

Econometric Analysis of the Economic Trilemma in Papua Province: Evidence from Growth, Inflation, and Unemployment Dynamics

*Analysis of the
Economic Trilemma
in Papua Province*

Yundy Hafizrianda

Universitas Cenderawasih; Papua, Indonesia

E-Mail: yundyhafizrianda@gmail.com

Charley M. Bisay

Universitas Cenderawasih; Papua, Indonesia

E-Mail: charleybisai@gmail.com

Ida Ayu Purba Riani

Universitas Cenderawasih; Papua, Indonesia

E-Mail: purbariani@feb.uncen.ac.id

Marsi Adi Purwadi

Universitas Cenderawasih; Papua, Indonesia

E-Mail: marsipurwadi@gmail.com

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ABSTRACT

Papua's economy illustrates the challenge of the Mundell-Fleming trilemma, where rapid growth led by extractive industries has not generated broad-based employment or stable prices. This study examines how the trilemma manifests at the Papua Province. Using monthly time-series data, econometric analysis was conducted through stationarity, classical assumptions, and regression tests. The results show an imperfect trilemma pattern. In the inflation model, economic growth significantly increases inflation, though with a small effect (0.0323), consistent with demand-pull theory. In the unemployment model, growth reduces unemployment as expected by Okun's Law, but the impact is minimal (-0.0056), indicating that growth remains weakly labor-intensive. More unexpectedly, inflation is found to increase unemployment (0.0229), contradicting the Phillips Curve, which predicts the opposite relationship. These findings suggest that Papua does not experience the classic trilemma trade-offs in a consistent manner. Policy implications include cautious monetary measures that consider threshold effects of growth, inflation, and unemployment, alongside fiscal strategies focused on productivity, infrastructure development, and strengthening labor-intensive sectors to achieve more inclusive growth.

Keywords: Economic Growth, Economic Trilemma, Inflation, Okun's Law, Phillips Curve, Time-Series Analysis, Unemployment.

ABSTRAK

Perekonomian Papua mencerminkan tantangan trilema Mundell-Fleming, di mana pertumbuhan cepat yang didorong sektor ekstraktif belum mampu menciptakan lapangan kerja yang luas maupun menjaga stabilitas harga. Penelitian ini bertujuan untuk menelaah bagaimana trilema tersebut muncul pada Provinsi Papua. Dengan menggunakan data time series, analisis ekonometrika dilakukan melalui uji stasioneritas, uji asumsi klasik, dan pengujian regresi. Hasil penelitian menunjukkan pola trilema yang tidak sempurna. Pada model inflasi, pertumbuhan ekonomi terbukti secara signifikan meningkatkan inflasi, meski dengan pengaruh kecil (0.0323), sejalan dengan teori demand-pull inflation. Pada model pengangguran, pertumbuhan menurunkan pengangguran sebagaimana dijelaskan oleh Hukum Okun, namun dampaknya sangat kecil (-0.0056), menandakan pertumbuhan belum sepenuhnya padat karya dan inklusif. Yang lebih

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mengejutkan, inflasi justru meningkatkan pengangguran (0.0229), bertentangan dengan Kurva Phillips yang memprediksi hubungan sebaliknya. Temuan ini menunjukkan bahwa Papua tidak mengalami pola trade-off trilema secara konsisten. Implikasi kebijakan yang muncul adalah perlunya kebijakan moneter yang hati-hati dengan mempertimbangkan ambang batas pertumbuhan, inflasi, dan pengangguran, serta strategi fiskal berbasis produktivitas melalui pembangunan infrastruktur dasar dan penguatan sektor padat karya untuk mewujudkan pertumbuhan yang lebih inklusif.

Kata kunci: *Pertumbuhan Ekonomi, Trilema Ekonomi, Inflasi, Hukum Okun, Kurva Phillips, Analisis Deret Waktu, Pengangguran.*

INTRODUCTION

The economic trilemma, or Mundell-Fleming trilemma, asserts that a country can achieve only two of three objectives: monetary policy independence, exchange rate stability, and perfect capital mobility (Fleming, 1962; Mundell, 1963). Papua's experience illustrates this challenge, as efforts to stimulate growth coexist with persistent inflation and unemployment. Monetary independence allows central banks to set interest rates and control money supply, exchange rate stability maintains a fixed currency value, and perfect capital mobility permits free international capital flows. Pursuing all three simultaneously can lead to instability. Critics have debated its modern relevance: Rey (2015) argued that global financial integration effectively reduces the trilemma to a "dilemma," forcing countries to choose between monetary autonomy or capital controls. Similarly, Tepetepe (2025) showed that in Zimbabwe, applying the trilemma increased dependence on global systems, undermined sovereignty, and triggered hyperinflation, highlighting its limits in fragile economies.

Despite criticism, the trilemma remains a vital theoretical foundation. Some studies have even expanded the concept of "quadrilemma" (Aizenman, 2013). The findings revealed that between 1975 and 2014, Fiji's monetary authorities prioritized independence and exchange rate stability at the expense of financial integration. From a quadrilemma perspective, however, attention shifted toward foreign reserve management and capital account openness, reflecting efforts to balance economic stability with access to global financial markets. Similarly, Perindustrian (2020) incorporated foreign reserves as the fourth dimension of an "economic quadrilemma," arguing that sufficient reserves may allow countries to temporarily achieve all three trilemma objectives simultaneously.

Empirical evidence shows that the trilemma's effects are highly context-specific. In Bulgaria, Hsing (2012) found that exchange rate stability and monetary independence supported GDP growth, while capital mobility had a negative impact, though none significantly affected inflation or output volatility. In Nigeria, Johnbosco (2019) observed that monetary autonomy and exchange rate stability benefited manufacturing, whereas capital mobility posed long-term risks. In Indonesia, Yunita et al. (2017) highlighted sharper trade-offs under a floating regime due to the "fear of floating." Zakaria et al. (2023) found that middle-income countries often prioritize monetary independence and financial integration over exchange rate stability. These results indicate that the trilemma's effectiveness depends on country-specific fundamentals and institutional capacity, requiring flexible, context-sensitive policies.

Critiques of the traditional trilemma have also spurred conceptual extensions into other fields. Iversen and Wren (1998) developed the "post-industrial trilemma," highlighting the trade-off between fiscal stability, wage equality, and job creation in service economies. Aizenman and Hiro (2020) proposed a "political-economy trilemma," analyzing the tensions between globalization, national sovereignty, and democracy, which manifest differently across advanced and developing nations. Lewis (2024) applied the trilemma logic to international relations, illustrating how economic openness paradoxically restricts national policy autonomy while requiring stronger multilateral

regulation. These developments enrich policy analysis in an increasingly complex global economy.

Modern economic thought seeks to extend the traditional Mundell-Fleming trilemma by including socio-political and institutional factors, offering more nuanced tools for policymaking, though challenges remain in testing these models across diverse contexts. Applying the trilemma to Papua Province highlights regional policy dilemmas. Data from Central Statistics Agency (2020–2023) show that in 2020, growth was 2.39% with low inflation (0.75%) and unemployment at 4.28%. By 2021, growth surged to 15.16%, unemployment fell to 3.33%, but inflation rose to 1.70%, reflecting emerging trade-offs. In 2022, high growth (8.97%) and low unemployment (2.83%) coincided with inflation spiking to 5.81%, signaling overheating. In 2023, inflation fell to 1.65% and unemployment to 2.67%, but growth slowed to 5.22%, likely due to tighter policies. These trends underscore that short-term simultaneous achievement of high growth, low unemployment, and price stability is unattainable.

Data from the Central Statistics Agency of Papua Province in 2024 and 2025 show that while Papua's extractive industries drive high growth in some years, unemployment remains persistently high, and inflation is exacerbated by global price shocks that local policies cannot fully offset. These trends highlight the need for holistic, evidence-based policies. This study examines the economic trilemma in Papua, applying a framework typically used at national or global levels, offering a novel regional perspective. Understanding how the trilemma manifests locally can guide policymakers in designing strategies to achieve sustainable, inclusive growth, maintain price stability, and reduce unemployment, providing practical recommendations tailored to Papua's unique economic conditions, while remaining sensitive to Papua's distinct characteristics.

LITERATURE REVIEW & HYPOTHESIS DEVELOPMENT

The Trade-Off Relationship between Economic Growth and Inflation

According to Samuelson and Solow (1960), expansionary fiscal or monetary policies can reduce unemployment in the short run, but often at the cost of higher inflation. This trade-off arises through increased aggregate demand: as the economy grows, firms hire more workers, but as unemployment nears the natural rate, wage and price pressures build, leading to demand-pull inflation (Blanchard, 2016). Excessive inflation can, in turn, harm economic growth by eroding purchasing power, increasing uncertainty, and discouraging long-term investment (Friedman, 1968). Nevertheless, moderate inflation may encourage consumption and investment, signaling healthy demand conditions (Mallik & Chowdhury, 2001). Rapid expansion, however, risks overheating when demand outpaces productive capacity, a challenge particularly for South Asian economies striving to balance growth and price stability.

Supply-side shocks can further complicate this relationship. Hamilton (1983) illustrated how the 1970s oil crisis caused stagflation, combining high inflation with stagnant growth. Similarly, Indonesia in 2022–2023 experienced rising inflation due to global energy prices, while growth slowed. Addressing such trade-offs requires carefully designed policies. Sargent (1982) showed that tight monetary measures raising interest rates and reducing deficits can restore price stability without undermining long-term growth. Taylor (1993) proposed the Taylor Rule, advising central banks to adjust interest rates according to inflation and the output gap, a framework adopted by institutions like the Federal Reserve and European Central Bank (Blanchard, 2016).

The growth–inflation relationship is dynamic. Short-term trade-offs exist, but long-term sustainable growth depends on productivity and structural reforms. Well-calibrated monetary and fiscal policies are essential to balance growth and inflation, tailored to specific economic conditions. IMF case studies in 2023 show that high-inflation countries face more volatile growth, whereas nations with stable inflation, such as Germany post-2000 reforms, achieve more sustainable expansion (Divergences, 2023).

H1: Economic growth has a significant effect on inflation.

The Trade-Off Relationship between Economic Growth and Unemployment

The relationship between economic growth and unemployment is dynamic and complex, with significant differences between the short and long run. Okun's Law (1963) provides empirical evidence of a negative correlation between output growth and unemployment. However, Gordon (1975) cautioned that economic growth does not always generate sufficient employment, a phenomenon often referred to as "jobless growth". Similarly, Blanchard (2006) demonstrated that structural rigidities in labor markets can impede reductions in unemployment, even in the presence of positive growth.

On the other hand, high unemployment can adversely affect long-term economic growth. Pissarides (2000), in his equilibrium unemployment theory, argued that structural unemployment reduces productivity through skill mismatches. Likewise, endogenous growth models (Aghion et al., 1998) suggest that prolonged unemployment hinders innovation and the accumulation of human capital. Empirical evidence from Nickell et al. (2005) across OECD countries found that a 1% increase in unemployment could lower potential output by 0.5–0.7% over a five-year period.

In Indonesia, economic growth has not always translated into proportional job creation, particularly in capital-intensive sectors like mining and oil extraction. In Papua, for example, although mining has a large contribution to regional GDP, employment remains limited, as indicated by the open unemployment rate of 6.92% in February 2025. This indicates that growth alone cannot reduce unemployment without inclusive, labour-intensive, and skill-based policies. Government action is vital; investment in human capital, skills training, and productivity-linked wage policies can promote sustainable job creation. Ultimately, long-term employment gains depend on the quality of growth and supportive labor market policies.

H2: Economic growth has a significant effect on unemployment.

The Trade-Off Relationship between Inflation and Unemployment

The relationship between inflation and unemployment was first identified by A.W. Phillips, who found a negative link between unemployment and nominal wage growth in the U.K. from 1861 to 1957, forming the Phillips Curve (Phillips, 1958). Samuelson and Solow (1960) extended this to price levels, proposing a short-run trade-off between inflation and unemployment, influencing Keynesian policy that favored using fiscal and monetary expansion to reduce joblessness despite higher inflation. In the short run, higher aggregate demand boosts output and employment but raises prices (Blanchard, 2016). However, Phelps (1967) and Friedman (1968) argued that attempts to push unemployment below its natural rate only trigger accelerating inflation. The 1970s stagflation, high inflation with high unemployment, revealed the Phillips Curve's limitations.

Lucas (1972) introduced the rational expectations hypothesis, showing that predictable policies lose effectiveness as agents adjust their behavior. Blinder (2013) emphasized the role of supply shocks, such as oil crises, in driving stagflation. Since the 1990s, central banks have adopted inflation targeting to anchor expectations through transparent communication and rule-based policy (Taylor, 1993; Posen et al., 1998). Recent studies, including Ball and Mazumder (2021), note a "flattening" of the Phillips Curve, where inflation responds less to unemployment. This weaker relationship is attributed to structural changes such as globalization, technological progress, and better-anchored inflation expectations.

H3: Inflation has a significant effect on unemployment.

The Concept of the Economic Trilemma

In the context of macroeconomics, the theory of the economic trilemma, commonly referred to as the "impossible trinity," illustrates the inherent difficulty for a country to

simultaneously achieve three policy objectives: independent monetary policy, exchange rate stability, and free capital mobility (Fleming, 1962; Mundell, 1963). This concept can also be extended to explain the trade-offs among three key macroeconomic variables: economic growth, inflation, and unemployment. These variables are closely interconnected, as discussed in the preceding sections, and attempts to optimize one variable often come at the expense of the others. This interdependence creates a trilemma in the formulation of economic policy. In practice, efforts to stimulate economic growth may reduce unemployment but increase inflation, while strict inflation control may stabilize prices at the cost of slower growth and higher unemployment. Similarly, policies aimed at reducing unemployment may also generate inflationary pressures. These trade-offs highlight the complexity of balancing macroeconomic objectives within the trilemma framework. The dynamics of this relationship can be illustrated through the following figure and accompanying explanation.

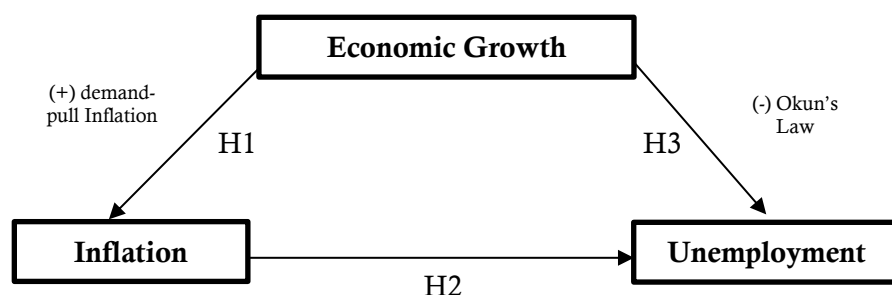


Figure 1. The Economic Trilemma in Economic Growth, Inflation, and Unemployment

Figure 1 shows that economic policy involves inherent trade-offs among growth, inflation, and unemployment, forming an economic “trilemma.” High economic growth, often driven by rising aggregate demand, can trigger demand-pull inflation if supply cannot keep pace, prompting central banks to raise interest rates to stabilize prices, though this may slow growth or risk recession (Mallik & Chowdhury, 2001; Blanchard, 2016). Growth generally reduces unemployment, as described by Okun’s Law (Okun, 1963), but unsustainable or uneven growth can create bubbles, leaving labor markets vulnerable when crises occur. Similarly, the Phillips Curve illustrates those policies boosting employment may stoke inflation, while measures to curb inflation can raise unemployment (Phillips, 1958). Policymakers must balance these competing objectives, recognizing that achieving high growth, low inflation, and low unemployment simultaneously is rarely possible and requires careful, context-specific strategies.

RESEARCH METHODS

To examine the existence of the Economic Trilemma in the relationship between economic growth, inflation, and unemployment in Papua Province, this study employs monthly time series data covering the period from January 2019 to December 2023. Inflation data were obtained directly from the Central Statistics Agency of Papua Province. The inflation data are provided on a monthly basis, while the economic growth data are reported quarterly. Additionally, unemployment data, which are published annually, were transformed into monthly data using interpolation techniques to ensure consistency across time series.

Once all variables were converted into a monthly format, a series of econometric tests was conducted to analyze their interrelationships. The first step involved a stationarity test using the Augmented Dickey-Fuller (ADF) method to determine whether the data contained a unit root, which would indicate non-stationarity. This test is crucial, as non-stationary time series may lead to spurious regression results. If the data proved non-stationary at the level, differencing was applied until stationarity was achieved.

Subsequently, the study performed classical assumption tests to ensure that the regression model met the requirements of Ordinary Least Squares (OLS). Four diagnostic tools were employed: (1) the Jarque-Bera test for normality to verify whether the residuals followed a normal distribution, (2) the Breusch-Pagan test for Heteroscedasticity to detect unequal variances of the residuals, (3) the Variance Inflation Factor (VIF) to test for multicollinearity and ensure the absence of high correlations among independent variables, and (4) the Breusch-Godfrey test for autocorrelation to examine residual correlation across time periods. After the model satisfied the classical assumptions, partial tests (t-test) were conducted to evaluate the significance of each independent variable on the dependent variable, while simultaneous tests (F-test) were applied to assess the overall fit of the model. In line with the theoretical framework of the economic trilemma tested in this study, the following is specified:

$$\begin{aligned} \text{Inflation Model} & : \text{INFLM} = a_0 + a_1 \text{GWRM} + e_1 \\ \text{Unemployment Model} & : \text{TPTM} = b_0 + b_1 \text{GWRM} + b_2 \text{INFLM} + e_2 \end{aligned}$$

Information

- INFLM : inflation rate, expressed in percentage
- GWRM : economic growth rate, expressed in percentage
- TPTM : unemployment rate, expressed in percentage
- A1, b1 : constant coefficients
- E1 : random error term

Based on economic theory, this study formulates three hypotheses: H1 states that $a_1 > 0$, H2 states that $b_1 < 0$, and H3 states that $b_2 < 0$. Suppose all three hypotheses are accepted as statistically significant at the 10 percent significance level ($\alpha = 0.10$). In that case, it can be concluded that the phenomenon of the economic trilemma in the relationship between economic growth, inflation, and unemployment has occurred in Papua Province. If one of the hypotheses is rejected, it indicates that the economic trilemma occurs only partially. Conversely, if all hypotheses are rejected, it shows that the economic trilemma has not occurred in Papua Province during the study period.

RESULTS

The relationship between economic growth and inflation can be explained through the demand-pull inflation mechanism. This mechanism illustrates that higher economic growth is typically followed by rising inflation as a result of increasing demand, while slower growth tends to suppress inflation due to weakening demand. However, in Papua Province, this relationship does not always appear consistent and is influenced by various external factors as well as government policies.

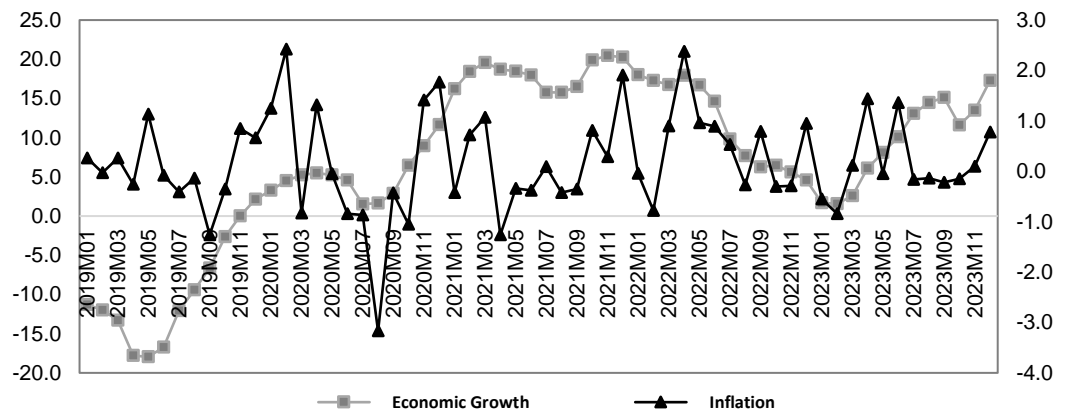


Figure 2. Economic Growth and Inflation in Papua Province from January 2019 to December 2023

Figure 2 shows that Papua Province experienced a sharp economic contraction in early 2019, with growth as low as -17.96% in May and inflation near or below zero (-1.26% in September), reflecting the classical trade-off where weak growth suppresses inflation. From late 2019 to 2021, growth surged, peaking at 20.46% in November 2021, while inflation remained moderate ($0.5\text{--}2\%$), suggesting that high growth did not automatically trigger higher prices, likely due to sufficient supply or tight monetary policy. In 2022, growth slowed to 4.59% by December, but inflation stayed moderate (2.38% in April), and in 2023, growth rose again to 17.27% while inflation remained low (-0.84% in February). These patterns indicate that the trade-off between growth and inflation is inconsistent, influenced by supply conditions, government policies, and external factors. Meanwhile, the relationship between growth and unemployment aligns with Okun's Law: higher growth reduces unemployment, while slower or negative growth increases it.

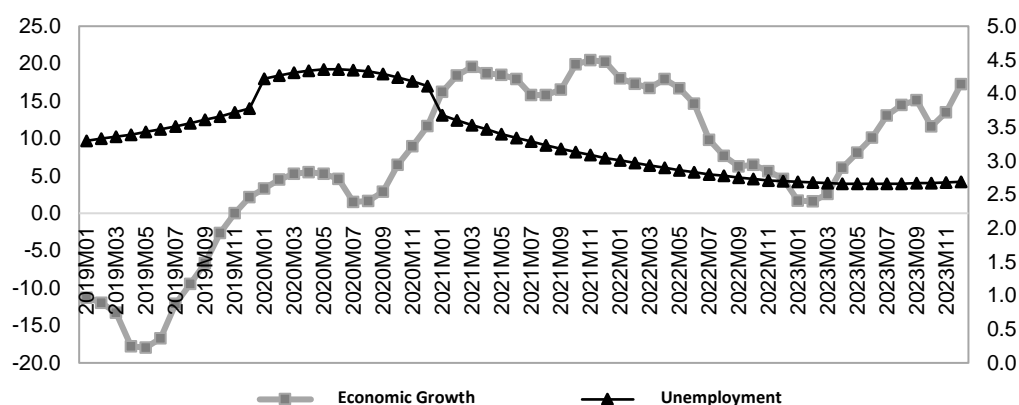


Figure 3. Economic Growth and Unemployment in Papua Province from January 2019 to December 2023

Figure 3 shows that during Papua's 2019 economic contraction, unemployment rose from 3.30% in January to 3.78% in December, reflecting fewer job opportunities in a shrinking economy. From 2020 to 2021, as growth recovered and surged, unemployment fell sharply from 4.22% to 3.04% , illustrating the typical trade-off where higher growth reduces unemployment. However, in early 2020, unemployment rose despite positive growth, likely due to a lag in labor market effects, and by late 2023, unemployment stagnated around $2.66\text{--}2.69\%$ despite high growth, suggesting proximity to the natural rate. The growth–unemployment trade-off is evident but not always linear, influenced by structural and policy factors. Similarly, the short-run inflation–unemployment trade-off described by the Phillips Curve is subject to external shocks and interventions.



Picture 4. Inflation and Unemployment in Papua Province from January 2019 to December 2023

Figure 4 shows that Papua Province experienced a trade-off between inflation and unemployment at certain times from January 2019 to December 2023, though not consistently. In early 2019, declining inflation (0.26% to -0.03%) coincided with rising unemployment (3.30% to 3.33%), and in March to April 2020, deflation (-0.83%) matched an increase in unemployment (4.31% to 4.34%). Deviations occurred due to external shocks like COVID-19; for example, in August 2020, sharp deflation (-3.17%) occurred alongside a small drop in unemployment, likely due to fiscal stimulus, and in February 2020, high inflation (2.42%) coincided with rising unemployment. The trade-off is evident outside crisis periods, while post-2021 trends show declining unemployment with stable inflation, reflecting effective monetary and fiscal policies.

In analyzing the economic trilemma involving economic growth, inflation, and unemployment, the stationarity test is a critical step to ensure the validity of the results. This necessity arises from the inherent characteristics of time-series data, which often contain trends, seasonality, or structural breaks that may violate the basic assumptions of econometrics. By employing the Augmented Dickey-Fuller (ADF) Test, it can be determined whether the data need to be transformed from level form into differenced form in order to achieve stationarity.

Table 1. Stationary Test for Unemployment Rate Variable

Type	Test	Value
Before Transformation	Augmented Dickey-Fuller test statistic	-2.310885
	Prob.	0.1705
	Test critical values at 1% level	-3.493747
	Test critical values at 5% level	-2.889200
	Test critical values at 10% level	-2.581596
After Transformation	Augmented Dickey-Fuller test statistic	-4.780883
	Prob.	0.0001
	Test critical values at 1% level	-3.493747
	Test critical values at 5% level	-2.889200
	Test critical values at 10% level	-2.581596

Table 1 shows that since the ADF t-statistic is greater than all the critical values, or the p-value of $0.1705 > 0.05$, the null hypothesis stating that the series contains a unit root (non-stationary) fails to be rejected. Therefore, it can be concluded that the unemployment rate variable (TPTM) is non-stationary at its original level form. The implication of this result is that the data need to be transformed, or differenced, to achieve stationarity before being applied in time-series analysis. Accordingly, the next stationarity test is conducted using the differenced data. After transformation, the test results show that the ADF test statistic of -4.7809 is smaller than the critical values at all significance levels, with a p-value of $0.0001 < 0.05$. Thus, the null hypothesis (H_0) is rejected. This confirms that the differenced unemployment rate data (D(TPTM)) no longer contains a unit root and has achieved stationarity after the first differencing. Therefore, the differencing transformation successfully resolved the non-stationarity problem in the unemployment rate data, and the D(TPTM) series now meets the requirements for more advanced time-series analysis.

Table 2. Stationary Test for Economic Growth and Inflation Rate

Variable	Test	Value
Economic Growth	Augmented Dickey-Fuller test statistic	-3.211627
	Prob.	0.0222
	Test critical values at 1% level	-3.497029
	Test critical values at 5% level	-2.890623
	Test critical values at 10% level	-2.582353
Inflation Rate	Augmented Dickey-Fuller test statistic	-9.774944
	Prob.	0.0000
	Test critical values at 1% level	-3.492523
	Test critical values at 5% level	-2.888669
	Test critical values at 10% level	-2.581313

Based on Table 2, the ADF test statistic is used to assess the stationarity of the economic growth variable (GRWM). The results show that the ADF test statistic of -3.2116 is smaller than the critical value at the 5% significance level, with a p-value of $0.0222 < 0.05$. Therefore, the null hypothesis (H_0) is rejected. This confirms that the GRWM data do not contain a unit root and have achieved stationarity at the level form. Hence, the GRWM variable at the level already satisfies the stationarity requirement for subsequent time-series analysis. The Augmented Dickey-Fuller (ADF) test for the inflation rate shows that the ADF test statistic of -9.7749 is smaller than the critical values at all significance levels, with a p-value of $0.0000 < 0.05$. Therefore, the null hypothesis (H_0) is rejected. This indicates that the INFLM variable does not contain a unit root and has achieved stationarity at the level form. Accordingly, the INFLM variable at the level satisfies the stationarity requirement for subsequent time-series analysis.

Table 3. Classical Assumption Test on the Unemployment Rate Model

Classical Assumption Test	Test	Value	
Normality Test	Mean	1.36e-16	
	Median	-0.042988	
	Maximum	0.960580	
	Minimum	-0.859986	
	Std Dev	0.584520	
	Skewness	0.261574	
	Kurtosis	1.742151	
	Jarque-Bera	4.175705	
	Probability	0.123953	
Multicollinearity Test	Centered VIF	C	NA
		INFLM	1.069277
		GRWM	1.069277
	Uncentered VIF	C	2.435910
		INFLM	1.1017
		GRWM	2.5856
Autocorrelation Test (Breusch-Godfrey Serial Correlation LM Test)	F-statistic	2.146180	
	ObsR-squared	4.349356	
	Prob. F(2,49)	0.1278	
	Prob. Chi-Square(2)	0.1136	
Heteroscedasticity Test (Breusch-Pagan-Godfrey)	F-statistic	0.125691	
	ObsR-squared	0.264864	
	Scaled explained SS	2.139136	
	Prob. F (2,51)	0.8822	
	Prob. Chi-Square (2)	0.8760	
	Prob. Chi-Square (2)	0.3432	

Based on Table 3, the normality of the unemployment rate equation residuals was tested using the Jarque-Bera test. Based on 54 observations, the residuals have a mean near zero (1.36e-16), a median of -0.0429, and a standard deviation of 0.5845, with minimum and maximum values of -0.8599 and 0.9606. Skewness (0.2616) indicates a slight rightward tilt, and kurtosis (1.7422) suggests a flatter distribution than normal, but both are acceptable. The Jarque-Bera statistic (4.1758) with $p = 0.1239$ exceeds 0.05, so the null hypothesis of normality is not rejected, confirming that residuals meet the normality assumption and supporting reliable regression inference.

The multicollinearity test using the Variance Inflation Factor (VIF) was conducted for the independent variables INFLM (inflation) and GRWM (economic growth), and the constant. INFLM has Uncentered VIF 1.1017 and Centered VIF 1.0693, while GRWM has Uncentered VIF 2.5856 and Centered VIF 1.0693. All values are well below the critical threshold of 10, indicating no significant multicollinearity. The low VIFs, especially the Centered values near 1, confirm that the independent variables are largely uncorrelated, ensuring reliable regression coefficients. The Breusch-Godfrey test shows no autocorrelation in the model ($F = 2.1462$, $p = 0.1278$; $\text{ObsR}^2 = 4.3494$, $p = 0.1136$),

while the Breusch-Pagan-Godfrey test confirms homoskedasticity ($F = 0.1257$, $p = 0.8822$; $\text{ObsR}^2 = 0.2649$, $p = 0.8760$; Scaled explained SS = 2.1391, $p = 0.3432$). These results indicate that the model meets the assumptions of no autocorrelation and constant residual variance, ensuring reliable and valid regression estimates.

Table 4. Classical Assumption Tests on the Inflation Model

Classical Assumption Test	Test	Value
Normality Test	Mean	4.83e-17
	Median	-0.193974
	Maximum	2.403642
	Minimum	-3.094406
	Std Dev	0.977106
	Skewness	-0.077484
	Kurtosis	3.829045
	Jarque-Bera	1.600493
	Probability	0.449218
Autocorrelation Test (Breusch-Godfrey Serial Correlation LM Test)	F-statistic	0.696452
	ObsR-squared	1.463564
	Prob. F (2,50)	0.5031
	Prob. Chi-Square (2)	0.4811
Heteroscedasticity Test (Breusch-Pagan-Godfrey)	F-statistic	0.205157
	ObsR-squared	0.212211
	Scaled explained SS	0.278353
	Prob. F (1,52)	0.6525
	Prob. Chi-Square (1)	0.6450
	Prob. Chi-Square (1)	0.5978

Based on Table 4, the Jarque-Bera test was applied to the inflation model residuals (54 observations). The residuals have a mean near zero (4.83e-17), median -0.1939, standard deviation 0.9771, and range -3.0944 to 2.4036. Skewness (-0.0775) and kurtosis (3.8290) indicate a nearly symmetric and slightly peaked distribution. The Jarque-Bera statistic (1.6005, $p = 0.4492$) exceeds 0.05, so the null hypothesis of normality is not rejected, confirming that residuals meet the normality assumption and supporting reliable regression inference. The Breusch-Godfrey test shows no autocorrelation in the inflation model ($F = 0.6964$, $p = 0.5031$; $\text{ObsR}^2 = 1.4636$, $p = 0.4811$). The Breusch-Pagan-Godfrey test confirms homoskedasticity ($F = 0.2052$, $p = 0.6525$; $\text{ObsR}^2 = 0.2122$; Scaled explained SS = 0.2784). These results indicate that the model meets the assumptions of no autocorrelation and constant residual variance, ensuring reliable regression estimates.

Table 5. Regression Model Test Results for Inflation Rate

Variable	Coefficient	Std. Error	T-Statistic	Prob
C	-0.129152	0.208747	-0.618701	0.5388
GRWM	0.032264	0.016999	1.897995	0.0633
	R-squared		0.064788	
	Adjusted R-squared		0.046803	
	S.E. of regression		0.986457	
	Sum squared resid		50.60105	
	Log likelihood		-74.86736	
	F-statistic		3.602386	
	Prob(F-statistic)		0.063254	

Table 5 presents the results of the regression examining the effect of economic growth (GRWM) on inflation (INFLM) in Papua Province. The coefficient for GRWM is 0.0323 with a p-value of 0.0633, indicating that economic growth positively and significantly influences inflation at the 10% level, though the impact is relatively small, each 1% increase in growth raises inflation by only 0.032%. The constant term ($\beta_0 = -0.1292$, $p = 0.5388$) is not statistically significant, suggesting that without economic growth, inflation is not significantly different from zero. The F-test ($p = 0.0633$) confirms that the model is significant in explaining variations in the inflation rate, supporting the conclusion that economic growth plays a measurable, albeit modest, role in driving inflation in Papua.

The R-squared value of 0.0648 reveals that only 6.48% of the variation in inflation can be explained by economic growth. The lower Adjusted R-squared (0.0468) underscores the model's limitations in accurately predicting inflation. In other words, most of the variation in inflation (93.52%) is influenced by factors outside the model. Based on these results, it can be concluded that economic growth has a positive and significant effect on inflation at the 90% confidence level. Although the effect appears weak, the model test results demonstrate the presence of a trade-off between economic growth and inflation in Papua Province.

Table 6. Regression Model Test Results for Unemployment Rate

Variable	Coefficient	Std. Error	T-Statistic	Prob
C	0.034506	0.017466	1.975626	0.0536
INFLM	0.022876	0.011561	1.978788	0.0533
GRWM	-0.005629	0.001465	-3.841474	0.0003
R-squared			0.236851	
Adjusted R-squared			0.206923	
S.E. of regression			0.082235	
Sum squared resid			0.344893	
Log likelihood			59.82199	
F-statistic			7.914167	
Prob(F-statistic)			0.001015	

According to Table 6, this regression model examines the influence of inflation (INFLM) and economic growth (GRWM) on the unemployment rate (TPTM) using monthly data from July 2019 to December 2023. The estimation results show that the model constant is 0.034506, significant at the 90% confidence level with a p-value of 0.0536, indicating a baseline unemployment rate when both independent variables are zero. The inflation variable (INFLM) has a positive coefficient of 0.022876 with a p-value of 0.0533, significant at $\alpha = 0.10$. This suggests that a 1% increase in the inflation rate raises unemployment by approximately 0.023%, although the effect is relatively small. On the other hand, economic growth (GRWM) shows a negative coefficient of -0.0056 with a highly significant p-value of 0.0003. This confirms economic theory that higher economic growth correlates with lower unemployment, with every 1% increase in economic growth reducing unemployment by 0.0056%.

The partial (t-test) results indicate that both inflation (INFLM) and economic growth (GRWM) significantly influence unemployment, with GRWM highly significant at the 1% level and INFLM significant at 10%. Interestingly, the coefficient for inflation is positive, contrary to the initial hypothesis that it would reduce unemployment, while economic growth behaves as expected, reducing unemployment. The F-test ($p = 0.0010$) confirms that both variables jointly explain unemployment variations. The model accounts for 23.69% of the variation in unemployment ($R^2 = 0.2369$; adjusted $R^2 = 0.2069$), with a standard error of 0.0822, indicating reasonably precise and reliable estimates.

DISCUSSION

Based on the research findings, the econometric tests indicate that the Economic Trilemma phenomenon in Papua shows a unique pattern that does not fully align with conventional economic theory. Economic growth in Papua has a relatively minor effect on inflation, suggesting that the government can implement growth-stimulating policies without worrying excessively about significant inflationary pressures. However, this growth has very limited impact on reducing unemployment. Indicating that the growth observed has not been labor-intensive or capable of generating sufficient employment, especially as it is dominated by the extractive sector, such as mining, which absorbs less labor compared to other sectors like agriculture or MSMEs (Mosusu et al., 2023).

A more surprising finding is the positive relationship between inflation and unemployment in Papua, contrary to the Phillips Curve theory, which predicts a negative

short-term trade-off between these variables. In Indonesia, especially Papua higher inflation contributes to increased unemployment, likely through reduced purchasing power (Sasongko & Huruta, 2019). As prices rise, household consumption declines, lowering demand for goods and services. Consequently, businesses, particularly MSMEs the backbone of the local economy, reduce labor as an adjustment to declining demand (Kurniadi et al., 2024).

Therefore, the Economic Trilemma in Papua does not fully follow conventional theory, particularly because the expected trade-off between inflation and unemployment shows the opposite direction. In classical economic theory, inflation and unemployment should be negatively related (Phillips, 1958). However, empirical evidence in Papua shows a positive sign. As a result, the Economic Trilemma phenomenon in Papua concerning the interaction of economic growth, inflation, and unemployment occurs imperfectly. Although the Economic Trilemma in Papua does not entirely conform to theory, these findings provide important insights for provincial policymakers. It reveals that efforts to stimulate economic growth to reduce unemployment will simultaneously increase inflation, which in turn may worsen unemployment. In other words, there is a conflicting dual effect of economic growth on unemployment: directly reducing unemployment while indirectly increasing it through rising inflation. This creates a complex policy dilemma, requiring the government to balance promoting growth, controlling inflation, and reducing unemployment simultaneously.

A holistic, context-sensitive policy approach is needed in Papua due to its unique economic structure and unconventional macroeconomic dynamics. Fiscal and monetary policies should be locally tailored to reduce unemployment and stabilize the economy (Silalahi & Walsh, 2023). Targeted employment strategies, including labor training, incentives for labor-intensive sectors, and accessible labor market information, are essential to enhance job opportunities. Measures to maintain price stability, such as improved logistics, distribution, local food reserves, and targeted subsidies, can mitigate inflation. Infrastructure development and local empowerment, alongside promotion of key sectors like tourism, agriculture, and the creative industry, are vital for sustainable growth (Purnomo & Purwandari, 2025). National policies must account for regional diversity through training programs, education reforms, and balanced fiscal and monetary measures. Effective coordination between central and regional governments, coupled with robust monitoring, is necessary to ensure that policies are relevant, well-implemented, and adaptable to local conditions.

The policy implications of this study emphasize that a single approach is insufficient. A combination of economic growth stimulus, targeted training programs, price stabilization measures, and adaptive policies is required to address the unique challenges of each region (Harsono et al., 2024; Efendi et al., 2025). This integrated approach enables the government to more effectively create jobs, reduce unemployment, and maintain economic stability, particularly in areas like Papua that require special attention. Ultimately, it can be concluded that the solution to Papua's economic trilemma lies in the ability to design policies that simultaneously address all three dimensions through an integrated, contextual, and evidence-based approach. Inclusive structural transformation, adaptive price stabilization, and the creation of quality employment must advance hand in hand. Success should not be measured solely by growth figures but, more importantly, by the ability to establish a sustainable development model that respects Papua's uniqueness while delivering progress for its entire population.

CONCLUSION

This study examines the phenomenon of the economic trilemma, namely, the interaction and trade-offs between economic growth, inflation, and unemployment in Papua Province. Using econometric tools, including stationarity tests, classical assumption tests, and regression model analysis, the study finds that these three variables are interrelated, but their relationships do not fully align with conventional economic theory. Economic growth was found to have a positive effect on inflation, albeit relatively

small. On the other hand, economic growth negatively impacts unemployment, but the effect is limited, indicating that the growth experienced has not yet sufficiently generated employment.

The most striking finding is the positive relationship between inflation and unemployment, which contradicts the classical Phillips Curve theory. According to theory, high inflation is typically associated with low unemployment in the short term; however, in Papua, inflation correlates with rising unemployment. This is attributed to the mechanism of reduced purchasing power due to price increases, which ultimately lowers demand and forces businesses, especially MSMEs, which are the backbone of the local economy, to reduce their workforce.

This inconsistency indicates that the economic trilemma in Papua functions imperfectly. The expected trade-off between inflation and unemployment instead moves in the same direction, creating a policy dilemma for the government. Therefore, monetary and fiscal policies must be carefully aligned to balance growth, inflation, and employment without adverse side effects. This study contributes to economic literature by highlighting the regional trilemma in a rarely examined area like Papua. Inclusive structural transformation, price stability, and sustainable job creation are essential for effective policy design, enabling the government to pursue balanced and resilient economic development. However, this study has several limitations. It relies on provincial-level secondary data, which may not capture sectoral or microeconomic dynamics in Papua, and the limited time series reduces the ability to identify long-term causal effects. Future research should employ more detailed district-level or sectoral data, apply dynamic or panel models, and integrate qualitative approaches to better explain the structural and institutional factors shaping Papua's unique economic conditions.

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