# THE EFFECT OF FDI TOWARDS GDP GROWTH IN MALAYSIA

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**Abstract**: Foreign direct investment (FDI) has been an important source of GDP growth for Malaysia, bringing in capital investment, technology and management knowledge needed for economic growth. The aim of this research is to investigate the effect of foreign direct investment towards economic growth in Malaysia. The time series data, Ordinary least square (OLS) regressions and the empirical analysis were conducted by using annual data on FDI and GDP in Malaysia over the period of 1989 to 2018. This paper used annual data from IMF International Financial Statistics tables, published by International Monetary Fund to find out the relationship between FDI and economic growth in Malaysia. The results show that GDP, foreign direct investment, inflation and export series in Malaysia are I(1) series. FDI has a direct positive effect on GDP. Furthermore, other control variables inflation and export have different sign of impact on GDP.

**Keywords**: Gross domestic product, FDI, inflation, export, time series

## 1. Introduction

Gross domestic product is the best way to measure economic growth. It takes into account the entire economic output of the country. It includes all goods and services that companies produce for sale in the country. Whether they are sold at home or abroad, it doesn't matter. GDP measures the final output. The parts produced to make a product are not included. Exports are included because in the country they are produced. Imports from economic growth are withdrawn. Most countries measure economic growth quarterly.

Real GDP is the most accurate growth measurement. The inflationary effects are eliminated. The GDP growth rate is based on the real GDP. The World Bank uses national gross revenue rather than GDP to measure growth. It includes income repatriated by citizens working abroad. It is a key source of income for many emerging market countries like Mexico. Comparisons of GDP per country will underestimate the economies of those countries.

GDP does not include services that are unpaid. It leaves childcare, unpaid voluntary work or illegal activities on the black market. The environmental costs don't count. For example, plastic prices are cheap, as they do not include disposal costs. Therefore, GDP does not measure how these costs affect the well-being of the society. When it costs the environment, a country will improve its living standards. A company just measures what it values.

Economic growth is most significant that needs to be measured on how well the condition of the economy especially in Malaysia. The gross domestic product of all goods and services produced over time can be measured. As economic growth increases, the living standard will improve and it will benefit the country. Economic growth has been contributed in every sector.

Malaysia is a successful developing country in Asia and is moving forward in its own way to become a developed nation. The country has transformed its agricultural economic model into a diversified economy. According to the World Bank (2000), the manufacturing sector has grown significantly in the recent years and contributes a high Gross Domestic Product (GDP), which accounts for 25 percent and more than 60 percent of the total exports, to the service sector, which accounts for 54 percent of GDP. Besides mining and quarry, 9 percent of GDP contributes. The Malaysian Government has implemented various types of policies, such as the Tenth Malaysia Plan (10MP), New Economic Policy 1970, the New Economic Model (NEM), the Economic Transformation Program

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(ETP) and the Government Transformation Program (GTP) as guidelines to achieve Malaysia Vision 2020.
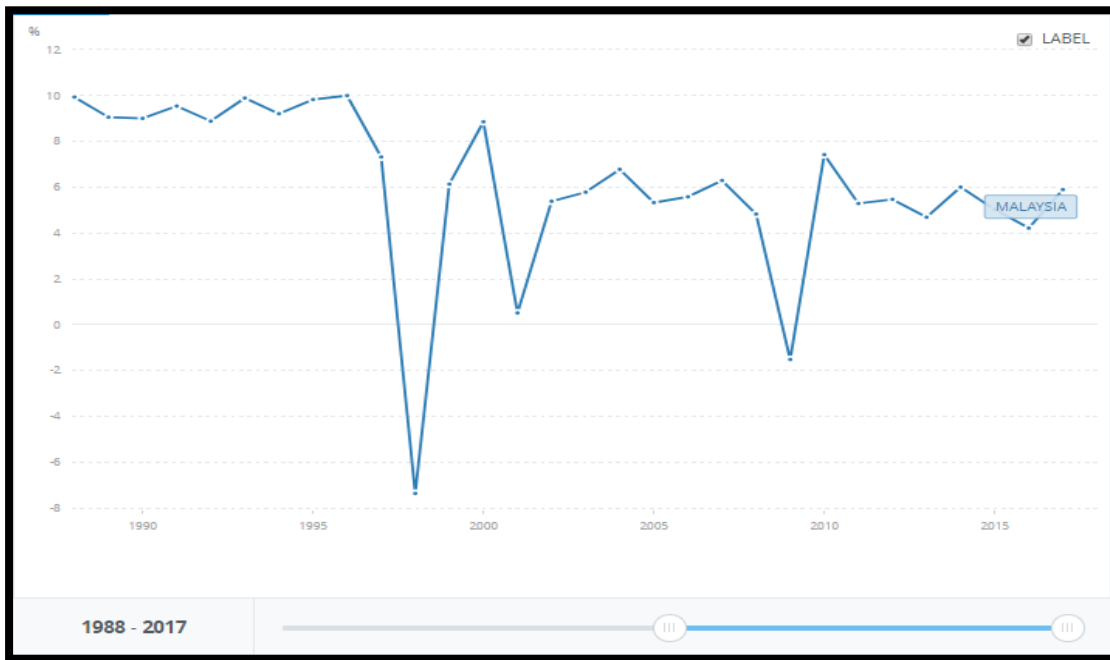


Source: Worldbank Data

**Figure 1**: GDP Growth in Malaysia (1988-2017)

Figure 1 shows that Malaysia has experienced the most severe negative growth rate (-7.35 percent) at the end of 1998 as a result to the Asian crisis. In 1999, Malaysia was Asia's fastest recovery country. In 2009, the world economies were the hardest hit by the global financial crisis in the United States. As a result to this, the world economy had faced a risk of liquidity on the capital market, which dampened the world economy's performance. According to the Department of Labour, roughly 8.7 million jobs (about 7%) were shed from February 2008 to February 2010, and real GDP contracted by 4.2% between Q4 2007 and Q2 2009, making the Great Recession the worst economic downturn since the Great Depression.

Lai (2003) stated that economic growth is one of the key performance measures of the development and growth of the national economy. Economic growth shows the development of the physical economy as an additional infrastructure and infrastructure growth over time. In addition, economic growth should have a basic purpose, which is to raise the standard of the national economy as a whole with the help of the government to eliminate the causes of underdevelopment and promote the efforts for a balanced development and lessen the gap between the rich and poor within societies.

For many decades, the relationship between the FDI growth and countries has been a debatable problem. This has become an eye-opener that Karimi et al. (2009) who agreed to encourage policymakers to engage in incentives such as export processing and tax incentives to attract FDI. The determinant of the FDI in each country is different, however, and failure to understand how a particular country can attract FDI will cause difficulties in economic change. In the case of Malaysia, the economy was ranked 29th largest in the world in 2007, with gross domestic products worth $ 357.9 billion reported by the World Bank in 2007. Despite the impact of many externalities such as oil crises in 1970s to downturn in electronic industry in 1980s, which majorly impacted the Asian financial crisis in 1997s. According to the Ministry of Finance (2006), Malaysia's economic growth from 1988 to 1996 was consistent and the annual economic growth was maintained at 7 - 10 percent per year. By 2005, the main source of growth was the manufacturing sector, whose share of GDP increased to 31.4 percent.

The main challenge in many empirical literatures to date is the widespread belief that FDI generally has a positive impact on economic growth, as stated by Herzer et al. (2008). Past researches have shown that the advantages to recipient countries that it is only possible to realize foreign direct investment (FDI) if these countries have achieved a certain level of financial development.

The goal of most countries is to achieve sustainable rapid economic growth. Due to many factors that affect economic growth, it was a problem to achieve such objective. The aim of the study is to investigate the macroeconomics determinants of economic growth in Malaysia. Research issues discuss the links between foreign direct investment and economic development. This issue was being debated by the previous researchers. According to Ang (2008), FDI has generally had a positive effect on economic growth in many empirical studies. These studies showed a significant of positive relationship that foreign direct investment can contribute to economic growth. Some of the studies indicated that foreign direct investment does not boost country's economic growth.

Malaysia has a consistent performance of gross domestic product from the period of 1970 to 2010. Based on the International Monetary Fund (2011), Malaysia's economy was ranked the 30th largest economy in the world by purchasing power parity with gross domestic product estimated to be USD 414.43 billion. Particularly, foreign direct investment was the key driver underlying the strong growth performance experienced by the Malaysian economy until 1980.

However, after 1980, the influence of foreign direct investment in contributing to the economic growth of Malaysia began to decline. According to Abidin (2010), the decline of foreign direct investment inflow to Malaysia was mainly due to the shortage of human capital, corruption and low level of technological capacity. Furthermore, financial crisis at different parts of the World Economy has made Malaysia's inflow of foreign direct investment to decline from USD 7.3 billion (2008) to USD 1.4 billion (2009).

GDP growth has been studied for decades. It has been quite important for policy makers to understand the growth of GDP that could bring significant effect to the economy. There is a bunch of studies carried out by researchers to look into this problem. It still ambiguous chooses the factors affecting GDP growth. A whole bunch of list of potential factors can be used as explanatory variables. However, it is difficult to fix on certain variables that are strong enough to explain GDP growth. This may be due to the availability of data, different characteristics of countries, different time period and other possibilities. The objective of this study is to find out the measurement of the determinants of economic growth in Malaysia. Based on the data that has been gathered and identified, these studies will highlight some of the major issues regarding foreign direct investment, exports and inflation measurement on economic growth in Malaysia. In the end, this research is hoped to be useful for other researchers and as for improvement that can increase the economic growth through foreign direct investment, exports and inflation. This study also investigates whether there is a positive or negative contribution of foreign direct investment, exports and inflation on the economic growth in Malaysia.

## 2.    Literature Review

Foreign direct investment is the explanatory variable affecting GDP growth. The FDI has always been the main source of financing a country's economic activities. Some studies investigated the relationship between economic growth and FDI. According to Ang (2008), Malaysia must remain a strong GDP growth to attract FDI inflows using the regression analysis method using annual time series data for the period of 1960- 2005.

Anwar and Sun (2011) made an empirical analysis using the Generalized Method of Moments based on annual data for the period of 1970–2007 in Malaysia, which has shown that the level of financial development contributed to Malaysian domestic capital stock growth, but its impact on economic growth is statistically insignificant.

Based on the previous research by Herzer et al. (2008) who had used a dataset over the period of 1970-2003, the study employed a panel cointegration and panel estimation methods. There were two different sample groups, developing and developed countries, indicating that there was a positive relationship between foreign direct investment and economic development. The impact of FDI on economic growth depends on country's specific factors, such as the level of per capita income in the host country, the human capital base, the degree of openness in the economy and the level of financial market development.

Furthermore, Har et al. (2008) used an annual data on FDI and economic growth in Malaysia for the period of 1970- 2005 by ordinary low square (OLS) regressions and empirical analyses, which stated that economic instability was likely to have a negative impact on the FDI, such as inflation and instability.

Besides that, the relationship study was further explained by Yol and Teng-Teng (2009) by ordinary least square (OLS) regressions over the 1975-2006 periods and by empirical analysis using annual data on FDI and economic growth in Malaysia. Their research showed that the relationship between foreign direct investment and economic growth was negative.

According to Fukao et al. (2003), in order to boost export growth in East Asia, foreign direct investment (FDI) plays an important role. The data used in their study covered the period from 1996-2000. The key findings to their study were that FDI has played a major role in the rapid increase in economic growth in East Asia in recent years. The data used in their study covered the period from 1996-2000.

Xuan and Xing (2008) produced empirical results that showed FDI is one of the major drivers of rapid export growth in Vietnam. The database covered the flow of FDI from 23 countries to Vietnam between 1990 and 2004. In their study on the impact of FDI on Vietnam's exports, they showed that FDI significantly improved Vietnam's exports to its FDI countries of origin. Their findings showed that an increase of one percent in FDI was expected to increase exports to the FDI source countries to 0.13 percent. They also noted that it is essential to have an accurate data set that reflects the actual FDI in order to evaluate the contribution and impact of FDI on the Vietnamese economy. Their study gave an empirical support to the conviction that FDI is a major contribution to export growth, which will then generate a country's economic growth.

Borensztein et al. (1998) tested the impact of foreign direct investment (FDI) on cross-country economic growth in the past two decades, data on FDI flows from industrial countries to 69 developing countries. It recommended that FDI is also an important vehicle for technology transfer and contributes more to export growth than domestic investment if advanced technology can be absorbed sufficiently by the recipient country of FDI. Furthermore, it is proven that FDI is more efficient than domestic investment only if the country has a minimum for human capital threshold.

Li and Liu (2005) adopted a large cross-country sample to study economic growth impacts of FDI in both developed and developing countries for the period of 1970-1999. Research results have shown that the endogenous relationship between FDI and economic growth has been significant since the mid-1980s. In both developed and developing countries, FDI and economic growth are becoming significantly complementary.

Hsiao and Hsiao (2006) observed the relationships between GDP, exports and FDI between East and South East Asia's eight rapidly developing economies (Thailand, the Philippines, Malaysia, Singapore, Hong Kong, Taiwan, Korea and China) using time series and panel data from 1986 to 2004. They found that the causality results of the panel data showed that FDI directly and indirectly has unidirectional effects on GDP through exports. This indicated that the causal analysis of the panel data yielded superior results during the time series causal analysis. In addition to exports, the study reinforced the effects of FDI as an important growth engine.

Zhang and Song (2001) also backed the role of the FDI in promoting China's exports. In their study, the panel data was used at provincial level between 1986 and 1997. They have found a strong, positive connection between exports and FDI. They also found that the FDI variable coefficient is statistically the most important. Their findings therefore support the widespread perception that increased FDI levels have a positive effect on provincial manufacturing export performance. The paper thus established a strong connection between exports and FDI.

## 3. Methodology

This study used secondary data in its completion. Annual data in the period of 1989 to 2018 (30 time series observation in Malaysia) were employed for all variables. The researcher has taken a long annual time-series data because it can help in forecasting the dependent variable of concern more accurately. Specifically, the data on import were collected from The World Bank. For the independent variables, data on foreign direct investment, exports and inflation were collected from the World Bank Development Indicator. All downloaded data were cross compared with those coming from various databases which include Data stream and Trading Economics. However, any discrepancies that occur were handled by prioritizing the data coming from legitimate governmental websites which are the Central Bank of Malaysia and the Department of Statistics.

Data analysis is a process of evaluating data systematically by applying statistical or logical method in order to interpret the data so that we are able to conclude solutions for the research based on the outcome of the data. There are a few tests that have been run to test the hypotheses developed earlier. Data analysis is an important part of a research since it will show whether the objective of the study is achieved. In this area of study, the researcher analysed the data using E-view.

### 3.1 *Unit root test*

In the study statistics, unit root test is used to examine whether a variable time series is moving or station using the autoregressive model. Stationary is the situation with constant mean, constant variance and constant envelope provided for each lag, while, false regression would result if the variable data used in this study move or not station.

According to Gan (2006), Augmented Dickey-Fuller (ADF) and Phillip-Perron (PP) methods are commonly used to test the unit root examination. In this study, ADF was chosen to examine time series. Unit root tests were carried out in three different examinations which were level with intercept, 1st difference with intercept, and 2nd difference with intercept.

The test results can be viewed via the p-value in order to reject or fail to reject the null hypothesis. If the p-value is less than 1%, 5% or 10% level of significance, therefore the null hypothesis is rejected and it can be concluded that the variable data do not move or station. Then, if the value of p is more than 1%, 5% or 10%, it indicates that data variables are not stationary, therefore we fail to reject the null hypothesis because the ADF test is not significant. In short, the hypothesis behind these tests is:

$H_0$: Data is non-stationary
$H_1$: Data is stationary

### 3.2 **Descriptive statistics**

Descriptive statistics are the discipline of quantitatively describing the main features of a collection of information or the quantitative description itself. Descriptive statistics are distinguished from inferential statistics (or inductive statistics) in that descriptive statistics aim to summarize a sample, rather than use the data to learn about the population that the sample of data is thought to represent. This generally means that descriptive statistics, unlike inferential statistics, are not developed on the basis of probability theory. Even when a data analysis draws its main conclusions using inferential statistics, descriptive statistics are generally also presented.

### 3.3 **T-Test**

T-test is an analysis of two population means through the use of statistical examination, a t-test with two sample is commonly used with small sizes, testing the difference between the sample when variance of two normal distributions are not known.
The formula of t-test:

$$t = \frac{\textbf{coefficient}}{\textbf{standard error of coefficient}}$$

*If t-test > CV*
It means that there is a significant relationship between X and Y. Therefore, Ho is rejected and Ha is not rejected.
*If t-test < CV*
It means that there is no significant relationship between X and Y. Therefore, Ha is rejected and Ho fail to reject.

### 3.4 **Sources of data**

This study uses annual data on economic growth (GDP), foreign direct investment (FDI), inflation (INF) and exports (X) over the period of 1988 to 2017 in Malaysia. The data were obtained from sources of the World Bank. The data for GDP per capita was based on constant 2010 U.S. Dollars

taken from the World Bank website. The data on FDI is balance of payment (current U.S. Dollars). The data of exports were based on constant 2010 U.S. dollars (annual % growth) which was obtained from the World Bank website. The data on inflation (annual %) was also obtained from the World Bank website. For this research, the researcher used the multiple regression technique as shown below:

$$GDP = \alpha + \beta_1 FDI + \beta_2 X + \beta_3 INF + \hat{e}$$

Where:
α: Constant
GDP: GDP per capita (constant, 2010)
FDI: Foreign Direct Investment
X: Exports
INF: Inflation
ê: Random error term

## 4.     Finding and Discussion

### 4.1    *Unit root analysis*

The Unit Root Analysis uses Augmented Dickey-Fuller and Phillips Perron test statistics to reject or not to reject the null hypothesis. The table shows the results each of the variables that include independent variables and dependent variable after the ADF and PP tests were done.

**Table 1:** Unit Root Analysis

| VARIABLE | CONSTANT | |
| :---: | :---: | :---: |
| | ADF | PP |
| GDP | -4.742382*** | 4.719826*** |
| FDI | -4.610730*** | -4.600766*** |
| X | -3.505403** | -3.505403** |
| INF | -7.497574*** | -7.312096*** |

Note: ***Significant level at 1%, ** significant level at 5%, * significant level at 10%

H0: Data are stationary
H1: Data are not stationary

Based on the results shown in Table 1, it shows the analysis using the Augmented Dickey-Fuller test in level of both constant and constant & trend in which all the variables are stationary. Gross domestic product, foreign direct investment and inflation are stationary because t-statistic is lower than critical value at 1% and the decision is to reject the null hypothesis at 1% significant level. Besides, export is stationary at 5% and the decision is to reject the null hypothesis at 5% significant level. There is no unit root and the data is stationary. Next, in the analysis using the Phillips Perron test in level of both constant and constant & trend, all the variables are stationary. Gross domestic product, foreign direct investment and inflation are stationary because the t-statistic is lower than the critical value at 1% and the decision is to reject the null hypothesis at 1% significant level. Besides, export is stationary at 5% and the decision is to reject the null hypothesis at 5% significant level. There is no unit root and the data is stationary.

### 4.2    *Descriptive Analysis*

**Table 2:** The Descriptive Statistics Analysis

| | GDP | FDI | X | INF |
| :--- | :---: | :---: | :---: | :---: |
| Mean | 3.837268 | 9.625353 | 7.604861 | 3.623399 |
| Median | 4.275987 | 9.670271 | 7.492032 | 3.656722 |
| Maximum | 7.241431 | 10.17953 | 21.90672 | 10.38876 |
| Minimum | -9.655750 | 8.059429 | -10.87842 | -5.992098 |
| Std. Dev. | 3.471074 | 0.450146 | 7.703290 | 3.333844 |

Based on Table 2 above, the value of mean dependent variable which is gross domestic product is 3.837268. Meanwhile, the value of mean independent variables is 9.625353 for foreign direct investment, 7.604861 for exports and 3.623399 for inflation.

Besides that, the value of median for the dependent variable which is gross domestic product is 4.275987. The highest value of median for independent variables is foreign direct investment which is 9.670271 and the lowest value is inflation at 3.656722.

Therefore, the value above also shows the maximum value for dependent variable and independent variables. Maximum value for gross domestic product is 7.241431. The maximum value for all independent variables are 10.17953 for foreign direct investment, 21.90672 for exports and lastly 10.38876 for inflation.

The minimum value of gross domestic product is -9.655750 while for all independent variables, the values are 8.059429 for foreign direct investment, -10.87842 for exports and -5.992098 for inflation.

Lastly, the standard deviation for gross domestic product is 3.471074, while for the independent variables, the values were 0.450146 for foreign direct investment, 7.703290 for exports, and lastly 3.333844 for inflation.

**Table 3 :** Regression Analysis

|  | Coefficient (β) | Std. Error | T-statistic | P-value |
|---|---|---|---|---|
| **Independent Variable** |  |  |  |  |
| C | -22.229 | 9.770 | -2.275 | 0.0314 |
| FDI | 2.555 | 1.034 | 2.470 | 0.020 |
| X | 0.346 | 0.061 | 5.598 | 0.000 |
| INF | -0.321 | 0.152 | -2.106 | 0.044 |
| F  Value | 13.356 |  |  |  |
| R | 0.778 |  |  |  |
| $R^2$ | 0.606 |  |  |  |
| Adjusted $R^2$ | 0.561 |  |  |  |

In Table 3, the multiple linear regressions between the dependent variable (gross domestic product) and independent variables (foreign direct investment, exports, and inflation) are presented in the following. Therefore, the Estimate Regression Equation is written as follow:

$$EG = -22.229 + 2.555FDI + 0.346X - 0.321INF$$
$$(9.770) \quad (1.034) \quad (0.061) \quad (0.152)$$

From the above equation, it shows that inflation has a negative relationship with gross domestic product per capita (constant, 2010) while foreign direct investment and exports have a positive relationship with gross domestic product. According to the equation, the constant is -22.229 which indicates that the gross domestic product will increase by -22.229 units when foreign direct investment, exports and inflation are equal to zero.

Every 1% U.S dollars increase in foreign direct investment will increase in gross domestic product by 2.555%. Based on the result above, it is consistent with the theory that when Foreign Direct Investment increases, the gross domestic product will also increase since foreign direct investment and gross domestic product have a positive relationship. According to Herzer et al. (2008), there is a positive relationship between FDI and economic growth.

For every 1% U.S dollars increment, exports will increase by 0.346%. Based on the result above, it shows that as the exports increases, the gross domestic product will increase. Exports and gross domestic product have a positive relationship. According to Taghavi (2012), exports had a direct and positive relationship with economic growth in the long run.

For every 1% increase in inflation, gross domestic product will increase by 0.321%. Based on the result above, it is consistent with the theory in which inflation increases when gross domestic product decreases. Referring to Fisher (1993), there is a negative impact of inflation on growth.

## 5.    Conclusion and Recommendation

In general, the results show that there are significant relationships between all the independent variables. Economic growth is the most significant that needs to be measured on how well the condition

of the economy especially in Malaysia. It can be measured by gross domestic product of all total production of good and services produced within the time period. As the economic growth increases, the standard of living will also improve and be beneficial to the country. Every sector has contributed to the economic growth.

Foreign direct investment has a positive relationship with the GDP in Malaysia and this is supported by several studies that found a positive effect on the growth of GDP by Herzer et al. (2008). From the results shown, here are the suggestions for Malaysia. Malaysia must be careful in implementing a policy of subsidizing on foreign direct investment inflow in all sectors as to enhance the growth substantially.

The study shows that exports and GDP have a positive relationship with economic growth and it is supported by Taghavi (2012). Therefore, it can be concluded that Malaysia's exports will bring a positive contribution towards the growth in Malaysia. Any increase in growth rate will be beneficial to the citizens of Malaysia from the improvement in the economy.

The government must revise several strategies that need to be adopted. The government can reduce the trade barrier and promote international trade by reducing and simplifying the procedures and controls. Thus, the government can allocate funds and resources in developing exports industry of the country so that the economic growth will be improved. However, the government should revise carefully on the policy of subsidizing on foreign direct investment inflow because it could not enhance the economic growth through exports industry. From this research, we must conduct more research and wisely implement the policy that could give a high impact on the economic growth in Malaysia.

For future researchers, this study could encourage more improvement by adding other related variables that could enhance the growth in Malaysia such as school enrolment, household consumption, gross fixed capital and others in order to identify if the relationship is positively significant toward economic growth that can raise the gross domestic product at better rate. It is measured using the availability of data that are gathered to produce more accurate results. From the research, the growth rate of gross domestic product could be increased by using other related variables as the aim of this study is to enhance the economy.

Lastly, the result has shown that inflation is negatively and significantly related to economic growth. It means that inflation has an adverse effect on economic growth. Inflation and real GDP per capita have an opposite trend. This is supported by Fisher (1993) who showed that inflation affects economic growth and inflation negatively affects growth by reducing investment and reducing rate of productivity growth.

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