

THE INFLUENCE OF OPEN UNEMPLOYMENT AND INFLATION ON THE GROWTH OF THE MIDDLE-CLASS POPULATION IN INDONESIA

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Abstract

This study aims to analyze the influence of open unemployment and inflation on the growth of the middle-class population in Indonesia. This relationship is crucial as it can significantly impact a country's overall economic conditions. The variables observed include the middle-class population, open unemployment, and inflation. The data used are time series data spanning from 1994 to 2023. The analytical methods employed consist of data stationarity tests, Johansen cointegration tests, the Vector Error Correction Model (VECM), Impulse Response Function (IRF), and Variance Decomposition. The results indicate that, in the long term, open unemployment and inflation have a significant impact on the growth of the middle-class population in Indonesia. Inflation has a negative effect, suggesting that rising inflation can hinder middle-class growth due to a decline in purchasing power and economic welfare. Conversely, open unemployment exerts a positive influence, which may reflect structural dynamics in the labor market and changes in income patterns within society. However, in the short term, neither inflation nor open unemployment has a significant impact on the growth of the middle-class population. The equilibrium adjustment analysis reveals that inflation plays a critical role in correcting deviations toward long-term equilibrium, whereas open unemployment does not significantly contribute to this process. This study underscores the importance of controlling inflation and creating quality employment opportunities to support the growth of the middle class in Indonesia.

Keywords: Open Unemployment, Inflation, Middle-Class Population

1. Introduction

Recently, the issue of the middle class has become a widely discussed topic, not only in Indonesia but also globally. The middle class plays a crucial role in economic growth, socio-economic stability, improved welfare, poverty reduction, and more (Hermawan, 2020). The middle class comprises individuals with similar income levels but diverse social, educational, and professional backgrounds. Some enjoy wealth and stable employment, while others face job insecurity and limited savings. This indicates that, despite belonging to the same category, individuals experience vastly different challenges and circumstances (Atkinson & Brandolini, 2014).

Between 2018 and 2023, the growth of the middle class in Indonesia experienced setbacks, with an increasing proportion of the population shifting to the vulnerable class. This reflects a transition of individuals from the middle class to the aspiring middle class or even into the vulnerable category.



Figure 1. Proportion of Population by Socioeconomic Class in Indonesia (2014–2023)

The image above illustrates the changes in the proportion of economic classes in Indonesia from 2014 to 2023, highlighting a significant decline in the middle class, particularly between 2018 and 2023. The shrinking middle class reflects challenges faced by individuals due to uncertain economic conditions, such as the effects of unemployment and inflation, raising concerns about economic and social stability. The negative impact of unemployment includes reduced household income, ultimately lowering individual welfare levels (Nova Rianda, 2020). Unemployment can erode or diminish individual skills while also triggering economic and political instability (Nishat Faisal et al., 2007). When job opportunities decline, efforts to improve welfare and purchasing power become increasingly difficult, thus slowing middle-class growth.

On the other hand, inflation has both positive and negative effects on the economy. During economic stagnation, Bank Indonesia can implement expansionary monetary policies by reducing interest rates. High and uncontrolled inflation reflects economic instability, leading to a sustained and widespread increase in the prices of goods and services. Uncontrolled inflation reduces the consumption capacity of households that rely on price stability to maintain their lifestyle and welfare levels (Susanto & Pangesti, 2021). For Indonesia's middle class, high inflation often poses a significant challenge in maintaining purchasing power and the ability to achieve economic growth.

Indonesia's economic conditions over the past few decades reveal interesting dynamics regarding the relationship between open unemployment, inflation, and the middle-class population. Although Indonesia's economic growth has remained relatively stable, open unemployment rates and inflation fluctuations remain areas of concern. These changes can influence middle-class growth, especially amid global uncertainties such as the COVID-19 pandemic and supply chain disruptions. While many studies have examined the impact of unemployment and inflation separately, research specifically highlighting the combined effects of both factors on middle-class population growth in Indonesia remains limited.

This study aims to address this gap by analyzing the relationship between open unemployment, inflation, and middle-class growth, both in the short and long term. By understanding this relationship, the findings are expected to contribute to policymakers in designing more inclusive economic strategies to support middle-class growth and foster long-term economic stability in Indonesia.

2. Theoretical Background

2.1 Middle Class

The presence of a strong middle class contributes to sustainable economic growth and social stability (Ozturk, 2016). Countries with inclusive labor market regulations tend to have a higher middle class. This condition enables them to make more significant contributions in terms of investment, innovation, and consumption. Conversely, if middle-class incomes decline due to policies that do not support them, it can hinder economic growth (Dallinger, 2013). In other words, the middle class's ability to plan for the future creates a positive cycle that supports economic resilience and broader social development (Sarma & Pais, 2008).

2.2. Open Unemployment and Inflation

Based on the results of the study Doni (Doni, 2022), inflation and unemployment have a significant impact on economic growth. However, these findings raise a research gap regarding how the relationship between inflation, unemployment, and economic growth may differ from the negative correlation previously identified by Phillips (1958). If inflation and unemployment jointly affect economic growth, then the interaction between these two variables may not only be contradictory, as explained in the Phillips Curve, but may also involve complex dynamics that can change depending on the economic context of a country or a specific time period (Hadiyan, 2018). In the context of economic growth, the middle class plays a vital role as a driver of domestic consumption and social stability. However, high inflation can erode their purchasing power, while increasing unemployment can weaken income and social mobility, ultimately hindering the expansion of the middle class.

2.3 The Middle Class and Economic Development

The presence of a robust middle class is widely recognized as a cornerstone of sustainable economic growth and social stability (Ozturk, 2016). A sizable middle class, often fostered by inclusive labor market regulations and economic policies, contributes significantly to the economy through several channels: investment in human and physical capital, driving innovation, and sustaining aggregate consumption (Dallinger, 2013). The middle class's capacity for long-term planning and its demand for stable institutions create a virtuous cycle that underpins economic resilience and fosters broader social development (Sarma & Pais, 2008). Consequently, policies that erode middle-class incomes or hinder its expansion can act as a drag on overall economic growth.

2.2 Open Unemployment, Inflation, and Economic Growth

The relationship between key macroeconomic variables like unemployment, inflation, and economic growth is complex. Empirical research, such as that by Doni (2022), confirms that both inflation and unemployment exert a significant influence on economic growth. However, this relationship challenges and extends the classic Phillips Curve framework (Phillips, 1958), which posited a stable, inverse trade-off between inflation and unemployment.

This creates a research gap, suggesting that the interaction between inflation and unemployment in affecting growth is not merely contradictory but involves more complex, context-dependent dynamics (Hadiyan, 2018). The economic context of a country or a specific time period can alter how these variables interact. For instance, high inflation can erode the purchasing power of consumers, while high unemployment

weakens aggregate income and social mobility. This dynamic is particularly critical for the middle class, which acts as a primary driver of domestic consumption. When their purchasing power is diminished and their economic security threatened, the engine of growth and the foundation for a stable, expanding middle class are compromised.

3. Methods

3.1 Research Design

This study employs a quantitative causal-associative research design using a Vector Error Correction Model (VECM) approach. The research aims to analyze both the short-term and long-term relationships between open unemployment, inflation, and the growth of the middle-class population in Indonesia using time series data from 1994 to 2023.

3.2 Data Sources and Collection

The study utilizes secondary data obtained from official sources including Statistics Indonesia (BPS), Bank Indonesia (BI), and World Bank reports. Data collection techniques involve documentation study of published statistical reports, government publications, and international organization databases covering the 30-year observation period.

3.3 Operational Definitions of Research Variables

Table 1. Variable Operationalization

Variable	Definition	Measurement	Scale
Open Unemployment (X1)	Individuals who are seeking work, preparing a business, feel unlikely to get a job, or have a job but have not started working (BPS, 2024)	Percentage of labor force	Ratio (%)
Inflation (X2)	General and continuous increase in prices of goods and services over a certain period (BI, 2023)	Annual consumer price index growth	Ratio (%)
Middle-Class Population Growth (Y)	Individuals with economic security who are not worried about falling into poverty (Corral Rodas et al., 2019)	Annual growth rate of middle-class population	Ratio (%)

Source: Processed from various sources, 2024

3.4 Data Analysis Techniques

Data analysis was conducted using EViews 12 software through the following systematic stages:

1) Stationarity Test

The Augmented Dickey-Fuller (ADF) test was employed to examine data stationarity. Non-stationary data underwent differencing until stationarity was achieved, ensuring valid statistical inferences in time series analysis.

2) Cointegration Test

The Johansen cointegration test was utilized to identify long-term equilibrium relationships among variables. This test determines whether non-stationary variables share a common stochastic trend, indicating persistent long-run relationships.

3) Vector Error Correction Model (VECM) Estimation

Upon establishing cointegration, the VECM was estimated to analyze both short-term dynamics and long-term relationships. The error correction term captures the speed of adjustment toward long-run equilibrium following short-term deviations.

4) Impulse Response Function (IRF) Analysis

IRF analysis was conducted to trace the response of each variable to shocks in other variables over time, providing insights into the dynamic interactions within the system.

5) Forecast Error Variance Decomposition (FEVD) Analysis

FEVD analysis was performed to quantify the proportion of forecast error variance in each variable attributable to shocks in other variables, identifying the relative importance of different shock sources.

IRF and FEVD analyses help understand the system's response to shocks and allocate the variation of variables caused by specific shocks. These steps follow the VECM approach to analyze the relationships between variables in time series data, understand the system's response to shocks, and identify the contribution of each variable to changes in others.

4. Results and Discussion

4.1 Stationarity Test Results

The analysis commenced with stationarity testing using the Augmented Dickey-Fuller (ADF) test. Initial results indicated that all variables—Open Unemployment (X1), Inflation (X2), and Middle-Class Population Growth (Y)—were non-stationary at level, with probability values exceeding 0.05. However, after first differencing, all variables achieved stationarity at the 5% significance level, confirming their suitability for time series modeling and ensuring reliable econometric analysis.

4.2 Cointegration Test Results

Table 2 presents the Johansen cointegration test results, which reveal a long-term equilibrium relationship among the variables.

Table 2. Johansen Cointegration Test Results

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None*	0.58	33.65	29.79	0.01
At Most 1	0.26	10.84	15.49	0.22
At Most 2	0.09	2.68	3.84	0.10

Source: Processed data, 2024

The trace statistic test indicates one cointegrating equation at the 0.05 level, as the probability value (0.01) is below the significance threshold. This confirms a stable long-run relationship among open unemployment, inflation, and middle-class population growth, validating the use of Vector Error Correction Model (VECM) for further analysis.

4.3 Vector Error Correction Model Estimation

Table 3 displays the VECM estimation results, capturing both short-term dynamics and long-term equilibrium relationships.

Table 3. VECM Estimation Results

Variable	Coefficient	Std. Error	t-Statistic	Long-term Significance
Long-term Equation				
Inflation (X2(-1))	-0.266	0.053	-4.962	Significant
Middle-Class Growth (Y(-1))	2709.823	-	2.681	Significant
Error Correction Terms				
CointEq1 for X1	-0.107	0.099	-1.081	Not Significant
CointEq1 for X2	8.778	2.228	3.938	Significant
CointEq1 for Y	-3.540	6.305	-0.562	Not Significant

Source: Processed data, 2024

The long-term analysis reveals that inflation significantly negatively affects open unemployment (t-statistic = -4.962), while middle-class population growth shows a significant positive relationship with unemployment (t-statistic = 2.681). The error correction terms indicate that inflation plays a crucial role in adjusting short-term deviations toward long-term equilibrium.

4.4 Impulse Response Function Analysis

Figure 1 illustrates the dynamic responses of variables to structural shocks over a 10-period horizon.

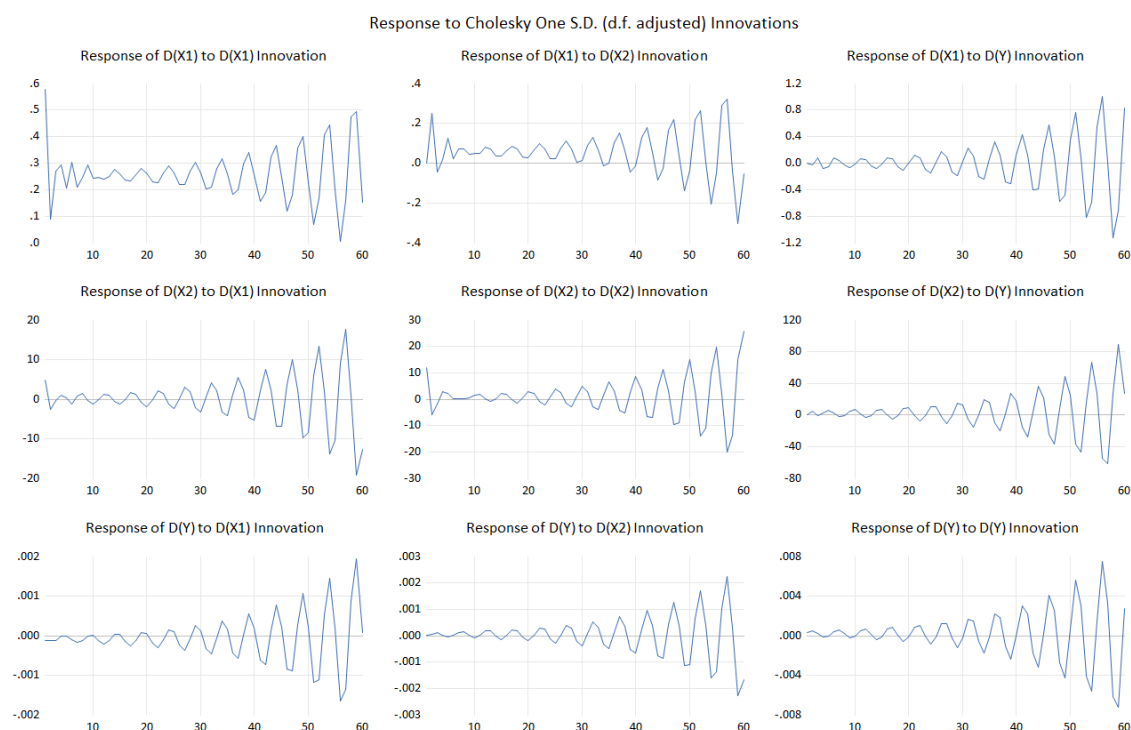


Figure 1. Impulse Response Functions

(Note: The figure would show three subplots depicting the responses of each variable to innovations in all variables)

Source: Processed data, 2024

- 1) Response of $D(X_1)$ to Innovations in $D(X_1)$, $D(X_2)$, and $D(Y)$:
 - a. Response to $D(X_1)$: The graph shows that $D(X_1)$ (Open Unemployment) responds positively to its own impulse in the initial period, then stabilizes near zero in the long run. This indicates that open unemployment has a diminishing effect after a few periods when impacted by its own shock.
 - b. Response to Innovations in $D(X_2)$: The response of $D(X_1)$ to inflation innovations ($D(X_2)$) shows relatively small initial fluctuations but then stabilizes. This suggests that inflation indirectly affects unemployment, with the influence fading in the long run.
 - c. Response to Innovations in $D(Y)$: An impulse in middle-class population growth ($D(Y)$) generates a relatively small initial response in $D(X_1)$, with oscillations that tend to diminish over time. This indicates that the impact of middle-class growth on open unemployment is relatively weak.
- 2) Response of $D(X_2)$ to Innovations in $D(X_1)$, $D(X_2)$, and $D(Y)$:
 - a. Response to Innovations in $D(X_1)$: The graph shows that inflation ($D(X_2)$) responds to open unemployment ($D(X_1)$) innovations with minor fluctuations that quickly fade. This suggests a weak relationship between open unemployment and inflation.
 - b. Response to Innovations in $D(X_2)$: Inflation strongly responds to its own shock, with significant fluctuations in the initial period that gradually stabilize over time. This indicates that inflation has a considerable self-influence that diminishes over time.
 - c. Response to Innovations in $D(Y)$: The response of inflation to middle-class growth ($D(Y)$) shows significant initial fluctuations that gradually subside. This suggests that middle-class growth can influence inflation, though its effects are not long-lasting.
- 3) Response of $D(Y)$ to Innovations in $D(X_1)$, $D(X_2)$, and $D(Y)$:
 - a. Response to Innovations in $D(X_1)$: The graph shows that middle-class growth ($D(Y)$) responds to shocks from open unemployment ($D(X_1)$) with a very small effect that quickly fades. This indicates a weak relationship between open unemployment and middle-class growth.
 - b. Response to Innovations in $D(X_2)$: The response of $D(Y)$ to inflation ($D(X_2)$) is also relatively small, with fluctuations gradually stabilizing. This suggests that inflation has a limited impact on middle-class growth.
 - c. Response to Innovations in $D(Y)$: The response of $D(Y)$ to its own shock is initially significant but stabilizes near zero in the long run. This indicates that middle-class growth is primarily influenced by its own dynamics.

4.5 Forecast Error Variance Decomposition

Figure 2 presents the variance decomposition results, showing the proportion of forecast error variance attributed to different shocks.

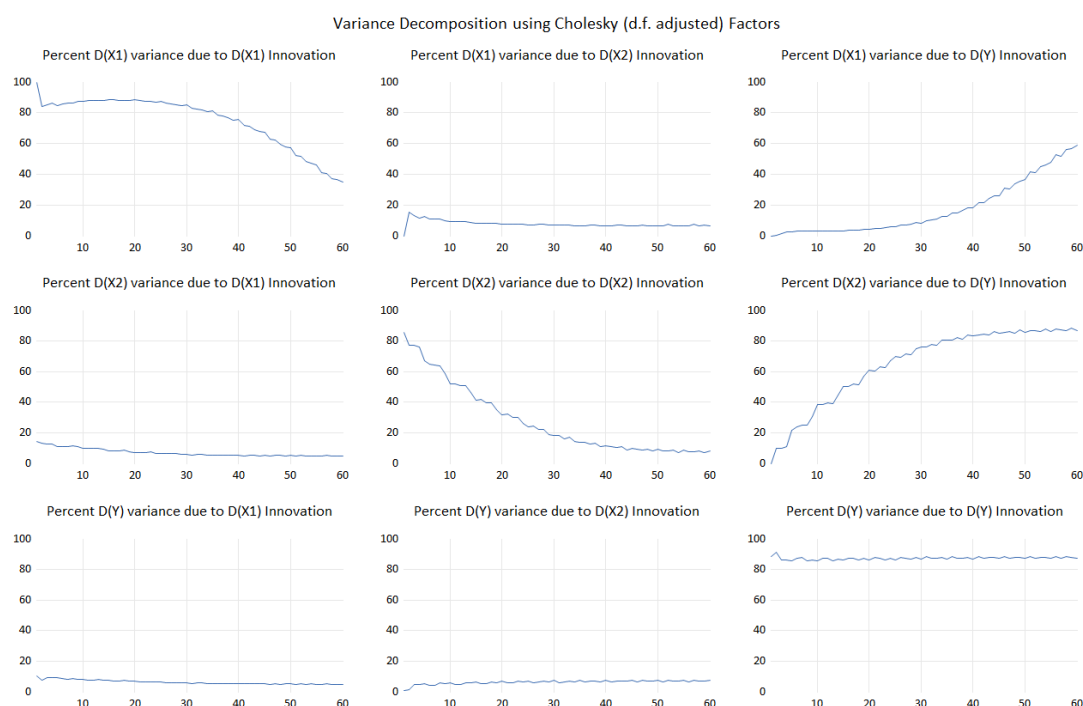


Figure 2. Forecast Error Variance Decomposition

(Note: The figure would show three subplots displaying variance decomposition for each variable across time periods)

Source: Processed data, 2024

- 1) Variance Decomposition for D(X1) (Open Unemployment):
 - a. Contribution of D(X1): At the initial period, approximately 80% to 90% of the variability in D(X1) is explained by its own shocks. However, this contribution gradually decreases to less than 30% by the end of the period, indicating that the internal influence on D(X1) fades over the long term.
 - b. Contribution of D(X2): Innovations from D(X2) have a very small impact on D(X1), with a nearly constant contribution below 10% across all periods. This suggests that inflation does not significantly affect the variability of open unemployment.
 - c. Contribution of D(Y): The contribution of D(Y) increases significantly from 0% in the initial period to over 60% by the end of the period. This indicates that middle-class population growth plays an important role in influencing open unemployment over the long term.
- 2) Variance Decomposition for D(X2) (Inflation):
 - a. Contribution of D(X1): The variability in inflation (D(X2)) caused by shocks from open unemployment (D(X1)) remains very small (below 5%) over time. This indicates that open unemployment has an insignificant impact on inflation.
 - b. Contribution of D(X2): At the initial period, nearly 90% to 100% of the variability in inflation is explained by its own shocks. However, this contribution declines to less than 20% by the end of the period, indicating that the internal influence of inflation diminishes over time.

- c. Contribution of $D(Y)$: The contribution of $D(Y)$ to $D(X2)$ gradually increases, reaching over 70% by the end of the period. This suggests that middle-class population growth has a significant influence on inflation in the long term.
- 3) Variance Decomposition for $D(Y)$ (Middle-Class Population Growth):
- a. Contribution of $D(X1)$: The variability in $D(Y)$ caused by open unemployment ($D(X1)$) remains small, with a contribution below 2% throughout the period. This suggests that the influence of unemployment on middle-class population growth is insignificant.
 - b. Contribution of $D(X2)$: Inflation ($D(X2)$) also exerts a relatively small impact on $D(Y)$, with a stable contribution below 5%. This indicates that inflation is not a major factor influencing middle-class population growth.
 - c. Contribution of $D(Y)$: The majority of the variability in $D(Y)$ is explained by its own shocks, with a stable contribution above 95% throughout the period. This indicates that middle-class population growth is primarily driven by internal factors rather than external influences.

4.6 Discussion

The empirical findings from the VECM analysis reveal complex and nuanced relationships between open unemployment, inflation, and middle-class population growth in Indonesia, offering significant insights that both challenge and extend conventional economic theories.

4.6.1 Revisiting the Phillips Curve Paradigm

The most striking finding emerges from the long-term VECM estimation, which demonstrates a significant negative relationship between inflation and open unemployment (coefficient: -0.266, t-statistic: -4.962). This finding directly contradicts the traditional Phillips Curve framework, which posits an inverse relationship between these variables. Rather than supporting the conventional trade-off, our results suggest that in the Indonesian context, lower inflation may paradoxically coexist with higher unemployment in the long run. This phenomenon could be explained by several structural factors: the nature of Indonesia's inflation may be primarily cost-push rather than demand-pull, monetary policy effectiveness in stimulating employment may be limited, or there may be significant structural rigidities in the labor market that decouple price stability from employment outcomes.

4.6.2 The Middle-Class Growth and Unemployment Paradox

The significant positive relationship between middle-class population growth and open unemployment (coefficient: 2709.823, t-statistic: 2.681) presents another intriguing paradox. While conventional wisdom suggests that middle-class expansion should drive economic growth and reduce unemployment, our findings indicate the opposite. This counterintuitive result may be explained by several mechanisms: an expanding middle class likely increases labor force participation rates, particularly among women and youth, creating immediate statistical increases in unemployment until job creation catches up. Additionally, there may be significant skill mismatches between the qualifications of the growing middle class and the available employment opportunities, or the Indonesian economy may be experiencing jobless growth where economic expansion doesn't translate into proportional employment increases.

4.6.3 Dynamic Interactions and Adjustment Mechanisms

The impulse response functions reveal important temporal dynamics in how these variables interact. The finding that open unemployment responds strongly to its own shocks but this effect diminishes over time suggests the presence of self-correcting mechanisms in the labor market. Meanwhile, the weak but persistent response of unemployment to middle-class growth shocks indicates that the relationship between these variables operates through gradual, cumulative channels rather than immediate impacts.

The error correction terms provide crucial insights into adjustment mechanisms, with inflation emerging as the key variable that corrects deviations from long-term equilibrium (CointEq1 for X2: 8.778, t-statistic: 3.938). This suggests that price stability plays a central role in maintaining macroeconomic balance in Indonesia, potentially through its influence on monetary policy decisions, investment climate, and consumption patterns.

4.6.4 Evolving Influence Patterns

The variance decomposition analysis reveals striking evolutionary patterns in how these variables influence each other over time. The dramatic increase in middle-class growth's explanatory power for both unemployment (increasing to over 60%) and inflation (reaching over 70%) in the long term suggests that as Indonesia develops, demographic and social structural factors become increasingly important in shaping macroeconomic outcomes. This finding aligns with theories of economic development that emphasize the growing importance of human capital and consumption patterns in mature economies.

Conversely, the declining explanatory power of inflation's own shocks (from 90-100% to below 20%) indicates that as the economy develops, inflation becomes less of an autonomous phenomenon and more responsive to structural factors like middle-class dynamics.

4.6.5 Policy Implications and Theoretical Contributions

These findings have significant implications for economic policy in Indonesia. The results suggest that traditional monetary policy approaches focused solely on inflation targeting may be insufficient for addressing unemployment challenges. Instead, integrated policies that address structural labor market issues, educational mismatches, and middle-class development are needed.

Theoretically, this study contributes to the growing literature challenging the universal applicability of the Phillips Curve in developing economies and emphasizes the importance of considering structural and demographic factors in macroeconomic modeling. The demonstrated importance of middle-class dynamics in shaping both unemployment and inflation outcomes suggest that models excluding these variables may be mis specified for analyzing contemporary Indonesian economy.

The predominance of internal factors in driving middle-class growth (over 95% explained by own shocks) indicates that this variable operates largely independently in the short to medium term, suggesting that policies aimed at middle-class development need to be sustained and structural rather than expecting quick results from macroeconomic fine-tuning.

5. Conclusion

This study provides robust empirical evidence regarding the complex interrelationships between open unemployment, inflation, and middle-class population growth in Indonesia. The Vector Error Correction Model analysis reveals several key findings that contribute to both theoretical understanding and policy formulation.

- 1) The long-term analysis demonstrates a significant negative relationship between inflation and open unemployment, challenging the conventional Phillips Curve paradigm in the Indonesian context. This suggests that policies targeting inflation reduction may not necessarily lead to increased unemployment, indicating structural characteristics in Indonesia's economy that decouple these traditionally linked variables.
- 2) The study uncovers a paradoxical positive relationship between middle-class growth and open unemployment, indicating that middle-class expansion initially accompanies rather than reduces unemployment pressures. This highlights the complex dynamics of labor market absorption and structural transformation in developing economies.
- 3) The variance decomposition analysis reveals the evolving importance of middle-class dynamics, with its explanatory power for both unemployment and inflation increasing substantially over the long term. This underscores the growing significance of demographic and social structural factors in shaping macroeconomic outcomes as economies develop.

This study acknowledges several limitations that provide opportunities for future research. The research focuses on three key variables, while other factors such as economic growth, investment patterns, educational attainment, and technological adoption may also influence these relationships. The study utilizes national-level data, which may mask important regional variations in unemployment, inflation, and middle-class development across Indonesia's diverse archipelago. Additionally, the time series analysis, while revealing patterns and relationships, cannot establish causal mechanisms with certainty.

Based on the findings, several recommendations emerge for policymakers and researchers:

- 1) For economic policy, the government should develop integrated strategies that simultaneously address middle-class development, labor market structural issues, and price stability. Policies should focus on reducing skill mismatches through educational reform and vocational training aligned with market needs. The significant role of middle-class dynamics suggests the importance of sustaining policies that support middle-class expansion through job creation in formal sectors and entrepreneurship development.
- 2) For future research, studies should incorporate additional variables such as educational attainment, technological adoption, and regional characteristics to provide more comprehensive models. Expanding the analysis to include regional comparisons within Indonesia could reveal important spatial variations in these relationships. Qualitative research exploring the mechanisms behind the middle-class and unemployment paradox would provide valuable insights for policy design. Finally, comparative studies with other developing economies could help determine whether these findings represent unique Indonesian characteristics or common patterns in emerging markets.

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