THE INFLATIONARY EFFECTS OF FUEL PRICE ADJUSTMENTS IN MALAYSIA

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Abstract. Malaysia is a crude oil-producing country. However, the Malaysian government started to rationalise the subsidy for fuel from the end of 2014 to reduce the fiscal burden. Recently, the government has gradually abolished the fuel subsidy, including for RON97 and diesel. For RON95, the government replaced the subsidy programme with BUDI 95–a fuel subsidy with a limited quantity. Hence, fuel, as a daily necessity for most households in Malaysia, will face an increase in the cost of living. This study aims to investigate the impact of fuel prices on inflation in Malaysia. We use the monthly data from January 2014 to November 2025 and Fully Modified Ordinary Least Squares (FMOLS) for the estimation. The empirical results prove that fuel prices significantly increase the price level in Malaysia. As a result, the Malaysian government should be careful when considering the idea of abolishing the subsidy for RON95. However, the government is advised to use other alternatives to continue the subsidy to reduce the cost of living among citizens, especially those from lower-income and middle-income groups.
Keywords: *inflation, fuel price, cost-push inflation, Malaysia*

Introduction

Fuel is important in every nation, whether developed or developing. It plays a role in the transportation and development of the country. However, its price differs according to the nation and the government's intervention. For instance, some governments allow the fuel price to float based on market forces. Some governments intervene in the price through taxes and subsidies. Meanwhile, some governments implement price control policies on fuel. Additionally, it also depends on the oil resources of a country. If it has a wealth of oil resources, its government may provide subsidies to enable the citizens to enjoy a lower price for fuel. However, if a nation lacks oil resources, a tax may be levied on the citizens, making the fuel price expensive. *Table 1* displays the fuel prices among the selected ASEAN countries. Malaysia's fuel price for either RON 95, RON 97, or diesel is the lowest compared to Singapore, Indonesia, Thailand, and the Philippines. In the ASEAN countries, Malaysia's fuel price is just slightly more expensive than that of Brunei Darussalam. *Figure 1* shows the average fuel price of RON 95 in Malaysia. Before 2014, the retail price of RON 95 was stable within a range of RM 1.80/litre. However, starting in 2014, the price increased to RM 2.12/litre. Between 2014 and 2018, the price fluctuated, with a maximum price of RM 2.21/litre

and a minimum price of RM 1.77/litre. After that, the price went down to a minimum point of RM 1.67/litre during 2020. The price rose to RM 2.03/litre in 2021 and was maintained at RM 2.05/litre for a three-year period (2022 – 2024). However, in 2025, this status quo of the price increased to RM 2.20/litre. The changes in the fuel price are linked to the subsidy system implemented by the government.

Table 1. *Associated fuel price among selected ASEAN countries.*

Category	RON 95*	In Ringgit Malaysia**	RON 97 / 98*	In Ringgit Malaysia**	Diesel*	In Ringgit Malaysia**
Malaysia	RM 2.56	RM 2.56	RM 3.16	RM 3.16	RM 2.94 (Peninsular) RM 2.15 (East Malaysia)	RM 2.94 & RM 2.15
Singapore	$2.88	RM 9.12	$3.38	RM 10.70	$2.66	RM 8.42
Indonesia	Rp 10,000	RM 2.42	Rp 13.100	RM 3.17	Rp 13.600	RM 3.29
Thailand	฿31.35	RM 4.06	฿39.64	RM 5.13	฿30.44	RM 3.94
The Philippines	₱58.15	RM 3.97	₱62.55	RM 4.27	₱56.74	RM 3.88

*Note: *The fuel price based on week 4 January 2026 until 10 January 2026; **The exchange rate based on 7 January 2026.*
Sumber: Global Petrol Prices (2026)

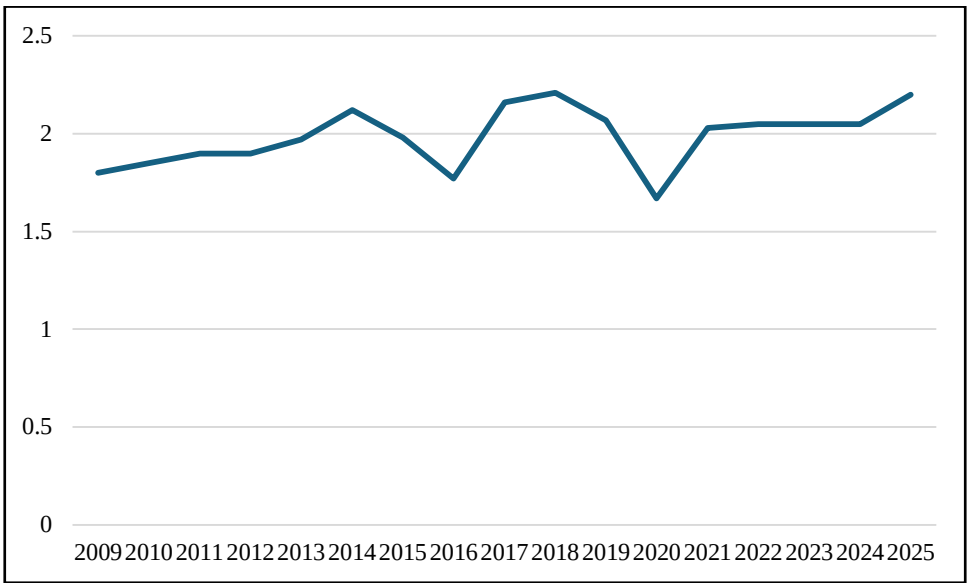


Figure 1. *Average Price of RON95 in Malaysia (RM per litre, 2009 – 2025). Source: DOSM (2026).*

Malaysia is one of the main crude oil producer countries, with an amount of more than 100 million barrels annually. Malaysia has implemented a subsidy system for fuel, including RON95, RON97, diesel, and LPG. *Table 2* demonstrates the chronology of the subsidy system starting from the year 2009. With the Automatic Price Mechanism (APM), the price differential between the market price and the retail price is subsidised by the government. For instance, when the market price is larger than the retail price, it has maintained the low price of RON95 but has burdened the government's fiscal situation. For example, the fuel subsidy accounted for 3.2 per cent of the gross domestic product (GDP) in 2007 and 4.4 per cent of the total budget in 2010 (Hakim et al., 2016). To mitigate the fiscal burden, the government started to reform the subsidy system, notably for fuel. From *Table 2*, the reform efforts began with the managed float system. In this system, the government rationalised the subsidy by imposing it when the market

price goes up. Meanwhile, the subsidy is removed when the market price falls. This condition provided flexibility to the subsidy system. After that, the Malaysian government gradually floated the fuel price, starting with RON97 in May 2018, diesel in Peninsular Malaysia in June 2024, and RON95 in September 2025. During September 2025, the Malaysian government introduced BUDI 95-a system that provides a targeted subsidy of RON95 at RM 1.99 for 300 litres monthly to eligible Malaysians (*Figure 2*).

***Table 2**. Chronology of the subsidy system for fuel in Malaysia.*

Year	Incident
2009	Introduction of RON95
2009 - 2014	Implementation of subsidy system with Automatic Price Mechanism (APM)
December 2014	Introduction of a managed float system for diesel and petrol
May 2018	Reintroduction of RON95 subsidy, but RON97 price floated
June 2024	Reformation of diesel subsidy according to the region
September 2025	Reformation of RON95 subsidy by BUDI 95; RON95 price floated

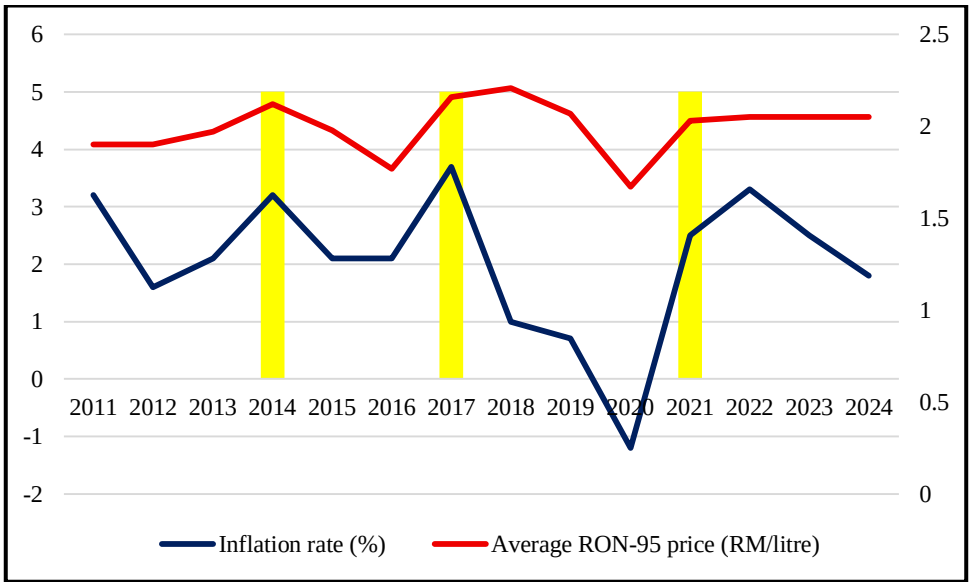


***Figure 2.** Inflation Rate and Average Price of RON95, 2011-2024.*
Source: DOSM (2026; 2025)

In fact, this BUDI 95 programme is just transitory, as it will be abolished and substituted by another saving programme in the future. Fuel price is a sensitive issue for Malaysians. Malaysians argue that the fuel price drives up the price level of goods and services, thus increasing the cost of living. *Figure 2* displays the inflation rate and average RON95 price. The figure shows that the increase in fuel price enhances the inflation rate in 2014, 2017, and 2021. For instance, during 2014, the increase in RON95 from RM 1.97 to RM 2.12 per litre raised the inflation rate from 2.1 per cent to 3.2 per cent. The fuel price not only affects the cost of living but may also contribute to political instability. Notably, the candidate parties in Malaysia prefer to use "providing cheap fuel" as their manifesto for the election. To fulfil this promise, it leads to a significant impact on the national budget deficit. However, the government's intention is to reduce this subsidy burden without increasing citizens' cost of living and their confidence in the government. Hence, with this dilemma, this study aims to investigate the impact of fuel prices (RON95) on inflation in Malaysia. This study is important to the government, especially in solving the dilemma. It is important to the policy,

especially regarding whether to abolish completely the existing subsidy system or continue it. Additionally, citizens will be able to be convinced by the empirical evidence on the impact of fuel prices on inflation. Therefore, they will be able to support the government's policy.

Review of literature

Theoretical literature review

Cost push inflation

Cost-push inflation explains the relationship between fuel prices and inflation. Cost-push inflation is the inflation that results from an increase in the cost of production, either from an increase in the price of inputs or disturbances in the input supply itself. The price of petroleum products, such as fuel, is one of the main killers in this context (Okon et al., 2023). When fuel prices increase, producers will shift the cost burden onto the prices of goods and services. This action is important for reducing their costs and maintaining their profits. Additionally, some producers choose to reduce their production, which causes the aggregate supply (AS) to shift leftward. This circumstance leads to an increase in market prices.

Demand pull inflation

Demand-pull inflation links the relationship between interest rates and inflation. Keynes stated that this inflation is caused by the increase in aggregate demand (AD) when national output reaches its maximum. The demand of society for goods and services exceeding the supply provided will create the inflation gap. Besides consumption, the excessive increase in investment, government spending, and net exports will also increase aggregate demand and exceed aggregate supply. Hence, the increase in aggregate demand will raise the prices of goods and services. Interest rate is one of the tools used by the central bank in the monetary policy, which is used to solve the economic problems in the country. Low interest rates can reduce the cost of borrowing. Hence, people will borrow more, either for consumption or investment. The AD will increase due to the consumption and the investment increases. Thus, the price level increases with the increase of AD. Meanwhile, when interest rates are high, it will encourage people to save more than to borrow. This situation will cause AD to decrease and lower the price level. Ihimoyan et al. (2022) claimed that the increase in interest rates may curb demand-pull inflation.

Phillips curve

The Phillips Curve illustrates the relationship between the unemployment rate and inflation. The relationship between inflation and unemployment is commonly explained by the Phillips curve, which posits the existence of a trade-off between the two variables. Using data from the British labour market spanning the period 1861–1957, Phillips (1958) demonstrated that wage growth tends to be slow when unemployment is high but accelerates when unemployment is low. The validity of the Phillips curve was later supported by Greenwood and Huffman (1987), who found evidence of a negative relationship between inflation and unemployment. Similarly, using data from the United States, confirmed the presence of an inverse trade-off between these two macroeconomic indicators. Furthermore, Islam (2003) noted that the Phillips curve

served as an important tool for macroeconomic policy formulation in both developed and developing countries during the 1960s and 1970s. In the same vein, Samuelson and Solow (1960) examined the U.S. economy and concluded that inflation and unemployment are inversely related. Haschka (2024) claimed that the shape of the Phillips Curve became flattened, especially during the COVID-19 pandemic. This meant that the inverse relationship between unemployment and inflation was weaker compared to the pre-pandemic period. Dey (2024) also emphasised that the slope of the Phillips Curve became positive, no longer negative. This condition occurred because of several factors, such as globalisation, monetary policy, and others.

Imported inflation

Imported inflation describes the relationship between the exchange rate and inflation. Imported inflation is the inflation due to increases in the prices of imports. Increases in the prices of imports, either final goods or intermediate goods, will increase the domestic prices of those particular goods. Fluctuations in the exchange rate become the main factor that creates imported inflation (Taylor, 1983). Agénor and Montiel (2015) mentioned four major transmission mechanisms of how inflation is affected by exchange rate fluctuations. Firstly, an open economy can directly affect the price of imported substitute goods and goods subject to trade. Secondly, it can indirectly increase the price of final goods through imported input prices. Thirdly, uncertainties in foreign currency prices can affect domestic price makers and increase domestic prices. Lastly, it increases prices by means of wages. Besides that, Dornbusch (1987) and Woo (1984) mentioned that the prices of imported goods directly affect the consumer price index and the cost of domestic goods. Choudhri and Hakura (2006) as well as Campa and Goldberg (2005) also proved that imported prices exert inflationary pressure in the nation.

Empirical literature review

Fuel price and inflation

Kpodar and Liu (2022) adopted conventional Vector Autoregressive models (VARs) to derive the impulse response function (IRFs) for investigating the response of consumer price inflation to changes in domestic fuel prices. Using a sample of 190, which includes 122 high-income economies and 74 developing economies, and time series data from January 2000 to June 2019, they found twofold outcomes: inflation reacted more strongly at first when gasoline prices rose, while the impact was slower but lasted longer in developing countries, eventually leading to a higher overall increase in prices. Morão (2025) applied another method, named Structural Vector Autoregression (SVAR), and mentioned that fuel price variations significantly impacted both short and long-term inflation expectations in the Euro area. Kilian and Zhou (2022) had similar findings to Morão (2025), stating that gasoline price shocks accounted for 42 per cent of the variation in inflation expectations. Macia (2024) employed quarterly data between 2007 and 2020 to check the impact of fuel prices on inflation in Mozambique. Their findings proved that a one per cent increase in fuel prices would enhance the CPI by 1.3 per cent, respectively. Additionally, Muthahharah (2025) discovered a strong positive relationship between fuel oil prices and the inflation rate in Indonesia, especially during the period from March 2020 to March 2024. However, Gago and Vale (2025) suggested that the fuel price changes did not always account for

the sustained inflationary pressure because their structural model results denoted that the inflationary impact of fuel price shocks may be short-lived and not significant in the long run. Sek and Chu (2019) also supported this statement by mentioning that oil price did not have a direct impact on domestic inflation either in oil-importing or oil-exporting countries. However, they claimed that oil price had an indirect impact through foreign production costs, Gross Domestic Product (GDP), and exchange rates, significantly increasing the price level in the long run.

Exchange rate and inflation

DaCosta and Greenidge (2008) applied the Dynamic Ordinary Least Squares (DOLS) method to find the determinants of inflation in Guyana and Jamaica. From the results, it was shown that inflation would increase by 0.0134 per cent if the exchange rate of Guyana increased by 100 per cent. Meanwhile, an increase in the exchange rate in Jamaica would raise the inflation rate by 1.98 per cent. Hence, these two results show that there is a positive relationship between the exchange rate and inflation in Guyana and Jamaica. This positive relationship was supported by Fetai et al. (2016) in Western Balkan countries, as well as Tan and Cheng (2002) in Malaysia. For instance, there was a 0.301 increase in inflation with a 1% increase in the exchange rate in Iran in his research, which used three different time periods to investigate the inflation process. However, Islam (2003) found that the relationship between the exchange rate and inflation was negative and significant in Malaysia. They claimed that inflation decreased by 1.688 per cent when the US Dollar increased by 1 Dollar. This negative relationship also tallied with Madesha et al. (2013) study, which mentioned that the increase in the exchange rate would not put any inflationary pressure on the country. Recent studies conducted by Wahid and Chaidir (2025) as well as Liu and Ma (2024) found interesting insights. Liu and Ma (2024) applied the bootstrap rolling-window approach and found evidence that the exchange rate and inflation may have a non-linear relationship. In this context, the exchange rate may have positively and negatively impacted inflation according to specific periods. Meanwhile, Wahid and Chaidir (2025) suggested that the relationship between the exchange rate and inflation only existed in the long run in Indonesia. The existence of a long-run relationship between the exchange rate and inflation among selected ASEAN economies with their Vector Autoregressive Model (VECM). However, they mentioned that the negative relationship between these two variables is not significant.

Interest rate and unemployment

Interest rate is one of the monetary policy tools to control inflation. Most studies have proven the negative relationship between interest rate and inflation (Khumalo et al., 2017; Sibanda et al., 2015; Hashim et al., 2014). Khumalo et al. (2017) declared that there was a negative relationship between interest rate and inflation in Swaziland in their study, which used time series data from the year 2010 to the year 2014. Furthermore, the study by Sibanda et al. (2015) suggested that an increase of one unit in interest rate would lead to a decrease in the inflation rate by 2.507, and this shows the negative relationship between interest rate and the expected inflation rate in South Africa. Nonetheless, Sarsıcı (2025) discovered a significant positive relationship between interest rate and inflation during the long run. Different types of rates had been applied for the interest rates. Özen et al. (2020) applied the Overnight Policy Rate

(OPR) as the proxy for the interest rate to examine its relationship with inflation in Turkey. They found that the relationship was negative and insignificant. Rana et al. (2025) utilised the deposit and lending interest rates to indicate the interest rate, and they reported that both types of interest rates significantly affected inflation. The deposit interest rate had reduced inflation, while the lending interest rate had increased inflation.

Unemployment rate and inflation

Most of the literature concluded that the relationship between the unemployment rate and inflation follows the trend of the Phillips Curve. A negative relationship between these two variables is supported by Reina (2025), Haschka (2024), Pegkas (2024), and Islam (2003). Reina (2025) described that inflation was reduced by 0.26 per cent when the unemployment rate was increased by 1 per cent in Colombia. Pegkas (2024) also found a stable inverse relationship between these two variables in the long run. However, Ho and Iyke (2019) have a different opinion on the Phillips Curve, mentioning that a non-linear relationship may exist in the model. Their findings proved that the traditional reverse relationship broke down when unemployment rose past a certain threshold. Thus, inflation may rise with the unemployment rate. The positive relationship between the unemployment rate and inflation is also supported by Dey (2024). He claimed that the upward sloping of the Phillips Curve exists rather than the downward sloping.

Literature gap

From the introduction, the subsidy for fuel is being gradually abolished by the government. In the regional countries, especially in Indonesia, the impact of fuel price on inflation is investigated. However, there is a lack of research on this issue in Malaysia. In Malaysia, most studies investigate the impact of crude oil prices on inflation, but not the retail fuel price (Yeoh, 2023; Shaari et al., 2012). This condition leads to the impact of retail fuel prices on inflation being underestimated (Kpodar and Liu, 2022). Therefore, this study aims to fill the gap by investigating the impact of fuel prices on inflation in Malaysia. Additionally, other determinants of inflation are also included in this study.

Materials and Methods

The data, research framework and model specification

This paper used the monthly time series data from January 2014 to November 2025. The consumer price index (CPI) is the dependent variable, while fuel price (FP), interest rate (OPR), unemployment rate (UE), and exchange rate (ER) are independent variables. The data is obtained from the authorities such as the Bank Negara Malaysia (BNM) and the Department of Statistics Malaysia (DOSM). The details of the variables are stated in *Table 3*. *Figure 3* illustrates the research framework in this study. The dependent variable is indicated by inflation, while the independent variables are represented by fuel price, interest rate, unemployment rate, and exchange rate.

***Table 3**. Definition, instrument, and data source of variables.*

Category	Measurement of items	Scale	Number of observations	Data source
Dependent variable				
Inflation (CPI)	Consumer Price Index (Index)	Monthly	143	BNM
Independent variable				
Fuel Price (FP)*	Price of RON95 (RM per liter)	Monthly	143	DOSM
Interest rate (OPR)	Overnight Policy Rate (Points)	Monthly	143	BNM
Unemployment rate (UE)	Unemployment rate (%)	Monthly	143	DOSM
Exchange Rate (ER)	USD converted in RM (RM)	Monthly	143	BNM

*Note: *means calculated the fuel price by averaging the weekly price of RON95.*

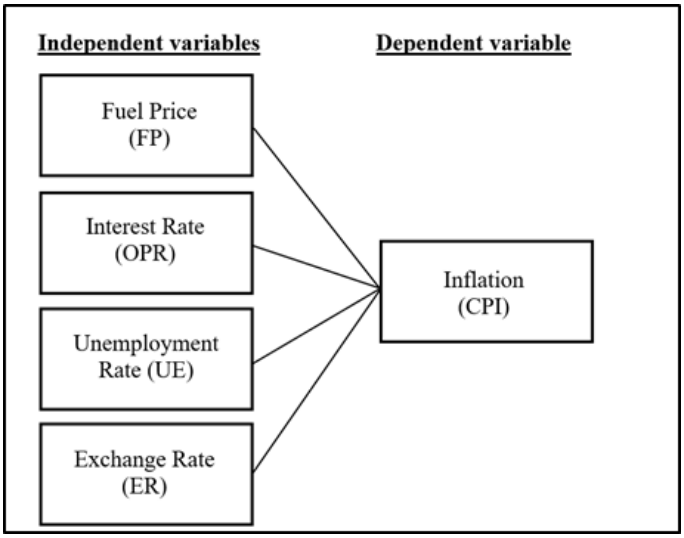


***Figure 3.** Research framework.*

Based on the past study (Muthahharah, 2025; Özen et al., 2020; Islam, 2003), the equation of the inflation in this study used is stated as Eq. (1). The semi-log model will be used for this equation so that the coefficient for each variable can be interpreted in the form of a percentage. The model can be shown as follows:

$$lnCPI = \beta_0 + \beta_1 lnFP + \beta_2 lnOPR + \beta_3 lnUE + \beta_4 InER + \mu \quad \text{Eq. (1)}$$

Where; *ln*CPI=Log inflation; *In*FP=Log Fuel Price; *ln*OPR=Log Interest Rate; U=Unemployment; *ln*ER=Log Exchange rate; InMS=Log Money Supply; μ=Error.

Fully Modified Ordinary Least Squares

Fully Modified Ordinary Least Squares (FMOLS), developed by Phillips and Hansen (1990), provides optimal estimation for cointegrating regressions. This method employs kernel-based estimators to correct for nuisance parameters that affect the asymptotic distribution of the Ordinary Least Squares (OLS) estimator. In addition, FMOLS adjusts the OLS procedure to account for serial correlation and endogeneity arising from the presence of cointegrating relationships. The technique also reduces small-sample bias, thereby improving the reliability of long-run parameter estimates. Accordingly, the FMOLS econometric model is specified as follows (Eq. (2):

$$Yt = \sigma_0 + \sigma_1 X_t + m_t;\ t = 2,3,\ldots,n \quad \text{Eq. (2)}$$

Where; Y_t is an I(1) variable; X_t is a (kx1) vector of I(1) estimators, which are not cointegrated among themselves (Eq. (3):

$\Delta X_t = \eta + \lambda_t$; t=2,3,…,n Eq. (3)

Where; η represents a $k \times 1$vector of drift terms; $\lambda_t$denotes a $k \times 1$vector of $I(0)$processes. It is further assumed that $\omega_t = (m_t, \lambda_t)$is strictly stationary with a zero mean and a finite, positive-definite covariance matrix Σ. With 143 observations, the sample size is sufficiently large to support the application of the FMOLS estimator, which performs well in moderate to large samples and yields reliable long-run parameter estimates in cointegrated systems.

Results and Discussion

Descriptive analysis

Table 4 shows the results obtained from the statistical descriptive analysis. It presents the values of the mean, median, standard deviation, maximum and minimum, skewness, and kurtosis of the dependent variable and independent variables.

***Table 4**. Statistic descriptive analysis.*

Variable	Mean	Median	Standard Deviation	Maximum	Minimum	Skewness	Kurtosis
Consumer Price Index (CPI)	122.2713	121.1000	7.3848	135.2000	109.5000	0.1185	2.0349
Fuel Price (FP)	2.0748	2.0500	0.1891	2.6300	1.2600	-0.9484	6.3821
Overnight Policy Rate (OPR)	2.8007	3.0000	0.5178	3.2500	1.7500	-1.2224	2.9951
Unemployment Rate (UE)	3.5182	3.4000	0.5551	5.3000	2.70000	1.3597	4.0948
Exchange Rate (ER)	4.1651	4.1970	0.3602	4.7675	3.1570	-1.0031	4.0975

Unit root test

From *Table 5*, it shows the results from the Augmented Dickey-Fuller (ADF) test. All the dependent and independent variables are stationary at first difference, I(1). None of these variables are stationary at level. It fulfils the requirement of the FMOLS, which states that all the variables are stationary at I(1).

***Table 5**. Unit root test result.*

Variables	Intercept		Trend and intercept	
	Level	First difference	Level	First difference
*ln*CPI	-0.6662	-8.9743***	-2.7082	-8.9446***
*ln*FP	-2.7314	-9.9806***	-2.7989	-10.0107***
*ln*OPR	-1.8482	-4.4692***	-1.8873	-4.4589***
UE	-1.7238	-8.6953***	-1.5277	-8.7475***
*ln*ER	-2.4822	-11.1303***	-2.1313	-11.2619***

*Note: *** represent the significance level of 1%.*

Long-run coefficient stability test

Hansen Parameter Instability is applied for the long-run coefficient stability test. From the result in *Table 6*, the P-value of the result (>0.2) is more than 0.05. The null hypothesis fails to be rejected and indicates that the variables are cointegrated. As a result, a long-run relationship between the variables exists and is suitable for the FMOLS.

***Table 6**. Result of Hansen parameter instability.*

Lc statistic	Stochastic Trends	Deterministic Trends	Excluded Trends	Probability*
0.0476	4	0	0	>0.2

FMOLS estimation

Table 7 displays with the results of the FMOLS estimation, which shows the long-run relationship between the selected independent variables and dependent variable. Fuel price has a significant positive relationship with inflation. When 1 per cent increases in the fuel price, inflation tends to increase by 0.05 per cent. The significant relationship also demonstrated by unemployment rate to inflation. However, this relationship is in inverse. For instance, an increase of one percentage point in the unemployment rate is associated with a 0.84 percent reduction in the inflation. Meanwhile, interest rates and exchange rates have a same relationship with inflation. Both variables are positively impacted inflation but their relationships are not significant.

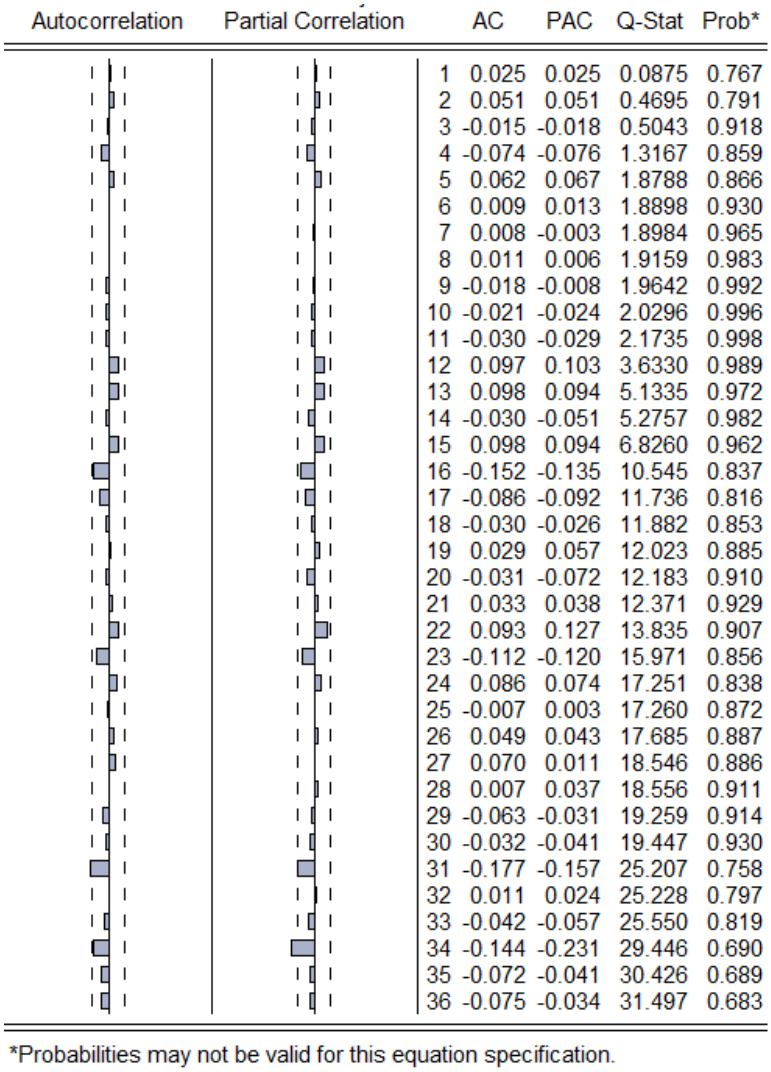
***Table 7**. Result of FMOLS.*

Variable	Coefficient	Standard error	T-statistic	Probability
*ln*FP	0.0528	0.0059	8.9799	0.0000
*ln*OPR	0.0074	0.0070	1.0570	0.2924
UE	-0.0084	0.0022	-3.8084	0.0002
*ln*ER	0.0151	0.0103	1.4696	0.1440
C	0.0014	0.0002	5.5445	0.0000

Diagnostic tests

Autocorrelation test

In this study, the correlogram is used to test the existence of an autocorrelation problem in this model. From *Figure 4*, the P-value of all the spikes is greater than 0.05. Hence, the model has no evidence of an autocorrelation problem.



Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob*
		1	0.025	0.025	0.0875	0.767
		2	0.051	0.051	0.4695	0.791
		3	-0.015	-0.018	0.5043	0.918
		4	-0.074	-0.076	1.3167	0.859
		5	0.062	0.067	1.8788	0.866
		6	0.009	0.013	1.8898	0.930
		7	0.008	-0.003	1.8984	0.965
		8	0.011	0.006	1.9159	0.983
		9	-0.018	-0.008	1.9642	0.992
		10	-0.021	-0.024	2.0296	0.996
		11	-0.030	-0.029	2.1735	0.998
		12	0.097	0.103	3.6330	0.989
		13	0.098	0.094	5.1335	0.972
		14	-0.030	-0.051	5.2757	0.982
		15	0.098	0.094	6.8260	0.962
		16	-0.152	-0.135	10.545	0.837
		17	-0.086	-0.092	11.736	0.816
		18	-0.030	-0.026	11.882	0.853
		19	0.029	0.057	12.023	0.885
		20	-0.031	-0.072	12.183	0.910
		21	0.033	0.038	12.371	0.929
		22	0.093	0.127	13.835	0.907
		23	-0.112	-0.120	15.971	0.856
		24	0.086	0.074	17.251	0.838
		25	-0.007	0.003	17.260	0.872
		26	0.049	0.043	17.685	0.887
		27	0.070	0.011	18.546	0.886
		28	0.007	0.037	18.556	0.911
		29	-0.063	-0.031	19.259	0.914
		30	-0.032	-0.041	19.447	0.930
		31	-0.177	-0.157	25.207	0.758
		32	0.011	0.024	25.228	0.797
		33	-0.042	-0.057	25.550	0.819
		34	-0.144	-0.231	29.446	0.690
		35	-0.072	-0.041	30.426	0.689
		36	-0.075	-0.034	31.497	0.683

*Probabilities may not be valid for this equation specification.

Figure 4. *Correlogram of the model.*

Multicollinearity test

This study applies the Variance Inflation Factor (VIF) for the multicollinearity test. The multicollinearity test is important to ensure that the models are free from the multicollinearity problem, which arises when there is a relationship between one variable and another variable. From *Table 9*, the results show that there is no multicollinearity problem in the model because the VIF value for each variable does not exceed 10. As evidence, the VIF value for fuel price is 1.5597, for interest rate it is 1.0405, for unemployment rate it is 1.6034, and for exchange rate it is 1.0041. As a result, the model is free from multicollinearity.

Table 9*. Result of Multicollinearity Test.*

Variables	Centered VIF
lnFP	1.5597
lnOPR	1.0405
UE	1.6034
lnER	1.0041

Stability Test

Cumulative Sum of Squares of Recursive Residuals (CUSUMSQ) test is applied for the stability test to check the existence of structural problems in the model. The *Figure 5* demonstrates that the blue line stays inside the 5% boundaries; thus, the model is stable and there is no evidence of structural change in the coefficients.

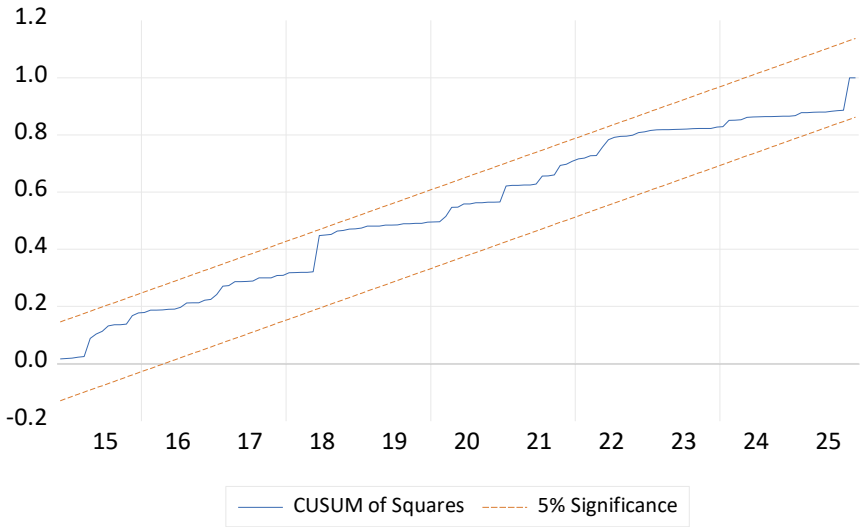


Figure 5. CUSUMSQ of the Model.

This study aims to investigate the impact of the retail fuel price, as well as other determinants, on inflation in Malaysia. From the results, the fuel price has a significant positive relationship with inflation. The relationship is the same as Muthahharah (2025) and Macia (2024). Malaysians are sensitive and concerned about the fuel price. The changes in the fuel price may influence the demand among consumers (Khoo et al., 2012). Additionally, households from all income categories will be worse off from the increasing price level (Li et al., 2017). They will anticipate the increase in the price level when the government announces a small upward coordination regarding the fuel price. Notably, the small and medium enterprises in the food and beverage sectors will shift this burden to the price of their products, causing the price level to surge (Ibrahim, 2015). Importantly, the food and beverages basket accounts for the highest percentage of the total CPI. Hence, the increase in the fuel price will not only increase the CPI in transportation but will also affect other baskets, especially food and beverages. Besides that, unemployment has a significant negative relationship with inflation. This result proves that the Phillips Curve relationship is still stable in the Malaysian context, although it has undergone the COVID-19 pandemic period. The inverse relationship between the unemployment rate and inflation is the same as in the findings of Reina (2025), Haschka (2024), Pegkas (2024) and Islam (2003). In conditions of low unemployment, it drives up inflation as it stimulates consumption. However, in conditions of high unemployment, it indicates that the economy is pessimistic. People will reduce and limit their consumption and investment. Therefore, the price level may be controlled at a low level. For the interest rate and exchange rate, their relationships with the interest rate are not significant. Both indicators do not have inflationary pressure in Malaysia during the long run. Hence, both rates may have a significant short-run relationship with inflation, but this has not been investigated in this study.

Conclusion

As a petroleum-producing country, the expectation of the retail fuel price should be low in most of Malaysia. However, the burden of the subsidy led the Malaysian government to rationalise the subsidy and abolish it gradually. Hence, this paper investigates the impact of retail fuel price on inflation in Malaysia. By adopting monthly data from January 2014 to November 2025, this paper aims to address the question of whether the increase in fuel price raises the price level in Malaysia. From the FMOLS results, a long-run relationship between the indicators exists. It suggests that the fuel price has a significant positive relationship with inflation. Meanwhile, other determinants, such as the unemployment rate, have a significant inverse relationship with inflation. However, both interest and exchange rates do not exert any inflationary pressure in this context. Fuel price remains a main driver of the price level in Malaysia. Although it is still under the rational subsidy policy, its impact on inflation is undeniable. Therefore, the government needs to reconsider abolishing the subsidy for RON95 entirely. This is because such an action may jeopardise the cost of living, especially for the middle-income (M-40) groups, as their fuel usage is greater than that of the lower-income (B-40) groups. However, it is suggested that the Malaysian government still needs to find an alternative, rather than abolishing the fuel subsidy programme. For instance, the government may continue the BUDI 95 system, subsidising fuel with a limited quantity. The government may also provide fuel vouchers to B-40 and M-40 groups to cover their fuel costs. Additionally, the government may enhance public transportation systems to encourage more people to use public transport rather than their private vehicles to save on fuel usage.

This paper is limited to the price of RON95 as a proxy for the retail fuel price in Malaysia. This is because RON95 is the most consumed fuel by Malaysian households. Other fuel products such as RON97, diesel, and LPG are not taken into account in this study. The inflation is limited to the CPI but not the Producer Price Index (PPI) because RON95 is used by consumers. Additionally, this study only takes Malaysia as the sample. As mentioned before, Malaysia is a crude oil producer and exporter. Hence, this study is important for understanding the role of fuel price in relation to the price level in Malaysia. Future research may explore the impact of fuel prices on inflation via different products, such as RON97 or RON98, diesel, and LPG. Notably, the diesel used by the firms is important to examine for cost-push inflation, as this inflation comes from production. Additionally, the PPI can be used as a proxy for inflation or as a real indicator of inflation – the inflation rate. Future studies may also be conducted by comparing the impact of fuel prices with regional countries, such as Indonesia, Thailand, Singapore, and the Philippines. This enables a comparison of the impact of fuel prices among crude oil-producing countries and non-crude oil-producing countries.

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Conflict of interest

The authors confirm that there is no conflict of interest involve with any parties in this research study.

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