies that changes in unemployment levels do not lead to corresponding changes in poverty rates in the studied context. There could be several reasons for this lack of significant impact. It is possible that other factors, such as educational attainment, social welfare programs, or economic policies, play a more dominant role in influencing poverty rates than fluctuations in unemployment alone. Additionally, it suggests that simply addressing unemployment without considering broader economic and social factors may not effectively alleviate poverty in this specific scenario. Further investigation into these factors could provide deeper insights into the complex dynamics between unemployment and poverty reduction in the studied population or region.

CONCLUSION

This study evaluates the relationship between poverty and Education, Unemployment, and Economic Growth in West Nusa Tenggara from 2017 to 2023. Panel data regression analysis was employed using data from 10 districts obtained from the website of the Central Statistics Agency (BPS). Model selection, stationarity or unit root tests, classical assumption checks, panel data regression analysis, and hypothesis testing with t-tests were all steps in the analysis process. Findings indicate that poverty is not significantly influenced by unemployment or economic growth. Education, however, has a significant impact on poverty. Existing government programs mandated to alleviate poverty, including social protection, access to essential services, and support for impoverished individuals through associations or groups, should suffice. Additional efforts could focus on increasing job opportunities for the unemployed and

providing scholarships to economically disadvantaged individuals in West Nusa Tenggara, enhancing their education and employment prospects.

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