



## Macroeconomic Determinants of Economic Growth in Eight ASEAN Countries: Evidence from 2015–2024

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### ABSTRACT

*This study examines the effects of inflation, unemployment, investment, exports, and household consumption on economic growth in eight ASEAN countries during 2015–2024. A quantitative approach was employed using secondary data obtained from the World Bank's World Development Indicators, resulting in 80 country-year observations. Data were analyzed using Python through descriptive statistics, Pearson correlation, multicollinearity testing, and regression analysis. Country and year fixed effects with HC3 robust standard errors were applied to account for cross-country heterogeneity, temporal effects, and heteroskedasticity. The results show that household consumption has a positive and statistically significant relationship with economic growth ( $\beta = 0.355$ ;  $p = 0.027$ ), while inflation, unemployment, investment, and exports are not statistically significant after controlling for country and year effects. The model explains 84.8% of the variation in economic growth. These findings highlight the importance of household consumption and domestic demand in supporting economic growth across the selected ASEAN economies.*

**Keywords:** ASEAN; economic growth; household consumption; macroeconomic determinants; panel data.

### How to Cite:

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## INTRODUCTION

Economic growth is an important indicator for assessing a country's economic performance and overall welfare. It is commonly measured through Gross Domestic Product (GDP), which reflects the value of economic output generated within a given period. However, GDP has been criticized for its limited ability to capture broader dimensions of welfare, particularly income distribution, inequality, and public health outcomes (Heins & Deeming, 2015; Karadjova & Dichevska, 2019a). Sustainable and inclusive economic growth can improve welfare by increasing productivity, enhancing efficiency, and raising per capita income (Karadjova & Dichevska, 2019; Marcal et al., 2024). Nevertheless, economic expansion may also be accompanied by challenges such as unemployment, social inequality, and environmental pressures, which can reduce the overall benefits of growth for society (Karadjova & Dichevska, 2019). Therefore, economic performance should be evaluated not only through GDP growth but also through broader indicators of social progress and welfare, such as the Human Development Index and other multidimensional measures (Karadjova & Dichevska, 2019).

Inflation, unemployment, investment, exports, and household consumption represent important macroeconomic factors associated with economic growth. Inflation can influence growth by affecting purchasing power, production costs, and investment decisions, particularly when persistent price increases create uncertainty in economic activities (Sule et al., 2024). Unemployment may constrain economic growth by reducing labor utilization and household income, whereas investment contributes to productive capacity and capital formation. Similarly, exports can stimulate economic activity by expanding external demand and generating income, although the magnitude of these relationships may vary across countries and stages of economic development (Dasari et al., 2025). Household consumption also constitutes a major component of aggregate demand and can support economic expansion through increased domestic expenditure. Nevertheless, previous evidence indicates that the direction and strength of these macroeconomic relationships are not uniform across countries and periods, particularly for inflation and economic growth (Panigrahi et al., 2020). These differences highlight the importance of examining multiple macroeconomic determinants simultaneously when explaining variations in economic growth.

Previous studies have reported mixed findings regarding the effects of inflation, unemployment, investment, exports, and household consumption on economic growth. Some studies indicate that inflation and unemployment tend to constrain economic growth by reducing purchasing power, discouraging investment, and limiting labor utilization, while other studies find that their effects may be weak or statistically insignificant depending on the country and period examined. In contrast, investment and exports are generally associated with stronger economic performance because they support capital formation, production capacity, and external demand. Household consumption is also frequently identified as an important driver of growth, particularly in economies where domestic demand represents a substantial share of aggregate expenditure. However, the magnitude and statistical significance of these relationships remain inconsistent across different empirical settings. Such variations suggest that the effects of macroeconomic determinants are sensitive to differences in economic structure, development level, institutional conditions, and time period. Therefore, examining these five factors simultaneously across ASEAN countries is necessary to obtain a more comprehensive understanding of their relationship with economic growth.

Despite extensive research on the determinants of economic growth, previous studies have often examined macroeconomic factors separately or within specific national contexts, resulting in mixed

evidence regarding their relative effects on economic performance. In particular, the effects of inflation, unemployment, investment, exports, and household consumption may differ across countries due to variations in economic structure, development level, and exposure to external shocks. This limitation is particularly relevant in the ASEAN context, where substantial economic heterogeneity exists among member countries. Moreover, estimates that do not adequately account for unobserved country-specific characteristics and common time shocks may obscure the underlying relationships between macroeconomic conditions and economic growth. To address this gap, the present study integrates five macroeconomic indicators inflation, unemployment, investment, exports, and household consumption within a unified empirical framework while controlling for country and year heterogeneity. By examining eight ASEAN countries over the 2015–2024 period, the study provides comparative evidence on which macroeconomic factors remain associated with economic growth after cross-country and temporal differences are taken into account.

Accordingly, this study aims to examine the effects of inflation, unemployment, investment, exports, and household consumption on economic growth across eight ASEAN countries during the 2015–2024 period. Using secondary data from the World Bank’s World Development Indicators, the study applies a panel-data framework that controls for country-specific heterogeneity and common year effects. By incorporating these five macroeconomic determinants within a unified empirical model, this study seeks to identify which factors remain significantly associated with economic growth after cross-country and temporal differences are taken into account. The findings are expected to provide comparative empirical evidence and support the formulation of macroeconomic policies aimed at promoting sustainable economic growth in ASEAN economies.

## METHODS OF RESEARCH

This study employed a quantitative approach using secondary panel data to examine the relationship between macroeconomic factors and economic growth in eight ASEAN countries from 2015 to 2024. The countries included Brunei Darussalam, Cambodia, Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Viet Nam. Lao PDR and Myanmar were excluded due to substantial missing observations in several variables. The final balanced dataset consisted of 80 country-year observations. All data were obtained from the World Bank’s World Development Indicators (WDI).

The dependent variable was economic growth, measured by annual GDP growth (%). The independent variables consisted of inflation measured by annual consumer price inflation (X1), unemployment as a percentage of the total labor force (X2), gross capital formation as a percentage of GDP (X3), annual growth of exports of goods and services (X4), and annual growth of household final consumption expenditure (X5). The indicators and their corresponding World Bank codes are presented in Table 1.

**Table 1. Research Variables**

| Variable            | Indicator                                    | World Bank Code   |
|---------------------|----------------------------------------------|-------------------|
| Economic Growth (Y) | GDP growth (annual %)                        | NY.GDP.MKTP.KD.ZG |
| Inflation (X1)      | Inflation, consumer prices (annual %)        | FP.CPI.TOTL.ZG    |
| Unemployment (X2)   | Unemployment, total (% of total labor force) | SL.UEM.TOTL.ZS    |
| Investment (X3)     | Gross capital formation (% of GDP)           | NE.GDI.TOTL.ZS    |

| Variable                   | Indicator                                                 | World Bank Code   |
|----------------------------|-----------------------------------------------------------|-------------------|
| Exports (X4)               | Exports of goods and services (annual % growth)           | NE.EXP.GNFS.KD.ZG |
| Household Consumption (X5) | Household final consumption expenditure (annual % growth) | NE.CON.PRVT.KD.ZG |

Source: World Bank (WDI), 2026.

The data were processed and analyzed using Python. The analytical procedure included data cleaning, descriptive statistics, Pearson correlation analysis, multicollinearity testing using the Variance Inflation Factor (VIF), and regression estimation. The Breusch–Pagan test was applied to assess heteroskedasticity. Because heteroskedasticity was detected, HC3 robust standard errors were employed. In addition, country and year fixed effects were incorporated to control for unobserved country-specific characteristics and common temporal shocks. The empirical model can be expressed as:

$$Growth_{it} = \beta_0 + \beta_1 INF_{it} + \beta_2 UNEMP_{it} + \beta_3 INV_{it} + \beta_4 EXP_{it} + \beta_5 CONS_{it} + \mu_i + \lambda_t + \varepsilon_{it}$$

where  $i$  represents country,  $t$  represents year,  $\mu_i$  denotes country fixed effects,  $\lambda_t$  represents year fixed effects, and  $\varepsilon_{it}$  is the error term. Statistical significance was evaluated at the 5% level ( $p < 0.05$ ).

## RESULT AND DISCUSSION

### Descriptive Statistic

Table 2 presents the descriptive statistics of the macroeconomic variables for eight ASEAN countries during 2015–2024. The dataset consists of 80 country-year observations. Average economic growth was 3.825%, with values ranging from –9.518% to 10.141%, indicating considerable variation in economic performance across countries and years. Inflation averaged 2.146%, while unemployment recorded an average of 2.962%. Investment, measured by gross capital formation as a percentage of GDP, had the highest mean value of 28.076%. Meanwhile, exports and household consumption recorded average annual growth rates of 4.973% and 4.571%, respectively.

**Table 2. Descriptive Statistics**

| Variable              | N  | Mean   | Std. Dev. | Minimum | Maximum |
|-----------------------|----|--------|-----------|---------|---------|
| Inflation             | 80 | 2.146  | 1.840     | –1.261  | 6.363   |
| Unemployment          | 80 | 2.962  | 2.081     | 0.119   | 9.316   |
| Investment            | 80 | 28.076 | 5.156     | 17.433  | 41.067  |
| Exports               | 80 | 4.973  | 7.875     | –19.967 | 21.339  |
| Household Consumption | 80 | 4.571  | 4.241     | –13.672 | 21.536  |
| Economic Growth       | 80 | 3.825  | 3.605     | –9.518  | 10.141  |

Source: Authors' calculations based on World Bank WDI data (2026).

### Correlation and Multicollinearity Analysis

Table 3 presents the Pearson correlation coefficients among the study variables. Economic growth was positively correlated with exports ( $r = 0.637$ ), household consumption ( $r = 0.573$ ), and inflation ( $r = 0.363$ ), while unemployment showed a negative correlation ( $r = -0.312$ ). Investment exhibited a relatively weak correlation with economic growth ( $r = 0.115$ ). Importantly, the correlations among the independent variables remained relatively low, indicating no strong pairwise relationships that could cause serious multicollinearity concerns.

**Table 3. Correlation Matrix**

| Variable                   | X1     | X2     | X3     | X4     | X5     | Y      |
|----------------------------|--------|--------|--------|--------|--------|--------|
| X1 – Inflation             | 1.000  | -0.241 | -0.145 | 0.127  | 0.263  | 0.363  |
| X2 – Unemployment          | -0.241 | 1.000  | -0.008 | -0.222 | -0.161 | -0.312 |
| X3 – Investment            | -0.145 | -0.008 | 1.000  | 0.172  | 0.226  | 0.115  |
| X4 – Exports               | 0.127  | -0.222 | 0.172  | 1.000  | 0.383  | 0.637  |
| X5 – Household Consumption | 0.263  | -0.161 | 0.226  | 0.383  | 1.000  | 0.573  |
| Y – Economic Growth        | 0.363  | -0.312 | 0.115  | 0.637  | 0.573  | 1.000  |

Source: Authors' calculations based on World Bank WDI data (2026).

The multicollinearity assessment further confirmed this result. The VIF values for inflation (1.191), unemployment (1.150), investment (1.155), exports (1.260), and household consumption (1.296) were substantially below the commonly applied threshold of 10. Thus, multicollinearity was not considered a concern in the regression model.

**Table 4. Variance Inflation Factor (VIF)**

| Variable              | VIF   |
|-----------------------|-------|
| Inflation             | 1.191 |
| Unemployment          | 1.150 |
| Investment            | 1.155 |
| Exports               | 1.260 |
| Household Consumption | 1.296 |

Source: Authors' calculations (2026).

### Regression Results

The Breusch–Pagan test indicated the presence of heteroskedasticity in the initial regression model (LM p-value = 0.0337; F p-value = 0.0303). Therefore, robust standard errors were employed to obtain more reliable statistical inference. Considering the panel structure of the dataset, the main specification further incorporated country and year fixed effects to account for unobserved country-specific characteristics and common temporal shocks.

**Table 5. Fixed Effects Regression Results with HC3 Robust Standard Errors**

| Variable                     | Coefficient  | Robust SE    | p-value      | Result             |
|------------------------------|--------------|--------------|--------------|--------------------|
| Inflation                    | -0.078       | 0.177        | 0.658        | Not significant    |
| Unemployment                 | 0.383        | 0.472        | 0.418        | Not significant    |
| Investment                   | 0.036        | 0.124        | 0.770        | Not significant    |
| Exports                      | 0.089        | 0.059        | 0.130        | Not significant    |
| <b>Household Consumption</b> | <b>0.355</b> | <b>0.160</b> | <b>0.027</b> | <b>Significant</b> |

Model statistics: N = 80; R<sup>2</sup> = 0.848; Adjusted R<sup>2</sup> = 0.793; Prob. (F-statistic) < 0.001.

Source: Authors' calculations based on World Bank WDI data (2026).

The results show that household consumption was the only macroeconomic variable with a statistically significant coefficient at the 5% level. Its positive coefficient of 0.355 indicates that a one-percentage-point increase in household consumption growth was associated with approximately a 0.355-percentage-point increase in economic growth, holding the other variables and fixed effects constant. In contrast, inflation, unemployment, investment, and exports were not statistically significant after controlling for country-specific heterogeneity and common year effects. The model explained approximately 84.8% of the observed variation in economic growth, indicating substantial explanatory power when country and year effects were incorporated.

## Discussion

The empirical findings indicate that the effects of macroeconomic factors on economic growth differ considerably after controlling for country-specific and year-specific heterogeneity. Among the five explanatory variables, household consumption was the only variable that maintained a positive and statistically significant relationship with economic growth. This result highlights the importance of domestic demand in supporting economic activity across the eight ASEAN countries during 2015–2024. Higher household consumption can stimulate demand for goods and services, encourage production, and generate broader economic activity, thereby contributing to GDP growth.

Inflation showed a negative but statistically insignificant coefficient ( $\beta = -0.078$ ;  $p = 0.658$ ). This finding suggests that variations in inflation within the observed countries were not independently associated with economic growth after country and year effects were controlled. The result is consistent with the view that the relationship between inflation and growth is not necessarily linear or uniform across economic settings. Moderate inflation may coexist with economic expansion, whereas stronger adverse effects may emerge only when inflation exceeds certain thresholds or creates persistent macroeconomic instability.

Unemployment also did not show a statistically significant effect in the fixed-effects specification ( $\beta = 0.383$ ;  $p = 0.418$ ). Although unemployment was negatively correlated with economic growth in the initial correlation analysis, this relationship disappeared after controlling for country and year effects. This suggests that differences in labor-market structures, productivity, informality, and economic conditions across ASEAN countries may influence the relationship between unemployment and output growth.

Investment, measured by gross capital formation as a percentage of GDP, was positive but statistically insignificant ( $\beta = 0.036$ ;  $p = 0.770$ ). This finding does not imply that investment is unimportant for economic development. Rather, the contribution of investment to short-term economic growth may depend on its productivity, sectoral allocation, implementation period, and efficiency. Capital formation

may also generate economic benefits with a time lag that is not fully captured by the contemporaneous specification used in this study.

Similarly, exports had a positive but insignificant coefficient in the fixed-effects model ( $\beta = 0.089$ ;  $p = 0.130$ ). This finding is particularly noteworthy because exports showed the strongest bivariate correlation with economic growth ( $r = 0.637$ ). The reduction in statistical significance after controlling for country and year effects indicates that part of the observed export–growth relationship may reflect structural differences between countries or common economic shocks rather than an independent within-country effect of export growth.

Overall, household consumption emerges as the most robust macroeconomic factor associated with economic growth in the estimated model. The findings suggest that domestic demand played an important role in supporting economic performance across the selected ASEAN economies during the study period. At the same time, the insignificant coefficients of inflation, unemployment, investment, and exports demonstrate that their relationships with economic growth are sensitive to cross-country heterogeneity and temporal conditions. These results reinforce the importance of considering both country-specific characteristics and common year effects when examining macroeconomic growth dynamics in ASEAN countries.

## CONCLUSION

This study examined the effects of inflation, unemployment, investment, exports, and household consumption on economic growth in eight ASEAN countries during 2015–2024 using secondary data from the World Bank. The fixed-effects estimation with HC3 robust standard errors shows that household consumption has a positive and statistically significant relationship with economic growth, while inflation, unemployment, investment, and exports are not statistically significant after controlling for country and year effects. These findings indicate that domestic consumption was the most consistent macroeconomic factor associated with economic growth within the observed period.

The study highlights the importance of maintaining household purchasing power and supporting sustainable domestic demand as part of policies aimed at strengthening economic growth. However, the insignificant effects of the other macroeconomic variables should not be interpreted as evidence that they are economically unimportant, as their effects may depend on country-specific conditions, time lags, and structural characteristics. This study is limited to eight ASEAN countries and the 2015–2024 period due to data availability. Future research may extend the country coverage, employ longer observation periods, incorporate additional macroeconomic indicators, and examine dynamic or lagged relationships to provide a more comprehensive understanding of economic growth determinants in ASEAN economies.

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