



Impact of Inflation on The Economic Development of Malaysia

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Abstract

This paper analyses inflation determinants in Malaysia, employing economic indicators. The research expands analytical work on inflation theory determinants in three respects. Second, it looks at a much larger variety of economic variables, all of which are empirically evaluated in various countries. Third, given the different analytical consequences of the economic indicators for each region, the author analyses those precisely concerning inflation determinants based on Malaysian economic performance over the past 43 years, from 1971 to 2013. Besides, more than five literature reviews to identify economic success and inflation are used to do this study. Finally, the third goal of the research is to distinguish inflation causes between different and dependent variables through the Multiple Regression Process. A basic reason for finding a long-term approach is to obtain information about inflation determinants in Malaysia. However, it was not limitable as a proxy for money supplies in Malaysia for high monetary growth (annual percentages). In addition, it is also comprised of macro economically inflation uncertainties, energy, foreign exchange; Imports, and the gross domestic product for goods and services.

Keywords: *Inflation, economic, performance, Malaysia.*

1 Introduction

Inflation can be described as a gradual rise in relative or average costs in an economy, contributing to an upsurge in the cost of living. The annual inflation rate is also defined as the percentage change in the value of the CPI. Inflation is one of the current issues of low living costs, fast productivity, health economy, and decision-making in all countries. It can be said. Depending on the national economic situation, inflation has a positive and negative effects.

The preservation of economic stability and market stability has, as in many other developing countries, been, under current central banking practice,

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one of the critical priorities of the Central Bank of Malaysia. The desire to sustain price stability derives from the need to regain macroeconomic stability as a whole and from the fact that price stability offers an enhanced climate for consumption, development and jobs, and the like. And, as inflation approaches an acceptable economic cap that may negatively impact other macroeconomic factors, policymakers conclude that it threatens their stable monetary standard (Ferrari et al., 2018). The recent years have shown that rising prices of essential goods have been demonstrated in both developed and developing countries, with food and petroleum products impacting almost all the world's nations.

The main objective of the current study is to empirically examine the impact of inflation on Malaysia's economic growth by using annual data from 1971 to 2013 and on GDP (Gross domestic product) and the CPI (Consumer Price Index) in general. The findings of this study provide recommendations for macroeconomists, financial reviewers, scholars, and policymakers—besides, the link between inflation and economic growth. Several observational experiments (Jomo, 2016) have observed that these factors' relationship is either positive or negative. Moreover, this analysis uses the Johanson and Co-integration method; the causal relations among variables are explored in vector error correction models. The limits of this report are that it only includes inflation and the influence of monetary supply, budget deficit, and currency depreciation. The effects of other variables on inflation cannot be captured in this analysis.

This study offers a fundamental awareness and convenience to aid Malaysia and the world over to conquer the effect of inflation on the fatal seed that is rising hardly anywhere to lower the economic boom period. However, some parts of the study have analytical and general information for understanding and determining some of the most critical variables that will also impact inflation in the future.

The remaining paper is structured accordingly: Section two briefly discusses the theoretical and empirical literature on inflationary determinants. In section 3, the approach used in the analysis is discussed, and in section 4, the empirical findings are presented. The conclusion is given in the final section.

2 Literature review

(Madurapperuma, 2016) the study has shown that a country's economic growth is driven by reticent and steady inflation. The elimination of inflation stimulates savers, boosts consumption, and thereby accelerates the country's economic development in the background of the Johansen cointegration and error correction model. In the years 1988 to 2015, Sri Lanka analyses inflation's impact on economic growth. Sri Lanka has a negative long-term association between economic growth and inflation in their results.

(Odusanya, 2014) analyzed using an overview of self-reported distributed lag (ARDL), the long-term association between exchange rates, interest rates, and inflation. The paper has drawn significant short-term and long-term favorable correlations between inflation and exchange rates from data on Nigeria (1971-2010). Therefore, all the monetary institutions had to make concerted efforts to

ensure that occasional inflation fluctuations were held to the lowest exchange-rate stability minimum.

(Olorunfemi Sola, 2012) investigates Nigeria's cash shortage and inflation. Secondary data from 1970-2008 was derived from the Vector Auto-Regressive (VAR) model analysis CBN Statistical Bulletin. The model has also been developing its static properties. The results revealed that while the first difference between oil income and the interest rate was equal, the money supply and exchange rate were similar. The test results show that the causality coefficient, interest rate, and inflation are induced by money supply and inflation.

Moreover, FDI inflows to the advanced world (Li & Liu, 2003) typically constitute horizontal capital expenditures driven by consumer search strategies. And HFDI replicates the entire manufacturing process in a foreign country (Botrić&Škuflić, 2006). To be an indicator for inflation problems, Bruno and Easterly (1996) find a rate of 40 percent inflation. Likewise, Grimes (1991) noticed that even low inflation is counterproductive to economic development in 21 OECD nations, which stretched over 27 years. Khan, Senhadji, and Smith (2006) attempted to decide if different standards exist for various countries. Two different small parties, one from Asian developing countries and one from the Organisation for International Cooperation and Growth (OECD), were studied separately (Allen, 1997). Alexander (1997) dismissed the premise that inflation is not correlated with actual growth and argued that inflation was strongly and adversely linked with economic development. Hence, Price's vulnerability to development adjustment was stronger than inflation adjustments (Mallik & Chowdhury, 2011). Inflation is strongly and adversely connected to development (ZubaidiBaharumshah& Soon, 2014). Hanif and Malik also studied the condition in Fiji. They found a low negative relationship between the two vectors and their causality from GDP growth to inflation in one direction (Hanif & Malik, 2019). Another analysis also verified this negative association between the two variables. Brazil was the situation in which annual results were examined by Carneiro&Faria (2001) focused on the bivariate time series model between 1980 and 1995.

Dohaiman (2013) researched GCC (Gulf Cooperation Council) countries, and he examined the effect of variables of oil prices (change and volatility) on (stock market returns) under scheme changes firstly. He uses a Markov scheme to adjust the scheme and create oil price variables for scheme probabilities. He found a system focused on the partnership between GCC capital markets and OPEC volatility in crude oil markets (GCC, 2018). Furthermore, he noted that during the recent financial crisis, the reliance on inflation and crude oil prices was asymmetric and driven upwards. In addition, there is evidence of significant symmetrical reliance on crude oil prices and short-term interest rates in the financial sector (Dutta et al., 2017). The findings of this paper were realistic and vital for the economic and financial security of the GCC.

2.2 Data Source and Universe

This study analyses the long-term relationship between the estimated variables using secondary data. In most countries, inflation determinants are nearly similar, but their severity varies in different countries due to country variations. Data constraint in Malaysia is acute. Hence data from this analysis is derived mainly from the World Development Indicator International Financial Statistics and World Bank database. The methodological solution to the current study was multiple regression analysis. We used the inflation info, money supply, exchange rate, energy consumption, production and export of goods and gross domestic products from 1971 to 2013.

3 Methodology

We can deduce an inflation function from the above variables in the form of:

$$INF = f(MS, ER, LAIB, IMP, GDP)$$

The logarithmic form of the econometric model above can therefore be described as

$$\begin{aligned} \text{LogINF} = & \beta_0 + \beta_1 \text{LogMS} + \beta_2 \text{LogEXR} + \beta_3 \text{LogLAIB} + \beta_4 \text{LogIMP} \\ & + \beta_5 \text{LogGDP} + \mu \end{aligned}$$

In INF inflation, f reflects MS, EXR, IR, IMP, GDP, and μ , respectively, cash distribution. The currency exchange rate (Advance annual average \$Local currency), energy consumption (Kg of oil equivalent per capita), the supply of goods and services, the gross domestic product (LCU). The log defines the logarithm and error term. β_0 is the explant's intercept and influence:

β_1 ; β_2 ; β_3 ; β_4 ; β_5 respectively.

The preceding variables of the model are:

$$\beta_1 > 0, \quad \beta_2 > 0, \beta_3 < 0, \quad \beta_4 > 0, \quad \beta_5 < 0$$

3.1 Estimation of Results and Discussion

To determine the determinants of inflation in Malaysia. Many statistical and econometric approaches were used. These include informative numbers, the associations and VIF matrices, the KPSS A and Ng-Persson rood test, and the latter, the lag-length measure. The Johansen cointegration measure, to assess if the endogenous and exogenous variables have a long-term relationship and Error C To classify inflation determinants in Malaysia, many methodological approaches and econometry-tests have been applied. The descriptive results, the correlation coefficient and the VIF matrix, KPSS and Ng-Persson tests for root tests, and a time-limit criterion. In comparison, the Johansen cointegration test is utilized to analyze if an extensive relationship existsamid endogenous and exogenous variables and C error.

3.2 Empirical Result

The analytical findings and review of conceptualised models will be discussed. The research begins with the calculation of all predictors and outcomes variables descriptive statistics in this report. Table 1 displays the results.

Similarly, Jarque-Bera test values for all variables, except for the natural log of real, successful exchange values, indicate that the Jarque-Bera test is negligible for all those variables other than the supply of the currency. The effects of the Jarque-Bera test are not considered necessary. It shows that all of these variables obey all standard distribution assumptions except for the amount of income.

3.3 Descriptive Statistics

Descriptive Statistics can be observed in the table as follows.

Table 1

Descriptive Statistics

	LNINF	LNMS	LNGDP	LNIMPT	LNEX	LNENG
Mean	1.009680	-0.179077	26.42197	3.858393	1.049949	7.233191
Median	1.163151	-0.064878	26.47356	3.999490	0.995056	7.356743
Maximum	2.852380	0.332942	27.58506	4.337779	1.367207	8.012952
Minimum	-1.237847	-1.145695	25.01871	3.160972	0.777894	6.254099
Std. Dev.	0.814654	0.392566	0.773920	0.399523	0.187552	0.553813
Skewness	-0.671911	-0.829574	-0.165739	-0.334564	0.418488	-0.293089
Kurtosis	4.068268	2.812212	1.744963	1.537665	1.744616	1.798451
Jarque-Bera	5.280140	4.995235	3.018949	4.633530	4.078761	3.202291
Probability	0.071356	0.082281	0.221026	0.098592	0.130109	0.201665
Sum	43.41624	-7.700329	1136.145	165.9109	45.14779	311.0272
Sum Sq. Dev.	27.87375	6.472542	25.15597	6.703998	1.477376	12.88177
Observations	43	43	43	43	43	43

Table 2

Coefficient of Correlation

	LNIMPT	LNGDP	LNEX	LNENG	LNMS
LNIMPT	1.000000	0.961094	0.689609	0.964610	0.798917
LNGDP	0.961094	1.000000	0.717268	0.994316	0.889575
LNEX	0.689609	0.717268	1.000000	0.716759	0.551483
LNENG	0.964610	0.994316	0.716759	1.000000	0.892077
LNMS	0.798917	0.889575	0.551483	0.892077	1.000000

Table 3
VIF

	LNIMPT	LNGDP	LNEX	LNENG	LNMS
LNIMPT	#DIV/0!				
LNGDP	13.10645	#DIV/0!			
LNEX	1.906798	2.059619	#DIV/0!		
LNENG	14.38279	88.21693	2.056528	#DIV/0!	
LNMS	2.76448	4.79257	1.437057	4.897193	#DIV/0!

3.4 INTERPRETATION

The correlation matrix above shows the variables of LNGDP, LNEX, LNIMP are positively correlated to each other. Besides, the coefficient of correlation values is higher than 0.95 for every pair of these variables.

The VIF matrix also suggests multicollinearity between LNGDP and LNENG in the data as these variables have a VIF value exceeding 10.

Hence, the rest of the other variables and their values of VIF are less than 10. So, it can be concluded that multicollinearity doesn't exist among these variables.

It is only necessary to do in the first place to prevent the issue of pattern data in time series calculations for the root evaluation machine. Besides, the KPSS and Ng unit root checks are used to assess if the variables are combined. The results of KPSS and Ng Persson for the estimates are shown in *Table 4*.

<i>KPSS Unit Root Test (Table 4)</i>					
<i>At Level</i>			<i>AT First Difference</i>		
<i>Variables</i>	<i>t-Valve</i>	<i>Decision</i>	<i>Variables</i>	<i>t-Valve</i>	<i>Decision</i>
<i>lnENG</i>	<i>0.8126</i>	<i>Non-Stationary</i>	<i>ΔlnENG</i>	<i>0.1045</i>	<i>Stationary</i>
<i>lnEX</i>	<i>0.7610</i>	<i>Non-Stationary</i>	<i>ΔlnEX</i>	<i>0.1586</i>	<i>Stationary</i>
<i>lnINF</i>	<i>0.8834</i>	<i>Non-Stationary</i>	<i>ΔlnINF</i>	<i>0.0433</i>	<i>Stationary</i>
<i>lnMS</i>	<i>0.7500</i>	<i>Non-Stationary</i>	<i>ΔlnMS</i>	<i>0.0416</i>	<i>Stationary</i>
<i>lnIMPOT</i>	<i>0.7631</i>	<i>Non-Stationary</i>	<i>ΔlnIMPOT</i>	<i>0.117</i>	<i>stationary</i>
<i>lnGDPPC</i>	<i>0.8259</i>	<i>Non-Stationary</i>	<i>ΔlnGDPPC</i>	<i>0.2911</i>	<i>stationary</i>
<i>Null Hypothesis: Variables are Stationary</i>					
		<i>1% level</i>	<i>0.739</i>		
<i>Level of Significance</i>		<i>5% level</i>	<i>0.463</i>		
		<i>10% level</i>	<i>0.347</i>		

Besides, the KPSS root test results for all six research variables with an initial discrepancy indicate that the approximate LM measure for all six variables

is less than the corresponding critical value with a one percent meaning amount. The null hypothesis is accepted, and all these variables have been assumed for the first time to be stationary. Table 4 then states that all variables are not stagnant at the stage, and at first discrepancy, they are all stationary. Other results can be observed in Table 5.

Furthermore, Ng-Perron root test calculations for all six first variance variables in the sample revealed that the average LM measure for all six variables was more significant than the corresponding critical value at a level of one percent. The null hypothesis is accepted, and all these variables have been assumed for the first time to be stationary. Thus, the table displays that all variables at the threshold are non-stationary, and at the first differential, all are stationary. Therefore, the series combined at the first discrepancy of the same order should be done with a cointegration test.

3.5 Johansen's Cointegration Method

As the variables are first merged in the same order of I(1), the next step in this empirical study is the test for cointegration to decide the long-term relationship among the variables. It means that the error word is long-term stationery. This research uses the approach of cointegration Johansen and Juselius (1992). It indicates that the cointegration interaction variables should be implemented in the same order.

The sequence is combined: LogINF LogMS Log EXR logENG logIMP logGDP

NG-Perron Modified Unit Root Test (Table 5)

At Level						At First Difference					
Variables	MZa	MZt	MSB	MPT	Decision	Variables	MZa	MZt	MSB	MPT	Decision
lnlnENG	2.7420	10.4740	3.8198	1266.3200	Non-Stationary	ΔlnENG	-21.385	2.3187	1.0843	98.5963	stationary
lnlnEX	1.9968	2.1819	1.0927	97.7616	Non-Stationary	ΔlnEX	-21.310	0.6282	1.4576	123.3640	stationary
lnlnNF	-0.8996	-0.3653	0.4060	12.8650	Non-Stationary	ΔlnINF	-19.6755	-1.7829	0.2323	3.8117	Stationary
lnlnMS	0.2578	0.1659	0.6434	28.5390	Non-Stationary	ΔlnMS	-21.3651	-3.2497	0.1521	1.2113	stationary
lnlnIMP	-0.9965	-0.3903	0.3916	12.2407	Non-Stationary	ΔlnIMPOT	-18.2236	-2.0175	0.2453	3.0176	stationary
lnlnGCP	-0.4394	-0.3964	0.9021	41.8114	Non-Stationary	ΔlnGDPPC	-19.9934	-1.5529	0.3110	4.9711	Stationery
Null Hypothesis: Variables have a Unit Root Problem											
Le Level of Significance											
1%	-13.8	-2.58	0.174	1.78							
5%	-8.1	-1.98	0.233	3.17							
10%	-5.7	-1.62	0.275	4.45							

3.6 Lag length criteria

Table 6
Results of Lag length criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	66.93109	NA	1.91e-09	-3.046555	-2.793223	-2.954958
1	267.7184	331.2991	5.17e-13	-11.28592	-9.512598*	-10.64474*
2	296.3214	38.61407	8.47e-13	-10.91607	-7.622757	-9.725313
3	349.6807	56.02717*	5.06e-13*	-11.78403*	-6.970726	-10.04369

3.7 JOHANSON CO-INTEGRATION TEST

Table 7
Result of Johanson Co- Integration Test

Unrestricted Cointegration Rank Test (Trace)

Hypothesised		Trace		0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**	
None *	0.853734	183.5831	95.75366	0.0000	
At most 1 *	0.713283	108.6124	69.81889	0.0000	
At most 2 *	0.495379	59.89120	47.85613	0.0025	
At most 3 *	0.478025	33.21726	29.79707	0.0194	
At most 4	0.166587	7.861973	15.49471	0.4803	
At most 5	0.019177	0.755180	3.841466	0.3848	

Trace test indicates 4 cointegratingeqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesised		Max-Eigen		0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**	
None *	0.853734	74.97072	40.07757	0.0000	
At most 1 *	0.713283	48.72119	33.87687	0.0004	
At most 2	0.495379	26.67394	27.58434	0.0650	
At most 3 *	0.478025	25.35529	21.13162	0.0120	
At most 4	0.166587	7.106793	14.26460	0.4766	
At most 5	0.019177	0.755180	3.841466	0.3848	

Max-eigenvalue test indicates 2 cointegratingeqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

The results of an unrestricted co-integration rank test Trace are shown in *Table 7*. The findings show no null assumptions for zero, and maximally 4 of the interplay between the variabilities have been rejected at an elementary level of 5 per cent, which indicates that there are no more than four interlayments' between the variables. This error correction method was used to analyses concerning its explanatory variables, the shorter and longer-term behavior of the endogenous variable inflation. In addition to the factors of the first variance, the cointegrating reversal residual value was laggard. The long-term interaction factors will absorb short-term dynamics. Unbalance can exist in the short term, meaning that error corrections can be made to minimize discrepancies in the long-term balance.

Table 8
Results of cointegrating Equations

Cointegrating Eq:	CointEq1
LNENG(-1)	1.000000
LNEX(-1)	0.118914 (0.03193) [3.72472]
LNGDP(-1)	-0.283014 (0.03715) [-7.61894]
LNIMPT(-1)	-0.689223 (0.05842) [-11.7977]
LNINF(-1)	0.031188 (0.00784) [3.97795]
LNMS(-1)	-0.169706 (0.03338) [-5.08466]
C	2.721254

Table 9
Results of Error Correction

Error Correction:	D(LNENG)	D(LNEX)	D(LNGDP)	D(LNIMPT)	D(LNINF)	D(LNMS)
CointEq1	-0.606422 (0.38630) [-1.56984]	-1.313220 (0.41166) [-3.19009]	0.230224 (0.26232) [0.87763]	1.495167 (0.47307) [3.16056]	-0.775705 (5.12371) [-0.15140]	-0.895818 (0.82580) [-1.08478]

3.8 Diagnostic Test

The theoretical approach should be exemplified, and its theory should be invalid to apply to any scientific research. The findings evaluation in the table helps to illustrate how the paradigm has been used for this study. The best regression model and error-correcting methods have demonstrated that we cannot remove the null hypothesis from various studies. His empirical approach and methodology are unfair to assist with theoretical research. The findings have to be explained. Test findings in the table help to explain how we have selected the model for this analysis. The diagnostic test results in the theoretical method must be demonstrated. It should be incorrect to claim that we should not remove the multiple studies performed with the required regression model and error-correcting function zero theories to be relevant to scientific research. The assessment results in the table help to demonstrate how the model for this analysis has been used. It is shown that zero hypotheses for the best model for regression and error correction are not excluded from multiple tests

Table 10

Results for Components

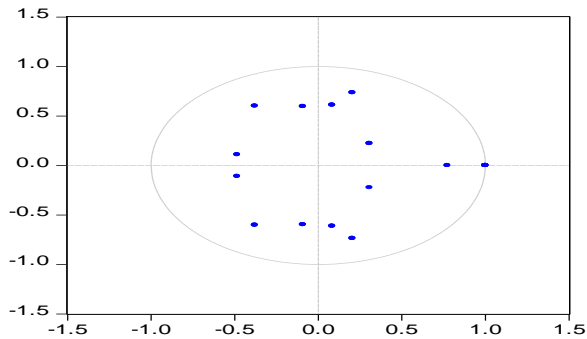
Component	Skewness	Chi-sq	df	Prob.
1	-0.163843	0.174490	1	0.6762
2	0.074981	0.036544	1	0.8484
3	-0.567099	2.090411	1	0.1482
4	0.373951	0.908956	1	0.3404
5	0.025324	0.004169	1	0.9485
6	-0.842923	4.618380	1	0.0316

Table 11
LM-Stat

Lags	LM-Stat	Prob
1	34.32498	0.5484
2	37.46745	0.4017
3	31.15852	0.6980
4	42.64514	0.2069
5	28.37447	0.8136
6	26.67569	0.8709
7	27.86745	0.8319
8	33.76969	0.5751
9	44.01346	0.1686
10	60.58744	0.0063
11	45.38488	0.1358
12	32.37753	0.6416

Interpretation can be observed as in *Figure 1*

Figure 1
Inverse Roots of AR Characteristic Polynomial



4 Conclusion

Six variables and 43 annual measurements were used in this analysis between 1971 and 2013. Inflation in the Malaysian economy is a big macroeconomic threat. The determinants are multifaceted inequality, which curbs global activity and productivity. A basic reason for finding a long-term approach is to obtain information about inflation determinants in Malaysia. However, it was not limitable as a proxy for money supplies in Malaysia for high monetary growth (annual percentages). In addition, it is also comprised of macroeconomic inflation uncertainties, energy, foreign exchange; Imports, and the gross domestic product for goods and services.

The study then uses the Johansen cointegration analysis to test the presence of long-term relationship variables by the existence of a unit-root level for all variables. It also finds all of the explicatory variables to be statistically important at a traditional level of 5%. The error correction model has been employed to estimate the short-term relationship between inflation and the determinants and shows that both trace tests show that there are at most four vectors cointegrated. It is concluded that money and GDP have a long-standing negative impact on inflation, and goods and services are healthy imports. The coefficient of the money supply is -1,08 simply that a rise of one per cent in the collection of money in Malaysia will lead to reduced inflation of -1,08 per cent, i.e., contrary to the economic theory.

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