THE EFFECT OF SELECTED MACROECONOMIC FACTORS TOWARDS ECONOMIC GROWTH IN MALAYSIA

DEBBIE LIZA PENCIL[1] & NORIMAH RAMBELI[1*]

[1*] Faculty of Management and Economics, Sultan Idris University of Education (UPSI), 35900 Tanjong Malim, Perak, MALAYSIA.
Email: debbielizaa21@gmail.com; norimah@fpe.upsi.edu.my

Corespondent Email: norimah@fpe.upsi.edu.my

Abstract: To achieve prolonged financial growth, economies must first experience steady expansion. Most countries strive for brisk, sustained expansion of their economy. Implementing the objective has been challenging due to several financial factors that affect how the economy develops. Numerous financial factors, such as inflation, foreign direct investment, the value of the currency, and the labour force, have an impact on the economic expansion of any nation. Malaysia's economic growth is mostly measured by GDP. The major goal of this study is to determine how Malaysia's gross domestic product is impacted by inflation, foreign direct investment and the female labour force. The research will employ a dynamic methodology and time series data with a quarterly frequency. In this study, the Johansen Juselius cointegration test will be used in conjunction with Vector Autoregression (VAR) and the Augmented Dickey Fuller (ADF) unit root test to investigate the long-term relationship between variables in the observation. In accordance with the study's conclusions, all of the time series variables included in it are of type I(1). In other words, it is stationary at the first difference level. Furthermore, the Akaike value (AIC) on the Vector Autoregression (VAR) test suggests that lag 9 is the ideal lag. The cointegration test establishes that at least one cointegration vector exists between several macroeconomic indicators and gross domestic product. This demonstrates that the variables are in a stable balance over time. The existence of this cointegration indicates that the correlation between macroeconomic factors and GDP is not 'spurious', and the equilibrium is sustained over the long run.

Keywords: GDP, macroeconomic variables, Johansen Juselius cointegration test

PENGENALAN

Malaysia remains a prosperous emerging country in Asia and is working hard to build itself into a developed country. The nation is transitioning from an agriculture-based economy to one that is more diversified. Many researchers have long viewed GDP growth to be a current topic that needs to be studied. Unbalanced growth in a country's gross domestic product per person will lead to higher poverty rates and obstruct improvements in crime, health, and education as well as future economic progress. The causes of GDP development are crucial in preventing the emergence of sociopolitical volatility.

For many years, the expansion of GDP has been studied. It became crucial for policymakers to understand that GDP growth might have significant effects on the economy. Researchers have carried out plenty of studies to examine on this problem. There is considerable debate over the factors chosen to influence the rise in GDP. As explicating variables, a long list of potential factors might be employed. Yet, it can be challenging to focus on a few factors that are potent enough to clarify the rise in GDP. This could be because of the data's accessibility, various country features, various time periods, or other factors.

The overall selling price of the finished goods and services manufactured by a nation at a specific point in time (often within a calendar year) is known as the gross domestic product (GDP). Additionally, it determines the value added at each stage of the manufacturing of the final commodities and services that a nation produces at any given time and converts that value into monetary worth.

Several empirical studies were done to further comprehend the relationship between GDP and macroeconomic parameters such inflation, foreign direct investment, and female labour force participation. Three methods that all produce the same data can be used to measure GDP. The first approach is the product strategy, followed by the income strategy and the expenditure strategy. Real GDP and nominal GDP are the two categories of GDP. Real GDP is the measure that accounts for inflation, as opposed to nominal GDP, which excludes it from calculations. Considering inflation is still around 5%, Malaysia's Gross Domestic Product (GDP) was about 314.50 billion US dollars in 2017. The GDP of Malaysia represents 0.51 percent of the world economy. Malaysia's economy shrank in 2018, from 5.4% in the first quarter to 4.5% in the second, according to data from the first and second quarters. The poor growth of the mining and quarrying sector and agriculture are to blame for the drop in GDP performance.

Price increases for products and services over a given time are referred to as inflation. When the value of money declines, inflation happens and has a detrimental effect on GDP. Typically, inflation is expressed as a percentage. The cost of living as well as monetary authorities like the central bank will be impacted by price increases. There are three types of inflation, namely built-in inflation, cost-push inflation and demand-pull inflation. Demand-pull inflation is when consumer demand for goods and services increases faster than the economy's ability to produce them. As a result, there is a significant discrepancy between supply and demand, which raises the price. Cost-push inflation, on the other hand, takes place because of the rise in the cost of production inputs and built-in inflation, which are connected to adapting expectations. Whenever the cost of goods and services rises, workers will expect more pay to preserve their standard of life, which will drive up the cost of products and services.

Foreign direct investment, which is money invested by a company in one country into another, is the second element that affects GDP. If investors require a foreign asset or commercial operation, FDI occurs. Participation in management, joint ventures, the transmission of technology, and expertise are all components of FDI. We are aware that FDI has advantages and disadvantages of its own. Without a doubt, FDI helps emerging nations. To increase their international sales, many businesses require professional and financial assistance. The benefits of FDI include the ability to develop strong economic relationships within a nation regardless of ethnicity, religion, or colour. Additionally, it can lessen the consequences of bribes

and politics. Additionally, FDI can counteract the ambiguity that results from money sellers and short-term lenders inflating asset prices. The drawback of FDI is that it exposes us to foreign investor fraud. This is possible because they can sell a portion of the business that won't yield a large profit. They can also employ the low-cost collateral loans offered by the business.

In this study, female labour force participation (FLF) is the final component that has an impact on GDP. FLF has a beneficial effect on a country's economy and aids in the advancement of the country. Since there are more women in the labour force today than ever before, the economy will grow more quickly. Because of several variables, including poverty and educational attainment, which allow women a significant chance to work in this modern economy, women can participate in careers.

In this study, inflation (INF), foreign direct investment (FDI), and female labour force participation (FLF) are the primary variables determining the gross domestic product (GDP). The intent of this study is to explore the relationship between the independent variables, foreign domestic investment, inflation, and the female labour force in Malaysia, and the dependent variable, gross domestic product, using time-series data that was obtained on a quarterly basis from the years 1988 to 2022. Understanding how some financial parameters change will help Malaysia's economy expand more successfully. Therefore, the research hypothesis is as follows.

H0: There is no long-run relationship between macroeconomic factors and GDP. H1: There is a long-term relationship between macroeconomic factors and GDP.

To achieve the main purpose of the study, the time series test approach used by Rambeli, Podivinsky & Jalil (2019) will be used in this study. In the next section provides some literature review. Section three to five, discussion the methodology part, empirical findings and conclusions.

LITERATURE REVIEW

We will go into detail on the prior study that was done in this section. The topics and points of view are founded on the study's main conclusions. Rahman and Majidi (2017) examined the impact of inflation and foreign direct investment on Malaysia's economic development from 1976 to 2016 using the Granger causality test, the Phillip Peron and ADF unit root tests, and Johansen-Juselius of cointegration approaches. The research they conducted proved the long-term effect on Malaysia's growth in economy. Even though foreign direct investment had a considerable impact on Malaysia's growth, there was insufficient proof to support a causal relationship between inflation and economic expansion. It was emphasized that the study ignored other significant elements, such as the expansion of the financial and banking industry, that can explain or restrict Malaysia's economic progress.

Yacoub and Lestari (2019) applied the Engel-Granger causality approach to determine the direct effect of foreign direct investment on the economic expansion of the five ASEAN countries, including Malaysia. The findings showed that Malaysia's and other ASEAN nations' GDP expansion was positively impacted by foreign direct investment. Findings showed that the

factors affect Malaysia's growth in both directions. The results, however, were at odds with those made public by Rasiah et al. (2017), who found that there was no correlation between FDI and economic development in the context of Malaysia. The variance in the outcomes of their research is possibly due to the political climate and elements that were overlooked. Vogiatzoglou and Nguyen (2016) explored the short-term and long- term impacts of FDI on the economic performance of the five ASEAN countries, including Malaysia, between 1980 and 2014. The researchers examined each putative causal association between variables using the VECM framework. Findings demonstrated that foreign direct investment has a favourable and considerable impact on economic growth in Malaysia over both the short and long term.

Inflation, foreign investment, and female labour force participation were the three main variables that Aziz and Azmi's (2017) research examined in relation to Malaysia's gross domestic product. The ADF and OLS methods were employed in the investigation, which covered the years 1982 to 2013. The findings of the stationarity test also showed that the female labour force, inflation, GDP, and foreign direct investment were all at stable levels. According to the findings, development was aided by foreign direct investment and the participation of women in the workforce.

METHODOLOGY

This study uses multiple co-integration analysis methods, Granger's causal test in the framework of error correction vector model (if necessary), the decomposition of variance and reaction function for analysing dynamic relationships between Gross Domestic Product (GDP), Inflation (INF), Foreign Direct Investment (FDI), and Female Labour Force (FLF) on year. These methods are expected to be able to track the direction of overflow of innovation which is the cause of changes in the local market through the error correction term (ECT) channel (Still and Still, 1996).

Autocorrelation Function (ACF) & Partial Autocorrelation Function (PACF)

An autoregressive (AR) model is a representation of a certain kind of stochastic process that has been employed for defining specific time-varying processes in nature, the field of economics etc. in statistics and the analysis of signals. The output variable of the autoregressive model is specified to rely linearly on both its own historical values and a stochastic factor (a term that is not fully predictable); as a result, the model takes the form of a stochastic difference equation. In conjunction with the moving-average (MA) approach, it is an exceptional and crucial element of the broader ARMA and ARIMA models of time series, that utilize a more complex stochastic framework. It additionally serves as a particular scenario for the vector autoregressive model (VAR), which is made up of a system of multiple interrelated stochastic difference equations in multiple evolving random variables.

The Unit Root Test

The Dickey-Fuller (1979) Unit Root test is a test employed to evaluate the level of integration of each variable. The unit root test (root test unit) is another name for this test. If a factor remains stationary following being differentiated by d times (0 = level, 1 = first level difference, 2 = second level difference), it is regarded to possess a level of integration equal to d. It is important since it allows for the co-integration test preparation and guards against erroneous regression. If the mean zero, its constant variance, and the covariance value between both time frames can be estimated only during that time period and not in actual time, the collection of data appears to be stationary.

Augmented Dickey-Fuller Test (ADF)

Unit root test (root test unit) shall be employed to examine the beginning level. The method developed by Dickey-Fuller (Augmented Dickey Fuller, 1979), among others, can be employed as the unit root test throughout this study. The analysis gets stopped when it reaches the phases if the ADF test at level (I (0)) demonstrates that the time series data is essentially stable, failing to reject the null hypothesis with t-statistic absolute value lower than the absolute value of the table, or t-critical. If the null hypothesis is effectively rejected using various mean t-statistics with absolute values bigger than the absolute value of t-table, time series data phases are attained.

The Akaike Information Criterion-AIC and the Schwarz Information Criterion-SIC are primarily used to figure out every equation in the root cause test regarding the optimal latency monitoring time. Nevertheless, the AIC is more widely known and applied, and this work adopts it as the ideal latitude lag (wood) benchmark. In a nutshell, the ideal latency is equal to the lowest AIC value. In conclusion, the model budgeting process is to be carried out using the least-squares estimation method (OLS). The minimal AIC and SBC values determine the best latency identification number to enter in the framework.

Vector Autoregression (VAR)

The study applies a vector autoregression approach to examine whether a lead lag effect is present. The methods of VAR have introduced by Sims (1980) and can represented in a general form as below:

$$y_t = v + \big| A_1 y_{t-1} + \ldots + A_P y_{t-p} + u_t$$

where,

yt	= Vector of exogenous variables
A1 to Ap	= Coefficient matrices
v	= Vector of intercept
ut	= Vector of white noise

There are two phases in the VAR estimating procedure. Determine the VAR lag length (p) in the first phase using guidelines like the lag length selection criteria. The next phase involves utilizing regression modelling to determine the parameters' and intercept's numerical values. This study is limited to examining how well-known lag length selection criteria perform in determining the actual lag length
(p) (Liew, 2004).

Johansen Juselius Cointegration Test

The cointegration test developed by Johansen and Juselius (1990) will be utilized used to ascertain the quantity of cointegration vectors in the framework of equations following finding the same degree of integration for each variable. To determine the number of cointegrating vectors, the Johansen test was employed to examine the long-term relationship between the variables.

Data Collection

This study consists of two types of variables, namely the dependent variables which is Malaysia food price index (MFPI) and the independent variables which are World Food Price Index (WFPI), Labor Cost (LCOST) and Real Effective Exchange Rate (REER). This research is carried out by using secondary data. This study employed secondary data, extracted from numerous credible sources such, The World Bank, Trading Economics and The Department of Statistics Malaysia. This study uses quarterly data from 1988 until 2022.

Model Specification

The model specification used in this study was inspired by Aziz and Azmi (2017).

$$GDP_t = Q0 + Q1 INF_t + Q2 FDI_t + Q3 FLF + \mu_t$$

Where:

GDP = gross domestic product
INF = inflation
FDI = foreign direct investment for
FLF = female labour force μ_t= random error term

The research methodology utilised by Rambeli, Podivinsky, and Jalil (2019) is to be employed for the present research. The Augmented Dickey Fuller unit root test (ADF), vector autoregression analysis (VAR), and the Johansen Juselius cointegration test shall be employing in this methodology.

FINDINGS

The Augmented Dickey Fuller unit root test (ADF), vector autoregression analysis (VAR), and Johansen Juselius cointegration test, which were all inspired by Aziz and Azmi (2017), will all be addressed in this part along with the statistical outcomes.

Unit Root Test (ADF)

Table 1:
Results Of the Stationarity Test of The Relationship Between Inflation, Foreign Direct Investment and Female Labor Force Towards Gross Domestic Product in Malaysia.

Time series data	Level		1st Difference	
	Intercept	Trend and intercept	Intercept	Trend and intercept
GDP	-1.662726	-3.070391	-4.787888	-5.363241
INF	-1.420310	-1.166462	-4.673760	-4.626938
FDI	-1.315922	-2.079264	-3.518371	-4.671150
FLF	-2.095381	-2.044064	-3.388434	-5.492361

Note: Figures in parentheses are the lag order selected based on the AIC where '*' indicates significant at the 99% level.

The outcomes of the ADF unit root test, accounting for the time trend factor independently, are shown in Table 1 for both the level and the first difference. Table 1 shows that none of the t-test results from the ADF test series were statistically noteworthy enough to reject the null hypothesis of non-stationarity. This conclusion implies that the level form of these series is non-stationary. Nevertheless, the results are not sufficient to rule out the null hypothesis that none of the unit roots for each variable's auto- regressive formulation are I(0) in their level form. This ends out that each of these components includes either a unit root process or a shared stochastic component. As it turns out, the tests are kept going even during the initial stages of distinguishing. Assuming the ADF test is run at each factor's initial difference, as indicated in Table 1, the non-stationarity null hypothesis is quickly invalidated.

Vector Autoregression-VAR

Table 2:
Results of a Vector Autoregression (VAR) Test Study on the Relationship Between Inflation, Foreign Direct Investment and Female Labor Force Towards Gross Domestic Product in Malaysia.

VAR	AIC MALAYSIA
2	-6.593622
3	-6.357324
4	-7.281420
5	-8.408957
6	-8.175751
7	-7.920848
8	-8.362209
9	-8.964581
10	-8.675608
11	-8.403189
12	-8.617284

Note: Numbers in bold are the lowest sequences selected based on AIC.

According to Table 2, the results for each lag, from lag 2 to lag 12, are shown together with their Akaike Information Criteria (AIC) value, as would have been carried out in a general selection. However, we shall choose the best lag length using the AIC value. The lag duration in lag 9 is similarly shown in table 2 with an AIC of -8.964581. However, to proceed with the VECM estimation test, we will be using lag 9 minus 1 lag, therefore lag 8 due to a lag will be deducted in differencing.

Johansen Juselius Cointegration Analysis

Table 3:
Results of the Johansen Juselius Cointegration Analysis Test Study on the Relationship between Inflation, Foreign Direct Investment and Female Labor Force Towards Gross Domestic Product in Malaysia.

Data period 1988 to 2017		Co-integration system F (Inflation, FDI, FLF)					
Hypothesis			5%	1%		5%	1%
H0	H1	λ Trace	critical value	critical value	λ Max	critical value	critical value
r=0	r=0	66.64985**	47.21	54.46	44.60436**	27.07	32.24
r≤1	r>1	22.04548	29.68	35.65	13.38912	20.97	25.52
r≤2	r>2	8.656364	15.41	20.04	6.029266	14.07	18.63
r≤3	r>3	2.627098	3.76	6.65	2.627098	3.76	6.65

Note that, the notation 'r' denotes the number of cointegrating vectors. The superscript (*) indicates statistically significant at 95% and (**) at 99% levels. The critical values for the Johansen Juselius test were obtained from (Osterwald-Lenum, 1992).

The trace statistic test illustrates that the null hypothesis of r=0 opposing its alternative, r>2, is clearly denied for the result of the co-integration test of those variables at the 0.01 and 0.05 significant levels. The calculated outcomes, 66.64985, is notably above the critical values for 0.05 and 0.01, 47.21 and 54.46, respectively. Should we analyse the null hypothesis of r2, we are unable to disregard it because the result obtained at 8.656364 is less than the important value 0.05 and 0.01 significant levels, which are 15.41 and 20.04, respectively. As a result, we infer from the results of the trace statistic test which the model does not contain even solely one co-integrating vector. The analysis predicts identical findings for Lambda Trace and Lambda Max. This research further hypothesizes that there is no long- term association among economic development and its macroeconomic causes in regime one (coverage) given these data. It reveals that the framework's series are advancing towards one another while functioning in sync.

Error Correction Term (ECT)

Table 4:
Results of the Error Correction Term Test Study on the Relationship between Inflation, Foreign Direct Investment and Female Labor Force Towards Gross Domestic Product in Malaysia.

Vector Error Correction Estimates	
Sample (adjusted): 1988Q1 2022Q4	
Standard errors in ( ) & t-statistics in [ ]	
Cointegrating Eq:	CointEq1
GDP(-1)	1.000000
INF(-1)	-0.233248
	(0.12777)
	[-1.82556]
FDI(-1)	0.448878
	(0.08499)
	[5.28123]
FLF(-1)	0.054359
	(0.08071)
	[0.67349]
C	-29.14268

From the result, the researcher generates the following equation for error correction term (ECT) which later will be inject into the VECM equations.

$$ECT(-1)=-29.14268+1*GDP-0.233248*INF+0.448878*FDI+0.054359*FLF(-1)$$

By using the presented equation, researcher now able to further the VECM test by generating the system equation.

Error Correction Model (ECM)

Table 5:
Results of the Error Correction Model Test Study on the Relationship between Inflation, Foreign Direct Investment and Female Labor Force Towards Gross Domestic Product in Malaysia.

Variables	GDP	INF	FDI	FLF
Constant	0.012866	-0.202217	0.190825	0.022115
	(0.0000)	(0.0780)	(0.0525)	(0.0910)
$ECT1_{ijt-1}$	0.012677	-0.188304	0.300026	0.035349
	(0.0000)	(0.1399)	(0.0069)	(0.0164)
ΔGDP_{ijt-1}	0.402988	3.989400	-3.861654	-0.516591
	(0.0023)	(0.5466)	(0.4954)	(0.4941)
ΔGDP_{ijt-2}	0.122251	0.132516	-1.820570	-0.311870
	(0.3936)	(0.9857)	(0.7734)	(0.7115)
ΔGDP_{ijt-3}	0.309194	-3.087942	4.625895	0.253597
	(0.0426)	(0.6914)	(0.4875)	(0.7751)
ΔGDP_{ijt-4}	-0.662634	-4.704008	-40.60441	1.357291
	(0.0000)	(0.5391)	(0.0000)	(0.1229)
ΔGDP_{ijt-5}	0.331415	2.740232	28.30907	-0.762933
	(0.0714)	(0.7706)	(0.0007)	(0.4775)
ΔGDP_{ijt-6}	0.090929	-0.021073	9.788824	-0.331583
	(0.6462)	(0.9984)	(0.2654)	(0.7764)
ΔGDP_{ijt-7}	0.185030	5.084515	4.452563	-0.066074
	(0.3543)	(0.6216)	(0.6135)	(0.9551)
ΔGDP_{ijt-8}	-0.631017	9.125285	-13.34043	-0.836496
	(0.0003)	(0.2918)	(0.0737)	(0.3965)
ΔINF_{ijt-1}	0.003595	0.306433	0.034786	0.006936
	(0.0782)	(0.0043)	(0.6971)	(0.5609)
ΔINF_{ijt-2}	0.002377	0.092215	0.043666	0.005710
	(0.2882)	(0.4245)	(0.6580)	(0.6643)
ΔINF_{ijt-3}	0.000941	0.031363	0.014836	0.002115
	(0.6732)	(0.7855)	(0.8804)	(0.8722)
ΔINF_{ijt-4}	-0.001484	-1.184636	-0.464394	0.019588
	(0.4939)	(0.0000)	(0.0000)	(0.1281)
ΔINF_{ijt-5}	0.004790	0.267916	0.331525	-0.010797
	(0.0389)	(0.0257)	(0.0015)	(0.4242)
ΔINF_{ijt-6}	0.001920	0.087461	0.132011	-0.001600
	(0.4376)	(0.4937)	(0.2288)	(0.9125)
ΔINF_{ijt-7}	-0.000137	0.120405	0.009426	-0.001464
	(0.9563)	(0.3525)	(0.9320)	(0.9209)
ΔINF_{ijt-8}	-0.002388	-0.555434	-0.161424	-0.013612

	(0.2901)	(0.0000)	(0.1075)	(0.3064)
ΔFDIijt-1	-0.004178	0.118006	0.522148	-0.015712
	(0.1818)	(0.4637)	(0.0003)	(0.3930)
ΔFDIijt-2	-0.004066	0.107165	0.128153	-0.010396
	(0.2685)	(0.5713)	(0.4293)	(0.6303)
ΔFDIijt-3	-0.002133	0.121627	0.027457	0.002245
	(0.5588)	(0.5189)	(0.8647)	(0.9168)
ΔFDIijt-4	-0.001427	0.228227	-0.298867	-0.028177
	(0.6712)	(0.1910)	(0.0470)	(0.1576)
ΔFDIijt-5	-0.005116	0.002741	-0.074929	-0.006854
	(0.0275)	(0.9815)	(0.4589)	(0.6112)
ΔFDIijt-6	-0.002755	0.056805	-0.051849	-0.002809
	(0.2468)	(0.6428)	(0.6208)	(0.8406)
ΔFDIijt-7	-0.001984	-0.016007	0.009850	0.009749
	(0.4153)	(0.8986)	(0.9270)	(0.4971)
ΔFDIijt-8	0.002606	0.110480	-0.090919	-0.010895
	(0.2130)	(0.3060)	(0.3248)	(0.3760)
ΔFLFijt-1	-0.022906	0.175735	-0.305622	0.711566
	(0.2479)	(0.8632)	(0.7263)	(0.0000)
ΔFLFijt-2	-0.006453	0.019447	-0.153606	0.242860
	(0.7904)	(0.9876)	(0.8862)	(0.0929)
ΔFLFijt-3	0.007636	-0.891350	0.006624	0.102776
	(0.7582)	(0.4874)	(0.9952)	(0.4830)
ΔFLFijt-4	0.022916	0.773580	-2.552419	-0.789996
	(0.3029)	(0.5001)	(0.0108)	(0.0000)
ΔFLFijt-5	-0.012964	0.245379	2.122780	0.497201
	(0.5702)	(0.8351)	(0.0380)	(0.0004)
ΔFLFijt-6	-0.004056	0.105603	0.701371	0.176796
	(0.8729)	(0.9358)	(0.5321)	(0.2392)
ΔFLFijt-7	-0.007364	-0.337493	-0.126801	0.079244
	(0.7697)	(0.7952)	(0.9092)	(0.5935)
ΔFLFijt-8	-0.023438	0.959627	-0.805352	-0.275848
	(0.2436)	(0.3548)	(0.3640)	(0.0216)

Considering every of the equations in this investigation had one long-term connection identified by the co-integration test in the prior component, the short-run relationship in the model was approximated using error correction models. Firstly, each explanatory variable was included in the regression equation for the purpose of testing up to a maximum of 9 lags.

The outcome implies that the ECT1 for inflation (INF) is negative, as seen in the table. It demonstrates that the dependent variable is substantial. The factor, however, is not noteworthy because ECT1 for GDP, FDI, and FLF reveals a positive connection.

Vector Error Correction Model (VECM)

Table 6:
Results of the Vector Error Correction Model Test Study on the Relationship between Inflation, Foreign Direct Investment and Female Labor Force Towards Gross Domestic Product in Malaysia.

Dependent variables	Independent variables				
	ΔGDP_t	ΔINF_t	ΔFDI_t	ΔFLF_t	ΔECT_t
ΔGDP_t	-	[4.848537] (0.0035)***	[6.595827] (0.0000)***	[8.825856] (0.0003)***	[0.011341] (0.0000)***
ΔINF_t	[2.567595] (0.0821)**	-	[3.290249] (0.024)***	[0.446672] (0.6411)	[-0.067380] (0.4176)
ΔFDI_t	[24.35008] (0.0000)***	[17.19055] (0.0000)***	-	[12.97696 (0.0000)***	[0.192399] (0.0058)**
ΔFLF_t	[0.186786] (0.8299)	[1.783805] (0.1555)	[0.701093] (0.4986)	-	[0.009940] (0.2340)

All variables in each data set in first differences (denoted by Δ) with the expectation of the lagged error correction term (ECT1=(t-1)). All equations for all data set passed the diagnostic tests. In varies brackets, [ ], ( ) specify the Wald test probability and error correction term coefficient.

Notes: *** significant at 99%
** significant at 95%
* significant at 90%

The F-statistic value and probability are shown in the above figure as the outcomes. Yet, several of the table's (-) unavailable figures are present. It happens because the researcher is more interested in figuring out the short-term relationships between the independent factors and the remaining dependent variables instead of measuring the link between the endogenous and exogenous variables themselves.

It demonstrates that there is no short-term association between ΔGDP (as dependent variables) and ΔINF and ΔFLF (as independent variables), with F-statistic values of 4.848537 and 8.825856 and probability values of 0.0035 and 0.0003 for each variable, respectively. The F-statistic values for FDI's short-term relationships with ΔGDP, ΔINF, and ΔFLF's independent variables are 24.35008, 17.19055, and 12.97696 correspondingly, whereas 0.000 is the probability value for each of those three factors.

Other than that, the other results from the remaining variables pointed out that since there isn't a short-term association between the independent factors and the dependent variables, the null hypothesis is not invalidated but rather needs to be accepted.

CONCLUSION

In a nutshell this research intends to ascertain the impact of chosen economic parameters, such as inflation, foreign direct investment, and the female labour force, on economic growth in Malaysia utilizing quarterly data from 1988 through 2022. Employing sophisticated time series approaches, the research found evidence suggesting the GDP and related macroeconomic indicators lacked long-term connections. The Johansen Juselius co-integration test can be used to demonstrate that the system's components may shift independently of one another and occasionally shift jointly. The VECM test shows that foreign direct investment (FDI) is the main source of GDP. FLF has a less substantial impact on how the economy develops, but inflation also determines whether the economy expands or contracts.

From the VECM findings, concluded that gross domestic product (as dependent variables) does not exhibit short run relationship to inflation and female labour force (as independent variables) with F- statistic value is 4.848537 and 8.825856 while the probability value for both variables is 0.0035 and 0.0003 respectively. Meanwhile, foreign direct investment (as dependent variables) has a short run relationship to gross domestic product, inflation and female labour force (as independent variables) with F-statistic value is 24.35008, 17.19055 and 12.97696 respectively while the probability value for all three variables is 0.000. According to the findings, foreign direct investment has a significant impact on Malaysia's economic growth. This is because there is a positive relationship between these two factors, such that for a country's foreign direct investment to expand, its gross domestic product must also remain steady to draw in additional investors. Additionally, a rise in FDI will create more job opportunities and advance technology, both of which will result in better products. If inflation is not controlled, it also has an impact on the nation. Therefore, the government may lower inflation by raising taxes and cutting spending while also raising Malaysia's economic development through this strategy.

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