The effect of economic growth and labor force on unemployment

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Abstract

The aim of this study was to analyze the impact of economic growth and the labor force on unemployment in Langsa City, Indonesia. Employing a quantitative approach, the study utilized secondary data spanning a ten-year observation period from 2011 to 2020. The analytical method employed was multiple linear regression analysis conducted using EViews10 software. The findings of this study reveal that economic growth has an insignificant effect on unemployment in Langsa City. Conversely, the labor force demonstrates a significant impact on unemployment within the city. Furthermore, the results of the F-test indicate that both economic growth and the labor force collectively influence unemployment in Langsa City.

Keywords: labor; growth; unemployment

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1. Introduction

According to Sukirno (2019), the concept of unemployment revolves around individuals within the labor force actively seeking employment yet not being able to secure it. This notion is further elucidated by the Central Statistics Agency (2020), which defines unemployment as the condition where individuals either do not work at all or work for less than two days during the week preceding enumeration while actively pursuing job opportunities. Schumpeter's theoretical framework supplements this understanding by suggesting that as an economy progresses, the avenues for innovation become increasingly constrained (Sukirno, 2010). This perspective underscores the intricate relationship between economic advancement and employment dynamics.

Economic growth often serves as a yardstick for measuring the prosperity of a region, a sentiment echoed by Adam Smith's classical theory, which posits that rapid and substantial economic growth can mitigate unemployment by absorbing surplus labor (Sopianti & Ayuningsasi, 2011; Anggoro & Soesatyo, 2015). The symbiotic relationship between economic progress and employment opportunities is evident in the discourse surrounding Langsa City, one of the prominent urban centers in Aceh.

Langsa City, with its population of 185,622 residents, is a microcosm of regional development efforts. Comprising five sub-districts and 51 villages, the city spans an area of 262.41 km² (Central Statistics Agency, 2020). The developmental strides witnessed in Langsa City have translated into tangible benefits for its inhabitants, including augmented economic activities, improved infrastructure, enhanced welfare, and better access to basic necessities such as education and healthcare. However, despite these advancements, the city grapples with fluctuating unemployment rates, as evidenced by data from the Central Statistics Agency spanning the last decade.

The intricate interplay between economic growth and employment dynamics in Langsa City is underscored by the research of Putri & Hadi (2017), who have identified a direct correlation between economic growth trends and fluctuations in unemployment rates. Rohmah (2018) further elaborates on this nexus by asserting that economic growth serves as a barometer for gauging the overall developmental trajectory of a region. Qomariyah (2011) adds another layer to this discourse by positing that sustained economic growth is indicative of governmental efforts to enhance the welfare of the populace, thereby alleviating societal concerns.

However, the correlation between economic growth and employment is not always linear, as evidenced by the fluctuating economic growth trends observed in Langsa City over the past decade. While Adam Smith's classical theory underscores the potential of economic growth to mitigate unemployment, scholars such as Putri & Hadi (2017) and Nuraini (2017) emphasize the need for a holistic approach that combines economic growth with targeted employment generation strategies to elevate people's income levels and alleviate unemployment.

Encyclopaedia Britannica (2015) defines economic growth as the sustained increase in a nation's wealth over time, while Rapanna (2017) delves deeper into this concept by highlighting the decoupling of income growth from population growth. In the context of Langsa City, economic growth has exhibited year-on-year fluctuations,

with notable peaks and troughs reflecting the city's developmental trajectory. Lumi et al. (2021) emphasize the critical role of job creation in driving sustained economic growth, underscoring the need for concerted efforts to bolster employment opportunities.

The labor force, comprising both employed and unemployed individuals, plays a pivotal role in shaping the unemployment rate (Mankiw, 2018). Filiasari & Setawan (2021) shed light on the labor force participation rate as a key metric for assessing the economic activity of a region's working-age population. According to the Central Statistics Agency, the labor force encompasses individuals of working age who are either engaged in employment or actively seeking work. Unemployment in Langsa City can be attributed to shifts in the labor force dynamics and the limited availability of job opportunities (Mahroji & Nurkhasanah, 2019; Lumi et al., 2021). The fluctuating labor force percentage in Langsa City over the past decade, reaching its nadir in 2012 and zenith in 2017, underscores the nuanced interplay between labor market dynamics and unemployment rates (Central Statistics Agency, 2020).

A deeper analysis of unemployment figures offers insights into the challenges of integrating the local labor market with the national economy (Iloabuchi, 2019). The complex dynamics at play necessitate a multifaceted approach to address unemployment issues in Langsa City. The objectives of this study are threefold: (1) To examine the impact of economic growth on unemployment rates in Langsa City. (2) To assess the influence of the labor force on unemployment rates in Langsa City. (3) To analyze the combined effects of economic growth and the labor force on unemployment rates in Langsa City. Through a comprehensive understanding of these dynamics, policymakers can formulate targeted interventions to promote sustainable economic development and alleviate unemployment in Langsa City.

2. Method

The type of data source used in this study is quantitative, in the form of secondary data or time series data spanning the period from 2011 to 2020. Data on economic growth and the labor force were obtained from the Central Statistics Agency of Langsa City. The dependent variable in this study is the percentage of unemployed individuals from 2011 to 2020 in Langsa City. Meanwhile, there are two independent variables: economic growth, described in terms of constant price Gross Regional Domestic Product (PDRB) expressed as percentages for the years 2011 to 2020, and the labor force, which represents the number of individuals actively seeking employment in the Langsa City area during the same period, also expressed as percentages.

The analytical approach employed in this study is multiple linear regression analysis, specifically using Ordinary Least Squares (OLS) regression. The software tool EViews10 was utilized for analysis, including detecting deviations from classical assumptions. These deviations were assessed through various statistical tests, including tests for normality, multicollinearity, heteroscedasticity, and autocorrelation. According to Gujarati (2013), the multiple linear regression model can be represented in the following forms:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + e$$

This equation is then transformed for ease of interpretation into:

$$U = \alpha + \beta_1 EG + \beta_2 LF + e$$

where:

- U represents unemployment,
- α is the intercept,
- EG denotes Economic Growth,
- LF stands for Labor Force,
- β_1 and β_2 represent the regression coefficients,
- e signifies the error term.

3. Empirical Result

In the regression analysis investigating the influence of economic growth and the labor force on unemployment in Langsa City from 2011 to 2020, utilizing the time series multiple regression method the result could be seen in Table 1.

Table 1. Result of Linear Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	26.73741	5.703379	4.687994	0.0034
X1	-0.406850	0.220357	-1.846323	0.1144
X2	-0.262359	0.085472	-3.069536	0.0220
R-squared	0.632134	Mean dependent var		8.685556
Adjusted R-squared	0.509512	S.D. dependent var		1.552515
S.E. of regression	1.087302	Akaike info criterion		3.266477
Sum squared resid	7.093353	Schwarz criterion		3.332219
Log likelihood	-11.69915	Hannan-Quinn criter.		3.124607
F-statistic	5.155137	Durbin-Watson stat		2.446471
Prob(F-statistic)	0.049782			

Source: Research Data (Processed 2022)

1. The constant term, 26.73741, implies that if economic growth and the labor force remain constant, the unemployment rate in Langsa City would stabilize at 26.73741%.

2. The coefficient β_1, which is -0.406850, signifies that a one percent increase in economic growth (X_1) would result in a decrease in Langsa City's unemployment rate by 0.406850%, assuming the labor force remains unchanged.
3. Similarly, the coefficient β_2, which is -0.262359, suggests that a one percent increase in the labor force (X_2) would lead to a decrease in Langsa City's unemployment rate by 0.262359%, provided that economic growth remains constant.

Partial Significance Test (t Test):
The estimation result of the coefficient for economic growth (β_1) is -0.406850, with a significance level of 0.1144, which is greater than or equal to 0.05. This implies that economic growth does not have a statistically significant effect on unemployment in Langsa City. If economic growth were to increase by one percent, unemployment would increase significantly by 0.406850 percent. Conversely, a one percent decrease in economic growth would lead to a significant decrease in unemployment by the same percentage, assuming other factors remain constant.

Simultaneous Significance Test (F Test):
The F test yielded a result of 0.049782, which is less than or equal to 0.05. Thus, it can be concluded that both economic growth and the labor force significantly affect unemployment in Langsa City. This supports the acceptance of the hypothesis stating that economic growth and the labor force jointly influence unemployment in Langsa City. This finding aligns with the research conducted by Hardini (2017), which similarly demonstrated the combined impact of economic growth and the labor force on unemployment.

Coefficient of Determination Test (R2):
The coefficient of determination (R^2) in this study is 0.6321 or 63.21%, indicating that economic growth and the labor force collectively account for 63.21% of the variance in unemployment in Langsa City. The remaining 36.79% of the variance is attributed to other factors not included in the model.

Effect of Economic Growth on Unemployment:
The hypothesis stating that economic growth significantly affects unemployment in Langsa City is rejected, as the coefficient of economic growth (β_1) is -0.406850 with a significance level of 0.1144, which is greater than or equal to 0.05. Therefore, it can be concluded that economic growth has a negative and insignificant effect on unemployment in Langsa City. A one percent increase in economic growth would lead to an insignificant decrease in unemployment by 0.406850 percent, assuming other variables remain constant.

Economic growth is often considered a crucial indicator of an economy's performance, reflecting the outcomes of economic development efforts. However, the results of this study diverge from those of previous research by Taime and Djaelani (2021), Qomariyah (2011), Putri & Hadi (2017), Nurcholis (2014), Muslim (2014), and

Wajid & Kalim (2013), which found a significant relationship between economic growth and unemployment.

Effect of the Labor Force on Unemployment:
The hypothesis stating that the labor force significantly affects unemployment in Langsa City is accepted, as the coefficient of the labor force (β_2) is -0.262359 with a significance level of 0.0220, which is less than or equal to 0.05. Thus, it can be concluded that the labor force has a negative and significant effect on unemployment in Langsa City. A one percent decrease in the labor force would lead to an insignificant increase in unemployment by 0.262359 percent, assuming other variables remain constant.

The labor force represents an increase in the population, signaling a growth in the workforce. This increase may facilitate job acquisition for companies, leading to lower wages due to an oversupply of labor. These findings align with previous research by Nanavyan (2021), Filiasari & Setawan (2021), Anggoro & Soesatyo (2013), Ryan Z et al. (2017), and Engka (2019), which similarly identified a significant relationship between the labor force and unemployment.

However, the interpretation of the results from this regression analysis should be done cautiously, considering various limitations and potential biases inherent in the data and methodology employed. Additionally, further research exploring additional variables and employing different methodologies could provide a more comprehensive understanding of the relationship between economic growth, the labor force, and unemployment in Langsa City.

4. Conclusions

In conclusion, the regression analysis conducted to explore the relationship between economic growth, the labor force, and unemployment in Langsa City from 2011 to 2020 revealed nuanced insights into the dynamics shaping the city's employment landscape. While economic growth and the labor force play pivotal roles in influencing unemployment rates, the study uncovered complex interactions that warrant careful consideration.

The regression equation indicated that both economic growth and the labor force have significant coefficients, albeit with varying degrees of influence on unemployment. However, upon closer examination through partial significance tests, it was found that while the labor force had a statistically significant impact on unemployment, economic growth did not exhibit such significance. These results deviate from previous research findings and underscore the need for a deeper understanding of the contextual factors at play.

The simultaneous significance test corroborated the joint influence of economic growth and the labor force on unemployment, indicating that while economic growth alone may not be a significant predictor of unemployment, when considered alongside the labor force, it contributes to a more comprehensive understanding of the employment landscape in Langsa City.

Furthermore, the coefficient of determination (R2) highlighted that economic growth and the labor force collectively account for a substantial portion of the variance in unemployment rates. This underscores the multifaceted nature of unemployment, which is influenced by a myriad of factors beyond economic growth and the labor force.

Despite the significant findings regarding the labor force's impact on unemployment, caution must be exercised in interpreting these results. The study's limitations, such as data quality and the exclusion of other relevant variables, may have influenced the outcomes. Additionally, the static nature of the analysis, focusing solely on data from 2011 to 2020, may not capture long-term trends or cyclical fluctuations in the labor market.

In light of these findings, future research should adopt a more comprehensive approach, incorporating additional variables and employing dynamic modeling techniques to capture the evolving dynamics of the labor market. Moreover, policymakers in Langsa City should consider targeted interventions to address unemployment, focusing on strategies to enhance workforce participation, promote economic diversification, and foster sustainable economic growth.

Overall, while this study provides valuable insights into the relationship between economic growth, the labor force, and unemployment in Langsa City, further research is needed to fully elucidate the complex interplay of factors shaping the city's employment landscape and inform evidence-based policy decisions aimed at fostering inclusive and sustainable economic development.

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