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The Impact of Labor, Unemployment, and Poverty on Economic Growth in Tarakan City

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Abstract

This study aims to analyze the influence of labor, unemployment, and poverty on economic growth in Tarakan City. The method used is quantitative descriptive with time series data from 2013–2020 and multiple linear regression analysis using SPSS 25.0. The results show that partially, labor has no significant effect on economic growth, while unemployment and poverty have a significant effect. Simultaneously, these three variables have a significant effect on economic growth with a contribution of 55%. These findings provide policy implications for the government in designing strategies for labor absorption and poverty alleviation.

Keyword: Labor, Unemployment, Poverty, Economic Growth, Tarakan City

1. Introduction

Economic growth is a fundamental indicator in assessing the success of a region's development (Cristina et al., 2021; Martins Rodriguez & María Viedma Martí, 2006). This process of increasing the production of goods and services not only reflects the productive capacity of the economy but also serves as a foundation for improving public welfare (Jorgenson, 2018). In the context of regional autonomy, a thorough understanding of the factors driving economic growth is crucial for formulating effective and targeted development policies (Huang et al., 2023; Moonti, 2019).

Tarakan City, as the largest city and growth center in North Kalimantan Province, plays a strategic role as both a local and international trade hub (Area, 2015; Utomo et al., 2022). As a region known for its oil and gas sector, Tarakan's economy exhibits fluctuating dynamics. Data from 2013–2020 reveals an unstable trend, with peak growth reaching 7.96% (2017) and a contraction of -0.70% in 2020 due to the impact of the pandemic. This fluctuation indicates the vulnerability of the city's economic structure to external shocks and the need to identify more reliable determinants of growth.

Despite its economic potential, Tarakan also faces classic socio-economic challenges, namely unemployment and poverty. These two issues not only pose a social burden but are also strongly suspected of impacting the rate of economic growth. High unemployment can suppress people's purchasing power and narrow the tax base, while widespread poverty has the potential to hinder human capital accumulation and productivity (Ceroni, 2001; Stiglitz, 2015). On the other hand, labor, as a primary factor of production, should theoretically contribute positively to growth (Mahmud & Rashid, 2006; Romer, 1990). However, in a capital-intensive economy like Tarakan, this relationship may no longer be linear.

Based on the description above, this study aims to analyze the influence of labor, unemployment, and poverty on economic growth in Tarakan City, both partially and simultaneously. The research question is: How do labor, unemployment, and poverty influence economic growth in Tarakan City? The research findings are expected to provide theoretical contributions to the literature on regional development economics and practical benefits in the form of policy input for local governments in designing inclusive and sustainable development strategies.

2. The Art of Research

2.1. Theoretical Basis of Economic Growth

Economic growth is defined as the development of economic activities that leads to an increase in the output of goods and services over a period (Dragoi, 2020; Ivic, 2015). Several fundamental theories explain the mechanisms of growth. The Solow-Swan theory emphasizes the role of capital accumulation, labor force growth, and technological progress as determining factors (Ferrara, 2025; Mengesha & Singh, 2023). Meanwhile, the Harrod-Domar theory links growth to savings and the capital-output ratio, where new investment is needed to increase the capital stock and output (Amin et al., 2024; Knibbe, 2014). Schumpeter's theory offers a different perspective by positioning innovation and the role of entrepreneurship as the primary drivers of growth through the introduction of new products, methods, or markets (Ferreira et al., 2017; Śledzik, 2013).

2.2. Research Variable Concept

Labor: According to Law No. 13 of 2003, labor is any person capable of performing work to produce goods or services. In this study, labor is viewed as a factor of production that, along with capital and technology, plays a role in increasing output (Battisti et al, 2018).
Unemployment: Defined as a situation where the workforce wants to work but has not yet found one (Green, 2000; Sukirno, 2011). Unemployment can be classified as hidden, seasonal, underemployment, and open, each with different implications for productivity and purchasing power (Grainca, 2022).
Poverty: The Central Bureau of Statistics (2012) defines poverty as the inability to meet the minimum basic needs for a decent life. The concept encompasses absolute poverty (below the poverty line), relative poverty (a gap with the standards of the surrounding community) (Foster, 1998), and cultural poverty (a lack of desire to improve one's situation) (Decerf, 2022).

2.3. Theoretical Relationship Between Variables

Theoretically, the relationship between the three independent variables and economic growth can be explained as follows:

- Labor and Growth: Increasing the quantity and quality of the workforce is expected to expand production capacity, thereby driving economic growth (Mincer, 1996; Topel, 1999).
- Unemployment and Growth: High unemployment rates tend to negatively impact economic growth by reducing purchasing power, shrinking the tax base, and reducing investment incentives (Calmfors & Holmlund, 2000; Muhammad, 2023).
- Poverty and Growth: The relationship is complex and bidirectional. On the one hand, inclusive economic growth is expected to reduce poverty (Claro et al., 2016). On the other hand, high poverty rates can hinder growth by limiting the accumulation of human capital and increasing socio-economic burdens (Collin & Weil, 2020).

2.4. Previous Empirical Review

Previous studies have provided mixed empirical evidence: For example, Saifuloh et al. (2025) found that labor had no significant effect on economic growth in Papua Province, while investment did. Furthermore, Dharu et al. (2025) confirmed the negative and significant effect of unemployment on economic growth in Trenggalek Regency. Ifa & Al Maidah (2023) found that poverty had a significant positive effect on economic growth in East Java, an interesting finding that contradicts general expectations. Based on the theoretical foundation and empirical findings, a conceptual framework is formulated that labor, unemployment, and poverty, both jointly and individually, influence the economic growth of Tarakan City. However, due to Tarakan's economic characteristics, which are dominated by capital-intensive sectors (oil and gas), the influence of labor may be insignificant. Therefore, the research hypothesis is formulated as follows:
H1: Partially, the labor force has no significant effect on the economic growth of Tarakan City.
H2: Partially, unemployment has a negative and significant effect on the economic growth of Tarakan City.
H3: Partially, poverty has a significant effect on the economic growth of Tarakan City.

H4: Simultaneously, the labor force, unemployment, and poverty have a significant effect on the economic growth of Tarakan City.

3. Method

This study uses a quantitative descriptive approach with a time series study design to analyze the influence of labor, unemployment, and poverty on the economic growth of Tarakan City. The study period covers 2013 to 2020. The data used is secondary data obtained from official publications of the Central Statistics Agency (BPS) of Tarakan City. To obtain more data points for more stable statistical analysis, annual data for the three independent and dependent variables were interpolated into quarterly data using EViews 9 software, resulting in a total of 32 observations.

The research variables consist of one dependent variable and three independent variables. The dependent variable is economic growth (Y), measured as the percentage growth of Gross Regional Domestic Product (GRDP) at constant prices. The independent variables include: labor (X_1), measured as the number of labor force individuals; unemployment (X_2), measured as the number of unemployed individuals; and poverty (X_3), measured as the number of poor individuals. All variables were analyzed using multiple linear regression analysis techniques using SPSS version 25.0 software.

Before estimating the regression model, a Classical Assumption Test was performed, including a normality test (Kolmogorov-Smirnov), a multicollinearity test (using Tolerance and VIF values), and a heteroscedasticity test (using a scatterplot). Once the classical assumptions were met, the regression model was estimated to test the hypotheses. Hypothesis testing was performed partially using the t-test and simultaneously using the F-test. Furthermore, the coefficient of determination (R^2) was used to determine the contribution of the independent variables in explaining the variation in the dependent variable. All tests were conducted at a significance level of α = 5%.

4. Result

Economic growth in Tarakan City, as shown in Figure 1 for the research results, is secondary data obtained from the Central Statistics Agency of Tarakan City data from 2013 to 2020. The results shown in Figure 1 for economic growth in Tarakan City experienced fluctuating growth, namely experiencing unstable growth, in certain years experiencing an increase and in the following year experiencing a decrease.

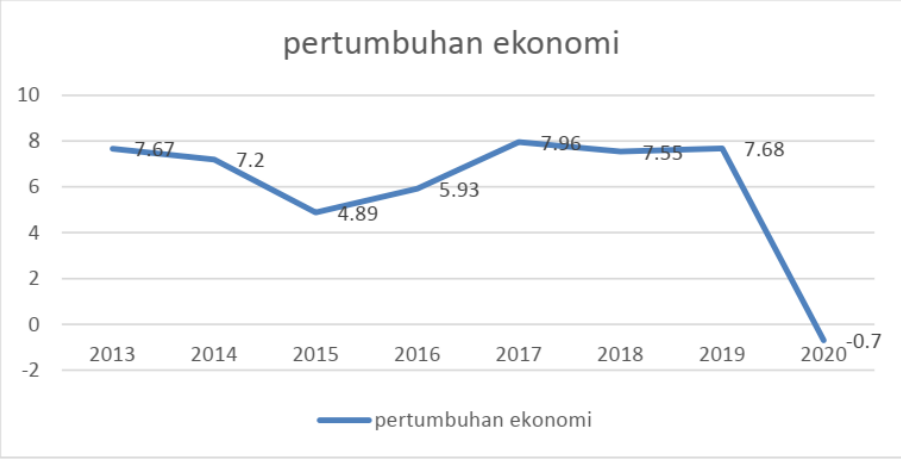

Figure 1. Graph of Economic Growth in Tarakan City

Furthermore, the number of workers in Tarakan City fluctuates from year to year. The largest workforce in Tarakan City in 2016 was 90,507 workers, and in 2020, as shown in Figure 2, it reached 120,804 workers, a figure that continues to increase annually.

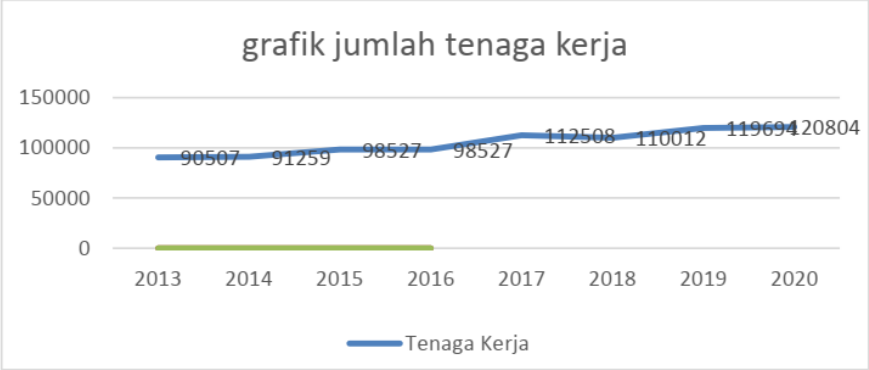

Figure 2. Graph of the Percentage of the Number of Workers in Tarakan City

Furthermore, the unemployment rate in Tarakan City fluctuates from year to year. In 2013 (see Figure 3), the number of unemployed was 6,375, in 2017 it was 5,841, and the highest in 2020, with 7,514 unemployed. This is a phenomenon that requires serious attention from the Tarakan City government.

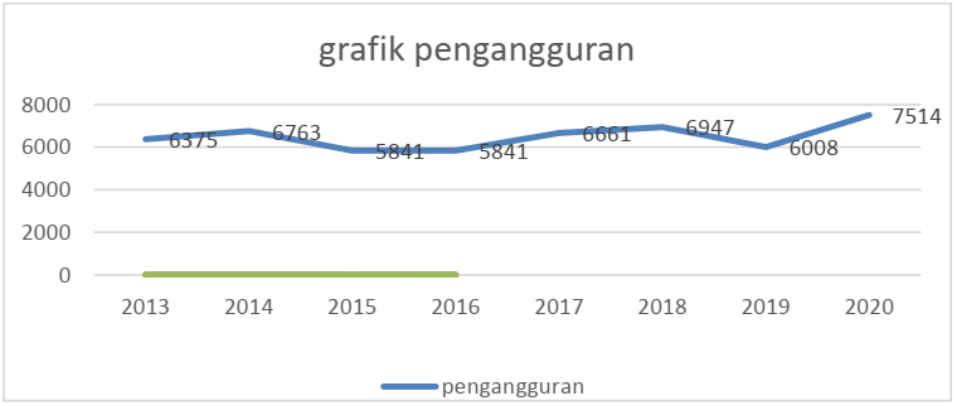

Figure 3. Graph of the Percentage of Unemployed in Tarakan City

A. Classical Assumption Test

- Normality Test
  A normality test is performed to determine whether the independent and dependent variables of a regression model, or both, are normally distributed. Data validation can be performed using the one-sample Kolmogorov-Smirnov test. The test results, as shown in Table 1, indicate that the Asymp. Sig. (2-tailed) value is greater than 0.05 (0.183 > 0.05), thus concluding that the residual values are normally distributed.
- Multicollinearity Test
  The results of the multicollinearity test can be seen in the Collinearity Statistics VIF column. Based on the VIF (Variance Inflation Factor) rule, if the VIF value exceeds 10, multicollinearity is stated to occur, conversely, if the VIF value is less than 10, multicollinearity is stated to not occur. The results shown in table 2 of the multicollinearity test results indicate that the VIF value has a value smaller than 10. X1 (1.116 < 10), X2 (2.117 < 10), and X3 (1.983 < 10) which means that the results of the regression model test indicate no symptoms of multicollinearity and all independent variables are suitable for use as predicators.

Table 1. Results of the one sample Kolmogorov-Smirnov test

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		32
Normal Parameters[a]	Mean	0.0000000
	Std. Deviation	2.06988433
Most Extreme Differences	Absolute	0.193
	Positive	0.193
	Negative	-0.108
Kolmogorov-Smirnov Z		1.094
Asymp. Sig. (2-tailed)		0.183
a. Test distribution is Normal.		

Table 2. Multicollinearity Test Results

Coefficients[a]			
Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	X1	0.896	1.116
	X2	0.472	2.117
	X3	0.504	1.983
a. Dependent Variable: Y			

- Heteroscedasticity Test

A good regression should not have heteroscedasticity. The method used is the Graphic Test method, heteroscedasticity does not occur if the points are spread above and below the number 0 on the Y axis. The results of the scatterplot image shown in Figure 4 show that the points do not form a pattern, and the points are spread above and below the number 0 on the Y axis so that heteroscedasticity does not occur.

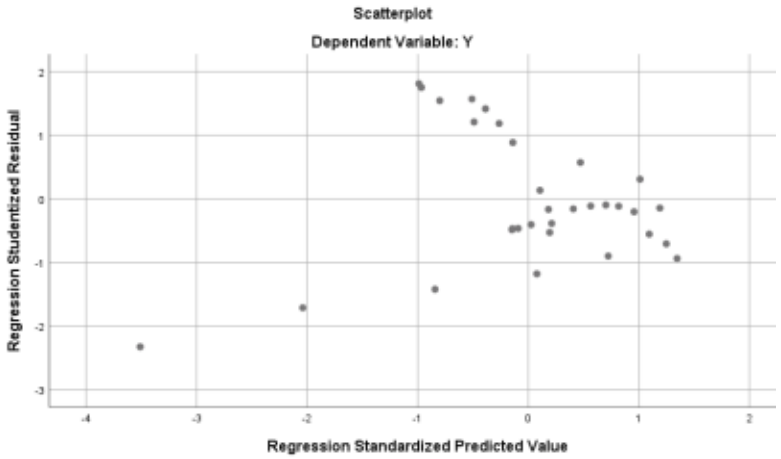

Figure 4. Results of Heteroscedasticity Test

B. Multiple Linear Regression

Based on the calculation analysis using SPSS 25.0, the multiple linear regression equation model obtained from this research is as follows:

Y = 25.469-4.023X1 -0.005X2 +0.001 X3+e

Table 3. Analysis of Multiple Linear Regression calculations

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	25.469	4.670		5.454	0.000
	X1	-4.023	0.000	-0.151	-1.130	0.268
	X2	-0.005	0.001	-0.970	-5.258	0.000
	X3	0.001	0.000	0.666	3.734	0.001
a. Dependent Variable: Y						

Therefore, from the multiple linear regression equation above, it can be explained that:

1. β0 is 25.469. The value of 25.469 means that if labor (X1), unemployment (X2), and poverty are assumed to be zero or constant, then economic growth (Y) will be 25.469.
2. β1 is -4.023. The value of -4.023 means that if labor increases, the economic growth rate will decrease by 4.023. This indicates that a 1% increase in the labor variable, with unemployment and poverty held constant, will result in a decrease in Tarakan City's economic growth rate of 4.023.
3. β2 is -0.005. The value of -0.005 means that if unemployment increases, the economic growth rate will decrease by 0.005. This indicates that a 1% increase in the unemployment variable, assuming

labor and poverty are constant, will result in a decrease in Tarakan City's economic growth rate of 0.005.

4. B3 is 0.001. A value of 0.001 means that if poverty increases, the economic growth rate will increase by 0.001. This means that if there is a 1% increase in the poverty variable, assuming the workforce and unemployment remain constant, the economic growth rate of Tarakan City will increase by 0.001.

Table 4. ANOVA Test Results

ANOVA[b]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	162.401	3	54.134	11.412	0.000[a]
	Residual	132.817	28	4.743		
	Total	295.218	31			
a. Predictors: (Constant), X_3, X_2,X_1						
b. Dependent Variable: Y						

C. Hypothesis Test Results

Partial hypothesis testing (t-test) yields the following findings (see table 3): (1) The labor force variable (X_1) has no significant effect on economic growth (sig. value 0.268 > 0.05); (2) The unemployment variable (X_2) has a negative and significant effect (sig. value 0.000 < 0.05); (3) The poverty variable (X_3) has a positive and significant effect (sig. value 0.001 < 0.05). Furthermore, the simultaneous test (F-test) (see table 4) yields a sig. value of 0.000 (< 0.05), which proves that the three variables together have a significant effect on economic growth. The coefficient of determination (R^2) value of 0.550 reveals that labor, unemployment, and poverty collectively explain 55% of the variation in Tarakan City's economic growth, while the remaining 45% is explained by other factors outside this research model.

5. Discussion

The analysis results indicate that the labor force has no significant partial effect on Tarakan City's economic growth. This finding is consistent with research by Gwijangge, Kawung, & Siwu (2018) in Papua Province and can be explained by Tarakan City's economic structure, which relies on the oil and gas sector, which is capital-intensive, rather than labor-intensive. In the oil and gas industry, output increases are determined more by technology, capital investment, and global commodity prices, rather than by increases in the workforce. Consequently, fluctuations in the labor force are not directly reflected in regional economic growth rates.

On the other hand, unemployment has been shown to have a negative and significant effect on economic growth. This finding aligns with the theory of Murni (2006) and the empirical findings of Pramesthi (2013) in Trenggalek Regency. High unemployment reduces people's purchasing power, which in turn suppresses aggregate demand and discourages businesses from investing. Furthermore, high unemployment also narrows the government's tax revenue base, limiting fiscal capacity to stimulate growth through infrastructure spending and economic stimulus. In the context of Tarakan, this decline in purchasing power is even more crucial given that the domestically oriented non-oil and gas sector is also affected.

The most interesting finding is the positive and significant influence of poverty on economic growth. While seemingly paradoxical, this finding is supported by a study by Prameswari et al. (2021) in East Java. One possible explanation is the natural resource-based nature of Tarakan's economy. Poverty may reflect high income inequality in areas with extractive industries, where the majority of economic income is concentrated among capital owners and skilled workers, while the rest of the population is left behind. However, high

revenues from the oil and gas sector still contribute to a significant GRDP figure, making poverty statistically appear to be positively correlated with growth. Furthermore, poverty can drive increased productivity in the formal sector through the availability of low-wage labor and trigger innovation in labor-saving technologies for efficiency, which in turn increases output while potentially exacerbating unemployment.

Simultaneously, the three variables were able to explain 55% of the variation in economic growth (R^2 = 0.550). This indicates that although the workforce is not individually significant, its presence together with unemployment and poverty provides a fairly strong explanatory contribution. The remaining 45% is explained by other factors outside the model, such as investment, inflation, exchange rates, developments in global oil and gas prices, and fiscal and monetary policies. This finding has important policy implications: efforts to stimulate growth in Tarakan are not sufficient by simply increasing the workforce, but must be accompanied by strategies to reduce unemployment through economic diversification into labor-intensive sectors (such as MSMEs, fisheries, and tourism) and inclusive poverty alleviation programs that can transform poverty from a factor "positively related to growth" to a group of people who truly contribute productively and benefit from development.

6. Conclusion

Based on the analysis, it can be concluded that Tarakan City's economic growth from 2013 to 2020 was influenced differently by the three variables studied. Partially, labor had no significant effect, while unemployment had a significant negative effect, and poverty had a significant positive effect. Simultaneously, labor, unemployment, and poverty variables together significantly influenced economic growth, contributing 55%. This finding confirms the structural characteristics of Tarakan's natural resource-based and capital-intensive economy, where growth is more influenced by investment and technology factors, and influenced by social dynamics such as unemployment and poverty, which have complex relationships with economic output.

This study has several limitations. First, the analysis only included three macroeconomic variables, leaving many other factors such as investment, inflation, international trade, and government policies unaccounted for. Second, the use of interpolated data from annual to quarterly, while increasing the number of observations, has the potential to introduce bias because it does not fully represent actual conditions per quarter. Third, the relatively short study period (8 years) and the inclusion of an unusual pandemic period (2020) may impact the stability of the relationship patterns between variables.

The policy implications of this study emphasize the importance of development strategies focused on job creation outside the oil and gas sector, particularly through the development of labor-intensive MSMEs and workforce skill development programs to meet the needs of diversified industries. Future research is recommended to expand the scope of variables to include factors such as direct investment, the human development index, and oil and gas commodity price developments. The use of more robust analytical methods, such as panel data regression with cross-city comparisons, or a qualitative approach to explore the mechanisms of the poverty-growth relationship, would also provide more comprehensive academic and policy contributions.

Acknowledgments

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