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Analysis of the Determinants of Open Unemployment Rate: The Role of Human Development Index and Socioeconomic Factors

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ABSTRACT

Economic conditions, unfavorable government policies, the growth of fictitious economic sectors, a lack of education and skills, a shortage of employment opportunities relative to the number of job seekers, and job seeker competencies that do not align with the job market are some of the factors that contribute to unemployment. Analyzing the main determinants of the open unemployment rate in Bengkulu Province is the aim of this study. Multiple linear regression analysis was employed in this work to analyze secondary data from 2012 to 2023 that was obtained from the Bengkulu Province BPS. The study's findings demonstrated that the F count value of 3.391 from the simultaneous test was higher than the F table value of 3.106. The dependent and independent variables are not influenced by one another, it can be concluded. With a significance value of $0.195 > 0.05$, the Human Development Index (HDI) (X4) is the variable that most affects the open unemployment rate in the partial test. It has a positive impact on the open unemployment rate. With a computed t value of 1.433 and a t table of 1.39682, the Human Development Index (HDI) (X4) is the variable that most affects the Open Unemployment Rate. The Determination Coefficient is 0.655, meaning that the Human Development Index (HDI) (X4), Population (X2), Poverty (X3), and PDRB (X1) each contributed 65.5% and 34.5%, respectively.

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1. INTRODUCTION

Even developed nations, as well as developing nations, frequently struggle with unemployment. The unemployment rate is still used as a yardstick for evaluating a nation's economic progress; it also allows us to determine whether or not a nation has reached its welfare level. Continuous population growth is one of the factors contributing to the various issues that nations must deal with (Adriyanto et al., 2020). Economic development through initiatives to boost economic growth is typically the main emphasis of development. One indicator of a nation's or region's development success is the rate of economic growth. The primary requirement for maintaining economic development and raising wellbeing is high and sustained economic growth (Sirait et al., 2018). Reducing the unemployment rate is always included in the problems and agenda of national development, which is then stated in the National Medium-Term Development Plan (RPJMN) every five years. This is because, according to (Diniyah et al., 2022), unemployment is one of the macroeconomic issues that remains a significant challenge for stakeholders to improve welfare and economic growth in Indonesia.

Economic conditions, unfavorable government policies, the growth of fictitious economic sectors, low education and lack of skills, the fact that there are fewer job openings than there are job seekers, the fact that job seekers' competencies do not match the job market, the fact that graduates of educational programs have a high level of education but lack access to employment opportunities, the possibility that they will not be able to find employment in a region where only women work while men do not work, and other factors are some of the causes of unemployment. Furthermore, job seekers do not have access to useful information on the job market. The phenomenon of unemployment is closely linked to the termination of employment, which can be caused by a variety of factors, including regulations that hinder investment, barriers in the export-import process, and companies that reduce or close their operations due to economic crises or less favorable security (Ishak & Sy, n.d.).

Based on data from the Central Statistics Agency of Bengkulu Province, the open poverty rate in Bengkulu Province from 2012 to 2023 continues to increase, this is in line with population growth which also continues to increase. The GRDP (Million Rupiah) of Bengkulu Province in 2012 was IDR 36,207,676.96, continuing to increase in line with the population (Thousands/People) of 1,785,758 until in 2023 the GRDP (Million Rupiah) was IDR 96,551,379.03 and the population (Thousands/People) was 2,086,006. While the percentage of poverty in 2012 was 17.80%, experiencing a significant decline until 2023 of 14.04%. The open unemployment rate has a fluctuating number where the change is seen to increase during the Covid-19 pandemic. The Open Unemployment Rate in Bengkulu Province has increased in line with the many businesses that have gone bankrupt and the quite severe economic changes during that period.

The GRDP (Million Rupiah) is known to rise annually in tandem with the population and the Human Development Index (HDI), according to data from the Badan Pusat Statistik. At the same time, the percentage of people living in poverty in Bengkulu Province is declining annually; this suggests that the level of welfare is rising. This is consistent with the Open Unemployment Rate % till 2023, which has been declining since 2020, indicating that the open unemployment rate in Bengkulu Province is influenced by the percentage of people living in poverty. Research on the factors influencing the open poverty rate in Bengkulu Province is therefore of interest to the author.

2. RESEARCH METHOD

Secondary data on the Open Unemployment Rate (Y), GRDP (X1), Population (X2), Poverty (X3), and Human Development Index (HDI) (X4) from 2012 to 2023 were obtained from the Central Statistics Agency of Bengkulu Province and used in this study. Multiple linear regression analysis was the data analysis method used in this study, and the SPSS program was used to evaluate the hypotheses. According to study by (Cilviyani et al., 2019), the F Test and the T Test are the statistical tests used, respectively. To ascertain the overall impact of the independent variable (X) on the dependent variable (Y), the F test is used. By comparing the likelihood F value with the F value at a specific level of confidence, the F test's conclusion can be found. The purpose of the t test is to ascertain how the independent variable (X) affects the dependent variable (Y). The t test results are concluded by comparing the computed t value with the t table.

3. RESULTS AND DISCUSSION

3.1. Analysis of Multiple Linear Regression

Multiple linear regression analysis was utilized in this study's data analysis, and the following equation was derived from the data analysis results using the SPSS application :

$$Y = 2.267 - 0.030X_1 - 0.129X_2 - 0.377X_3 + 0.313X_4 + e$$

According to this formula, the Open Unemployment Rate will drop by 0.030% for every 1% increase in PDRB (X1). The Open Unemployment Rate will drop by 0.129% for every 1% rise in Population (X2). The Open Unemployment Rate will fall by 0.377% for every 1% increase in Poverty (X3) and rise by 0.313% for every 1% increase in the Human Development Index (HDI) (X4).

3.2. F Test

(Amalia Tahutu et al., 2024)The F test, sometimes referred to as the Simultaneous Test or Model test/Anova Test, is a test to determine how all independent variables jointly affect the dependent variable, or to determine whether the regression model we create is significant or not. By contrasting the computed F with the F Table, the F test can be performed. The model is significant or visible in the significance column of the Anova (processed with SPSS) if the estimated $F >$ from the F table (hypothesis accepted) in Excel. The significance column (%) $<$ Alpha (readiness to make type 1 mistakes, which decides the researcher himself) indicates that the model is significant. In the social sciences, alpha is typically limited to 10%, or 5% or 1%. Conversely, the significance column value (%) will be bigger than alpha if the estimated $F <$ F table, which further indicates that the model is not significant. The following outcomes were concurrently produced from the data analysis used to test the hypothesis :

Table 1. F Test, R Square

R Square	Adjusted R Square	F Change	Sig. F Change	Durbin Waston
0,655	0,450	3,319	0,80	2,625

Source: Data processed, 2024

The F-test result is the outcome of a simultaneous hypothesis test that was used to ascertain the combined impact of the independent and dependent variables. The F-count value of 3.391 is higher than the F-table value of 3.106, according to the study's findings. The dependent and independent variables are not influenced by one another, it can be concluded. According to (Talokon et al., 2019), The researcher chose a significance threshold of 0.10 (10%) in this investigation. The estimation results table displays the F-test findings in the probability column (F-statistic). The purpose of this test is to determine whether variable X and variable Y together have a significant impact. In this instance, the population, wages, and GDP are the variables being examined to see if they have an impact on the unemployment rate. According to the analysis's findings in Appendix 3, the probability is 0.07 and the F-count value is 1.29. The value is deemed significant at a 10% significance level. Thus, it may be said that the dependent variable is significantly impacted by all independent variables taken together. When combined, the factors of population growth, wage growth, and GDP growth significantly impact unemployment.

The magnitude of the total regression coefficient (R²) is also examined by multiple linear regression tests. In essence, R² quantifies the extent to which the dependent or bound variable's change can be explained by the regression model. The best accuracy of multiple regression analysis is measured by R². The more strongly the independent variable in the regression model can explain the dependent variable, the closer the R² number gets to 1. On the other hand, the independent variable's ability to explain the dependent variable is diminished if R² approaches 0 (Vika Ardita et al., 2023). Given that the Determination Coefficient is 0.655, the contribution provided by the Human Development Index (HDI) (X4), GRDP (X1), Population (X2), and Poverty (X3) is 65.5%, with the remaining 34.5% being impacted by variables not included in this equation.

3.3 T Test

To ascertain how each independent variable affects the dependent variable, the t-test is used. The independent variable can explain the dependent variable if the threshold of significance is less than 0.05, in which case H₀ is rejected and H_a is accepted. On the other hand, H₀ is accepted and H_a is denied if the level

of significance is more than 0.05. The dependent variable cannot be explained by the independent variable, according to this (Vika Ardita et al., 2023). The T-test is the result of testing each variable X against variable Y. The results of data analysis using SPSS show that:

Table 2. T test

Model	B	Std. Error	Beta	T	Sig	Collinearity Tolerance	Statistic VIF
Constant	2,267	3,978		0,570	0,587		
GRDP	-0,30	0,63	-1,189	-0,474	0,650	0,008	127,662
Population	-0,129	0,354	-0,759	-0,363	0,727	0,011	88,677
Poverty	-0,377	0,580	-0,689	-0,650	0,536	0,044	22,772
HDI	0,313	0,219	0,823	1,433	0,195	0,149	6,692

Source: Data processed, 2024

According to this study, there is a negative correlation between GDP and the Open Unemployment Rate; yet, this association is significant, with a calculated t value of -0.474 less than the t table value of 1.39682 and a significance value of $0.650 > 0.05$. The study's findings (Talokon et al., 2019) indicate that partial GDP growth has no significant impact because the regression coefficient value is -0.02, indicating a negative relationship between GRDP growth and the unemployment rate, and the probability value of 0.94 is higher than the significance level, which is 0.10 (10%). According to the study's findings, unemployment in Tomohon City is negatively correlated with the GDP growth rate, but not significantly so. If there is no discernible impact, the GRDP growth rate has no bearing on the unemployment rate.

Consistent with the findings of the study of (Herawati & Kyswantoro, 2023), the Open Unemployment Rate of Bojonegoro Regency from 2013 to 2019 is not significantly impacted by GDP. where the significance value of $0.731 > 0.05$ was based on the results. This demonstrates that GRDP is not a factor that can help someone escape the open unemployment rate, but it is a useful indicator of the state of the economy in a region. If the Gross Regional Domestic Product (GRDP) is the total market value of all goods and services produced by a region, province, or area over a specific time period in a year, then a high GRDP can be interpreted as a high level of production of goods and services, which will increase job opportunities for the community and thus solve the issue of open unemployment. If GRDP rises, income will also rise, which will help those who are unemployed or living in poverty.

Although there is a negative correlation between Population (X2) and the Open Unemployment Rate, the link is significant, with a t-count value of -0.363 less than the t-table value of 1.39682 and a significance value of $0.727 > 0.05$. Generally speaking, Bengkulu Province's workforce will be impacted by the annual population growth.

According to this study, poverty (X3) has a negative impact but a significant impact on the open unemployment rate, with a calculated t value of -0.536 less than the t table value of 1.39682. Poverty (X3) is the issue that is most impacted by the number of unemployed people. The study's findings (Kei et al., 2024) The path analysis's findings demonstrate that poverty in Minahasa Regency is positively and significantly impacted by the open jobless rate. This demonstrates that rising unemployment indicates declining productivity among the populace. Residents are unable to satisfy their basic requirements as a result, let alone their wants. Because people will remain below the poverty line as long as their basic necessities are not met.

With a significance value of $0.195 > 0.05$, the Human Development Index (HDI) (X4) significantly and favorably affects the open unemployment rate. With a t-count value of 1.433 and a t-table of 1.39682, the Human Development Index (HDI) (X4) is the variable that most affects the Open Unemployment Rate. The findings of the route analysis indicate that the HDI significantly and favorably affects the open unemployment rate in Minahasa Regency (Kei et al., 2024). This implies that in order to accommodate high-quality human resources, numerous containers must be used in conjunction with efforts to improve human resource quality.

4. CONCLUSION

It is known from the study's findings that the simultaneous test's F count value of 3.391 is higher than the F table value of 3.106. Thus, it can be said that the independent and dependent variables have no bearing on one another. With a significance value of $0.195 > 0.05$, the Human Development Index (HDI) (X4) is the variable that has the greatest impact on the Open Unemployment Rate in the partial test. It has a positive effect on the Open Unemployment Rate. With a t count value of 1.433 and a t table of 1.39682, the Human Development Index (HDI) (X4) has the greatest impact on the Open Unemployment Rate. With a Determination Coefficient of 0.655, the Human Development Index (HDI) (X4), Population (X2), Poverty (X3), and PDRB (X1) all contribute 65.5%, with the remaining 34.5% being impacted by variables not in this equation.

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