



Review Paper

## Inflation Targeting as a Plausible Monetary Framework for India

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### Abstract

*Inflation targeting is the famous framework worldwide today. Primary reasons for its increasing popularity include the breakdown of the broad money demand equation owing to financial sector reforms and globalization, which has rendered monetary targeting less reliable and the broader agreement on maintaining a lower level of inflation across several countries including India. In this paper we analyzed the Indian economy with reference to Taylor's rule. Keeping in view the structure of the economy, objectives of RBI and the basic financial infrastructure of the country, it seems that India is not yet ready for Inflation targeting framework.*

**Keywords:** Inflation targeting, monetary policy, Taylor's rule, financial stability. JEL Codes: E31 ; E52 ; E44 ; E58

### Introduction

Inflation Targeting is the famous framework worldwide today. Key support for the ITF framework has emerged from two important experiences. First, there is the breakdown of the broad money demand equation in several countries including India, owing to financial sector reforms and globalization, which has rendered monetary targeting less reliable. The second key reason has been a broader agreement on maintaining a lower level of inflation as it is detrimental to sustainable growth due to various reasons including uncertainties in investment and savings behavior.

Reserve Bank of India which is the sole authority for developing and implementing monetary policy in India was nationalized in 1949 but significant developments in the recent past have resulted in the enhancement of the autonomy of RBI. RBI has the dual objective of attaining price stability and ensuring adequate flow of credit to productive sectors. RBI has been following Monetary Targeting and pegged nominal exchange rate since early 1990s. But the changing economic environment of late 1990s forced India to change its monetary stance and now RBI is using a Multiple Indicator Approach.

An evaluation of Indian economy has been done with reference to Taylor's rule. Taylor's rule is not a suggested framework for India despite its increased popularity in the world. The reasons are the structure of the economy, objectives of RBI and the basic financial infrastructure of the country. In the light of literature review, different factors have been identified that leads to the conclusion that India is not yet ready for Inflation Targeting Framework. These factors are: i. Supply side dominance as opposed to demand side dominance proposed by Taylor's Rule, ii. Inflation is not the sole objective of RBI and the interest rate is

not the sole instrument for intermediate target of Inflation, whereas Taylor's rule require refraining from using any other nominal anchor, iii. There is no strong relationship found between inflation and interest rate in India, iv. RIB does not have complete independence as required for the successful implementation of Inflation Targeting Framework, v. The stability of exchange rate and capital flows is of great concern for RBI and inflation targeting creates greater volatility in exchange rate through adjustment in interest rate, vi. There is not a strong evidence of strong correlation among price stability and financial stability in India, so price stability cannot be the only objective of RBI, vii. There is lack of coordination between fiscal and monetary policies in India, viii. High fiscal deficits also lead to high inflationary pressures in the economy and Indian economy is also characterized by fiscal deficit (although this pressure is reducing with passage of time), ix. Transparency and credibility of information is required for successful implementation of Taylor's Rule and this pre-requisite is not so strong in India.

Although, India is on its way to progress and it would be optimistic to say that India might be able to fulfill the requirement of pre-requisite, but it would be too early to predict such a change.

### Reserve Bank of India

The Reserve Bank of India (RBI) was established on April 1, 1935 in accordance with the provisions of the Reserve Bank of India Act, 1934. The Central Office of the Reserve Bank was initially established in Calcutta but was permanently moved to Mumbai in 1937.

Though originally privately owned, since nationalization in 1949, the Reserve Bank is fully owned by the Government of

India. RBI is not a pure monetary authority but is responsible for several other functions also, as a central bank. The role of RBI has been redefined through gradual evolution and adaptation, along with some statutory changes, and not through any radical restructuring. The developments in the recent past lead one to the conclusion that, de facto, there has been enhancement of the autonomy of the RBI. According to the IMF Working Paper published in April 2007, where the indices of central bank autonomy have been calculated for 163 central banks as of end2003, in a group of 32 emerging markets, India has scored 0.25 for political autonomy of the central bank as against the average score of 0.56 for the group of emerging markets and scored 0.75 for economic autonomy of the central bank which is the same as the average score for that group.

### Objectives of Reserve Bank of India

At a very broader level, the objectives a central bank wants to achieve through monetary policy cannot be different from the overall objectives of the country's economic policy. If we look at the pivot point of monetary policy in India, it has been primarily the maintenance of price stability up to a certain reasonable extent and the policies that can help fostering the rate of economic growth. The emphasis on two objectives has been changing from time to time according to the prevailing conditions<sup>1</sup>. The Reserve Bank of India (henceforth RBI) — India's central bank — has explicitly laid down some of the objective of its monetary policy. In 1998, the RBI formally adopted multiple objectives of monetary policy. These are i. to maintain a stable inflation environment; ii. to maintain appropriate liquidity conditions to support higher economic growth; iii. to ensure orderly conditions in the exchange market; to avoid excessive volatility in the exchange rate; and iv. to maintain a stable interest rate environment<sup>2,3</sup>. Thus, although, unlike the current trend in many countries, there is no explicit mandate for price stability, the twin objectives of monetary policy in India have evolved as those of maintaining price stability and ensuring adequate flow of credit to the productive sectors of the economy. Little later the considerations of macroeconomic and financial stability have assumed an added importance in view of increasing openness of the Indian economy<sup>4</sup>. Some strategic targets mentioned by RBI also include the maintenance of price stability and ensuring adequate flow of credit to productive sectors. Maintenance of public confidence in the system, protect depositors' interest and provide cost-effective banking services to the public. Facilitate external trade and payment and promote orderly development and maintenance of foreign exchange market in India and provide public the adequate quantity of supplies of currency notes and coins and in a good condition<sup>2</sup>.

### Monetary Policy Framework in India

In India, the broad money (M3) and pegged nominal exchange rate emerged as the nominal anchor from the mid1980s based on the premise of a stable relationship between money, output and prices. In the late 1990s, in view of the ongoing financial

openness and increasing evidence of changes in the underlying transmission mechanism with interest rates and exchange rates gaining in importance visàvis quantity variables, it was felt that monetary policy exclusively based on the demand function for money could lack precision, as it was stated in different studies. The experience with monetary targeting has not been satisfactory owing to the instability and unpredictability of money demand growth as a result of financial innovations. Pursuit of a given rate of growth in a selected monetary aggregate could result in unacceptable inflation rates<sup>5</sup>.

**Table-1**  
**Economic Environment of India: Growth and Inflation In India – A Historical Record**

Period (Averages)	GDP (% growth)	WPI Inflation (%)
1951-52 : 1959-60	3.6	1.2
1960-61 : 1969-70	4.0	6.4
1970-71 : 1979-80	2.9	9.0
1980-81 : 1990-91	5.6	8.2
1991-92 (Crisis Year)	1.4	13.7
1992-93 : 1999-00	6.3	7.2
2000-01 : 2009-10	6.9	5.1

An inflexibly pegged exchange rate has proved to be unsustainable in the presence of strong capital flow whereas the instability of the money demand function as well as its supply<sup>6</sup> indicates that monetary targeting, by itself, is no longer a feasible option. The RBI, therefore, formally adopted a multiple indicator approach in April 1998 whereby interest rates or rates of return in different financial markets along with data on currency, credit, trade, capital flows, fiscal position, inflation, exchange rate, etc., are juxtaposed with the output data for drawing policy perspectives. Such a shift was a gradual and a logical outcome of the measures taken during the reform period since the early 1990s. The switchover to a multiple indicator approach provided necessary flexibility to respond more effectively to changes in domestic and international economic environment and financial market conditions.

### Emergence of Inflation Targeting (Taylor's Rule)

Inflation targeting (henceforth IT) has emerged as a significant monetary policy framework in both developed and transition economies. It has been in place for a decade or more in a number of countries — with around 20 central banks adopting it as their basic monetary policy framework. Some authors have argued that for transition economies undergoing sustained financial liberalization and integration in world financial markets IT is an attractive monetary policy framework. Consequently there is some pressure for such economies to adopt IT as a core element in their monetary policy frameworks<sup>3</sup>. Inflation targeting in Emerging Market economies (EMEs) has been relatively successful but has proven to be a challenging task.

**Table-2**  
**Performance of Monetary Targeting In India**

Year	M3 (% growth)		GDP <sup>1</sup> (% growth)		Inflation <sup>2</sup> (%)	
	Target	Actual	Target (Objective)	Actual	Target (Objective)	Actual
1983-84	<16.2	18.2	-	8.3	-	7.6
1984-85	<18.2 <sup>3</sup>	19.0	-	3.8	Curb Inflation	6.0
1985-86	<19.0 <sup>4</sup>	16.0	-3.8	4.1	Avoid resurgence	4.8
1986-87	<17.5	18.6	>4.1	4.8	Continue Check	5.1
1987-88	<18.6	16.0	5.0	4.3	Avoid re-emergence	10.7
1988-89	<16.9	17.8	-	10.6	-	5.7
1989-90	<17.1	19.4	4-5	6.9	-	9.1
1990-91	<15.4	15.1	~5.0	5.4	-	12.1
1991-92 (April)	<14.0 <sup>5</sup>	19.3	4.0	0.8	Max 7.0	13.6
1991-92 (October)	<13.0	-	3.0	-	Max 9.0	-
1992-93	<11.0 <sup>6</sup>	15.7	-	5.3	8.0	7.0
1993-94	~12.0	18.4	5.0	6.2	Further Moderation	10.8
1994-95 (April)	14.0-15.0	22.3	5.0	5.3	~6.8	10.4
1994-95 (October)	16.0 (Max)	-	5.5	-	-	-
1995-96	15.5 (Max)	13.7	5.5	7.2	~8.0	5.0
1996-97	15.5-16.0	16.2	6.0	7.5	6.0	6.9
1997-98	15.0-15.5	17.6	6.5-7.0	5.1	5.0-6.0	5.3
1998-99	15.5-16.0	-	6.0-7.0	-	~5.0	-

<sup>1</sup>GDP: Gross Domestic Product at factor cost at 1980-81 prices. <sup>2</sup>Inflation: Based on wholesale price index. <sup>3</sup>Growth of liquidity and primary money creation. <sup>4</sup>Liquidity growth. <sup>5</sup>M3 Target was made consistent with the containment of gross fiscal deficit to 6.5 percent of GDP in 1991-92, <sup>6</sup>M3 Target was made consistent with the containment of gross fiscal deficit to 5.0 percent of GDP in 1992-93.

**Table-3**  
**Volatility and average of selected variables for 1997:1 – 2002:2**

Countries	Volatility of basic variables				Average	
	Inflation	Exchange rate*	GDP Growth**	Interest Rate	GDP Growth	Inflation
<b>Developed Economies</b>	-	-	-	-	-	-
Australia	2.05	0.13	1.06	0.58	4.78	5.80
Canada	0.83	0.04	1.30	1.14	3.57	1.90
Iceland	2.45	0.15	3.13	3.02	4.17	4.05
New Zealand	1.21	0.16	3.61	1.47	3.09	1.65
Norway	0.77	0.10	2.25	1.46	2.66	2.44
Sweden	1.11	0.12	2.41	0.44	2.58	1.24
Switzerland	0.51	0.08	1.11	0.92	1.79	0.85
United Kingdom	0.92	0.06	0.79	1.13	2.88	2.20
<b>Average</b>	1.24	0.11	2.07	1.27	3.10	2.57
<b>Median</b>	1.02	.011	2.11	1.13	2.88	2.20
<b>Emerging Market Economies</b>	-	-	-	-	-	-
Brazil	2.09	0.15***	2.06	7.06	1.81	5.89
Chile	1.30	0.17	3.25	-	3.11	3.88
Colombia	5.43	0.25	3.38	10.02	0.81	12.51
Czech Republic	3.46	0.09	2.73	5.81	1.18	5.31
Hungary	4.09	0.16	-	1.13	-	11.21
Israel	3.18	0.10	3.36	3.34	2.98	4.35
Mexico	5.98	0.07	3.17	7.26	4.05	11.72
Peru	3.04	0.11	3.45	5.50	2.11	3.89
Holland	4.13	0.11	2.40	4.14	3.85	8.40
South Africa	2.13	0.26	1.11	3.65	2.26	6.51
South Korea	2.36	0.14	6.38	5.52	1.31	3.73
Thailand	3.25	0.14	6.13	6.72	0.08	2.88
<b>Average</b>	3.37	0.15	3.40	5.47	2.41	6.69
<b>Median</b>	3.22	0.14	3.25	5.52	2.26	5.60

Data Source: International Financial Statistics, IMF (quarterly data), \* refers to the coefficient of variation (standard deviation/average). \*\*growth rate measured comparing the current quarter to the quarter of the previous year. \*\*\*refers to the period 1999:1-2002:2 or 1997:12002:2, the value is 0.31.

The volatility of output, inflation, interest rate and exchange rate has been higher than in developed countries. Several issues have led these economies to face this less favorable tradeoff. The process of building credibility, the necessity of reducing inflation levels, the fiscal dominance issues, and the larger shocks have played an important role<sup>7</sup>.

### **Inflation Targeting (IT) in India**

Different studies have taken place in order to find out the applicability of Inflation Targeting in India. We have summarized some of the findings. All studies have confirmed that Inflation Targeting is not appropriate for India. It has been mentioned by<sup>3</sup> that Inflation control cannot be an exclusive concern of monetary policy in a country such as India with a substantial poverty problem. Empirical evidence also suggests that in emerging market economies such as India central bank interest rates react more strongly to changes in the exchange rate rather than changes in the inflation rate or output gap<sup>8</sup> that makes them inherently unsuitable to control inflation. It has been noted<sup>2</sup> that the 1990s — a decade of relative price stability witnessed a number of episodes of financial instability indicating that price stability is not a sufficient condition for financial stability. Large movements in capital flows and exchange rates affect the conduct of monetary policy continually. Thus impacting on the traditional tradeoff between inflation and growth is the factor of financial instability.

In the Indian case there is the further problem that the monetary authority faces a persistent fiscal overhang. Ultimately price stability and inflation expectations are dependent upon the fiscal regime in the economy. The central bank does not have the option of not supporting a high fiscal deficit. If fiscal policy is imprudent and the central bank does not help finance the deficit, the end result would still be inflationary as the public debt/GDP ratio would turn unsustainable in the medium term and the price level could at least partially be determined by the fiscal theory of the price level. Thus a rigid adherence to central bank independence may not be appropriate<sup>3</sup>.

Econometric testing on Indian data shows that the Inflation Targeting performs poorly. Furthermore, adoption of ITF could imply volatility in interest and exchange rates and persistent deviations from equilibrium levels. The Indian economy, with a large fiscal deficit and a significant portion of financing under administered interest rates together with indications of supply side dominance could have difficulty coping with that monetary stance, which relies on influencing the demand side<sup>5</sup>.

The consequences of three alternative monetary regimes for India under five different shocks including persistent rise in domestic demand in India; temporary rise in domestic demand; persistence rise in domestic supply in India; temporary rise in domestic supply in India and a permanent increase in the perceived risk of investing in Indian assets have been observed by<sup>9</sup>. The impact of each shock under three monetary regimes

has been checked on six variables: Real GDP, Inflation, Nominal exchange rate, Short term nominal interest rate, Trade balance and Stock market value, and the findings suggest that inflation target regime works quite poorly in terms of output volatility for permanent demand shocks, both permanent and temporary supply shocks and shock to risk perceptions. These results are significantly dependent on the proxy and concept of inflation used in the inflation targeting rule and the degree to which exchange rate changes feed into prices. However, the results are consistent with the theoretical literature available for open economies that also suggest that an inflation target can lead to an inappropriate response to supply side shocks<sup>9</sup>.

There are numerous studies emphasizing the point that there has to be different prerequisites for the successful implementation of Inflation targeting. The reason of failure of IT framework in emerging countries is mostly contributed to different economic structure and the absence of required prerequisites. It can be argued that economic structures in developing countries (including India) are incapable of supporting an IT regime in the short to medium runs<sup>10</sup>. Thus it can be said that independence of Central bank, refraining from using any other nominal anchor, predominance of demand as opposed to supply shocks, practical difficulties in the implementation of Inflation Targeting, are some of the prerequisites that lack in India for the successful implementation of Inflation Targeting<sup>3</sup>.

### **Operationalizing Taylor's Rule in India**

Virmani assessed whether Taylor's rule (backward looking and forward looking) can be operationalized in India or not<sup>11</sup>? The main criteria for the evaluation are the ability of the rule to track the movements in the operating target, the implied value of the target inflation rate, and last but not least, statistical and economic significance of variables appearing on the right hand side. The first thing that becomes clear from their results is the importance of exchange rate and deviation of growth rate of M3 from target in explaining the variation of the short rate over time. Also, apparent is the strong autoregressive nature of the movement in the short rate, suggesting that the Indian central bank does intervene to smooth changes in call rate. However, while the sign on rate of change of REER (Real effective exchange rate) is correctly negative (as the Rupee depreciates fall in REER ceteris paribus the central bank moves in to increase the short term interest rate) the sign on deviation of growth rate of M3 from target is wrong. If the growth rate of M3 is higher than targeted/projected, the central bank would be expected to raise the rates to curb the growth rate of money. It is an indication that money growth is endogenous in India, and that it responds to changes in interest rate and demand for credit. But where the forward looking versions fail both to capture the direction of movements in the call rate, and a reasonable value of the implied inflation target, the backward looking versions does a fairly good job of capturing the temporal evolution of the short rate post 1996-97 also provide a reasonable estimate of the implied inflation target. Results add to the credence that RBI

has been following a multiple indicator targeting since 1996-97. Both the value of the coefficient and the t-statistic on output gap in their result indicates that RBI at least for the sample under consideration has not been paying much attention to the output gap independently of inflation.

## Conclusion

In the light of above discussion we can conclude that Inflation targeting is not a big success in emerging economies including India because of different factors ranging from lack of pre-requisites, weak relationship between variables to the adverse impact of different shock on important variables like Real GDP, Inflation, Nominal exchange rate, short term nominal interest rate, trade balances and stock market value.

Even for developed and advanced countries, occasionally one can observe the costly consequences of Inflation Targeting because of the deviation of interest rate and exchange rate from equilibrium levels and from greater volatility. There is also little doubt that the fear of deflation syndrome, where prospective inflation rates have for some time now appeared to be well below target, has led to an unprecedented lowering of nominal interest rates in several advanced economies. These in turn have contributed to an excessive upward revaluation of assets in these economies including especially real estate, which appears to have fuelled a less productive investment boom in that area, while excessively stimulating consumption.

## References

1. Rangarajan C., Role of Monetary Policy, *Economic and Political Weekly*, **32(52)**, 3325 – 3328 (1997)
2. RBI, Annual Report, Various Issues, <http://www.rbi.org.in>
3. Jha R., Inflation Targeting in India: Issues and Prospects, *International Review of Applied Economics*, **22(2)**, 259-270 (2008)
4. Reddy Y.V., Evolving Role of the Reserve Bank of India: Recent Developments, *RBI Bulletin*, **14(12)**, 2199-2226 (2007)
5. Chand S.K. and Singh K., How Applicable Is the Inflation-Targeting Framework for India?, *India Policy Forum, Global Economy and Development Program*, The Brookings Institution, **2(1)**, 123-181 (2005)
6. Jha R. and Rath D., On the Endogeneity of the Money Multiplier in India, *Indian Economic Reforms*, Houndmills: Palgrave Macmillan (2003)
7. Fraga A., Ilan G. and André M., Inflation Targeting in emerging economies, *NBER Working Paper 10019* (2003)
8. Mohanty M.S. and Marc Klau, Monetary Policy Rules in Emerging Market Economies: Issues and Evidence, *BIS Working Paper No. 149* (2004)
9. McKibbin W. and Kanhaiya S., Issues in the Choice of a Monetary Regime for India, *Working Paper* (1999)
10. Masson P., Savastano M. and Sharma S., The Scope for Inflation Targeting in Developing Countries, *IMF Working Paper*, 97/130 (1997)
11. Virmani V., Operationalizing Taylor type Rule in Indian Economy, *Working Paper ICICI Research Center* (2004)
12. Rodrik D. and Arvind S., Why India Can Grow at 7 Percent a Year or More: Projections and Reflections, *IMF Working Paper* (2004)
13. International Monetary Fund, India, selected issues, *IMF Country Report 05/87* (2005)