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## INTEREST RATE TARGETING; A WAY OUT TO CURB PRICE INSTABILITY IN PAKISTAN

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**Abstract:** *To attain sustainable economic growth stability in prices is considered as the key instrument. The SBP is considering interest rate targeting as most suitable strategy to control price instability in Pakistan. Present research will make analysis of interest rate targeting in the country. The study empirically investigates long and short run impact of interest rate targeting on inflation. Estimated outcomes of present research indicate the significance of interest rate targeting for the country. Inflation rate is considered as dependent variable. Main proposed variable to influence inflation is interest rate. The controlled variable of present research is real GDP growth. Annual data covering the period from 1980-2018 has been used. The techniques of Autoregressive Distributed Lag Model and pair wise causality approach to assess the nature of causation among variables have been used. The results of the study propose that interest rate is best instrument to achieve target of less volatility in prices in economy.*

**Keywords:** Monetary Policy, Central Bank, Inflation Targeting

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## **1. Introduction**

Price instability may be represented as inflation or deflation. An economic condition in which there is persistent increase in price level is called inflation. Correspondingly if there is perpetual decline in prices it is known as deflation. For a steady and uninterrupted pecuniary evolution it is essential to overcome both these circumstances.

The debate concerning good or bad influence of inflation on the economy became considerable equally for advanced and emerging economies. A low rate of inflation i.e. single digit inflation is vindicated due to its good influence on the economic growth of a country, as it inspires investors and producers to boost investment, diminishes unemployment and advance returns. Opposing to this, high level of inflation rate i.e. double digit inflation has depressing influence on the economy. High inflation fetches down the value of money, investment drops due to cumulative ambiguity. All this leads to slow economic growth. If high inflation is due to increase in aggregate demand then the government will adopt measures to reduce aggregate demand. In this way the effect of minimizing inflation is just transitory in nature, having continuous economic growth due to more efficient macroeconomic policies. On other side, if the main root of inflation is rise in the cost of production or increase in cost of imported goods, then there must be a check on cost of production to handle problems related to inflation.

The main intention of country's central bank is to attain those desired objectives of growth and inflation which the government set annually. Therefore, the central bank of the country made the monetary policy in accordance with these settled targets. Besides discussing other particulars regarding this strategy, the important thing is that the prime objective of monetary policy is to minimize volatility in prices.

Price stability is a tool through which monetary policy can attain its other objectives of stable growth, low unemployment etc. Price stability enhances the wellbeing of common people. On other side, the cost of price instability in many countries has appeared in terms of over investment in the financial sector, inappropriate production decisions, higher taxation and misuse of capital in various sectors. Therefore, price stability has been considered as the main prerequisite for many countries to attain long-term stable economic growth. There is a need to analyze various monetary strategies to bring price stability.

There are various monetary policies such as monetary aggregate targeting, exchange rate targeting, and interest rate targeting to achieve the goal of stable price level. The monetary authorities use different target variables and instruments to distinguish between different monetary policies. Many options regarding policy instruments are vacant for monetary authorities to control inflation rate and to attain stable economic growth. In developing economies central banks are trying to adopt such monetary policy that control inflation and provide a sustainable and smooth economic growth. To formulate and employ an autonomous monetary policy independence of monetary authority is required.

The Central Bank of Pakistan is also trying to adopt a favorable monetary strategy. In early 1990s and 2000 State Bank of Pakistan (SBP) took some steps to stabilize economy by adopting monetary policy. These steps include autonomy of SBP, privatization of commercial banks, determining a domestic bond market and inaugurating Pakistan bonds in the international market and to keep foreign exchange reserves high. All these measures permit SBP to announce an independent monetary policy to bring inflation down. In 2003 due to good performance of economy, SBP was able to keep inflation down to

single digits. In 2004 the SBP has been considered as the most dexterous bank in developing countries.

In past central bank has used various policy instruments to handle inflation in Pakistan like  $M_2$ , exchange rate etc. However, expansion of public debt accelerates monetary growth in Pakistan. Due to this it becomes difficult for SBP to handle broad money ( $M_2$ ) as a policy tool to control prices.

Pakistan has also adopted flexible exchange rate as policy instrument but as the net exports has insignificant impact, therefore, to control inflation, the effect of exchange rate pass through remains very low. Another variable which could play a role of instrument in monetary targeting is interest rate. The SBP remains unwilling to bring changes in interest rate due to its inferences on debt and growth.

There are different views regarding adoption of various monetary tools in Pakistan. It is need of the time to choose best possible monetary instrument to handle issue of price instability in Pakistan. This study makes an effort to suggest the most significant monetary strategy known as interest rate targeting to bring price stability in Pakistan. Therefore, this research is undertaken using relevant policy variable such as interest rate and analyze its impact on fluctuation in prices. This study provides guidelines to overcome the issue of ever increasing inflation in the country to bring smooth economic prosperity.

### 1.1 Objective of Study:

The study aims to take into account the association among inflation, interest rate and economic growth of Pakistan economy covering the time duration of 1980-2018. It has following specific objectives

1. To estimate the association among inflation and interest rate.

2. To assess long run effect of economic growth on inflation.

3. To analyze existing causation between all variables.

### 1.2 Hypothesis:

This study formulates and investigates hypothesis which are given below.

$H_0$ : There exist no long-run relation between rate of inflation, real interest rate and real GDP growth.

$H_1$ : There exist long-run relation between inflation, real interest rate and real GDP growth.

### 1.3 Organization of the Study:

The organization of current paper is as follows, section 2 explains review of literature, section 3 represents theoretical frame work, section 4 explains data, methodology and results, section 5 explains the Granger Causality analysis, and section 6 represents conclusion and policy implications and limitations for this study.

### 2. Review of Literature

Due to growing interest in the issue of price instability in many countries, number of studies has been employed to examine the role of high inflation in the economic growth of developed and developing countries. Many economists tried to investigate this issue theoretically and empirically. Frederic S. Mishkin (1997) provides theoretical evidence regarding different gains and detriments of diverse monetary policies. On Empirical grounds, Siddiqui and Akhtar (1999) have examined how variation in price of imports and real as well as nominal variables bring changes in domestic price level. In another study, Aslamand Munir (2005) explain that in Pakistan the highly significant factor which influence inflation is price of imported goods. The authors analyze that monetary policies have no significant effect in controlling inflation. Therefore, it is suggested that adoption of inflation targeting is not appropriate for State Bank of Pakistan as it may lead the

economy towards depression. Moinuddin (2007) suggested that due to unstable money demand function aggregate monetary targeting is not appropriate for Pakistan. Javaid, et al. (2009) suggested that to attain economic prosperity monetary strategy is more efficient than fiscal policy. The government can make the effect of fiscal policy positive for country's development by having strict control on misuse of resources; minimizing dishonesty etc. The blend of both monetary and fiscal policy will be more beneficial and effective. However, the political, social and cultural requirements of a country put pressure on central bank to facilitate other policies as well. Jesus Felipe (2009) investigated the relationship between inflation and interest rates. He used Consumer Price Index (CPI) and Wholesale Price Index (WPI) measures of inflation and three interest rates: central bank policy rates, call money rate and the 6-month Treasury bill rate. ARDL model and Granger Causality Tests have been used by the author. The results were complex as no significant relation was found between interest rate and the two price indices when annual data was used. With quarterly data, the 6-month Treasury bill Granger causes the WPI in the short run, and the CPI in the long-run. Causality from both the Central bank policy rate and the 6-month Treasury bill to both the WPI and the CPI indicate short run relation for monthly data whereas, Causality from the 6-month Treasury bill to the WPI show the evidence of long-run relation. The author suggested that with due importance of inflation constraint State Bank of Pakistan needs to target full employment. To measure the accurate impact of interest rate on inflation there is a need for detailed empirical research from State Bank of Pakistan. Saleem (2010) analyzed that the country like Pakistan must choose the flexible inflation targeting. It indicates that country's decision regarding control of exchange rate and interest rate depends on the circumstances which

come out because of high prices. It shows that the main objective of flexible inflation targeting is to maintain inflation as well as to stabilize the real economy. On other side the focus of strict inflation targeting remains on to just stabilizing inflation without considering its impact on real economy. The given literature regarding this topic suggests that to control inflation, the government and central bank must work jointly. The goals and objectives of fiscal policy and monetary policy must coordinate to handle inflation. Zubaria, *et al.* (2012) confirms absence of coordination among monetary and government strategies. Rehman (2012) explores the affiliation among exchange rate and seven major growth variables with reference to Pakistan. This study provides evidence regarding existence of co-integration and unidirectional relation between exchange rate and balance of trade. Haryo Kuncoro, et al., (2013) explored that in Indonesia to what extent fiscal and monetary policies dynamically correlate with each other. Based on quarterly data, this study recommends that to attain long-run stable economic growth careful expansionary fiscal and monetary policies are required. Ahmed *et al.* (2014) have analyzed the role of various factors in determination of inflation in Pakistan. For this study time series data has been chosen from 1972-73 to 2012-13. To examine the empirical results the authors have used Johansen co-integration test and vector error correction model. The findings of the study indicate that fiscal policy is a significant tool in controlling inflation as consumer price index is directly related with government borrowing and indirect taxes. Besides this exchange rate and import price index also respond positively to determine inflation in Pakistan indicating that effect of external sector is significant. There exists a positive long-run relationship between inflation and growth rate of money supply. Therefore, the monetary policy also plays pivotal role in controlling inflation.

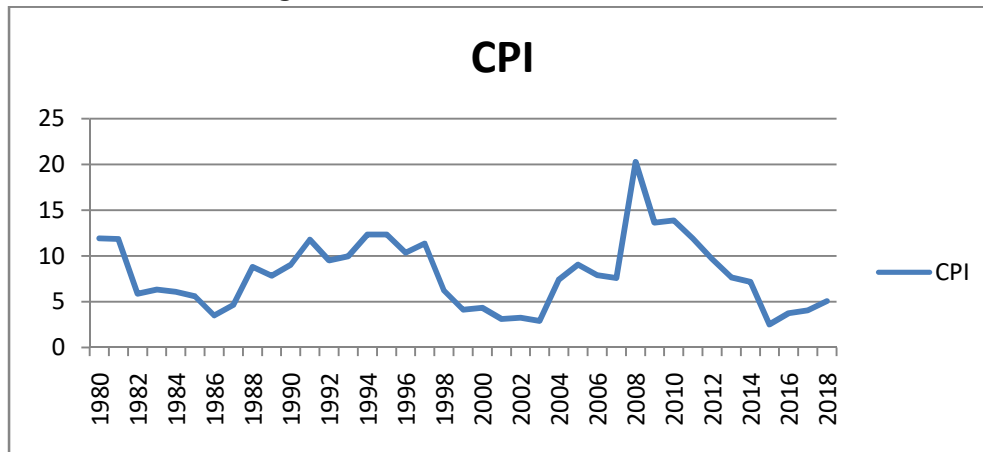
The summarized review of past studies presented above clearly elucidates the need to reanalyze the best nominal anchor to conduct monetary policy in case of Pakistan economy. As the findings from past depict mixed outcome regarding the issue. The purpose of this research is to scrutinize the association among interest rate and price instability. Based upon the empirical outcomes discussed above, current study will provide

appropriate policy options for Pakistan to curb inflation.

### 3. Theoretical Framework

Consumer price index is used as a proxy of price instability in Pakistan. In existing scenario the need of the time is to reconsider the appropriate monetary instrument to resolve the problem of inflation in Pakistan. Figure 3.1 shows the fluctuation in consumer price index over time.

Figure 3.1: CPI Growth Trends of Pakistan



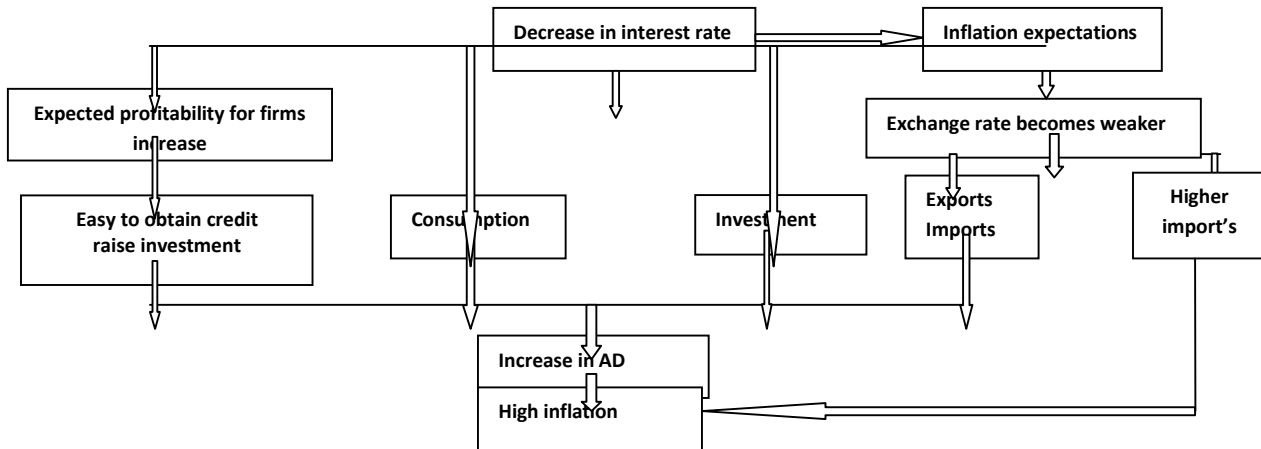
Source: Author's own contribution based on WDI database

The above graph explains the trends of inflation in Pakistan. It shows that during 1973-75 due to high oil prices the inflation become very high. It again depicts rising trends in the starting decades of 1980s and 1990s. Inflation accumulates because of increase in deficit financing, mismanagement of resources, high debt burden and low productivity of factors of production. However, the high inflationary trend exists for short period. According to most analysts over the years the inflation rate of Pakistan remained satisfactory. As its per annum average was 11.9 percent, 7.5 percent and 9.7 percent during 1970s, 1980s, and 1990s respectively. Due to unexpected natural disasters and poor economic policies the inflation rate becomes extremely high in the second half of the decades of 2000s. However, it continues to decline in the next years as according to SBP's

monetary policy in 2014 the CPI inflation was 8.6 percent. Inflation persisted low for the next year. But later on it again shows an upward trend due to exchange rate fluctuations, local currency devaluation, political instability and inappropriate fiscal and monetary strategies.

The channels through which interest rate effect prices has been portrayed in figure 1.2. To overcome the issue of price instability the key determinant is interest rate. It affects financial market. Due to variations of interest rate exchange rate fluctuates. All this leads to bring changes in economy's aggregate demand and supply. If interest rate goes down financial institutes raise loaning. All this accelerate aggregate demand. There will be upsurge in household's expenses. We explain this through following figure.

Figure 3.2: Relation between Inflation Rate and Interest Rate

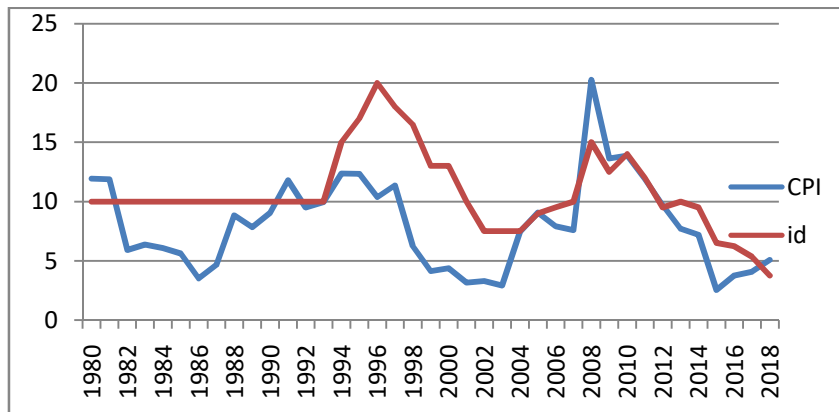


Source: Author's own contribution

The figure 3.3 below shows relation between inflation rate and interest rate. Volatility in rate of inflation in comparison to interest rate is high. The reason behind this is the fact that financial markets are underdeveloped in Pakistan so SBP control

interest rate to handle fluctuations in investment. The stiffness of interest rate leads to low savings and has inverse impact on the growth of bonds market. In a nut shell to control inflation rate the SBP strictly control interest rate.

Figure 3.3 Relationships between Inflation Rate and Interest Rate



Source: Author's own contribution based on WDI data base.

#### 4. Methodology/Model Specification and Data Sources

Current study used annual data covering the time duration of 1980-2018. It utilizes Auto Regressive Distributed Lag (ARDL) approach for estimation. Pesaran and Pesaran (1997), Pesaran and Smith (1998), Pesaran and Shin (1999), and Pesaran et al. (2001) proposed the ARDL technique. As

compared to other cointegration techniques the ARDL method contains different empirical benefits. The superiority of ARDL technique over other time series approaches is that , it is applicable for all variables whether they are of I (0), I (1) or fractionally integrated. This approach has benefit of providing vigorous outcomes when sample size is little and provides highly reliable

long-run results of coefficients. The technique gets solution for the problems such as endogeneity and incapability regarding testing hypotheses of long-run estimates. Further it detains the procedure of data making into a common-to-particular modeling approach by taking appropriate number of lags. Furthermore, by using an easy linear alteration the derivation of error correction model from ARDL model becomes possible. The error correction model explains the fluctuations in the short-run and the movements towards long-term equilibrium. The autoregressive distributed lag model handle the issues regarding on-stationarity of data. Due to these discussed benefits this study uses the technique of ARDL model and the ensuing error correction model.

Furthermore, this research uses Granger Causality test to investigate nature of causation among values of proposed variables. Granger Causality test is of great worth as it provides the guidance for the existence of the uni-directional or bi-directional relationship among the dependent and independent variables. The use of these both techniques made this research more worthwhile to provide policy implications for Pakistan to handle the issue of price instability in current scenario. The data for this study has been retrieved from International Financial Statistic (IFS) and World

Development Indicators (WDI) and Economic Survey of Pakistan (Various Issues) published by Ministry of Finance.

#### 4.1 Model Specification: Interest Rate Targeting

The model presented below investigates impact of interest rate targeting on inflation rate in Pakistan.

$$CPI_t = a_0 + a_1 RIR_t + a_2 RGDPG_t + \varepsilon_t$$

Where: CPI = Consumer Price Index, RIR = Real Interest Rate, measured as percent per annum, RGDPG = Real GDP growth and  $\varepsilon_t$  = error term. Given model explains that in Pakistan price instability is determined by level of real interest rate and growth of real GDP. In equation (1), the parameters  $a_1$  and  $a_2$  are elasticities which explain percentage change in exploratory variable because of percentage change in explanatory variables. The parameters  $a_1$  &  $a_2$  illustrates possible reverse association of explanatory variables with inflation respectively. Expected negative outcome of  $a_1$  indicates that there occur opposite link among real interest rate and inflation rate. The expected negative sign of  $a_2$  depicts adverse link among growth of real GDP and price instability in Pakistan. The representation of ARDL model belongs to equation (1) is as follows:

$$\Delta CPIG_t = \alpha_0 + \sum_{i=0}^n \beta_{1i} \Delta CPIG_{t-1} + \sum_{i=0}^n \beta_{2i} \Delta RIR_{t-1} + \sum_{i=0}^n \beta_{3i} \Delta GDPG_{t-1} + \beta_4 CPIG_{t-1} + \beta_5 RIR_{t-1} + \beta_6 GDPG_{t-1} + \varepsilon_t$$

The general Error Correction (EC) representation based on ARDL model for equation (1) is given below:

$$\Delta CPIG_t = \alpha_0 + \sum_{i=0}^n \beta_{1i} \Delta CPIG_{t-1} + \sum_{i=0}^n \beta_{2i} \Delta RIR_{t-1} + \sum_{i=0}^n \beta_{3i} \Delta GDPG_{t-1} + \lambda_1 ECM_{t-1} + \mu_{it}$$

Initially, we check the stationarity of the model by using ADF unit root criteria. The dependent variable is stationary at I(1), the real interest rate is also stationary at first difference and real GDP

growth is significant at level. As the order of integration is mixed so this research will utilize ARDL technique for estimation.

#### 4.2 Selection of Lag Length:

we find the maximum values for lags p and q of the unrestricted error correction model of ARDL (p,q) using the minimum values on Akaike Information Criterion (AIC), Schwarz (SBC), Hannan-Quinn (HQC) criteria. The output of the estimation is reported in table 4.1

**Table 4.1: VAR Lag Order Selection Criteria**

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-360.3385	NA	117229.2	20.18547	20.31743	20.23153
1	-233.0046	226.3715	164.1035	13.61136	14.13920*	13.79559
2	-219.4848	21.78184*	129.2413*	13.36027*	14.28399	13.68267*
3	-214.0378	7.867816	162.2267	13.55766	14.87726	14.01823

Source: Author’s own contribution

\*represent optimal lag. LR denote sequential modified LR test statistic (each test at 5% level), FPE: Final prediction error, AIC: Akaike information criterion, SC: Schwarz information criterion, HQ: Hannan-Quinn information criterion

**4. Bound Test:**

Bound testing procedure calculates the value of F-Statistics. The values of critical bound and F-statistics can be observed from the table 4.2 below. F-statistics is higher than the critical value of upper bound. Hence long run association exists among proposed variables.

**Table 4.2: Bound Test for Long Run Association**

Model	F-Statistics	
CPI= f (RIR,GDPG)	4.799	
Critical Value Bounds		
Significance	Lower Bound	Upper Bound
1%	5.15	6.36
5%	3.79	4.85
10%	3.17	4.14

Source: Author’s own contribution

Table 4.3 reveals the long run association among given exploratory and explanatory variables. It explains that coefficient of real interest rate (RIR) is negative and substantial. Coefficient of GRGDP has positive sign and is statistically insignificant. It satisfies Friedman’s views according to which

the real variables have no effect on inflation. Besides this, inflation relates to monetary variables only. Outcomes of present research are in line with Saleem (2010) indicating interest rate and inflation rate are significantly and inversely associated.

**Table 4.3: Long Run Results (ARDL Model)**

Dependent variable CPI

Regressor	Coefficients	Standard Error	T-Ratios[Prob.]
RIR	-0.9731	0.0119	81.5068[.000]
RGDPG	0.28572	0.62810	0.4549[0.652]
C	6.2563	3.5891	1.7432[0.092]

Source: Author’s own contribution



$R^2= 0.96494$ ,  $\bar{R}^2= 0.95793$ ,  $F(4, 32) = 206.4352$  [0.000] Source: Based on author's calculations. The ARDL error correction representation of above equation is estimated in Table 4.4

**Co-integration eq. =  $CPI - (-0.9732*RI + 0.2857*GDPR + 6.2564)$**

Table 4.4 shows that in short run real interest rate (RIR) depicts statistically noteworthy impact on the CPI. It shows inverse association with price instability. These findings are in accordance to existing literature. Empirical outcomes of this research are contradict to Jesus Felipe (2009), who explored that in short run there is no inverse relation with interest rate and inflation. Coefficient

of ECM term is substantial with negative insignnia. It confirms long-run association between given variables in equation (1). Coefficient of ECM term explains that speed of adjustment is relatively weak. Approximately 36 % disequilibrium in previous year price instability will move towards equilibrium in present year.

**Table 4.4:Short Run Results and Error Correction Representation**

Regressors	Coefficients	Standard Error	T-Ratios
<b>D(CPI(-1))</b>	0.16093	0.069143	2.3274[.026]
<b>D(RI)</b>	-0.99691	0.065438	-15.2345[.000]

<b>D(GDPR)</b>	-0.35376	0.15706	-2.2524[.031]
<b>CointEq.(-1)</b>	-0.36354	0.14174	-2.5648[.015]

Source: Author's own contribution

**4.4 Stability and Diagnostic Tests**

After endorsing presence of co- integration among given variables we check diagnostic tests to

confirm goodness of fit of model. The outcomes of diagnostic tests based on equation (2) are discussed in table 4.5

**Table 4.5: The Diagnostic Test Statistics**

<b>A</b>	<b>Residual Correlation</b>	$\chi^2_{sc}(1)$	0.1203[.731]
<b>B</b>	<b>Functional form misspecification</b>	$\chi^2_{FF}(1)$	1.4249[.242]
<b>C</b>	<b>Non-normal errors</b>	$\chi^2_{N}(2)$	1.7159[.424]
<b>D</b>	<b>Heteroscedasticity</b>	$\chi^2_{H}(1)$	0.3760[.544]

Source: Based on author's calculations

A:Lagrange multiplier test of residual serial correlation, B:Ramsey's RESET test using the square of the fitted values, C:Based on a test of skewness and kurtosis of residuals, D:Based on the regression of squared residuals on squared fitted values

Above table indicates that the entire diagnostic tests are insignificant. Therefore, there are no issues of Residual Correlation, Functional form misspecification, Non-normal errors and Heteroscedasticity in data.

Graphs of CUSUM and CUSUMSQ are plotted to assess parametric stability (Pesaran and Pesaran,

1997) to confirm stability of above given model is represented in figures.

**Fig 4.1: Cusum and Cusum Square plot for parametric stability**

Figure 4.1 (a)

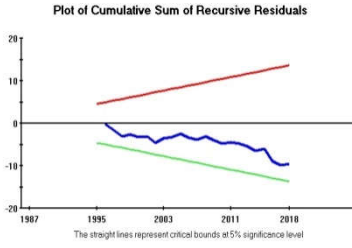
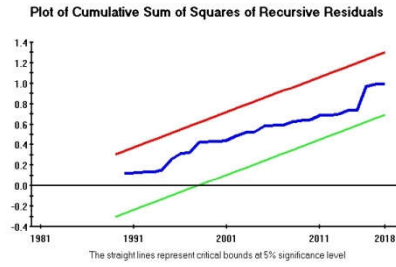


Figure 4.2 (b)



Graphs of CUSUM and CUSUMSQ statistics indicate that the model is stable as they fall within the critical boundaries depicting stability of model.

To investigate nature of causation among values of proposed variables, Granger Causality test is applied. Test is conducted by estimating bivariate VAR. It takes the following form

**5. Causality Test**

$$\Delta CPIG_t = \sum_{i=1}^n \beta_{1i} \Delta CPIG_{t-1} + \sum_{i=1}^n \beta_{2i} \Delta RIR_{t-1} + \sum_{i=1}^n \beta_{3i} \Delta GDPG_{t-1} + \varepsilon_{it}$$

$$\Delta RIR_t = \sum_{i=1}^n \beta_{1i} \Delta CPIG_{t-1} + \sum_{i=1}^n \beta_{2i} \Delta RIR_{t-1} + \sum_{i=1}^n \beta_{3i} \Delta GDPG_{t-1} + \varepsilon_{it}$$

$$\Delta GDPG_t = \sum_{i=1}^n \beta_{1i} \Delta CPIG_{t-1} + \sum_{i=1}^n \beta_{2i} \Delta RIR_{t-1} + \sum_{i=1}^n \beta_{3i} \Delta GDPG_{t-1} + \varepsilon_{it}$$

After analyzing long run results, the estimation of causality through granger causality test is given in

Table 5.1. Our study presented a kaleidoscopic outcome which can be analyzed from the results.

**Table 5.1: Pair Wise Granger Causality Test**

Null Hypothesis:	F-Statistic	Prob
RI does not Granger Cause CPIG	8.50750	0.0061*
CPIG does not Granger Cause RI	15.9334	0.0003*
GDPR does not Granger Cause CPIG	3.82126	0.0586*
CPIG does not Granger Cause GDPR	0.00635	0.9370
GDPR does not Granger Cause RI	9.56244	0.0039*
RI does not Granger Cause GDPR	8.0E-06	0.9978

Source: Author’s own contribution

Lag 1 included based on Schwarz information criterion

\*indicate rejection of Null Hypothesis at 5% level of significance

A strong two ways causality has been observed in case of inflation rate (CPI) and real rate of interest (RIR). Uni-directional causality is running from GDPR to inflation rate (CPI). Similar pattern of uni-directional causality exists from real GDP growth rate (GDPR) to real rate of interest (RIR).

Hence the direction of causality among variables also supports the findings of the study.

**6. Conclusion and Policy Implications**

This study analyzes impact of interest rate targeting to control inflation in Pakistan. It utilize autoregressive distributed lag(ARDL) co-

integration method for analyzing long and short run relation between price instability and selected key policy variable i.e. real interest rate. This research considers real GDP growth as a control variable.

This research explains that in long run coefficient of real interest rate (RIR) is negative and substantial. Coefficient of GRGDP has positive sign and is statistically insignificant. It satisfies Friedman's views according to which the real variables have no effect on inflation. Besides this, inflation relates to monetary variables only. Outcomes of present research are in line with Saleem (2010) indicating interest rate and inflation rate are significantly and inversely associated. In short run real interest rate (RIR) depicts statistically noteworthy impact on the CPI. It shows inverse association with price instability. These findings are in accordance to existing literature<sup>1</sup>. Empirical outcomes of this research are contradict to Jesus Felipe (2009), who explored that in short run there is no inverse relation with interest rate and inflation. Coefficient of ECM term is substantial with negative insignnia. It confirms long-run association between given variables in equation (1). Coefficient of ECM term explains that speed of adjustment is relatively weak. Approximately 36 % disequilibrium in previous year price instability will move towards equilibrium in present year. Graphs of CUSUM and CUSUMSQ statistics indicate that the model is stable as they fall within the critical boundaries depicting stability of model. A strong two ways causality was observed in case of inflation rate (CPI) and real rate of interest (RIR). Uni-directional causality is running from GDPR to inflation rate (CPI). Similar pattern of uni-directional causality exists from real GDP growth rate (GDPR) to real rate of interest (RIR). Hence

the direction of causality among variables also supports the findings of the study.

More precisely, current study indicates that to attain viable smooth economic growth, it is required to control upsurge in prices. Adoption of stringent monetary strategy is essential for SBP to handle issue of inflation. Adoption of interest rate targeting by SBP is adequate to bring price stability in country.

Outcomes of current research show that although in practice SBP is using interest rate as policy instrument to control inflation but from past experience it is evident that SBP follow strict monetary policy. The SBP remains unwilling to bring abrupt changes in interest rate due to its inferences on debt and growth by influencing major macro-economic variables such as savings and investment. Furthermore, to use interest rate as policy instrument the prerequisites like independence of SBP and absence of government dominance are required. Besides this, according to existing literature Aslam and Munir (2005) suggest that Pakistan should not focus on interest rate targeting. Jesus Felipe (2009) explored that in short run interest rate does not influence inflation. Contrary to this, Saleem (2010) analyzed that choice of (IT) is suitable for SBP. Ahmed et al. (2014) explained that permanent raise in supply of money and unsecured credit strategy are main reasons are of price instability in country. So, the findings of our study confirmed that interest rate targeting is suitable for Pakistan. Bi-directional causality which exists between inflation and policy variable strengthen our findings. But monetary authorities must try to explore more efficient monetary tools to overcome the problem of price instability in country.

### **6.1: Policy Implications**

Current research suggests some policy implications. Monetary policy must help to attain price stability along with economic prosperity.

<sup>1</sup>See for example, Ndjokou (2011), Nadia Saleem (2010)

Financial markets must endure the confidence of investors to reduce uncertainty. This research supports interest rate targeting in Pakistan. There is a need to suggest such policy options which depict coordination of both fiscal and monetary policies.

## 6.2: Limitations

Probable limitation of this study are; adoption of various other important variables like trade deficit, financial development, agricultural growth, industrial growth, exchange rate, population growth, unemployment, literacy rate, and globalization may also possible for new researchers. Furthermore, comparative analysis of monetary policies of various countries of same region or different regions is also possible.

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