Energy Crisis and Macroeconomic Stability in Pakistan

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Abstract
Turmoil in Pakistan economy, bulging inflationary trend and increasing foreign dependence due to specifically energy import have reignited interest in the link between energy crisis and economic performance. This paper examines the impact of energy crisis on inflation using annual data from 1971 to 2011. ARDL bounds testing approach has been adopted for empirical analysis. This approach assures the existence of long run relationship and determines the direct impact of aggregate energy crisis on inflation rate. These outcomes call for the immediate actions to restructure energy sector along with fiscal and monetary measures as energy crisis is leading to stagflation.

Keywords: Inflation, Macroeconomic Stability, Energy Crisis, Pakistan

I. Introduction
Energy is double edged weapon due to its role as core input in production processes on supply side and as basic consumer need on demand. It is used as to determine a country’s progress and welfare level through its efficient use of energy and its reserves of energy sources. From macro to micro level, commercial to domestic use, supply to demand, energy has captured the central position in economic framework. Energy is regarded as the lifeline of economy due to its dual role in economic picture. Energy crisis is taken as the difference between energy demand (use) and energy supply (production). Energy fluctuations shake the economies at both domestic and international level, developed and developing economies, and energy (oil) exporting and importing economies as well.

Oil crisis of 1970s and 1980s have evoked economists’ interest to explore energy-macro economics link. At that time only oil was crowned as energy crisis but in today’s world oil, gas, coal, petroleum products, electricity and other renewable energy sources are given their due status. Now a day the shortage of any of these or all is taken as energy
crisis. The present study has taken and summarized all these primary sources in one term of energy.

Energy (Oil) price hike stimulates inflation and generates recessionary phase in economies. While falls in its price do not dampen inflation and do not essentially improve economic activity. Energy (oil) is held responsible for the increasing trend of inflation. It is because the rise in energy prices possess a direct link with consumer price index (CPI) that’s trend is followed by general price level (Anton Mork, 1994). Hence, workers’ wages rise that increases the labor supply as compare to the labor demand. So this creates unemployment and people have to compensate for inflation due to CPI hike and dampening income level due to unemployment.

As 1970s sky-rocketing energy (oil) prices had resulted in high inflation with recession that is known as stagflation. Energy (oil) prices were found to be as the leading agent of the business fluctuations and stagflation as its evidence of strong macro links was examined by Hamilton (1983, 2005).

So energy crisis can be entitled as economic crisis in Pakistan from the last two decades. The current situation of energy sector in Pakistan is uncertain. Although energy availability has improved but still this turbulent condition of energy sector is due to its large scale increasing demand by domestic sector, industry, transport and more importantly by development of infrastructure (Pak economic Survey, 2014-15).

The purpose to conduct this study is to rekindle research on energy-inflation nexus. Most of the existing literature concerns energy-growth nexus and very few have focused on other macroeconomic variables. So this study fills this gap by observing the impact of energy crisis on inflation. Moreover, almost all previous studies on energy-inflation have used just oil instead of aggregate energy that includes other sources of energy as well. While the current study has filled this space by taking aggregate energy variable and thus examines the impact of energy variable on inflation.

The rest of the paper is structured as follows: Section II outlines the review of previous studies. Section III discusses data and sources of variables and explains the ARDL approach according to the model specification of study. Section IV provides empirical results of the study with economic justification. Section V concludes the whole paper.

II. Review of Past Studies

Energy economics has taken central stage in economic picture since the 1970s oil price hike. Since 1970s and 1980s two main strands of literature in energy economics have been conducted: the first strand relates to energy-growth nexus and the second strand relates to energy price-economic performance nexus. The pioneering work on the first strand was conducted by Kraft and Kraft (1978) and on the second strand Hamilton (1983) had conducted the research. Owing to a little work regarding the second strand particularly in Pakistan, the present study is credited to explore new dimensions with empirical evidence. An eye catching view of a few studies is given below.

Exploring the reasons of frequent recessions in US, Hamilton (1983) has originated a new strand in energy economics literature. He has provided empirical
evidence that oil price plays significant role in reducing output and aggravating unemployment rate and thus leads to generating recessions. Moreover a dynamic pattern in monetary policy and inflationary expectations would emerge in response to oil price shocks. Hamilton (2005) has examined the oil price shocks on macroeconomic variables of output and inflation rate. According to Hamilton the long term inflation rate is governed by monetary policy, so ultimately this is a question about how the central bank responds to the oil shock.

Kilian (2008) has probed the macroeconomic impacts of energy price shocks. He has proposed the demand side channel to empirically evaluate the transmission of energy price shocks. He has provided literature review about energy price determination and the models best suited to it. A lot of transmission channels have been identified like supply side (input), consumer demand, investment and monetary channel.

Aguiar-Conraria and Wen (2007) has observed that prior simulated models failed to quantify the underpinnings of recession in US. They have suggested that prior models failed due to no consideration to multiplier-accelerator interactions. Taking into account these interactions authors have also found empirical evidence of the significant role of oil prices in causing recession.

The disintegrated analysis of energy price shocks on basis of its origin like demand side or supply side has been conducted by Effiong (2014). He has examined the impact of energy price shocks considering oil prices as proxy on stock market performance of Nigeria. On basis of vector autoregressive models it is found that origin of energy price shocks is of tremendous importance regarding its impact on stock prices. Considering the role of energy to financial market, Lescaroux and Mignon (2008) have evaluated the relation of oil prices with macroeconomic (GDP, unemployment rate and CPI) and particularly financial variables (share prices) covering time period from 1960 to 2005 in annual series. They have considered three groups of countries as OPEC, oil exporting and oil importing economies for empirical analysis. Regarding the short term analysis, Granger causality and cyclical correlations confirm the countercyclical link from oil price to share price for oil exporting economies. Considering long term results the link between oil prices and macroeconomic variables or share prices has been confirmed for only non-OPEC economies.

Alom et al. (2013) have investigated the impact of world oil prices and food prices on economies of Asia and Pacific regions. Using quarterly data 1980 to 2010 they have adopted structural vector auto regressive models. It is found that resource poor economies are afflicted badly from world oil price shocks. While oil poor economies with diverse mineral reserves are relatively less affected from shocks in world oil prices. Food price shocks do not adversely inflict the food exporter and importer economies. Based on the evidence of key role played by energy inflation on macroeconomic performance it is recommended to enhance the use and availability of renewable energy sources.

Baghestani (2014) have analyzed the role of consumer’s inflationary expectations in determining energy prices taking the case of U.S. economy. Regarding energy prices, one, two and three quarter ahead random walk forecasts have been estimated using data over time period 1987 to 2012. Evaluation test of forecasts reveal that the results of forecasting model are free of any systematic bias and efficient. This empirical work has
declared that consumers’ expectations have good predictive power for future changes in energy inflation. This suggested the concerned authorities to try to minimize the fluctuations in energy inflation in order to ensure security to consumers.

Taking the case of two polar economies Brazil and America, Cavalcanti and Jalles (2013) have empirically analyzed the impact of oil prices on inflation rate and economic activity. In case of US economy, the volatility in growth and inflation rate is reducing with time but the contribution of oil prices in explaining inflation volatility is significant. While the contribution of oil prices in determining growth and inflation volatility is insignificant in case of less energy dependent economy of Brazil. Moreover, they have determined the oil prices upgrade aggregate demand, exchange rate, terms of trade, wage rate indirectly and thus worsening the investment activity and employment level.

In the context of Pakistan, Haider et al. (2013) have examined the link between energy crisis and inflation. In addition to explaining the current international and Pakistan scenario of energy sector, they have conducted a brief empirical analysis to determine the core contributing factors of energy inflation. They have taken annual data from 1973 to 2012 for critical determinants of energy inflation such as international oil prices, exchange rate, money supply, tax ratio to value addition in manufacturing sector, adaptive expectations and energy import gap ratio were taken as critical determinants of energy inflation. Engle-Granger and Johansen-Juselius both cointegration tests confirmed the existence of long run relation. Moreover, the estimation approaches of ordinary least square (OLS), generalized least square (GLS) and generalized method of moments (GMM) have assured the significant impact of all variables except energy-import gap ratio. These findings have clarified that adaptive expectations, international oil prices, money supply and exchange rate are the fundamental determinants of energy inflation. These outcomes reflect the pro-cyclical nature of monetary and fiscal policies in defining inflation trend in Pakistan.

Overview of existing literature indicated that evidence on energy economics is inconclusive due to country specific characteristics, variables selection and different methodologies. In prior studies the variable of energy price or inflation has been treated as independent variable. Contrary to that the present paper has taken inflation (CPI due to its specific relation to consumers’ welfare) as dependent variable and aggregate energy crisis as independent variable.

III. Methodological Framework

In this paper yearly time series data from 1971 to 2011 has been taken from various secondary sources for the following study model.

\[ INF_t = f(ENC_t, M2_t, GDPR_t, LNDR_t, TO_t, G_t) \]

Where, \( INF_t \) is explained variable and \( ENC_t, M2_t, GDPR_t, LNDR_t, TO_t, G_t \) are explanatory variables in model.

The core variables of model are energy crisis and inflation rate. We have used annual rate of change in CPI (2005 as base year) as measure of dependent variable that is inflation rate.
We have calculated energy crisis by taking the difference between energy demand and energy supply. We have taken different forms of energy in terms of kilo tones of oil equivalent in order to obtain its aggregate measure.

Table 1 provides a glimpse about the measurement unit and specific data sources of all variables of the model.

Table 1: Summary of Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Symbolic Representation</th>
<th>Unit of Measurement</th>
<th>Data Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy Crisis</td>
<td>ENC</td>
<td>Kilotonnes of Oil Equivalent</td>
<td>World Development Indicators</td>
</tr>
<tr>
<td>Consumer Price Index Rate</td>
<td>INF</td>
<td>Percentage</td>
<td>IMF (International Financial Statistics)</td>
</tr>
<tr>
<td>Money Supply (Broad Money)</td>
<td>M2</td>
<td>Percentage</td>
<td>World Development Indicators</td>
</tr>
<tr>
<td>GDP growth Rate</td>
<td>GDPR</td>
<td>Percentage</td>
<td>World Development Indicators</td>
</tr>
<tr>
<td>Lending Interest rate</td>
<td>LNDR</td>
<td>Percentage</td>
<td>World Development Indicators</td>
</tr>
<tr>
<td>Real Govt. Expenditure</td>
<td>G</td>
<td>Constant LCU (million)</td>
<td>World Development Indicators</td>
</tr>
<tr>
<td>Trade Openness</td>
<td>TO</td>
<td>Openness Index</td>
<td>Pakistan Economic Survey</td>
</tr>
</tbody>
</table>

A. Stationarity Analysis of Variables

In case of time series data we have conducted stationarity analysis to avoid spurious results. Table 2 portrays the decision of the order of integration of all variables using Phillips Perron unit root test.

Table 2: Results of Phillips Perron Unit Root Test

<table>
<thead>
<tr>
<th>Variables</th>
<th>Phillips Perron (PP) test</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>C &amp; T</td>
<td>C</td>
</tr>
<tr>
<td>Inflation rate (INF)</td>
<td>-3.32**</td>
<td>-3.36*</td>
</tr>
<tr>
<td>Energy Crisis (ENC)</td>
<td>-0.036</td>
<td>-2.45</td>
</tr>
<tr>
<td>Money Supply (M2)</td>
<td>-2.70*</td>
<td>-2.46</td>
</tr>
<tr>
<td>GDP growth rate (GDPR)</td>
<td>-4.54**</td>
<td>-4.79**</td>
</tr>
<tr>
<td>Lending Interest rate (LNDR)</td>
<td>-2.56</td>
<td>-2.53</td>
</tr>
<tr>
<td>Real Govt. Expenditure (G)</td>
<td>0.82</td>
<td>-1.84</td>
</tr>
<tr>
<td>Trade Openness (TO)</td>
<td>-2.75*</td>
<td>-2.79</td>
</tr>
</tbody>
</table>

Note: C indicates only intercept case and C & T denotes intercept and trend case. ** represents 5% significance level, * indicates 10% significance level. (Authors’ Calculations)
On the basis of above results it is concluded that ARDL Bounds test to cointegration is the best applicable approach due to its due allowance for mix order of integration of data series.

B. ARDL Approach

The empirical studies on energy economics have used different techniques to investigate the link between energy and macroeconomic variable. Some studies have applied forecasting techniques to predict the behavior of macroeconomic variables. Mostly studies have applied various cointegration techniques to estimate the long run relation between concerned variables but these approaches have some weaknesses also. Engle-Ganger and Johansen (1988) and Johansen-Juselius (1989) cointegration techniques are not appropriate due to low degree of freedom problem. So, the present study has applied Bounds cointegration test under ARDL approach proposed by Pesaran et al. due to its following fruitful features.

- ARDL approach to cointegration is a dynamic approach under single equation system. This approach estimates the short run model and the long run model simultaneously due to inclusion of error correction term.
- The estimated coefficients of ARDL model are unbiased and efficient.
- Its estimated results would be efficient in case of small samples as well.
- ARDL approach provides freedom from serial correlation and endogeneity issues (Pesaran et al., 2001).
- Its results are more reliable in comparison to Johansen (1988) and Johansen-Juselius (1989) cointegration techniques because it can be applied to variables of mixed order of cointegration.

C. ARDL Model Specification

Considering the case of two variables say $X_t$ with m lags and $Y_t$ with n lags, error correction model (ECM) is specified in following general form

$$
\Delta Y_t = \alpha + \sum_{i=1}^{n-1} \beta_i \Delta Y_{t-i} + \sum_{i=0}^{m-1} \gamma_i \Delta X_{t-i} + \Omega Y_{t-1} + \delta X_{t-1} + \nu_t
$$

(1)

So following the equation (1), unrestricted error correction model (UECM) relating to the study hypothesis is given below
\[ \Delta(INF)_t = \alpha + \beta_1(INF)_{t-1} + \beta_2(ENC)_{t-1} + \beta_3(M2)_{t-1} + \beta_4(GDPR)_{t-1} \]
\[ + \beta_5(LNDR)_{t-1} + \beta_6(TO)_{t-1} + \beta_7(G)_{t-1} + \sum_{i=0}^{m} \delta_1 \Delta(INF)_{t-1} \]
\[ + \sum_{i=0}^{r} \delta_2 \Delta(ENC)_{t-1} + \sum_{i=0}^{p} \delta_3 \Delta(M2)_{t-1} + \sum_{i=0}^{q} \delta_4 \Delta(GDPR)_{t-1} \]
\[ + \sum_{i=0}^{s} \delta_5 \Delta(LNDR)_{t-1} + \sum_{i=0}^{r} \delta_6 \Delta(TO)_{t-1} + \sum_{i=0}^{w} \delta_7 \Delta(G)_{t-1} \]
\[ + \nu_t \]  

(2)

Where \( \Delta \) is the first difference operator, \( t \) denotes time, \( \beta_i \)’s are the long term multipliers and \( \delta_k \) represents short term dynamic coefficients of model and \( \nu_t \) is white noise error term.

D. Bounds Testing Procedure

It is obligatory to check the existence of long run relationship before estimating the long run coefficients and error correction model. OLS is applied to determine the value of WALD statistic or F-test for checking the joint significance of coefficients of lagged variables. For this purpose null and alternative hypothesis are

- Null hypothesis exhibits that long run parameters of lagged variables are simultaneously equal to zero which means that there is no long run relationship. The alternative hypothesis shows that if at least one coefficient is not equal to zero then cointegration is concluded. The probability distribution of F-statistic is non-standard due to its dependence on whether the all concerned variables of model are integrated of order I(1) or just I(0) or the variables are integrated of mix order as I(0) and I(1). After computation of F-statistic value, it is compared with critical limits given in Pesaran et al. (2001). If F-statistic value is greater than upper limit then null hypothesis is rejected that verifies the existence of long run relationship. If F-statistic value is found to be less than lower critical limit then null hypothesis is not rejected that verifies the non-existence of long run relationship. On the other hand, cointegration becomes inconclusive when F-statistic value falls between the lower and upper critical limits.

Once the existence of cointegration is confirmed then long run parameters are estimated by the following equation
The parameters of short run model incorporating the error correction term can be estimated by using the following equation

\[
\Delta INF_t = \alpha + \sum_{i=1}^{m} \theta_1 (\Delta INF)_{t-i} + \sum_{i=0}^{n} \theta_2 (\Delta ENC)_{t-i} + \sum_{i=0}^{p} \theta_3 (\Delta M2)_{t-i} \\
+ \sum_{i=0}^{q} \theta_4 (\Delta GDPR)_{t-i} + \sum_{i=0}^{r} \theta_5 (\Delta LNDR)_{t-i} + \sum_{i=0}^{s} \theta_6 (\Delta TO)_{t-i} \\
+ \sum_{i=0}^{w} \theta_7 (\Delta G)_{t-i} + \varphi ECM_{t-i} \\
+ v_t 
\]

(3)

Where \((\theta_i)\) represents the short run parameters and \((\varphi)\) denotes the error correction term that is the speed of adjustment coefficient reflecting the annual rate of adjustment from short run disequilibrium to long run equilibrium. The significant and negative value of \((\varphi)\) is essential for convergence.

IV. Empirical Results

This section is comprised of the results of empirical estimation, which goes as follows.

A. The Optimum Lag order and Bounds Testing

Akaike Info Criterion (AIC) has been used to determine the optimum number of lags of the variables. AIC has proposed the optimal lag length 2 for the study model. We have applied OLS on equation (2) to determine the F-statistic value under WALD test. Table 3 reports the result of bounds test of cointegration.

Table 3: Bounds Test of Cointegration

<table>
<thead>
<tr>
<th>F-Statistic (Probability)</th>
<th>Lag</th>
<th>Significance Level</th>
<th>Bounds Test Critical Values</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lower Bound</td>
</tr>
<tr>
<td>4.644 (0.004)</td>
<td>2</td>
<td>5% **</td>
<td>2.87</td>
</tr>
</tbody>
</table>

Note: k=6, (Pesaran et al., 2001, page: 301) (Authors’ calculations).

F-statistic value (4.644) is found to be greater than upper bound critical value (4.00) at 5% level of significance. This concludes the rejection of null hypothesis of no
cointegration and thus confirms the occurrence of long run relationship between variables of model.

B. Long run Results of ARDL Estimated Model

Now we move forward to estimate the long run coefficients of ARDL model. Table 4 shows the results of the long run estimated coefficients of the study model.

Table 4: Estimated Coefficients of Long Run Model

<table>
<thead>
<tr>
<th>Regressors</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>T-Ratio</th>
<th>[Probability]</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENC</td>
<td>0.0047</td>
<td>0.0016</td>
<td>2.8975</td>
<td>[0.009]</td>
</tr>
<tr>
<td>M2</td>
<td>1.1816</td>
<td>0.6139</td>
<td>1.9249</td>
<td>[0.069]</td>
</tr>
<tr>
<td>GDPR</td>
<td>-0.8684</td>
<td>0.5054</td>
<td>-1.7182</td>
<td>[0.101]</td>
</tr>
<tr>
<td>LNDR</td>
<td>-2.3409</td>
<td>0.8692</td>
<td>-2.6933</td>
<td>[0.014]</td>
</tr>
<tr>
<td>TO</td>
<td>3.0560</td>
<td>1.0180</td>
<td>2.9994</td>
<td>[0.007]</td>
</tr>
<tr>
<td>G</td>
<td>5.0670E-4</td>
<td>1.2600E-4</td>
<td>4.4987</td>
<td>[0.000]</td>
</tr>
<tr>
<td>C</td>
<td>-113.4413</td>
<td>45.4478</td>
<td>-2.4961</td>
<td>[0.021]</td>
</tr>
<tr>
<td>T</td>
<td>-3.1682</td>
<td>0.8016</td>
<td>-3.9520</td>
<td>[0.001]</td>
</tr>
</tbody>
</table>

Source: Author’s Calculations.

In above table we have specified inflation rate (INF) as dependent variable and other six variables are treated as explanatory variables. The first explanatory and core variable of study, the energy crisis (ENC) has positive and significant impact on dependent variable (INF). This means that as energy crisis becomes severe in Pakistan economy then it increases the rate of upward move of inflation. The reason is that this relation emerges due to cost push inflation as with increasing shortage of energy supply in productive investments and also due to demand push inflation with increasing demand of energy that causes up rise in energy prices. This duality role of energy in economy as basic input in supply side and basic consumer need in demand side aggravates the situation. Thus positive impact of (ENC) on (INF) leads to generate hyperinflation and justifies the stagflation in economy. The second explanatory variable, M2, also relates directly to (INF). This significant positive relation justifies the quantity theory of money. Increase in money supply by state bank of Pakistan declines the purchasing power of economic units because it speeds up the inflationary trend by influencing other input prices and commodity prices.

There is tradeoff between (LNDR) and (INF). It implies that as borrowing cost of investment activities increase due to increase in lending interest rate by banks then it reduces output. When output falls with demand remaining the same then it results in the emergence of demand pull inflation. The negative impact of (GDPR) on (INF) can be justified on background of Phillips curve that shows the tradeoff between inflation and unemployment. Reduction in unemployment means increase in employment activity that would lead to increase in output. So, (INF) would fall in response to increase in (GDPR) that is proxy for output but this impact is insignificant in the study model.
The last two variables, (TO) and (G) are positively and significantly associated with (INF). As economies would be open to international trade then domestic general price level would be affected due to increase in overall demand and terms of trade. Government expenditure (G) also exerts direct impact on (INF) as increase in (G) causes increase in aggregate demand that may lead to demand pull inflation.

C. Error Correction Estimating Results

We have estimated the short run dynamic results by UECM that are displayed in table 5. The dependent variable is dINF where d shows the first difference of variable. The change in ENC is positively related with INF in Pakistan while the lag of change in ENC is negatively related with INF. The change in M2, G, GDPR and LNDR are negatively related with INF. The change in TO has positive relation with INF.

<table>
<thead>
<tr>
<th>Table 5: Error Correction Model Estimates</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARDL (2, 2, 2, 0, 1, 2, 2) selected based on Akaike Information Criterion</td>
</tr>
<tr>
<td>Dependent Variable is dINF</td>
</tr>
<tr>
<td>Regressor</td>
</tr>
<tr>
<td>dINF 1</td>
</tr>
<tr>
<td>dENC</td>
</tr>
<tr>
<td>dENC 1</td>
</tr>
<tr>
<td>dM2</td>
</tr>
<tr>
<td>dM2 1</td>
</tr>
<tr>
<td>dGDPR</td>
</tr>
<tr>
<td>dLNDR</td>
</tr>
<tr>
<td>dTO</td>
</tr>
<tr>
<td>dTO 1</td>
</tr>
<tr>
<td>dG</td>
</tr>
<tr>
<td>dG 1</td>
</tr>
<tr>
<td>dC</td>
</tr>
<tr>
<td>dT</td>
</tr>
<tr>
<td>ecm (-1)</td>
</tr>
</tbody>
</table>

Source: Author’s Calculations.

Error correction term is negative and significant that confirms convergence to long run equilibrium from short run shock. Its value (-0.55) means that the short run disturbances are corrected by more than half within a year.

D. Model Stability Tests

We have examined the stability of model with help of cumulative sum (CUSUM) and cumulative sum of square (CUSUMSQ) plots of residuals. Figure 1 demonstrates these residual plots. The CUSUM plot lies between the upper and lower critical bound lines expressing the stability of the estimated model.
On the other hand, the CUSUM_SQ plot also lie inside the critical bound lines but with slightly outward extension. This very small divergence in CUSUM_SQ plot appears transitory due to its return to lie between the critical bound lines (Uslu and Polat, 2011). Overall it is inferred that the estimated model remains stable over the study period.

V. Conclusion

The spirit of this study is to investigate whether energy crisis can be held responsible for large economic dislocations. From the start of 21st century Pakistan economy has faced hyperinflation and energy crisis. This paper has analyzed the impact of energy crisis on inflation covering time period from 1971 to 2011 in Pakistan. It is confirmed from Bounds test to cointegration that long run relation exists in the multivariate study model. Estimations with help of ARDL method declare that there is direct relation of energy crisis with inflation. It means that when energy crisis becomes severe then economy suffers from hyperinflation. This hyperinflation may be the result of supply side or demand side shock of energy or a combination of both. Growth rate of GDP and lending interest rate possess indirect relation with inflation. Money supply, trade openness, government expenditures imply positive impact on inflation. These findings recommend the concerned authorities to resolve the issue of energy crisis on emergency grounds in order to save the economy from other economic diseases such as hyperinflation. Exploration and exhaustion of renewable energy sources may help to get rid of this crisis. Furthermore efficient use of available energy along with measures to minimize transmission losses is also mandatory. Policy action is required regarding fiscal and monetary policies due to their positive and significant impact on inflation.

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