
FACTOR AFFECTING GROSS DOMESTIC PRODUCT (GDP) GROWTH IN MALAYSIA

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Abstract

Gross Domestic Product (GDP) growth has always been treated as current issue that studied by many researchers. Inconsistency growth of GDP per capita within a country will lead to higher incidence of poverty as well as hinder the progress in health, education, crime and eventually the economic growth. The factors towards GDP growth are relatively important to prevent the occurrence of socio-political instability. This paper investigates the relationship between Gross Domestic Product (GDP) growth and the factors such as Inflation, Foreign Direct Investment (FDI) and Female Labor Force Participation in Malaysia. Annual time series data for the 1982 to 2013 periods, the Ordinary Least Square Method (OLS) and Augmented Dickey Fuller (ADF) are used for the analysis. The results identify that among the factors of FDI and Female Labor Forces have positive impact on GDP growth. However, FDI is the only variable that contributes significantly to GDP growth in Malaysia. Moreover, Inflation correlated negatively with GDP growth but it is not significant factor towards GDP growth in Malaysia. Furthermore, it is found that the GDP, Inflation, FDI and Female Labor Forces are stationary in levels. Based on the result, it is suggested by maintaining the stability on inflation; Malaysian government can increase tax and reduce government spending in order to reduce the inflationary pressure. In addition, identify solutions for current economic obstacles.

Keywords: *Growth Domestic Product, Female Labor Force, Inflation, Foreign Direct Investment, Regression, Unit Root Test, Autocorrelation, Heteroscedasticity*

1.0 INTRODUCTION

Malaysia has been a successful developing country in Asia and is forging ahead to become a developed nation in its own mould. The country has been transforming its economic model from agriculture economy based into diversified economy based. According to the World Bank, manufacturing sector has much grown in recent years and it is contributing high Gross Domestic Product (GDP) which is 25 percent and more than 60 percent of export in total export, service sector has become the largest sector which accounting of 54 percent of GDP. Besides mining and quarrying are contributing of 9 percent of GDP. The government of Malaysia has been implementing different types of policies such as New Economic Policy 1970, the New Economic Model (NEM), Tenth Malaysia Plan (10MP),

Government Transformation Programme (GTP) and the Economic Transformation Programme (ETP) as guidance at aiming Malaysia in achieving Vision 2020.

GDP growth has always been treated as current issue studied by many researchers. Inconsistency growth of GDP per capita within a country will lead to higher incidence of poverty as well as hinder the progress in health, education, crime and eventually the economic growth. The factors towards GDP growth are relatively important to prevent occurrence of socio-political instability.

Figure 1 shows that Malaysia faced a most severe negative growth rate which (-7.35%) in late 1998 due to broke out of Asian financial crisis. In 1999, Malaysia was the fastest recovery country among Asian. At 2009, the world economies were faced the toughest time on global

financial crisis which broke out from United State. As a result, the world economy faced a liquidity risk in capital market caused the world's economy performance damped. Market liquidity risk used as an indicator of financial stability (Santoso et al., 2010). Despite of severe case of negative GDP growth, Malaysia proved in ability to handle difficult such circumstances. The highest GDP growth is 7% in 2010. As a result, it improves the level of poverty in Malaysia.

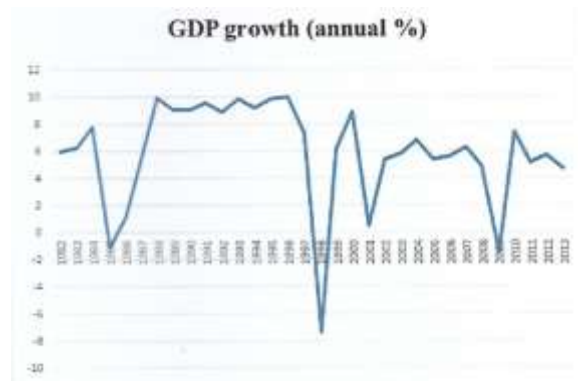


Figure 1. GDP Growth in Malaysia (1982-2013)

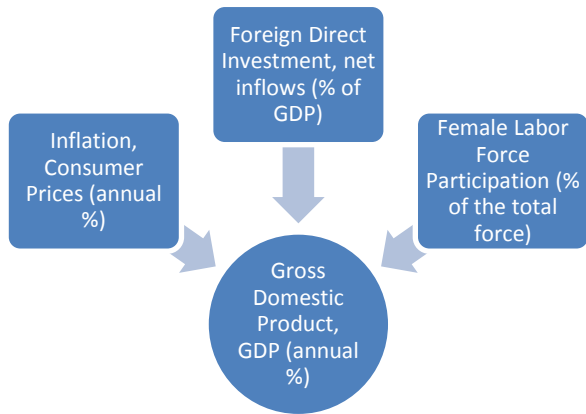


Figure 2. Conceptual framework for the relationship between GDP and the factors

This paper investigates the relationship between GDP growth and the factors such as Inflation, Foreign Direct Investment (FDI) and Female Labor Forces in Malaysia. Through three variables, we would like to investigate which

variable has a significance effect on GDP growth in Malaysia.

1.1 Statement of Problem

GDP growth has been studying for decades. It has been quite an important for policy makers to understand the growth of GDP could bring significant effect to the economy. There is a bunch of studies were 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.

2.0 LITERATURE REVIEW

The linkage between this study and past researches can be found in this section and are taken into consideration and used as guidance to determine a connection between GDP growth and its factors. There were three factors affecting GDP growth have been identified, namely Inflation, Foreign Direct Investment (FDI) and Female Labor Forces. GDP growth indeed has many controversial issues regarding the explanatory variables such as inflation. When it comes to the potential causes of wealth erosion, inflation will immediately come to mind (Balac, 2008). According to Barro (1995), inflation is the determinant of economic growth, which has been further explained that if there is a high inflation, then the level of investment will be reduced. Thus, the reduction in investment adversely affects economic growth. Besides that, Mundell (1963) and Tobin (1965), have found the empirical evidence that support the findings that the inflation has huge impact on economic growth. This study was continued study by Mallik and Chowdhury (2001), and found out that there is a positive relationship among both variables. However, other researchers for instance Gultekin (1983), mentioned that depending on the rate of return will affect the relationship between the inflation and GDP

growth. If the rate of return is decreased, then economic growth is definitely having a negative relationship with inflation. Furthermore, the research was further investigated by Fischer (1993).

Moreover, according to Sidrauski (1967), the inflation has insignificant impact on economic growth. This study was then supported by Sarel (1996).

Secondly, the explanatory variable that affects GDP growth is FDI. FDI has always been the major source to finance the economic activities of a country. There are some studies on the relationship between FDI and economic growth. According to Ang (2008), Malaysia needs to remain as a strong GDP growth to attract FDI inflows. According to Anwar and Sun (2011), FDI has huge impact on economic growth in Malaysia. Based on the previous research, Herzer et al. (2008), have mentioned that there is a positive relationship between FDI and economic growth.

Furthermore, economic instability will probably have a negative effect on the FDI such as inflation and unstable exchange rate Wai-Mun et al. (2008). Besides that, the study about the relationship was further explained by Yol and Teng-Teng (2009). Their investigation shows that it is a negative relationship between Foreign Direct Investment and economic growth. However, Lim (2001); Duasa (2007); Karim and Yusop (2009); Kogid (2010), found that there is no causal relation between FDI and GDP growth.

Finally, the explanatory variable that affects GDP growth is female labor force participation. Based on empirical studies it showed that female labor force participation rate has proved a significant impact on GDP growth. Through the female labor force participation rate, the average household income has improved thus it did increase the GDP growth. The study about the relationship between GDP growth and gender equality in labor force especially female participation rate seems to be the longest research conducted by many researchers. The common result from research done by Bryant et al. (2004), concluded that by increasing the labor force participation of women, it increases the rate of GDP. This is primary due to more equal human capital investment. In the case of Malaysia, it tends to have high participation of female in labor

force due to the level of education. According to the Department of Statistics Malaysia (2014), the female labor participation rate in Malaysia was 52.4% in 2013, which means, for every 100 women, 52 were in the labor force. Moreover, to date Malaysia is among other developing countries that have a growing number of educated women working in high-level, high paid job in both public and private sectors. Past studies conducted by Nor (1998) have shown that highly educated women tend to get better jobs, earn more and are less prone to be unemployed.

3.0 METHODOLOGY

3.1 Data and Variable Descriptions

Annual time series data for the 1982 to 2013 periods, the Ordinary Least Square Method (OLS) and Augmented Dickey Fuller (ADF) are used for the analysis. The dependent variable GDP is the real GDP measured on annual percentage growth rate. While the independent variables are the variable INF measured as annual percentage. The variable FDI is our measure for Foreign Direct Investment measured as percentage of GDP. The variable FLF represents Female Labour Force Participation measured as percentage of total labour force. Multiple Regression analysis has been employed and Ordinary Least Square Method (OLS) were used to estimate the model of GDP growth in Malaysia. Unit Root test commonly called as Augmented Dickey Fuller (ADF) used to test the stationarity of the variables. While for testing the model, several tests were conducted such as White Heteroscedasticity Test, Shapiro –Wilk Test and Breusch-Godfrey Test to test whether the regression model fulfill the Classical Linear Regression Model (CLRM) assumption or not. The said techniques allow us to test the availability of the assumption of multicollinearity, autocorrelation and heteroscedasticity in the model.

This study casual research has been conducted. Through this study we managed to identify the cause and effect relationship among the variables (DJS research, 2005). In addition, we managed to measure on how the independent variables such as Inflation, Foreign Direct

Investment and Female Labor Force Participation affect the result of the dependent variable.

Moreover, casual research treated as Quantitative research as well. According to Sibanda (2009) numerical data can be used in this study to develop a mathematical model, theories and describe the phenomena. Since this study all data in the numerical form, quantitative research was used to run the test.

3.2 Model specification

The econometric model was estimated as:

$$GDP_t = \beta_0 + \beta_1 INF_t + \beta_2 FDI_t + \beta_3 FLF + \mu_t$$

where t represent time series data and $\beta_0, \beta_1, \beta_2, \beta_3$ are the coefficient of the independent variables to be estimated and μ_t is the random error term or disturbance error term that represent the missing variable or factors that are not mentioned in the model.

3.3 Hypothesis

Our main hypotheses presented below,

H₁: There is a relationship between Inflation and Gross Domestic Production in Malaysia.

H₂: There is a relationship between Foreign Direct Investment and Gross Domestic Production in Malaysia.

H₃: There is a relationship between Female Labor Force Participation and Gross Domestic Production in Malaysia.

3.4 Regression Analysis Method

The purpose of the employment of this analysis is to explain on the relationship between dependent and independent variables through a model. In addition Ordinary Least Square (OLS) method has been chosen to model sample regression function.

3.5 Augmented Dickey-Fuller Test

As prevention for spurious regression, Unit Root Test and Cointegration were carried out to detect the presence of unit root in the series. For mean

and variance are not constant, the variables are considered to have unit root or non-stationary. In order to check for it Augmented Dickey Fuller (ADF) were performed. The null hypothesis for this test that the data is not stationary and there is a presence of unit root for the series. Thus the data needs to be differenced to make it stationary.

3.6 White Heteroscedasticity Test

It is general test for heteroscedasticity. The existence will cause an inefficient regression model (the variance of the error term is non constant). The null hypothesis for this test that there is homoscedasticity in the model. If p-value smaller than significance level, the null hypothesis will be rejected.

3.7 Shapiro –Wilk Test

The test is designed to detect all departures from normality. This approach is limited to samples between 3 to 50 elements. The null hypothesis for this test is that the data are normally distributed. If p-value smaller than significance level, the null hypothesis will be rejected.

3.8 Breusch – Godfrey Test

The test is the higher level of order that use to detect autocorrelation problem as compared to Durbin Watson test to detect the first order autocorrelation problem. The null hypothesis for this test is that there is no serial correlation of any order up to p (number of lags). If p-value smaller than significance level, the null hypothesis will be rejected.

4.0 RESULTS AND DISCUSSION

The model performance were assessed by interpreting the result of R squared and Adjusted R squared. Table 1 displays the result of both R squared.

Table 1: R squared results

R-squared	0.388
Adjusted R-squared	0.322

Even though both results show low value of *R* squared but it still provides us more information and check for the significant relationship between GDP and others variables.

4.1 Ordinary Least Square Method

The estimated regression model:

$$GDP = - 18.235 + 1.390*FDI - 0.449*INF + 0.560*FLF$$

Table 2: OLS results

Variables	Coefficient	<i>t</i> -Statistic	<i>F</i> -Statistic
Constant	- 18.235	- 0.697 (0.492)	5.912 (0.003)
FDI	1.390	3.879 (0.001)	
INF	- 0.449	- 0.877 (0.388)	
FLF	0.560	0.770 (0.448)	

In view of results (Table 2), *p*-value indicated in parentheses it can be concluded that the model is significant since the *p*-value of *F*-Statistic fall in the rejection region at 5% significance level. It also can be noticed that among the factors of FDI and Female Labor Forces Participation have positive impact on GDP growth in Malaysia. However, the *p*-value of *t*-Statistic of FDI fall in rejection region at 5% significant level and it leads to significant to the GDP growth. While Inflation is correlated negatively with the GDP and based on *p*-value of *t*-Statistic it fall in acceptance region. It concluded that this variable influence insignificantly to GDP.

Based on the hypothesis that has been tested, it shows that *H*₂(FDI) is proved to be a statistically significant factor in the explanation of GDP growth in Malaysia.

4.2 Stationarity and Correlation

The result in Table 3 shows that the FDI, Inflation and Female Labor Forces time series has no unit root and these are stationary in levels.

Based on Table 4, it proved that there is no existence of heteroscedasticity since *p*-value is larger than 5% significance level. It proved that

the variance of error term is constant across observation.

Table 3: Unit Root Test results

Variables	Level of Probability (Prob, *)
GDP	0.0013***
FDI	0.0800*
INFLATION	0.0014***
FEMALE LABOR FORCE	0.0042***

***, ** and * indicate significance respectively at 1%, 5% and 10% level.

Table 4: White test result

Obs*R-Squared	8.243580
Prob. Chi Square (<i>p</i> -value)	0.220796

Table 5: Shapiro-Wilk results

Variables	Statistic	<i>p</i> -value
GDP	0.836	0.000
FDI	0.970	0.512
INF	0.973	0.589
FLF	0.952	0.166

The result on Table 5 shows that the *p*-values of all variables are larger than 5% significance level and it fall in the acceptance region. It can be concluded that the data are normally distributed.

Table 6: White test result

Obs*R-Squared	1.452463
Prob. Chi Square (<i>p</i> -value)	0.220796

The result shows that the *p*-value on Table 6 is larger than 5% significance level. That indicated the null hypothesis is being accepted that leads to the variance of the error term is homocedasticity.

Table 7: Breusch-Godfrey Serial Correlation result

Obs*R-Squared	2.128734
Prob. Chi Square (<i>p</i> -value)	0.344946

It shows that the *p*-value on Table 7 is larger than 5% significance level. That achieved the null hypothesis saying that is no serial correlation exists in the regression model.

4.3 Summary of the study

According to past studies that has been conducted by Sidrauski (1967) and supported by Sarel (1996), the inflation has insignificant impact on economic growth. Thus supported that inflation is insignificant variable towards GDP growth. Moreover, this study also supports researches done by Fischer (1993) and Gultekin (1983) stating the negative relationship between inflation and economic growth.

From this study, FDI was found to be the only significant factor and positive relationship towards GDP growth. This support researches that has been done by Ang (2008) and Anwar and Sun (2011) stating that FDI has huge impact on economic growth in Malaysia. The study also supported Herzer et al. (2008) as they mention that there is a positive relationship between FDI and economic growth.

Lastly, for female labor force participation it has been proved that there is positive relationship towards GDP growth thus, supported study by Bryant et al. (2004), which concluded that by increasing the labor force participation of women, increases the rate of GDP. Unfortunately, it is not a significant factor for GDP growth.

In a nutshell, in our study it can be concluded that foreign direct investment is the only significant factor that contributes positively towards GDP growth. While the other variables are not significant which is inflation negatively related towards GDP growth and female labor force participation contributes positively to GDP growth. It does not mean the other factors are not important or significant. It might be because of limited access to the availability to the data and missing data on the certain variables. That leads to lack of reliability, accuracy and persuasive of the study.

5.0 CONCLUSION

This paper has presented an analysis for determining the factor affecting Gross Domestic Product (GDP) in Malaysia. Based on the result, it is suggested by maintaining the stability on inflation by implementing an appropriate fiscal policy. This is because it will directly affect the

level of aggregate demand of an economy by changing the tax and spending level. Malaysian government can increase tax and reduce government spending in order to reduce the inflationary pressure. It is also recommended by considering more careful whether a policy of subsidizing more foreign direct investment inflows in all sectors is indeed beneficial as a means to enhance GDP growth. In addition, identify solutions for current economic obstacles. For instance, the government should revive investments. Since the Asian Financial Crisis, private investment has been declining as reflected the comparison in the years of private investment to GDP of only 9.4% in 2009 as compared to 1997 with 33%. In the past few years, the consumption-led growth has enabled the economy to keep growth at an approximately 5% to 6% clip per annum. After the recent global financial crisis the consumer spending has emerged a visible signs of fatigue. Other macro weaknesses are persistent budgetary deficits, high subsidies and high dependency on foreign labor and rising income disparity.

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