THE EFFECT OF GROSS DOMESTIC PRODUCT (GDP) GROWTH, INFLATION AND INVESTMENT ON THE HAPPINESS INDEX IN SOUTHEAST ASIA

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ABTRACT

This study aims to analyze the happiness index in the Southeast Asian region using three independent variables, namely GDP growth, Inflation and Investment in 2013-2023 in 9 ASEAN countries, namely Indonesia, the Philippines, Malaysia, Singapore, Thailand, Vietnam, Laos, Cambodia and Myanmar. Brunei Darussalam was not used due to data limitations and Timor Leste was not used because it had just entered ASEAN in 2022 The panel data was processed using Eviews 12 software with a fixed effect model approach (results from the chow test and hausman test). The results of the study show that GDP growth has a negative and insignificant effect on the happiness index in the Southeast Asian region. Meanwhile, Inflation and Investment had a positive and insignificant effect on the happiness index in the Southeast Asian region. This indicates that inflation and investment are important for long-term economic growth and development, their impact on happiness is not always significant. Social, environmental, and economic benefit factors play an important role in determining people's happiness.

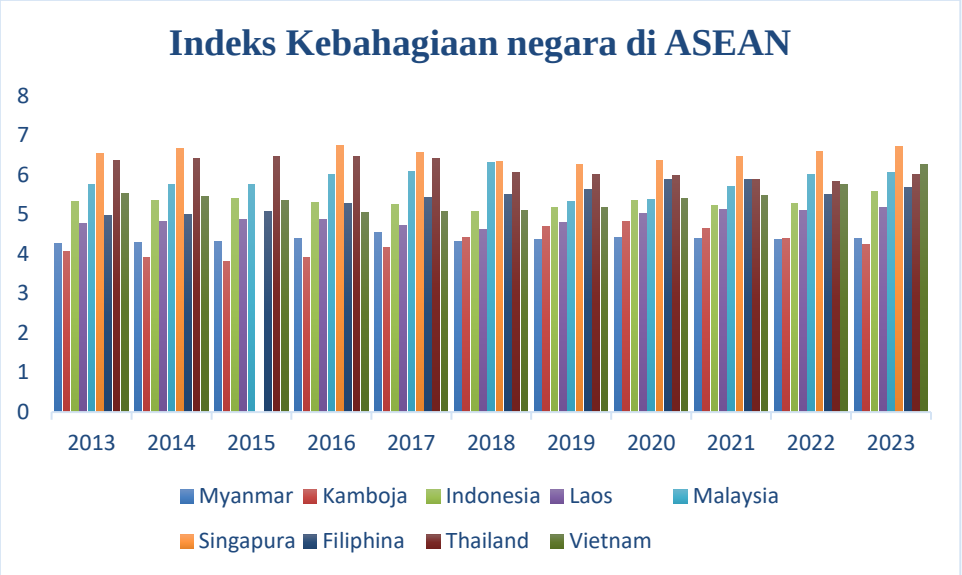
Keywords: *GDP Growth, Inflation, Investment, Happiness Index, Southeast Asia, Panel Data.*

INTRODUCTION

Overall, countries in Southeast Asia have shown strong economic growth over the past few decades. Several countries, such as Singapore, Vietnam, and Indonesia, have recorded high Gross Doemstic Product (GDP) growth rates, driven by investment, trade, and growing industries. Himanuddin, et al (2022) said that urbanization and industrialization have become the main factors in the growth of Gross Domestic Product (GDP) in Southeast Asia.

The Southeast Asia Happiness Index measures the level of happiness in Southeast Asian Member States. Although the concept of happiness is subjective and difficult to measure directly, it tries to take into account various factors that affect the well-being and life satisfaction of the population in a country. Although economic growth is not always directly correlated with happiness, inclusive and sustainable economic growth can create greater economic opportunities for residents, improve well-being, and in turn, increase happiness.

Figure 1
Chart of the Happiness Index of Countries in the ASEAN Region



Source: World Bank (2023)

The graph depicts a report on the happiness of countries around the world with a happiness ranking that has a score of the country based on a survey in which respondents evaluate their current quality of life on a scale of 0 to 10. Indonesia received a score of 5.59 on the 2023 happiness index. Indonesia ranks 84th out of 137 countries involved in this study. At the Southeast Asian level, the level of happiness of the Indonesian people is ranked sixth out of the nine countries studied. The life satisfaction of the Indonesian people is only higher than that of Laos, Cambodia, and Myanmar. Singapore is the happiest country in Southeast Asia, as well as Asia, with a score of 6.72 and is ranked 25th at the world level.

High Gross Domestic Product (GDP) growth can lead to an increase in consumption and production of goods and services. If demand exceeds the available supply, this can lead to an increase in prices, or inflation. Conversely, when Gross Domestic Product (GDP) growth slows or is negative, demand for goods and services may also decline, which can reduce inflationary pressures. The monetary policy implemented by a country's central bank can affect the balance between Gross Domestic Product (GDP) growth and the inflation rate. For example, when central banks loosen monetary policy by lowering interest rates, this can encourage borrowing and investment, which in turn can boost economic growth. However, too loose monetary policy can also lead to an increase in inflation.

When inflation rates are unstable or unpredictable, investors may be more likely to refrain from making long-term investments due to the risks associated with changes in the value of money. Foreign Direct Investment (FDI) has played an important role in driving economic growth in many Southeast Asian countries. Susetyo, et al (2023) in their research said that in foreign investment there is always a relationship between FDI and the exchange rate and of course the exchange rate has a great influence on foreign Direct Investment (FDI) because when the exchange rate weakens, many foreign FDI enters so that it can affect export prices in each country. Countries such as Vietnam, Malaysia, and the Philippines have managed to attract foreign investment in sectors such as manufacturing, technology, and tourism. Southeast Asia is an important trading region, with a number of

countries being members of regional trade organizations such as ASEAN (Association of Southeast Asian Nations). Exports and imports of goods and services have become important drivers in the growth of Gross Doemstic Product (GDP) in the region (World Bank, 2023).

The study was conducted in the Southeast Asian region as most countries in Southeast Asia have experienced significant economic growth in recent decades. This growth has provided opportunities for people to improve their living standards, expand access to education and health services, and improve financial security, all of which can contribute to happiness to see how Gross Domestic Product (GDP) growth, unemployment rates and the human development index impact the happiness index in the Southeast Asian region can provide valuable insights for policymakers to make better programs to improve the welfare of the community. By understanding the above factors, policymakers can create better programs.

RESEARCH METHODS

In this study, a type of quantitative data is used. Quantitative data is data that is on a numeric scale. The data used in this study is secondary data in the form of panel data consisting of a combination of time series and cross section data. The main data sources used in this study are data obtained from the World Bank and the World Happiness Report. The data used includes World Happiness Index data obtained from the World Happiness Report, Gross Domestic Product (GDP) per capita data, inflation data (Inflation Forecast) and Investment Forecast data taken from the World Bank.

RESULTS AND DISCUSSION

1. Panel Data Regression Analysis

The fixed effect *model* is a model with different *intercepts* for each subject (*cross section),* but the slope of each subject does not change over time (Gujarati, 2011) and in the *Fixed Effect Model* it is assumed that the slope coefficient is constant but the *intercept* is not constant.

Results of Fixed Effect Model (FEM) Regression Estimation:

Y = 5.26182142633 - 0.0022680926574*X1 - 0.0043210890481*X2 - 3.361627879605*X3

The value of the constant is 5.261821 with a probability number of 0.000000. The R-Square value of 0.895269 shows that the probability level of the happiness index in the Southeast Asian region is influenced by GDP growth, investment and inflation which is 89.52% and the remaining 11.48% This occurs due to other factors that are not included in this study. In conclusion, determining the effect of GDP growth, investment and inflation is realistic if the Fixed Effect Model (FEM) model is used.

2. Panel Data Regression Model Selection Test

Chow Test

The Chow Test or Chow Test is a test to determine the right model to use in estimating panel data, whether it is a Common Effect Model (CEM) or a Fixed Effect Model (FEM). From the results of the tests carried out, it is known that the significance value of the Chi-square cross section probability is smaller than α 0.05 (0.0000 < 0.05) so that H0 is rejected and H1 is accepted. Thus in the Chow Test, the best model chosen is the Fixed Effect Model (FEM).

Hausman Test

Basically, the Hausmann test is used to evaluate the consistency of the estimate with the OLS, so when the panel data is modeled the Hausmann test can be used to

determine whether to use a fixed effect or random effect model. Based on the processing of the Hausman Test, it has been known that the significance value of the *random Cross-section probability* is approximately α 0.05 (0.0064 < 0.05) so that H0 is rejected and H1 is accepted. Thus, in the Hausman Test, the best model chosen is *the Fixed Effect Model* (FEM).

Langrange Multiplier

The Langrange Multiplier test was carried out to determine the Random Effect Model (REM) and Common Effect Model (CEM), but because the results of the Chow Test and the Haustman Test found that the Fixed Effect Model (FEM) method was the best method, the Langrange Multiplier Test was not used in this study.

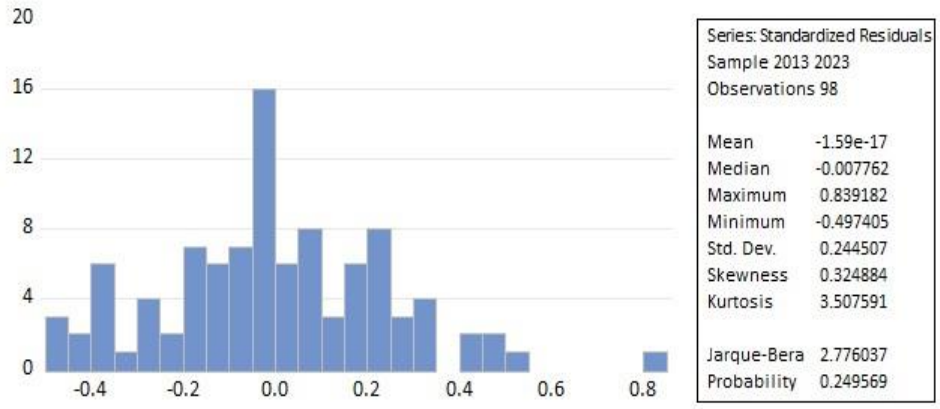
3. Classical Assumption Test

The best estimation model chosen for this study is the Fixed Effect Model (FEM). So the classical assumption test that needs to be carried out is the normality test, the multicollinearity test and the heteroscedasticity test and uses the Least Square (LS) estimation approach.

Normality Test

The normality test was carried out to see whether the data in the study was normally distributed or not. The normality test in this study uses the probability value of Jarque-Bera to test whether the residual data is normally distributed or not.

Figure 1 Normality Test Results



Source: Eviews 12 (data processed, 2024)

The test results showed that the data in this study was normally distributed as evidenced by the probability value of Jarque-Bera greater than α 0.05 (0.249569 > 0.05).

Multicollinearity Test

To test whether there is a correlation between independent variables in the regression model. The multicollinearity test in this study uses a correlation matrix with a tolerance of 0.85 (Basuki & Yuliadi, 2014). The test results showed that the correlation value of each independent variable was less than 0.85 So it can be concluded that there is no correlation between the independent variables used in this study, so that the classical assumption test of multicollinearity is fulfilled or free from multicollinearity or passes the multicollinearity test.

Heteroscedasticity Test

This test was carried out to see that there were variable variants in the regression model that were not the same. If the opposite happens, the variable variant in the regression model has the same value, then it is called homoskedastatry.

Variable value X1 Prob. By 0.88 > 0.05, the variable X1 was declared to pass the heteroscedasticity test. Variable value X2 Prob. By 0.50 > 0.05, the variable X2 was declared to have passed the heteroscedasticity test and the value of the variable X3 Prob. By 0.54 > 0.05, the X3 variable was declared to pass the heteroscedasticity test. The test results showed that the correlation value of each independent variable was greater than 0.05, so that the classical assumption test of heteroscedasticity was fulfilled or free from heteroscedasticity or passed the heteroscedasticity test.

4. Hypothesis Test

Test t

The test is carried out to see whether or not an independent variable individually affects the dependent variable. The test was carried out by comparing the prob value (t-statistic) with an alpha significance level of 5% and the t-count value with the t-table. The test with the t-table uses the degree of freedom in the two-way test and the significance level of alpha 0.05. So it can be concluded that in this study, these three independent variables do not have a significant influence on the happiness index in Southeast Asian countries.

Test F

The F test is used to test whether independent variables together affect dependent variables. The test was carried out by comparing the probability value of F-statistics with alpha significance of 5% and the value of F-count with F-table. Testing with F-table uses the degree of freedom in table F, column (df1) and row (df2) sections. The results of data processing using eviews 12 software showed that the Prob (F-statistic) was smaller than the significance level of α 0.05 (0.000000 < 0.05) and F-count > F-table (66.83209 > 2.70), meaning that H0 was rejected and H1 was accepted. Therefore, it can be concluded that all independent variables, namely Gross Domestic Product, Inflation and Investment together have a significant effect on the Happiness Index in Southeast Asia.

Coefficient of Determination

The aim was to find out how much the independent variable contributed to the dependent variable. The results of data processing showed that the Adjusted R-squared value was 0.881873 or 88%. The value of the determination coefficient shows that the independent variables of Gross Domestic Product, Inflation and Investment are able to explain 88% of the Happiness Index in Southeast Asian countries while the other 12% are explained or influenced by variables outside the study.

Based on the output of *the fixed effect regression model* of the panel data above, the regression equation model can be obtained as follows:

〖HI〗_it = 5,261820 – 0,002267〖GDP〗_it + 0,004321〖IF〗_it + 3,59325〖INV〗_it + εit

(0,895269R^2) (0,881873AdjR^2) (66,83209F-stat) (0,000000P(F) (0,636011DW)

The interpretation of the results of the panel data regression equation in this study is as follows:

1. The results of the regression of panel data in this study show that the constant value is 5.261820. This means that if it is assumed that Gross Domestic Gross, Inflation and Investment are equal to zero, then the Happiness Index is 5.261820 or a positive value and has increased.
2. The Gross Domestic Product variable has a coefficient of -0.002267 and explains the negative influence of Gross Domestic Product on the happiness

index in Southeast Asia. If the Gross Domestic Product increases by one USD, it will decrease the happiness index by 0.002267, assuming the other variables are fixed.

3. The Inflation variable has a coefficient of 0.004321 and explains the positive influence of inflation on the happiness index in Southeast Asia. If inflation increases by one percent, it will increase the happiness index by 0.004321, assuming the other variables are fixed.
4. The Investment variable has a coefficient of 3.59325 and explains the positive influence on the happiness index in Southeast Asia. If investment increases by one percent, it will increase the happiness index by 3.59325, assuming the other variables are fixed.
5. The Adjusted R-squared value is 0.881873 or 88%. The value of the determination coefficient shows that the independent variables of Gross Domestic Product, Inflation and Investment are able to explain 88% of the Happiness Index in Southeast Asian countries while the other 12% are explained or influenced by variables outside the study.
6. The F-test shows that the Prob (F-statistic) is smaller than the significance level α 0.05 (0.000000 < 0.05) and the F-count > F-table (66.83209 > 2.70), meaning that H0 is rejected and H1 is accepted. Therefore, it can be concluded that all independent variables, namely Gross Domestic Product, Inflation and Investment together have a significant effect on the Happiness Index in Southeast Asia.

CONCLUSION

Based on the results of data analysis and discussion that has been presented earlier, it can be concluded as follows:

- The results of the F test showed that the Prob (F-statistic) was smaller than the significance level of α 0.05 (0.000000 < 0.05) and the F-count > F-table (66.83209 > 2.70), meaning that H0 was rejected and H1 was accepted. Therefore, it can be concluded that all independent variables, namely Gross Domestic Product, Inflation and Investment together have a significant effect on the Happiness Index in Southeast Asia.
- Based on the estimated results of the Fixed Effect Model (FEM) model, the Gross Domestic Gross variable has a negative and insignificant influence on the happiness index in Southeast Asia with a P-value of 0.7798 and a coefficient of -0.002267. Although GDP is an important indicator for measuring economic growth, it does not fully reflect human well-being or happiness. Non-economic factors often play a more significant role in determining the happiness of individuals and societies.
- The Inflation variable shows that inflation has a positive but not significant effect on the Happiness Index in Southeast Asia with a P-value of 0.5868 and a coefficient of 0.545584. It is shown that inflation can have some negative impact on economic well-being, its effect on happiness is not always significant. Non-economic factors and individual adaptation to economic conditions often determine the level of happiness.
- The Investment Variable based on the results of the Fixed Effect Model (FEM) estimate had a positive but not significant effect on the Happiness Index in Southeast

Asia with a P-value of 0.6488 and a coefficient of 0.456692. This shows that investment is important for economic growth and long-term development, its impact on happiness is not always significant. Social, environmental, and economic benefit factors play an important role in determining people's happiness.

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