

DOES THE MONETARY POLICY WAS EFFECTIVE IN REGULATING THE INDIAN INFLATION? A GLANCE AT THE INFLATION HISTORY OF INDIA

¹Dr. Nagaraju Patha

¹Associate Professor

¹Centre for Economic and Social Studies,
Begumpet, Hyderabad, Telangana, India.

Abstract: The Wholesale Price Index (WPI) which calculates the prices of the goods only with the wholesaler and the reality lies with the Consumer and at what price the common man is getting the goods this is generally shown by the Consumer Price Index (CPI). In fact, one reason of RBI for using the WPI is data frequency of it and it is available weekly basis and it also has a broader coverage than the CPI in number of commodities, trade able items etc., whereas CPI is available in India on monthly basis. The CPI is calculated separately for the Industrial workers and for the Agricultural laborers and the CPI for all India. In order to capture the effects of the cost push and demand pull inflation separately one needs to glance the both CPI and also WPI respectively. The using of CPI by the RBI started with the recommendation of the Urjith patel led committee in 2014. The CPI is more close to the real situation than those of the WPI as said earlier. The India's situation of poor monetary policy transmission has been highlighted by many a lot researchers and it has been also proved that even though the monetary authorities go for a monetary contraction the inflationary levels in the economy may get controlled to a smaller extent only in the short run Mallick and Sousa (2012) uses the quarterly data for the BRICS countries from 1990Q1 to 2012Q1 and have proved the fact that in case of the poor monetary policy transmission as in India where the bond market hasn't been developed to a greater degree and also a low financial inclusion the monetary contraction will have only a short run impact and it will resort to normal in the long run turning out the ineffectiveness of the monetary contraction the author also highlights the reduction in the economic activity by a monetary contraction. It is also visible that in the case of India where the inflation is mainly driven by the supply side oil and food articles and the government spending the demand side monetary tightening may not impact in the long run until and unless the supply side factors are regulated. It is a welcome measure of reduction in revenue and fiscal deficits of the government but the rise in the levels of the CPI and WPI mainly for the Primary articles and the food articles constantly is not welcome. Hence the monetary contraction may not be effective if these are not controlled.

Index Terms – Inflation, WPI, CPI, Monetary Policy.

1. INTRODUCTION

The term Inflation refers to the rise in the general price level of the goods and services with a consequent fall in the purchasing power of money. "Too much money chasing too few goods". In the Indian context the government uses the WPI, CPI and also the GDP Deflator as same as other countries but the WPI is generally considered as an indicator of the inflation in India. Taking the scenario of the difficulties faced in calculation of the CPI which is much more troublesome than the WPI made the Reserve Bank of India to formulate the Measures in order to regulate the Inflation and also for other policy related frameworks. The Wholesale Price Index (WPI) which calculates the prices of the goods only with the wholesaler and the reality lies with the Consumer and at what price the common man is getting the goods this is generally shown by the Consumer Price Index (CPI). In fact, one reason of RBI for using the WPI is data frequency of it and it is available weekly basis and it also has a broader coverage than the CPI in number of commodities, trade able items etc., whereas CPI is available in India on monthly basis. The CPI is calculated separately for the Industrial workers and for the Agricultural laborers and the CPI for all India. In order to capture the effects of the cost push and demand pull inflation separately one needs to glance the both CPI and also WPI respectively. The using of CPI by the RBI started with the recommendation of the Urjith patel led committee in 2014. The CPI is more close to the real situation than those of the WPI as said earlier.

The monetary policy measures to control the inflation:

Monetary policy refers to that branch of economic policy which attempts to achieve the broad objects of policy — stability of employment and prices, economic growth and balance in external payments — through control of the monetary system and by operating on such monetary magnitudes as the supply of money, the level and structure of interest rates and other conditions affecting the availability of credit. Like fiscal policy, monetary policy operates ultimately through its influence on expenditure flows.

The monetary policy has been used by the RBI in order to tackle the inflation in the form of regulating the money supply in the country and also the demand of the goods and service by the public. The wide variety of measures which have been used by the RBI are discussed below.

Interest Rates

- 1) **Repo Rate:** Repurchase or Repossession: It is the rate at which the Reserve Bank of India purchases the government securities with an agreement for repossession. This is the rate at which the RBI lends the money to the commercial banks against the securities this is used as a tool for the monetary policy in order to inject money into the economy whenever a shortfall of funds occurs. In the vice-versa mode the RBI increases the Repo rate whenever there is a need to regulate the liquidity in the economy.
- 2) **Reverse Repo Rate:** This is the rate at which the Reserve Bank of India borrows the money from the commercial banks this is also a part of the monetary policy instruments in order to regulate the money supply. Increasing the Reverse Repo Rate is a lucrative opportunity for the commercial banks to get more returns on their funds and also an increase in the Reverse Repo Rate the money supply will also be checked.
- 3) **Bank Rate:** The Bank Rate is the rate at which the RBI lends to the commercial banks for very short term in order to meet the liquidity demands. Lowering the Bank Rate will induce the money supply and the vice versa.

Reserve Ratios:

Cash Reserve Ratio: CRR is the portion of the funds/deposits which the banks are supposed to keep in the form of liquid cash or in deposits with the RBI.

Statutory liquidity Ratio: SLR is the portion of the deposits (demand/time) which the commercial banks are supposed to hold with them in the form of liquid assets in their own vault the liquid assets may be in the form of cash, gold or other government securities.

An increase in these ratios will reduce the loan granting capacity of the commercial banks and thereby controlling the liquidity/money supply in the economy.

REPO Rate:

Date	REPO Rate	Date	REPO Rate	Date	REPO Rate
26-Oct-05	6.25	19-Mar-10	5	03-May-13	7.25
24-Jan-06	6.5	20-Apr-10	5.25	20-Sep-13	7.5
08-Jun-06	6.75	02-Jul-10	5.5	29-Oct-13	7.75
25-Jul-06	7	27-Jul-10	5.75	18-Dec-13	7.75
30-Oct-06	7.25	16-Sep-10	6	28-Jan-14	8
31-Jan-07	7.5	02-Nov-10	6.25	15-Jan-15	7.75
30-Mar-07	7.75	25-Jan-11	6.5	04-Mar-15	7.5
12-Jun-08	8	17-Mar-11	6.75	02-Jun-15	7.25
25-Jun-08	8.5	03-May-11	7.25	29-Sep-15	6.75
30-Jul-08	9	16-Jun-11	7.5	05-Apr-16	6.5
20-Oct-08	8	26-Jul-11	8	04-Oct-16	6.25
03-Nov-08	7.5	16-Sep-11	8.25	02-Aug-17	6
08-Dec-08	6.5	25-Oct-11	8.5		
05-Jan-09	5.5	17-Apr-12	8		
05-Mar-09	5	29-Jan-13	7.75		
21-Apr-09	4.75	19-Mar-13	7.5		

Source: Reserve Bank of India, Handbook of statistics on Indian Economy.

Reverse Repo Rate:

Date	Reverse REPO Rate	Date	Reverse REPO Rate	Date	Reverse REPO Rate
29-Apr-05	5	27-Jul-10	4.5	19-Mar-13	6.5
26-Oct-05	5.25	16-Sep-10	5	03-May-13	6.25
24-Jan-06	5.5	02-Nov-10	5.25	20-Sep-13	6.5
08-Jun-06	5.75	25-Jan-11	5.5	29-Oct-13	6.75
25-Jul-06	6	17-Mar-11	5.75	28-Jan-14	7
08-Dec-08	5	03-May-11	6.25	15-Jan-15	6.75
05-Jan-09	4	16-Jun-11	6.5	04-Mar-15	6.5
05-Mar-09	3.5	26-Jul-11	7	02-Jun-15	6.25
21-Apr-09	3.25	16-Sep-11	7.25	29-Sep-15	5.75
19-Mar-10	3.5	25-Oct-11	7.5	05-Apr-16	6

20-Apr-10	3.75	17-Apr-12	7	04-Oct-16	5.75
02-Jul-10	4	29-Jan-13	6.75	02-Aug-17	5.75

Source: Reserve Bank of India, Handbook of statistics on Indian Economy.



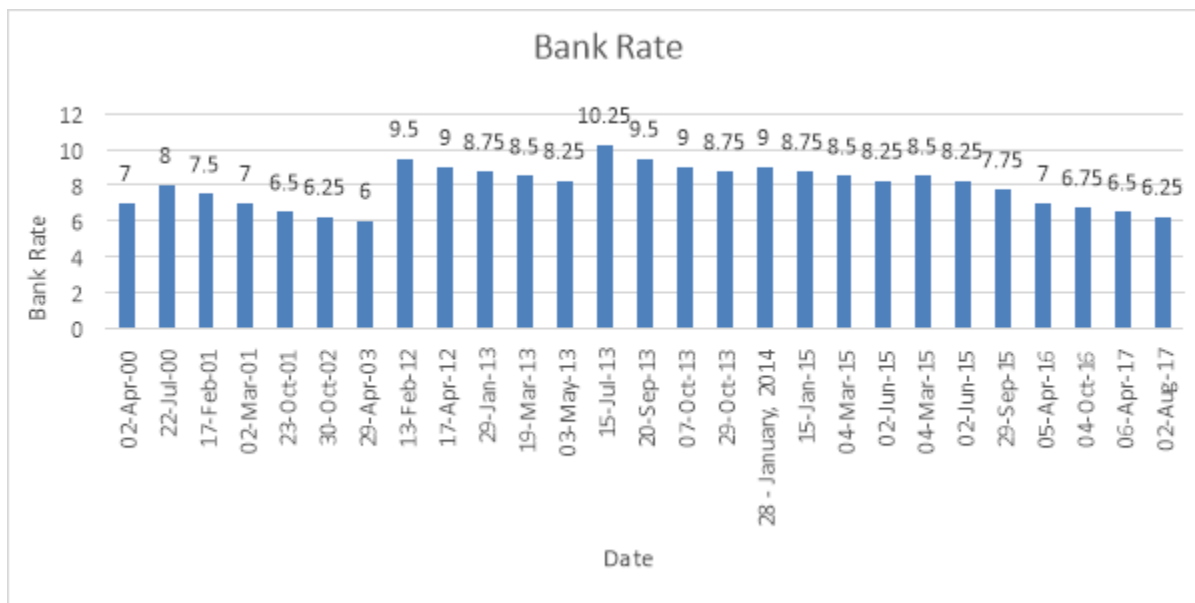
Source: Reserve Bank of India, Handbook of statistics on Indian Economy.

CRR: Cash Reserve Ratio

Date	CRR	Date	CRR	Date	CRR
16-Sep-62	3	11-Jan-92	15	29-Dec-01	5.5
29-Jun-73	5	21-Oct-92	15	01-Jun-02	5
08-Sep-73	6	08-Oct-92	15	16-Nov-02	4.75
22-Sep-73	7	17-Apr-93	14.5	14-Jun-03	4.5
01-Jul-74	5	15-May-93	14	18-Sep-04	4.75
14-Dec-74	4.5	11-Jun-94	14.5	02-Oct-04	5
28-Dec-74	4	09-Jul-94	14.75	22-Jun-06	5
04-Sep-76	5	06-Aug-94	15	23-Dec-06	5.25
13-Nov-76	6	11-Nov-95	14.5	06-Jan-07	5.5
14-Jan-77	6	09-Dec-95	14	17-Feb-07	5.75
01-Jul-78	6	27-Apr-96	13.5	03-Mar-07	6
05-Jun-79	6	11-May-96	13	14-Apr-07	6.25
31-Jul-81	6.5	06-Jul-96	12	28-Apr-07	6.5
21-Aug-81	7	26-Oct-96	11.5	04-Aug-07	7
27-Nov-81	7.25	09-Nov-96	11	10-Nov-07	7.5
25-Dec-81	7.5	04-Jan-97	10.5	26-Apr-08	7.75
29-Jan-82	7.75	18-Jan-97	10	10-May-08	8
09-Apr-82	7.25	25-Oct-97	9.75	24-May-08	8.25
11-Jun-82	7	22-Nov-97	9.5	05-Jul-08	8.5
27-May-83	7.5	06-Dec-97	10	19-Jul-08	8.75
29-Jun-83	8	17-Jan-98	10.5	30-Aug-08	9
27-Aug-83	8.5	28-Mar-98	10.25	11-Oct-08	7.5
12-Nov-83	8.5	11-Apr-98	10	11-Oct-08	6.5
04-Feb-84	9	29-Aug-98	11	25-Oct-08	6
27-Oct-84	9	13-Mar-99	10.5	08-Nov-08	5.5
01-Dec-84	9	08-May-99	10	17-Jan-09	5

26-Oct-85	9	06-Nov-99	9.5	13-Feb-10	5.5
22-Nov-86	9	20-Nov-99	9	27-Feb-10	5.75
28-Feb-87	9.5	08-Apr-00	8.5	24-Apr-10	6
23-May-87	9.5	22-Apr-00	8	28-Jan-12	5.5
24-Oct-87	10	29-Jul-00	8.25	10-Mar-12	4.75
23-Apr-88	10	12-Aug-00	8.5	22-Sep-12	4.5
02-Jul-88	10.5	24-Feb-01	8.25	03-Nov-12	4.25
30-Jul-88	11	10-Mar-01	8	09-Nov-12	4
01-Jul-89	15	19-May-01	7.5	27-Jun-15	4
04-May-91	15	03-Nov-01	5.75		

Source: Reserve Bank of India, Handbook of statistics on Indian Economy.



Source: Reserve Bank of India, Handbook of statistics on Indian Economy.

SLR: Statutory Liquidity Ratio

Date	SLR	Date	SLR	Date	SLR
16-Mar-49	20	08-Jun-85	36.5	29-Oct-94	31.5
16-Sep-64	25	06-Jul-85	37	25-Oct-97	25
05-Feb-70	26	25-Apr-87	37.5	08-Nov-08	24
24-Apr-70	27	02-Jan-88	38	07-Nov-09	25
28-Aug-70	28	22-Sep-90	38.5	18-Dec-2010	24
04-Aug-72	29	29-Feb-92	38.5	11-Aug-12	23
17-Nov-72	30	09-Jan-93	38.25	14-Jun-14	22.5
08-Dec-73	32	06-Feb-93	38	09-Aug-14	22
01-Jul-74	33	06-Mar-93	37.75	07-Feb-15	21.05
01-Dec-78	34	21-Aug-93	37.5	02-Apr-16	21.25
25-Sep-81	34.5	18-Sep-93	37.25	09-Jul-16	21
30-Oct-81	35	16-Oct-93	34.75	01-Oct-16	20.75
28-Jul-84	35.5	20-Aug-94	34.25	07-Jan-17	20.5
01-Sep-84	36	17-Sep-94	33.75	24-Jun-17	20
				14-Nov-17	19.5

Source: Reserve Bank of India, Handbook of statistics on Indian Economy.

Further I proceed to analyze the relationship between the Inflation, M3 (Broad Money) and the Government expenditure of India from the year 1997-2016. The data on Inflation has been taken as CPIC, Change in the Annual Consumer Price Index which is extracted from the world banks, world development Indicators the definition of the variable is as follows given by the world bank. (Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly. The Laspeyres

formula is generally used.) and the other two variables data M3(Broad Money) and the Government Expenditure has been taken from the Reserve Bank of India’s Database, Database on Indian Economy for the same period.

In order to analyze the time series properties of the data one must check the unit roots of the data and for that first I proceed with the unit root tests which are conducted by using the Eviews 10 software.

Test for Unit Root:

It has widely accepted that non-stationary data without making stationary gives misleading or spurious results. Hence, I proceed with the Augmented Dickey Fuller (ADF) test to check the stationary process. The null hypothesis of non-stationarity rejects when negative and significant test statistics. The lag length selection is based on Akaike Information Criterion (AIC). The ADF test can written as

$$\Delta y_t = \alpha y_{t-1} + x_t' \delta + \beta_1 \Delta y_{t-1} + \beta_2 \Delta y_{t-2} + \dots + \beta_p \Delta y_{t-p} + v_t.$$

LnCPIC and LNM3 and LNGE show the log form of the variables.

Variable	Statistics	At level			At First Difference			
		I	I&T	None	I	I&T	None	
LnCPIC	ADF	-3.873271	-3.047104	-0.891866	-3.988179*	-3.767860**	-4.095986*	I (1)
LNM3	ADF	-1.564490	0.723229	0.534994	-3.871579*	-4.245078*	-0.936848	I (1)
LNGE	ADF	-2.045820	-1.744095	3.601139	-3.539486**	-4.044309**	-1.767071***	I (1)

Test for Cointegration:

The next step in the analysis is to test for cointegration. Since the variables are considered to be I (1), the cointegration method is appropriate to estimate the long run among the variables. Johansen suggests two test statistics to test the null hypothesis that numbers of characteristics roots are insignificantly different from unity.

where λ_i estimated characteristic and T is the number of usable observations. The λ_{trace} test the null hypothesis $r = 0$ against the alternative of > 0 and λ_{max} test the null hypothesis is $r = 0$ against the alternative of $r = 1$.

$$\lambda_{trace}(r) = -T \sum_{i=r+1}^n \ln(1 - \hat{\lambda}_i)$$

$$\lambda_{max}(r, r + 1) = -T \ln(1 - \hat{\lambda}_{i+1})$$

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.302498	22.81297	29.79707	0.2554
At most 1	0.161407	9.123458	15.49471	0.3541
At most 2	0.062052	2.434329	3.841466	0.1187

Trace test indicates no cointegration at the 0.05 level
 * denotes rejection of the hypothesis at the 0.05 level
 **MacKinnon-Haug-Michelis (1999) p-values

The above Co-Integration Tests shows that there is no long run relationship among the three variables which have been considered

for the test. Hence I conclude that there may not be any effect in the inflationary levels when there is a change in the monetary indicators.

Further in order to analyze the causation effect I do precede to granger causality test which tests for the Causation among the variables.

Granger Causality Test

Pairwise Granger Causality Tests			
Null Hypothesis:	Obs	F-Statistic	Prob.
LNGE does not Granger Cause LNCPIC	38	1.21592	0.3094
LNCPIC does not Granger Cause LNGE		0.71783	0.4953
LNM3 does not Granger Cause LNCPIC	38	1.81862	0.1781
LNCPIC does not Granger Cause LNM3		0.51305	0.6034
LNM3 does not Granger Cause LNGE	38	2.26128	0.1201
LNGE does not Granger Cause LNM3		0.37318	0.6914

Even though there is no long run relationship exists among variables I still proceed to check the causality but the above results accept the null hypothesis that there is no causality among the variables considered for the test.

In the several instances of lowering and increasing the interest rates such as REPO, Reverse Repo and Bank rate can be seen from the above figures the conclusions which can be drawn from the above instances are the REPO rate which was 8.5 in October, 2011, Reverse REPO was 7.5 in October 2011, whereas the Bank rate is 6, and the WPI recorded as 167.6, CPI-AL 611, CPI-IW as 195 and the trend has been increasing in the inflationary levels both in CPI and WPI. In the year 2015 and 2016 REPO Rate stood at 6.75 and 6, Reverse Repo Rate at 5.75 in both years, Bank Rate at 7.75 and 6.25 respectively. The inflation levels have been further increased to WPI at 176.67 and 183.04 whereas the CPI-AL at 835 and 875, CPI-IW at 265 and 276 respectively. On a broad instance the effects of the monetary policy don't seems to be tackling on the Inflationary levels in the country. The reasons here are The Inflation in India is mainly because of the food prices and also the focusing on the interest rate changes have also led the Inflation rates to a greater extent. The interest rates of the monetary policy have nothing to do with the food prices which cause the food inflation. The higher Interest rates which prevailed in the Indian Monetary policy haven't been so effective to curb the inflation rates which have soared to a greater height in the previous years. Thus a monetary tightening may not work in the Indian Context based on the above observations in spite of having a greater degree of interest rates the Inflation levels have increased. Mohanty and John (2015) used the quarterly data of India from 1996-97Q1 to Q3 2013-14 the study claims that the fiscal deficit is emerged as a key determinant of the inflation in India while it also underscores the monetary policy in controlling the inflation in India.

CONCLUSION:

The India's situation of poor monetary policy transmission has been highlighted by many a lot researchers and it has been also proved that even though the monetary authorities go for a monetary contraction the inflationary levels in the economy may get controlled to a smaller extent only in the short run Mallick and Sousa (2012) uses the quarterly data for the BRICS countries from 1990Q1 to 2012Q1 and have proved the fact that in case of the poor monetary policy transmission as in India where the bond market hasn't been developed to a greater degree and also a low financial inclusion the monetary contraction will have only a short run impact and it will resort to normal in the long run turning out the ineffectiveness of the monetary contraction the author also highlights the reduction in the economic activity by a monetary contraction. It is also visible that in the case of India where the inflation is mainly driven by the supply side oil and food articles and the government spending the demand side monetary tightening may not impact in the long run until and unless the supply side factors are regulated. It is a welcome measure of reduction in revenue and fiscal deficits of the government but the rise in the levels of the CPI and WPI mainly for the Primary articles and the food articles constantly is not welcome. Hence the monetary contraction may not be effective if these are not controlled.

References:

- Ball, L., Chari, A., & Mishra, P. (2016). *Understanding inflation in India* (No. w22948). National Bureau of Economic Research.
- Catão, M. L., & Terrones, M. M. (2003). *Fiscal deficits and inflation* (No. 3-65). International monetary fund.
- Hatti, N. (1974). A Note on inflation and prices in India during 1939–45. *Economy and History*, 17(1), 94-105.
- Mallick, S. K., & Sousa, R. M. (2013). Commodity prices, inflationary pressures, and monetary policy: evidence from BRICS economies. *Open Economies Review*, 24(4), 677-694.

Mishra, P., & Roy, D. (2012). Explaining inflation in India: The role of food prices. *Shekhar Shah Barry Bosworth Arvind Panagariya*, 139.

Mohanty, D., & John, J. (2015). Determinants of inflation in India. *Journal of Asian Economics*, 36, 86-96.

Pattnaik, R. K., & Samantaraya, A. (2006). Indian experience of inflation: A review of the evolving process. *Economic and Political Weekly*, 349-357.

Reserve Bank of India Database on Indian Economy, retrieved from <https://dbie.rbi.org.in/>.

Tiwari, A. K., & Tiwari, A. P. (2011). Fiscal Deficit and Inflation: An empirical analysis for India. *Romanian Economic Journal*, 14(42).

