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The Determinants of Economic Growth in North African Countries

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Abstract

Economic growth is one of the most important indicators used in developing and evaluating the economic activity of developing countries, including North African countries, but economic growth faces several major economic challenges such as FDI, unemployment rate, inflation, and exchange rate. This study used quantitative research, and data were collected by documentation method with secondary data since 2001-2020, Based on the results of the analysis by panel data regression, it was found that FDI is statistically significant, while it has a positive sign, which indicates that it has a positive impact on economic growth, If FDI increase by1%, economic growth will increase by 0.684%, and there is no impact of inflation and unemployment rate on economic growth, and the exchange rate has a positive and significant impact on economic growth, as each increase leads by 1% in the exchange rate to a increase in economic growth by 0.420%, in future research other variables affecting economic growth, such as the volume of exports, import tariffs, taxes or government regulations.

Keywords: foreign direct investment, inflation, unemployment rate, exchange rate, economic growth

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INTRODUCTION

Economic growth is one of the most important indicators and sub-domains used in developing economic activity and evaluating the development success of countries related to goods and services produced within society and which grow and increase the long-term prosperity of society in a country.

Economic growth is the factor of labor force, ordinary capital and human capital in terms of production and development of employment, which helps in increasing the productivity and services of the economy and also contributes to the development of capital goods and technology in economic growth and an increase in investment. In capital and through this entirely an increase in market value and additional services generated (ADB,2017).

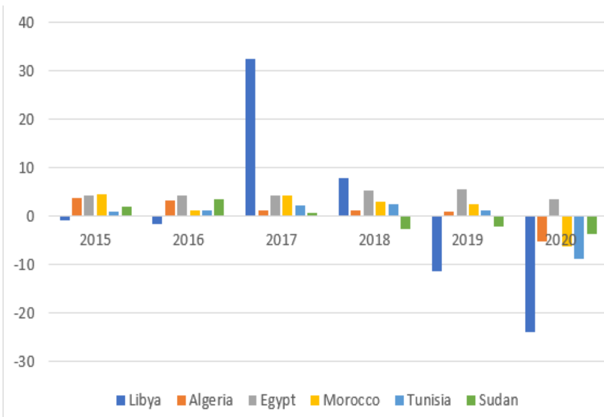


Figure 1. Data Economic growth in north African countries since 2015/ 2020
Source: World Bank, 2022

In other words, economic growth is the process of increasing the amount spent in production and increasing the level of state wages in terms of the resources on which the state depends from natural, technological and industrial resources, inspiring consumers to open their wallets.

The increase in demand and the purchase of more, which affects and is associated with an increase in the advantage of a country in its economic growth (Suk ,2016). According to the GDP growth in North African countries reached a good rate in 2015, and in 2016 when Algeria, Egypt, Morocco, Tunisia, and Sudan recorded a good and stable rate, and in 2017, the value increased given the level of Prices.

According to the GDP growth trajectory shown in the figure and in 2017, the value increased as a result of high prices, and Libya had the highest growth rate in the region 32.5%. In 2018, we found that economic growth in North African countries slowed slightly, and in 2019, we found that economic growth in North African countries slowed slightly, and the economic situation in North African countries deteriorated rapidly in 2020, with the exception of Egypt (3.57)%.

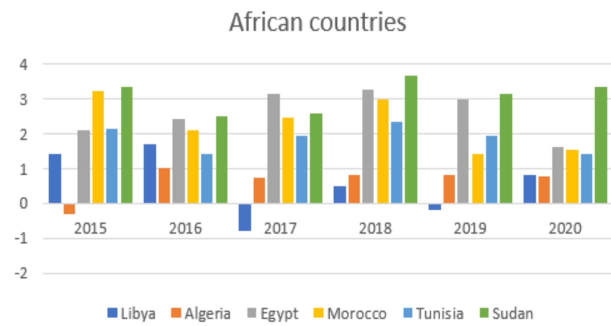


Figure 2. FDI Data of north African countries since 2015/2020
Source: World Bank, knoema.com, 2022

Foreign direct investment (FDI) is one of the most important and widely traded economic issues in recent years, as developing countries are particularly eager to attract foreign direct investment. Foreign direct investment (FDI) is the movement of foreign capital to invest directly abroad, which is one of the main drivers of economic growth in the country.

In many ways, foreign direct investment contributes to expanding the investment base in the country, as well as solving the problem of unemployment by creating new jobs, introducing the advanced technology of the state, and identifying modern methods of management, organization, communication, and marketing, top and greater experience. States are generally aware of the importance of foreign direct investment, so they always seek to attract foreign investment to them by creating the appropriate climate that stimulates foreign investment, providing facilities and incentives to foreign investors.

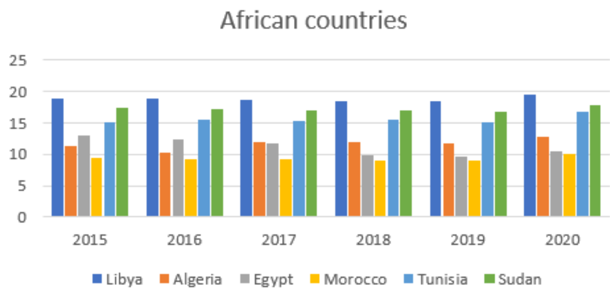


Figure 3. Data Of unemployment rate in north African countries since 2015 / 2020
Source: macrotrends.net, 2022

The issue of foreign direct investment is, therefore, receiving considerable attention from decision makers around the world. FDI is an important source of financing, especially in developing countries, including Arab countries, where foreign direct investment plays an important role in driving economic growth in these countries (Hamoudi, 2017:144).

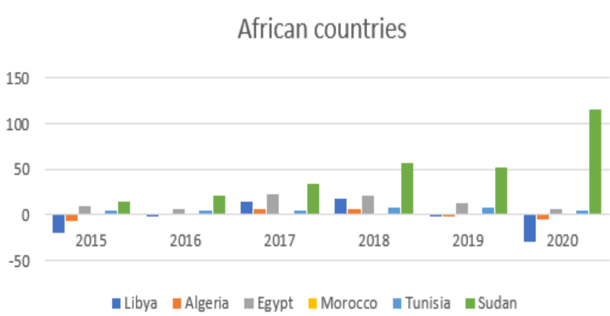


Figure 4. inflation data of north African countries from 2015/2020
Source: World Bank, 2022

Foreign direct investment is a source of interest in North African countries, which need to increase GDP and improve infrastructure, and they are in desperate need of FDI to stimulate GDP as the value of FDI in 2015 was at a high rate in North African countries except for Algeria.

In the year 2018, the percentage of FDI slightly increased in Libya, where it came by (0.5%) and the rest of the countries are in a state of stability. We note in 2019 that Libya and Morocco decreased the proportion of foreign investment in them by (-0.2, 1.43), in the year 2020, but Egypt and Tunisia have declined slightly from this earlier.

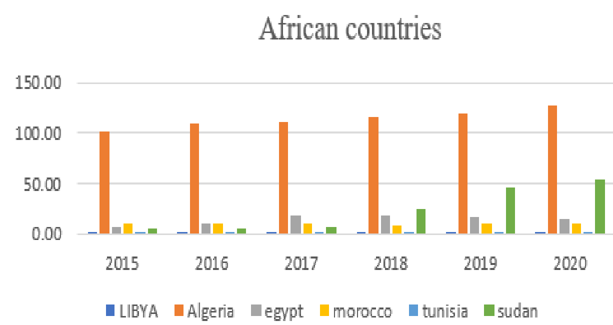


Figure 5. Exchange rate data of north African countries from 2015/2020
Source: World Bank, 2022

Inflation is often defined in terms of its supposed causes; inflation exists when money supply exceeds available goods and services or inflation is attributed to budget deficit financing. Adeficit budget may be financed by the additional money creation. But the situation of monetary expansion or budget deficit may not cause price level to rise. Hence the difficulty of defining 'inflation'.

Inflation may be defined as 'a sustained upward trend in the general level of prices' and not the price of only one or two goods. G. Ackley defined inflation as 'a persistent and appreciable rise in the general level or average of prices. In other words, inflation is a state of rising prices, but not high prices. It is not high prices but rising price level that constitute inflation (Bhat,2021).

As high inflation affects FDI inflows into Sri Lanka's economy and restricts the country's economic growth and development, examining the causal relationship between FDI and inflation is crucial, according to study of (Mustafa, 2019) the relationship between foreign direct investment and inflation in Sri Lanka from 1978 to 2017. It is obvious from this study that the causal relationship between FDI and inflation is essential because high inflation has an impact on FDI inflows. Inflation in North Africa has been volatile, with frequent changes in the rate of inflation and consumer prices.

Since 2015, countries (Egypt, Morocco, Tunisia, and Sudan) have experienced persistent currency weakness, resulting in inflationary vortexes while the inflation rate in Libya and Algeria has been low until the year 2016 when the inflation rate in Libya and Algeria began to rise slightly with other countries. Until the year 2017 and 2018, when both Libya, Algeria, Egypt, and Sudan experienced high inflation rates.

In 2019, we observe that some countries are moderate, such as Libya, Algeria, and Morocco, while Egypt and Tunisia have a slightly higher rate, and in 2020, we observe that Libya and Algeria had low rates. Unemployment is the presence of a labor force with a capability and desire, and has willingness to work at the current wage level, but cannot find job. First of all, in order for a person to be considered as unemployed, that person must have a capacity and desire to work.

Secondly, he/she should display a willingness to work at the current wage in the market, and be ready to work as soon as finding a job at this wage level. The unemployment that arises under these conditions is an involuntary situation. Unemployment, which indicates the absence of a part of the labor force, is measured by the unemployment rate. It is obtained by dividing the number of unemployed persons by the civilian labor force and multiplying that by 100 (Yıldırım et al., 2011: 28).

There is a strong association between the rate of economic growth and the drop in unemployment rates, as evidenced by the relationship between economic growth and unemployment. The employment rate rises or the unemployment rate falls as the growth rate rises. The Okun law, which states that there is an inversely proportionate link between the change in the growth rate (GDP) and the change in the unemployment rate, has been researched empirically in the economic literature to determine the relationship between economic growth and unemployment.

Okun has been successful in demonstrating the reciprocal relationship between economic growth and unemployment. He discovered that if unemployment fell by (1%), the reason would be an increase in real gross domestic product (RGDP) of (3%), and vice versa. He also discovered that when the RGDP rises, more jobs are created (Hjazeen 2021). Figure 3 shows the percentage of youth unemployment in different areas of North Africa from 2015/2020.

According to the macrotrends.com in 2020, Libya had the highest youth unemployment rate of about 51 percent among the Middle East and North Africa (MENA) countries It is known that a large rate of youth unemployment can make countries more unstable and more open to conflict.

Over the last five years, the unemployment rate in North Africa has been extremely high and unstable and countries' failure to respond quickly and appropriately to this phenomenon through research, studied visions, and integrated plans and programs has exacerbated the card crisis and resulted in the failure of economic, educational, and development projects, resulting in a massive economic mitigation unemployment.

In economics, the relationship between the exchange rate and economic growth has long been a topic of discussion. The exchange rate is the conversion factor that governs the rate of change between currencies. It describes how many units of one nation's currency may be purchased with one unit of local currency. Between the real and nominal exchange rates, there is a difference. It is real exchange rate if inflation is not taken into account, and nominal exchange rate if inflation is taken into account.

Bilateral and multilateral terms can be used to express the nominal exchange rate. The term "real exchange rate volatility" refers to the fluctuation of the actual exchange rate over a short period of time. The term "exchange rate regime" refers to the categorization of various patterns of exchange rate behavior.

Fix exchange rate regimes are those in which the exchange rate remains constant, while floating exchange rate regimes are those in which the exchange rate fluctuates. The managed float regime is a hybrid of fixed and floating exchange rates. (Ahmad, 2018).

The exchange rate in North Africa was volatile in some countries which had a significant impact and a slight impact with some frequent changes in the exchange rate and exchange rates in countries since 2015, until 2017, when the exchange rate began in Algeria and Egypt, it rose slightly, until 2018, when Algeria, Egypt and Sudan witnessed a rise in exchange rates,until 2019, and in 2020, Sudan and Algeria had the highest exchange rate (54.00, 126.78), followed by Tunisia, Morocco and Egypt.

There is a positive relationship between the foreign exchange rate and economic growth to the extent that the increase in foreign exchange rates enhances the volume of net exports and thus positively affects economic growth due to the increase in aggregate demand and production inputs, especially in developing countries, depend on imported capital goods and intermediate goods, and therefore the increase in exchange rates makes importing production inputs more expensive and thus negatively affects economic growth.

In other words, depreciation of the local currency shifts the demands of foreigners into the country and directs import by encouraging net exports, it leads to exchange rate increases that support economic growth. This means that currency devaluation can be proposed as an effective policy tool that can be used To stimulate economic growth, this result means that currency depreciation can affect Long-term growth of an economy by increasing its income elasticity of demand for exports (Karahan, 2020).

The relationship between foreign direct investment, inflation and unemployment on economic growth in Libya, Egypt, Algeria, Tunisia, Morocco ,and Sudan has long been a popular issue of debate in the literature of economic development. In this content, the primary purpose of this research is to analyze macroeconomic indicators of Libya, Egypt, Algeria, Tunisia, and Morocco and economic growth using panel data approach.

In this research about the fluctuation of data GDP in Libya, Egypt, Algeria, Tunisia, Morocco and Sudan. Also about fluctuation data of foreign investment, inflation , unemployment rate and exchange rate. This research will make come contribution for deeper understanding about the impact of foreign investment, inflation, unemployment rate and exchange rate on economic growth in Libya.

Also the study contributes to highlighting the importance of foreign investment and this study seeks to guide policymakers and decision makers to the important role of FDI and its impact on economic in north African countries and this research seeks to analyze the any relationship between foreign direct investment, inflation, unemployment rate and exchange rate on economic growth in north African countries.

RESEARCH METHODS

This research used quantitative research, this study intends to find out things that affect the economic growth data analysis used in this study analyzed regression data panel using time series data starting from 2001-2020 and cross section data consisting of 6 north Africa countries. The variety of operations in a study consists of two types, namely dependent variables and independent variables.

Dependent variables are variables that are affected or variables that are the result of a change in independent variables, meanwhile independent variables are variables that affect or cause changes from dependent variables. The dependent variables used in this study were economic growth while independent variables used included foreign direct investment, inflation, unemployment rate and exchange rate and this study used the panel data regression analysis method.

Regression panel analysis is a regression analysis that combines time series data and cross section data. There are three techniques that can be used in estimating panel data regression models namely the Common Effects Model (CEM), Fixed Effects Model (FEM), and Random Effects Model (REM) methods.

Variables From the three model estimates in the regression data panel, the best model will be selected by comparing one model with another model using several tests, including chow test, hausman test, and LM test to obtain the most appropriate regression model. It is necessary to test whether there are deviations to the classical assumption test or not and the classic assumption tests in this study are, multicollinearity tests, normality tests, heteroscedasticity tests, and autocorrelation tests.

RESULTS AND DISCUSSION

Before estimating the research model, the first step to do is to choose the best panel data regression approach chow test is done to determine whether the model used is the common effect or the fixed – effect or random effect. Table 1 shows the Chow test, the F-statistic value is 0.9662 its higher than the p-value of 5% this means rejecting Ho and accepting H1 so that the best model is FEM (Common Effect Model).

Table 1. Chow Test Results

Effects Test	Statistic	d.f.	Prob.
Cross-section F	0.189014	(5.110)	0.9662
Cross-section Chi-square	1.026584	5	0.9604

Source: Output Eviews 9, 2022

The next step is to do Hausman test, Hausman test aims to do determine the fixed effect model or random effect that is most appropriately used in the data panel estimation. Table 2 shows a random cross-section probability value of 0.9289, which is higher level of 0.05. So, this means the random effect model is better than the fixed effect model.

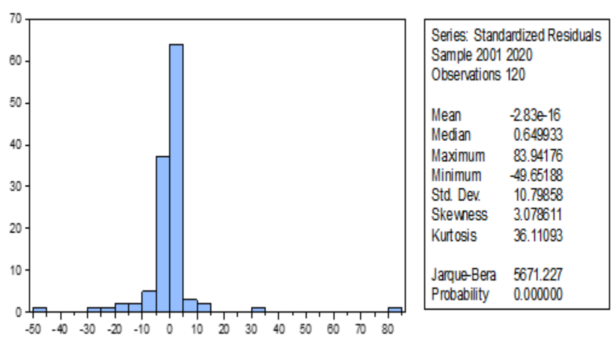
Table 2. Hausman Test Results

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.869431	4	0.9289

Source: Output Eviews 9, 2022

Lagrange Multiplier test is used to determine the best model to use between the Random Effect Model (REM) and the Common Effect Model (CEM) the Cross-section showing 0.1002 that's mean the best model is CEM (Common Effect Model) as the best model. So, it can be concluded that the best regression model in this study is the (Common Effect Model). The next step is to do a classic assumption test.

Table 3. normality test



Source: Output Eviews 9, 2022

Based on the normality test aims to test whether in the regression model the probability value of Jarque-Bera is 0.00000 less than 5% in the table 3, indicating that Ho is rejected and H1 is accepted, indicating that the data is not normally distributed. According to Gujarati (2013), the data in the normality test is not normally distributed since the sample size is too large that can be seen in table 3. The results of the normality test in this study indicate that the data is not normally distributed.

However, according to the Central Limit Theorem, which states that the data has a large sample or above 30, it is natural that the data is not normally distributed or in other words the normality test can be ignored (Sheldom, 2017). Based on the autocorrelation test obtained a DW value of 1.221407 so that the model in this study and the presence of a serial correlation between the residual values and a negative correlation is tested using DW statistics.

The autocorrelation problem can be solved by applying the Generalized Least Square (GLS) or Feasible Generalized Least Square (FGLS) methods (Gujarati, 2004). In this study, the GLS method was used so that the autocorrelation could be ignored. Based on the multicollinearity is a linear relationship between independent variables.

Ghozali (2017) states that the multicollinearity test aims to test whether in the regression model there is a high or perfect correlation and the independent variables have a correlation value of less than 0.8, according to the table 4. As a result, there is no multicollinearity problem in this model, indicating that it is free from multicollinearity (Ghozali, 2013).

Based on the heteroscedasticity test the probabilistic value in the covariance elasticity test in the foreign direct investment, inflation, unemployment rate, and exchange rate are both higher than 0.05, indicating that the model in this study there is no covariance elasticity problems in foreign direct investment, inflation, unemployment rate, and exchange rate. However, because the model chosen is a common effect model. The equation of the research results obtained in the Common Effect Model regression model in this study is as follows:

GDP = 0.684365FDI + 0.007499INF -0.069698 UNEM + 0.420226 EXCH+ eit

Where GDP is Economic growth, FDI is Foreign direct investment, INF is Inflation, UNEM is Unemployment rate, EXCH is Exchange rate, eit is Error. Foreign direct investment has a considerable beneficial effect on economic growth in North African countries according to the results of estimating the regression of panel data, with a coefficient of 0.684. This means that if foreign direct investment in North African countries increases by 1%, the North African economic growth in Africa will increase by 0.684%. The inflation variable in this study has coefficient value by 0.007, indicating that inflation has not impact on the economic growth in North African. If inflation in North African countries increase by 1%, the economic growth in North African countries decrease by 0.007%.

The coefficient value for the variable unemployment rate is -0.069, indicating that the unemployment rate in North African countries has not impact on the economic growth with each 1% increase in the unemployment rate the economic growth will be a decrease by -0.06. The coefficient value for the variable exchange rate is 0.420, indicating that the exchange rate in North African countries has positave and significant impact on the economic growth, with each percent 1% increase in the economic growth will be increase by 0.420%.

Table 4. Common effect model with white period weights

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.926893	1.154027	1.669712	0.0977
FDI	0.684365	0.092912	7.365740	0.0000
Inflation	0.007499	0.036225	0.207018	0.8364
Unemployment Rate	-0.069698	0.069685	-1.000182	0.3193
LOG (Exchange Rate)	0.420226	0.185837	2.261258	0.0256
Weighted Statistics				
R-squared	0.225793	Mean dependent var		10.27049
Adjusted R-squared	0.198864	S.D. dependent var		14.12050
S.E. of Regression	10.32206	Sum squared resid		12252.68
F-statistic	8.384751	Durbin-Watson stat		1.762519
Prob(F-statistic)	0.000006			

Source: Output Eviews 9, 2022

Based on the research results it is known that the probability value for the significance value for the foreign direct investment variable is lower than 0.05 meaning that the first hypothesis in this study is accepted. So, there is the impact of foreign direct investment on economic growth. So H1 is accepted. The research is also supported by research conducted by (Seiko 2016), (Abdulhadi 2021), John (2020) and (Sanjaya 2014) there showing the Foreign

Direct Investment (FDI) is positive impact on economic growth significantly.

This means there is positive significant effect between FDI on economic growth in North African that's conclude that FDI is a key source of economic growth and a catalyst for economic conditional convergence in North African countries; as a result, the subregion must improve its investment climate, strengthen regional integration, develop human capital and basic infrastructure, and promote export-oriented investment to attract more FDI.

This is in line with the Classical theory put forward by Adam Smith which states that there are three determinants of economic growth, namely natural resources, human resources, and capital goods. Foreign Direct Investment (FDI) includes investment in capital goods, because FDI is a real investment in the form of company establishment, factory establishment, purchase of capital goods, land, raw materials and controlling investment, so that FDI can encourage increased economic growth.

This means that without FDI in North African countries, economic activity can run slowly or be less productive due to inadequate capital and infrastructure. Based on the research results it is known that the probability value for the significance value for the inflation variable is higher than 0.05 meaning that the second hypothesis in this study is rejected.

So, there is no impact of inflation on economic growth. So H2 is rejected. The research also supported by research conducted by (Anis, 2002) and (Faraji, 2013) that showing the inflation has no impact on economic growth significantly and the study did not support this research conducted by Gibbson 2020, Rabeea 2017, M. W. Madurapperuma 2016 and Anthony 2020.

The results of this study support the results of research conducted by (Faraji, 2013) that there was no co-integration between inflation and economic growth and no long-run relationship between inflation and economic growth which states that the inflation variable not significant effect on economic growth. Low and stable inflation encourages economic growth and vice versa.

When inflation occurs, producers will be encouraged to produce more goods which will increase producer income, especially producers of basic needs whose goods will still be purchased even though the price of goods increases. Based on the research results it is known that the probability value for the significance value for the unemployment rate variable is higher than 0.05 meaning that the third hypothesis in this study is rejected. So, there is no impact of unemployment rate on economic growth. So H3 is rejected.

The research also supported by research conducted by (Shrikant, 2020) that showing the unemployment rate has no impact on economic growth significantly and the study did not support this research conducted by significantly (Muhammad, 2015), (Doç.Dr. Mehmet Mucuk, 2017) and (Shatha, 2014). Economic growth and the Unemployment rate play an essential role in how the country performs and the relationship between economic growth and the unemployment rate could be a loose one.

It is common for the unemployment rate to exhibit a continuous deterioration after other measures of economic activity become positive and is frequently referred to as a lagging economic indicator. A reason that unemployment might not fall considerably when the economic growth and does not increase throughout an economic recession in contrast, during a downturn, it tends to decline because workers become more worried about job security since fewer job opportunities are accessible in the market. (UKEssays, 2018).

Based on the research results it is known that the probability value for the significance value for the exchange rate variable is less than 0.05 meaning that the fourth hypothesis in this study is accepted. So, there is impact exchange rate on economic growth so H4 is accepted. The research also supported by research conducted by (Seyi, 2019), (Raja, 2018), (Nasir, 2017), (Sujan, 2018), and (Jaeseok, 2017) showing that the exchange rate has positive impact on economic growth significantly and the study did not support this research conducted by significantly (paul, 2016), (Mehdi, 2014) and (Suna, 2013).

The worth of a country's currency in another country's currency, or the exchange rate is a crucial component in establishing the real value of a country's currency. The economy of a nation can be significantly impacted by the exchange rate, and the usual results show a strong correlation between exchange rates and economic growth.

As a result, the best rate of economic growth is associated with fixed exchange rates, followed by flexible and intermediate systems and the exchange rate system that countries will choose at all. This supports the idea that developing countries that follow fixed exchange rate arrangements will achieve higher growth than if they follow flexible or intermediary exchange rate arrangements.

The basis of its economic structure will reduce its vulnerability to crises and economic factors that affect the foreign exchange rate. An improvement in the exchange rate leads to a decrease in the level of imported inflation and an improvement in the level of competitiveness of institutions. In the short term, the decrease in import costs will have a positive impact on the decrease in the level of imported inflation, as the specialized countries into products that are manufactured at a lower cost and exported to other countries, and began to think that they would make more profit by importing products that are made more expensively R. A country that manufactures at a lower cost will be more dominant (Suna, 2013).

CONCLUSION

Based on the findings of this research, the conclusion as follows: The probability value for the significance value for the FDI variable is less than 0.05 meaning that the first hypothesis (H1) in this study is accepted. So, there is impact between FDI on economic growth. The probability value for not significance value for the inflation variable is higher than 0.05 meaning that the second hypothesis (H2) in this study is rejected so there is no impact between inflation on economic growth.

The probability value for not significance value for the unemployment rate variable is higher than 0.05 meaning that the third hypothesis (H3) in this study is rejected so there is no impact between unemployment rate on economic growth. The probability value for significance value for the exchange rate variable is lower than 0.05 meaning that the fourth hypothesis (H4) in this study is accepted so there is impact between exchange rate on economic growth.

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