

The Growth Slowdown and the Working of Inflation Targeting in India

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Abstract

The paper presents a variety of indicators to show that demand constrained output during the period of growth slowdown 2011-17. It also draws on research to show the macroeconomic structure of the economy is such that a policy induced demand contraction affects output more than it affects inflation. In this context it evaluates the application and working of inflation targeting. The framework agreed to was flexible inflation targeting but it was too narrowly and strictly implemented initially, although there are signs of moderation in 2018. There was too much emphasis on a weak aggregate demand channel to reduce inflation. Since inflation forecasts were biased upwards the more effective expectations anchoring channel of inflation targeting was under-utilized. Space available due to positive commodity shocks was not made use of so that the negative output gap further widened, even as potential output itself fell. The output sacrifice imposed was therefore higher than necessary. Finally, possible mechanisms to ensure IT is implemented flexibly as required in the Indian context are discussed.

Keywords: Inflation targeting, monetary policy committee, commodity price shocks, output sacrifice

JEL Code: E31, E52, F43

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1. Introduction

For India to become a USD ten trillion dollar economy in 2030 from its 2016 level of 2.26 trillion the real growth rate must be at least 7 per cent per annum, assuming an inflation rate of 4 per cent. If real growth rate is 9 per cent, however, gross domestic product (GDP) will be 14 trillion. The faster rate of growth will therefore give it 4 trillion more of GDP. But can Indian real growth rate accelerate and sustain at above 8 per cent?

As a ten trillion dollar economy its per capita income will rise to USD 7040 from 1709 in 2016. In terms of World Bank classification it will shift from the lower income group and be firmly in the upper-middle income group, which starts at a per capita income of USD 3856. An upper-middle income economy has multiple dispersed reinforcing growth foci. The constraints that low income economies face are relieved. The volatility of growth rates reduces.

The bottlenecks that India has to grow out of include poor public services, congestion and pollution, failures of market integration in agriculture and in industry, poor health, nutrition and poor quality education, failures in land, labour and financial markets, and of fiscal federalism that give heterogeneous quality of life in the States. It is a long road to overcome these but India is well set on it now. These improvements are all attributes of economic inclusion. At independence India had full political inclusion but it is a puzzle that it did not lead to economic inclusion. Heterogeneity and poverty made it possible to create caste and community-based vote banks. But today with more awareness, the electorate demands governance, development and economic opportunity, and therefore is slowly getting it (Goyal, 2015b).

India's demographic dividend is both an opportunity and a challenge. By 2020 its estimated average age of 29 and dependency ratio of 0.4 will be the lowest in the world. But finding jobs for 12 million young people entering the labour force each year, and millions transferring out of low productivity agricultural jobs is a major and continuing task. Employment growth is nowhere near these numbers. The inability to deliver as many good jobs as required is partly responsible for India's labour participation rate falling to around

50— one of the lowest in the world—the world average is 63. Women have dropped out of the labour force in large numbers.

World Bank estimates also give 23.6% of Indian population, or about 276 million people, living below \$1.25 per day on purchasing power parity in 2011. The Rangarajan Committee's (Planning Commission, 2014) estimate for the similar period was 363 million (29.5% of the population). Of course distribution of income also matters, but higher growth has been a major factor bringing down Indian poverty ratios, which were above 50% in the 1960s¹. The slowdown in Indian growth rates is therefore worrying.

How can macroeconomic policy support growth? Goyal (2017) classifies macroeconomic policy into two types. Type I takes a narrow supply-side approach, in which all available factors of production determine potential growth, while demand affects only inflation not output. It leads to a sole focus on structural reform. It is related to monetarist theories or the market perspective. Type II views potential growth as uncertain in an economy in transition. As under-utilized factors begin to be used more productively, demand need not be inflationary and can play a major role in shifting to a higher level of performance that can have persistent effects. It is closer to Keynesian theories or the labour view that values the creation of employment, but it differs in bringing in structural EM features not normally included in Keynesian theories. Its view of expectations as self-fulfilling, makes it is even more appropriate for economies where there are inherent grounds for business optimism.

Indian macroeconomic policy, especially since 2011, has been of Type I. Actual growth in India has remained subdued and below potential ever since 2011. Policy aggravated, instead of countering, low world demand during this period, in its focus on bringing inflation down. Average annual growth was 8.5% over 2003-04 to 2010-11 but 6.7% till 2017. A minimal estimate for GDP lost through 2 per cent lower growth over 2011-2017 is INR 20 trillion or about 400 USD per capita. India's poor can ill afford such a loss.

¹ Much of this growth finds its way to the less well off. Krishnan and Hatekar (2017) show the 'new middle class', defined as those who spend between \$2 and \$10 per capita per day valued at 1993 purchasing power parity (PPP), doubled between 2004-05 and 2011-12 to 600 million—about half the population. Growth took place mainly in the lower, not the upper classes, suggesting social and employment mobility at the lower end, as we expect in an economy in transition. CSO (2017) shows unorganized sector compound annual productivity growth (7.2 per cent) over 2011-2016 much exceeded that in the organized sector (3.2 per cent).

But macroeconomic tightening was required. In 2011, after a series of global shocks, India's macro economy was fragile, with a depreciating rupee, widening current account deficit, and high food inflation. Policy actions since have helped improve these fundamentals. A path of fiscal consolidation and implicit flexible inflation forecast targeting was adopted in 2014 and was made explicit in August 2016. This, along with fiscal responsibility legislation, was a valuable strengthening of Indian institutions.

A glide path was adopted for inflation targeting, with food price led inflation to be brought down slowly, in order to minimize output sacrifice. Implementation, however, was too strict. Although favourable commodity price shocks brought inflation down faster since 2014, the RBI, did not view the fall as sustainable, and did not bring interest rates down commensurately, thus imposing unnecessary growth sacrifice, while raising rather than lowering inflation expectations. Similarly in 2016, despite major negative shocks, space available for countercyclical macroeconomic policy was not utilized. Implementation was also narrow although flexible inflation targeting gives space to consider all relevant variables. The impact of high interest rates on aggravating fiscal deficits, weak bank and firm balance sheets was ignored, and micro-prudential bank regulation was also strongly pro-cyclical. While markets and institutions have to be strengthened and moved to international standards, this has to be done in a calibrated way. Moreover, those standards have themselves changed after the global financial crisis (GFC), with central banks in advanced economies (AEs) showing how accommodative they can be to support domestic cycles and recovery.

The majority view of the RBI's Monetary Policy Committee (MPC) set up in 2016 was that despite a negative output gap supply-side conditions determined output and there was inflationary demand in the economy. RBI's own study (Khundrakpam and Jain, 2012) shows monetary policy impacts output with a lag of 2-3 quarters and inflation with a lag of 3-4 quarters, but the effect of the interest rate on GDP is 2-3 times greater than its effect on inflation. This large impact on output and minor impact on inflation implies output is demand-determined.

If rates affect output more than inflation, so the effect of aggregate demand on inflation is weak, targeting the latter is most effective through guiding inflation expectations. It need not take a long time to reduce inflation expectations if, as in India, they are dominated by commodity prices that are softening for secular reasons. An oil prices rise is likely to be

capped because of shale oil production and renewable energy alternatives. An upward bias in inflation forecasts, however, weakened this potentially effective channel. Shifting to a neutral policy stance in 2016 was a communication error since it indicated an expected rise in inflation.

Type I policy would suggest a strategy of assessing supply-side reforms, and if indicators, especially inflation, suggest these are adequate, sustaining aggregate demand. Of course, complementary policies that continue to improve the supply-side would be required. In the Indian context coordination of monetary and fiscal policy works better than dominance of either, since fiscal supply-side policy has a greater impact on inflation and monetary policy on demand. Liberalizing reforms have led to a swing from fiscal to monetary dominance that has perhaps been excessive. Modifications to the governance framework, that can implement the required coordination, are discussed.

Section 2 examines growth trends and Section 3 assesses the evidence for demand versus supply as the operational constraint on growth; Section 4 contrasts the theory of inflation targeting with its practice in India given an analytical framework that shows the high output cost of macroeconomic tightening in Indian conditions; Section 5 draws out implications for policy before Section 6 concludes.

2. Growth trends

A growth slowdown started from Q2 2016-17, before demonetization. The causes included negative export growth since Jan 2015, but real policy rates that rose sharply since July 2016 as nominal rates under-corrected for falling food inflation. This was a contractionary response to a negative demand shock. Growth of gross fixed capital formation (GFCF) had been falling since 2011. Consumption growth also fell after demonetization. Government capital formation rose but was not large enough to compensate for other negatives. Post GST, which was implemented in July 2017, there were temporary supply disruptions.

Although growth fell in the last five quarters it also fell from 2011/12. The recent slowdown reversed in Q2 2017-18, but a longer term growth slowdown continued. New GDP series showed a rise in growth to 7.2 in 2014-15 from 6.1 the previous year, but even with this average post 2011 growth rates were lower. Moreover, the rise is controversial since the wholesale price index (WPI) used to deflate inputs was, in this period, much lower than the

consumer price index (CPI). The new index number of industrial positioning (IIP) (base year 2011-12) also shows lower industry growth than the National Account Statistics (NAS) estimates. Although post 2011-12 IIP growth has gone up and is more stable in the new base (average 3.7 compared to 1.4 with the old) it is still not large and still below the NAS (which gives an average of 6.9 till 2015-16, and 9 over 2014-16). Therefore growth may actually be lower than the CSO estimates. Growth is lower than potential also to the extent on-going structural reforms are raising potential growth.

Among the causes of the slowdown since 2011 were the macroeconomic tightening following the Eurozone crisis and continued high domestic food inflation, the 2013 taper tantrum and then the imposition of an over-strict version of inflation targeting. A climate of suspicion as well as administrative bottlenecks created policy paralysis in 2009 and stranded infrastructure projects, but the continuing demand slowdown made it difficult to revive them.

Table 1: Real interest rates, demand and output

	2013-14: Q1-Q4				2014-15: Q1-Q4				2015-16: Q1-Q4				2016-17: Q1-Q4				2017-18: Q1-Q2	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Growth (Y-o-Y) (%)																		
GDP at factor cost	4.7	5.2	4.6	4.6	7.3	8.3	6.4	6.1	7.6	8.2	7.3	8.7	7.6	6.8	6.7	5.6	5.6	6.1
IIP	-4.3	1.5	1.2	6.0	-3.0	0.4	0.6	4.5	-4.2	1.6	2.5	5.7	-2.6	-0.9	1.8	4.9	-3.6	7.0
GFCF	-2.8	3.1	0.2	-0.9	8.3	2.2	3.7	5.4	4.3	3.4	10.1	8.3	7.4	3.0	1.7	-2.1	1.6	4.7
Export Growth (%)	-0.1	12.9	7.3	-0.5	8.6	1.5	0.7	-14.7	-16.0	-18.1	-19.1	-7.8	-1.6	-1.0	6.0	18.5	8.8	12.9
Inflation (Y-o-Y) (%)																		
WPI	3.8	5.5	6.4	5.1	5.1	3.5	-0.1	-3.3	-3.1	-5.5	-3.6	-2.3	-0.7	1.0	1.7	5.0	2.3	2.5
CPI- IW	10.7	10.1	10.6	6.9	6.9	7.4	5.0	6.6	5.9	4.6	6.5	5.7	6.2	5.3	2.7	2.4	1.5	2.4
CPI combined	9.3	9.5	10.2	8.2	7.9	6.7	4.1	5.3	5.1	3.9	5.3	5.3	5.7	5.2	3.7	3.6	2.2	3.0
CPI core	7.9	8.0	7.9	7.9	7.8	5.8	4.6	3.9	4.3	4.0	4.3	4.6	4.5	4.6	4.9	4.8	4.1	4.2
Interest rates																		
Nominal overnight (call) money	7.4	9.2	8.5	8.3	8.1	8.0	8.0	7.6	7.3	7.1	6.7	6.9	6.4	6.4	6.2	6.0	6.0	5.9
Real (WPI)	1.8	2.8	3.5	3.2	4.6	8.2	11.2	10.7	12.8	10.7	9.0	7.5	5.4	4.7	1.2	3.7	3.5	
Real (CPI headline)	-0.7	1.3	0.6	0.5	2.3	3.4	4.0	3.4	3.4	2.8	2.1	2.3	1.8	1.5	1.3	1.9	1.8	

Source: Calculated with data from the NAS, CSO, and MOSPI websites. All indices used are the latest available. Real interest rates are calculated as the nominal rate minus inflation of one quarter ahead.

Table 1 shows that the nominal call money rate (CMR) came down slowly from the high levels it had reached in 2013 but the real rate for industry rose sharply just as export demand slowed. So manufacturing and GFCF growth was low and volatile. Since wholesale prices are closer to producer or product prices, the real rate that is relevant for industry subtracts one

period ahead WPI from the CMR. This rate reached a peak as high as 12.8 per cent, while the real rate relevant for consumers also peaked at 4 per cent. The latter rate subtracts one period ahead headline CPI from the CMR. Since the RBI's instrument is headline CPI, this is the real rate it seeks to affect. Both real rates rose again in end 2017.

A fall in policy rates is required when oil prices fall, since India's export demand falls along with oil prices, implying a negative demand shock. But in 2014 and 2016 policy rates did not adjust downwards in line with the fall in oil prices and inflation.

3. Demand or supply constraints?

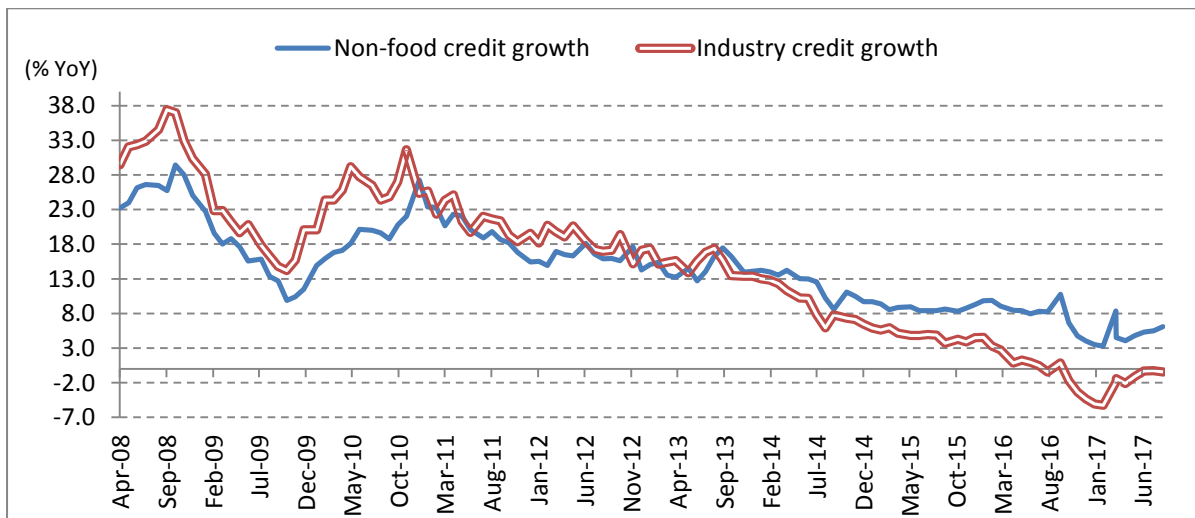
That core inflation was below headline inflation over much of the period also implies excess demand was not the major inflation driver. Other data also suggests demand was the operative constraint on output over 2011-2017. There was excess capacity in industry (average utilization below 70 per cent), employment growth below that in the labour force, a clear slowdown in bank credit, especially to industry (Figure 1), and in private gross fixed capital formation (Figure 2).

Credit: Figure 1 shows the steady fall in non-food credit growth since 2011. Bank credit to industry (-5.1 per cent) actually became negative in 2017 as did private investment growth in some quarters (Table 1). Other sources of credit also stalled. Corporate market borrowings (commercial paper, corporate bonds and syndicated loans) at 2 per cent of GDP in 2016 were below a peak of almost 6 per cent in 2011 (IMF, 2017, pg. 8). There was hardly any growth in non-bank borrowing either². There was some improvement in 2016-17 when corporate bonds grew at 4.7 per cent, perhaps as a response to a revival in consumption and export demand, but since their stock was only about 32 per cent of bank credit in the September 2017 quarter³ they could not compensate for the slowdown in bank credit.

² Indian total credit to the non-financial private sector (core debt that includes market securities as well as bank credit) ratio to GDP reported by BIS (2017 pg. 247) for Q3 2016 at 60 was below the average for all economies (156.7) and for EMs (145.5). The ratio for Indian non-financial corporations increased only by 0.3 between 2011 and 2015 compared to 29.4 for EMs.

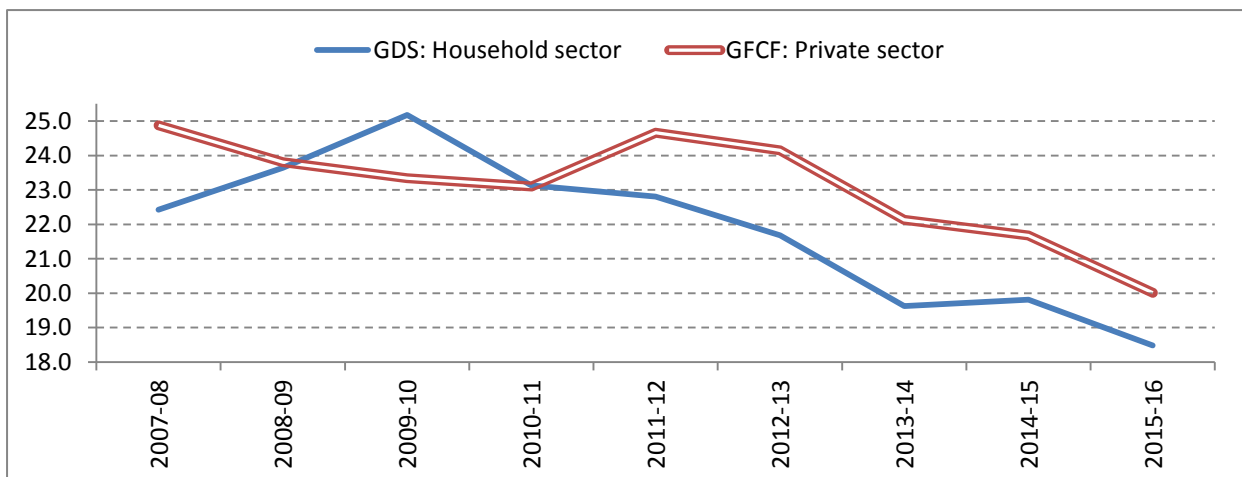
³ Calculated with data from <http://www.sebi.gov.in/statistics/corporate-bonds/outstandingcorpdata.html>

Figure 1: Credit growth



Investment: Spliced annual savings and investment ratios to GDP show a slowdown in both, led by investment indicating a fall in demand was the driving factor. The change in base, which resulted in a large jump in all ratios in 2011-12, makes comparison over time difficult. Although the changes were major, we still splice the series to the same base using overlapping years, in order to get a comparative picture. Even so, the caveat must be kept in mind. Table 1 and Figure 2 present the spliced annual ratios to GDP.

Figure 2: Gross domestic savings and fixed capital formation components as a ratio to GDP



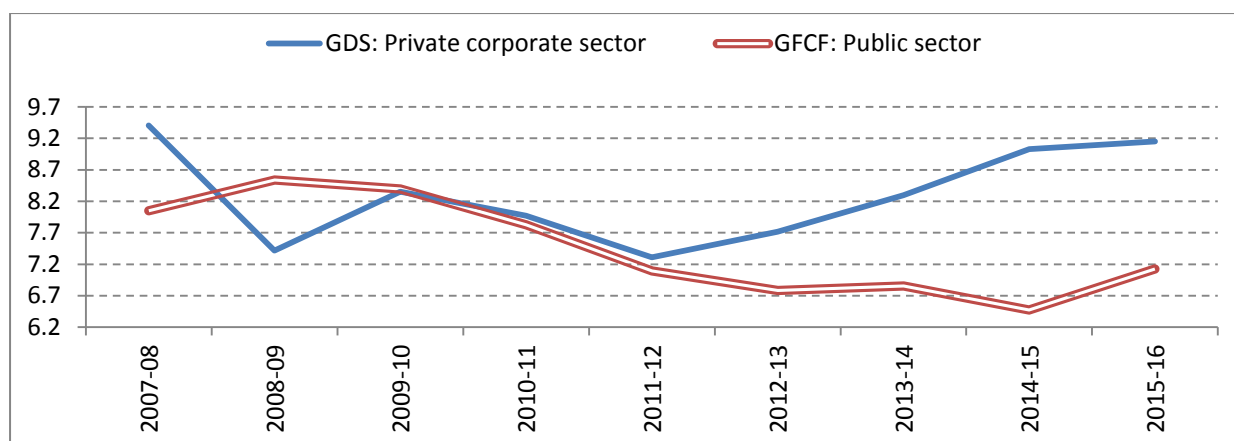


Table 2: Investment led savings slowdown

	Gross domestic saving			Gross fixed capital formation			Gross capital formation				
	Household Sector	Private Sector	Public Sector	Public Sector	Private Sector	Total	Public Sector	Private Sector	Valuables	Total	
	1	2	3	4	5	6	7	8	9	10	11
2007-08	22.4	9.4	5.0	36.8	8.0	24.9	32.9	8.9	28.1	1.1	38.0
2008-09	23.6	7.4	1.0	32.0	8.5	23.8	32.3	9.4	24.8	1.3	35.5
2009-10	25.2	8.4	0.2	33.7	8.4	23.3	31.7	9.2	25.4	1.8	36.3
2010-11	23.1	8.0	2.6	33.7	7.8	23.1	30.9	8.4	26.0	2.1	36.5
2011-12	22.8	7.3	1.2	31.3	7.1	24.7	31.8	7.7	25.9	2.7	36.4
2012-13	21.7	7.7	1.1	30.7	6.8	24.2	30.9	7.4	25.2	2.6	35.2
2013-14	19.6	8.3	0.8	29.1	6.9	22.1	29.0	7.3	22.7	1.4	31.3
2014-15	19.8	9.0	0.7	30.0	6.5	21.7	28.1	6.9	23.2	1.6	31.8
2015-16	18.5	9.2	1.0	29.2	7.1	20.0	27.1	7.7	21.3	1.4	30.2
15-16 over											
07-08	-3.9	-0.3	-4.0	-7.6	-0.9	-4.9	-5.8	-1.2	-6.8	0.3	-7.8
peak year	-6.7				-1.4			-1.7		-1.4	

Source: Calculated from Economic Survey <http://indiabudget.nic.in/estatvol2.asp>

Table 2 shows the fall in household savings followed that in Gross Capital Formation (GCF). The second last row of the Table gives the differences in ratios between the first and last year, and the last row the difference from the peak year. For the household savings ratio the peak year was 2009-10 but for GCF it was 2007-8. That three per cent rise in savings even as GCF fell was probably cyclical, a lagged response to rising incomes, and the remaining part of the fall of 6.7 (Column 1) from the peak was structural. Historically, there was a structural shift

in the gross domestic saving (GDS) ratio from an average of 20 over 1970-2000 to 30 for the period after.

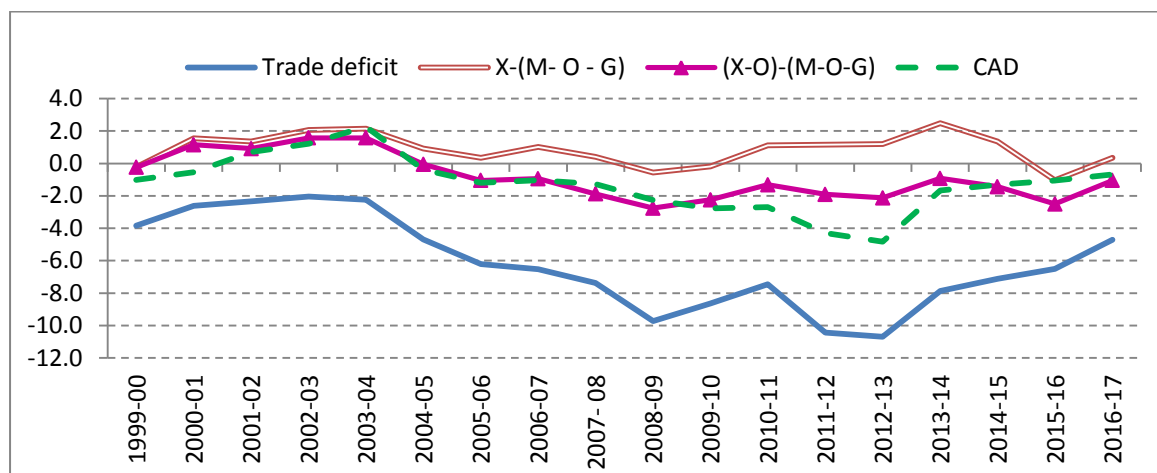
The fall in household and public sector savings was sustained till the end of the period of analysis, while those of the private corporate sector rose back almost to 2007-08 levels by 2015-16, after a dip in the middle. These had increased substantially from a pre-boom average of about 4 per cent. In China also the high growth period saw a rise in corporate savings while household savings fell. The large profits firms make in high growth periods are not fully distributed to households.

It is ironic, however, that in a period when there was so much discussion about firms being highly indebted, corporate savings were rising. Obviously, not all firms were indebted. But even cash-surplus firms were not investing. Public sector savings, however, fall in a slowdown as revenue growth slows while expenditures are more difficult to reduce.

Although GCF kept falling through this period, by an aggregate of 7.8 (Column 11), public sector investment rose in 2015-16 (Column 5 and 8) as oil revenues were used to invest in infrastructure. Government infrastructure push can use up some of the current excess savings, but restrictions on the fiscal deficit limit government borrowing. For a full recovery, private investment must also rise since public investment is now only about one-third of private. Private sector investment had risen in response to the macroeconomic stimulus given over 2009-11. It rose over 2010-12 (Column 6 and 9) before falling again as macroeconomic policies were tightened. But the rise in GFCF was lower than that in GCF because valuables were rising in this period. This was partly because high inflation saw a sharp rise in gold imports that also widened the current account deficit (CAD).

Net imports: That the CAD fell as a percentage of GDP from a peak of -4.7 in 2012-13 to -1, despite a fall in exports, also points to low domestic demand. Net imports reduced, as imports fell more than exports. Since India has a CAD net external demand is negative—overall India creates demand for the rest of the world. Lower oil prices reduce exports as well as imports. Removing oil and gold imports before deducting imports from exports is a better measure of net demand from the external sector for Indian products and services. Figure 3 show this net demand was positive in years of high oil prices but was negative in 2007-09 and 2015-16, the years of a slump in oil prices.

Figure 3: Trade deficit adjusted for oil and gold and current account deficit



Corporate debt: Corporate debt grew at double digits from 2012 because high interest rates added to the repayment burden. The share of chronically stressed firms rose while gross non-performing assets (NPAs) of public sector banks doubled from about 3 to Rupees 6 lakh crores over 2012-16. Goyal and Verma (2017) find evidence, using a five year panel of 8,648 firms ending in 2015-16, that it was low demand rather than debt that reduced firms' credit in this period, except for a subset of indebted firms. They regressed credit on lags, NPA ratios, fixed effects, other firm specific variables such as sales, assets and inventories, macro demand variables such as growth and repo rates. Credit as the dependent variable was defined as first difference of debt in two successive period (t and t+1). Only sales, however, were found to be positive and weakly significant for credit (Table 3, Column 1).

Since only demand variables were significant for all firms, the regressions were repeated for the subset of sectors where indebted firms are concentrated. There is large diversity among corporates. Infrastructure, aviation, iron and steel, mining, and textiles are the sectors that contributed most of the NPAs in the period. For the filtered corporate dataset of these firms only, in a second dynamic GMM panel regression (Table 3, column 2) sales continue to be significant, but lagged credit weakly reduces credit, as do lagged assets, since they are likely to be low. Thus past borrowing is a constraint on credit only for indebted firms but even that is alleviated by assets held. Coefficients are also different with sales increasing credit availability relatively more for indebted firms.

Table 3: Dynamic Panel for Firm Credit (GMM)		
	All firms	Indebted firms
	1	2
L. firm credit	0.10 (0.34)	-0.46* (-2.31)
Growth rate	-22.28 (-1.19)	
L. Growth rate	-6.79 (-1.72)	3.80 (0.16)
Sales	0.24* (2.50)	0.54** (2.58)
L. sales	-0.22 (-1.77)	0.16 (0.75)
Assets	0.01 (0.84)	0.06 (0.78)
L. assets	0.01 (0.81)	-0.21** (-3.09)
Observations	15546	1305
Sargan_overid_p	1.16e-64	7.00e-09
Hansen_overid_p	0.816	0.858
ABtest_AR1_p	0.0881	0.468
ABtest_AR2_p	0.374	0.359

Note: t statistics in parentheses; * p<0.05; ** p<0.01

NPAs: That other sources of credit also stalled, suggests banks were not lending because of a lack of demand more than *NPAs*. They held excess government securities (*G-secs*) instead of lending to the private sector. Moreover, in a similar regression for a bank panel gross *NPAs* did not have a negative effect on advances but the RBI imposed Asset Quality Review (*AQR*) did have a strongly negative effect. *NPAs* fell with growth, increased with repo rates and with past advances.

There was a view, however, that supply-side *NPAs* not interest rates constrained credit and growth. While a reduction in bank loan rates could increase credit demand, there was no need to cut repo rates if banks were not in a position to transmit low rates. But *NPAs* affected only a subset of banks. Banks, moreover, never fully pass on policy rate cuts. Worldwide pass through is higher for a rise than for a cut. Indian bank rates did fall. In 2015, for example, RBI cut its benchmark rate by 125 basis points. Banks reduced their median term deposit rate by 83 basis points and median base rates, the then cost based benchmark for loan rates, by 60 basis points.

In an attempt to enhance pass through the RBI announced a move to a marginal cost of funds-based lending rate (MCLR) from April, 2016. In 2017 it began discussions on moving banks to external market-based benchmarks. But Indian banks source funds largely through deposits, not market-borrowings. Whatever the regulatory framework they will always be able to adjust individual risk premia they charge to reflect their cost of funds. Strongly procyclical bank regulation affected this cost.

Indian banks that were untouched by the GFC, and are subject to strong prudential regulation, were being forced into a developed country mould, with standards even tighter than Basel III, IndAS to be implemented in 2018 one year before it is internationally⁴, strict provisioning, and treasury losses as interest rates were raised, while reducing the Statutory Liquidity Ratio (SLR) and increasing the share of G-secs held that had to be marked to market. Forcing banks to pass through policy rate cuts cannot work when regulatory measures raise their costs. Adequate liquidity, however, does help pass through. But despite a 2016 decision to keep this in neutral mode it was largely kept in the shortage mode so that banks were net borrowers in money markets.

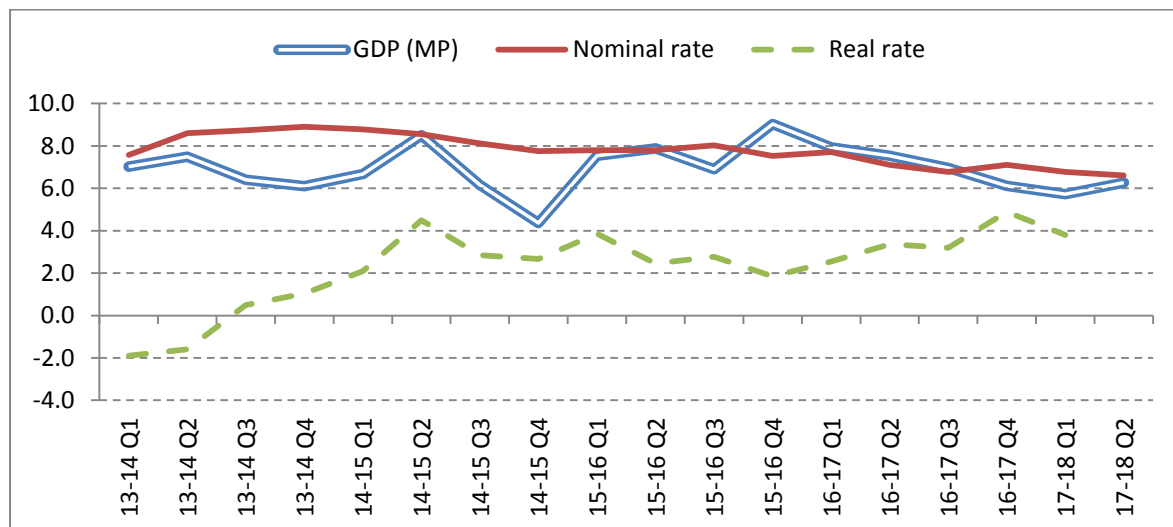
NPAs also added to costs, as did poor sequencing in the action on NPAs. Resolution should have first priority in Indian conditions, where infrastructure is under-provided. But recognition was implemented first without fund infusion or a way to decide on haircuts. Moreover, the high interest rate regime raised both corporate debt and NPAs. Capacities built for high growth added to debt when growth fell. Debt ballooned also because of delays in resolution. Most of the firms are not zombies that must die; but were laid low by external shocks and policy failures. Even so, owners must also bear risk and put in adequate equity. Bank recap bonds are an excellent move, since they will reduce the risk premia banks need to charge on their loans, and clean balance sheets to aid credit expansion as demand picks up. In India bank credit and deposits remain major avenues for finance and savings respectively, unlike the US where markets dominate. Therefore substitutes for banks are inadequately developed. Markets were not even able to replace development banks shut early in the reform period so that public sector banks were forced to take the risks of infrastructure finance despite the severe asset liability mismatch involved. Infusion must, however, be partly conditional on resolution actions and decisions, including governance reforms. The

⁴ The insurance regulator, IRDA, has given 2 years to its regulated entities.

Bankruptcy code is imposing valuable deadlines. However, a demand revival is required along with the recap bonds in order to kick start credit growth.

Government demand: Fiscal consolidation driven by fear of outflows and ratings agencies added to demand compression. Countercyclical space painfully created by the macro stabilization since 2011 was not used. The new Committee on FRBM in deriving a future path of debt reduction assumes the real interest rate will exceed the growth rate! This cannot be so on a high growth catch-up path. Figure 4 shows the reverse held for India since 2013, even though it was a relatively low growth period with interest rates kept high. High growth reduces deficit ratios, while a composition of expenditure that does not hit supply constraints, while easing them in the long-run, supports growth. For example, over 2008-11 government expenditure on rural construction created more demand for food that added to inflation. But a rise in urban consumption, as through Pay Commission awards, would help utilize excess capacity in industry.

Figure 4: GDP growth and 10 year nominal and real G-secs rate of interest



Latin American crises dominate rating agencies views on emerging markets leading to an excessive focus on FDs. Indian differences such as higher savings rates, working population, and growth potential are not adequately factored in. Excessive fiscal consolidation is counterproductive since higher income is the major variable rating agencies consider in an upgrade, and is the first priority for foreign inflows also.

Apart from the fiscal impulse to demand, there is also the issue of financing government borrowing and its cost. Both banks and invested debt inflows get capital gains as G-secs interest rates fall, while retail markets that do not mark to market are underdeveloped. Borrowing costs and fiscal deficits can also then fall in a virtuous cycle. The shift in stance from accommodative to neutral in 2016 raised G-secs interest rates (Figure 4) as did hawkish October and December 2017 MPC stances, in the context of possible higher government borrowing as the 2018 FD ratio was higher by 0.2 per cent of GDP. Reducing SLR and held to maturity (HTM) ratios when banks held excess SLR since credit demand was low, triggered selling as rates rose, raising them further. Ten year G-secs rates that rose from 6.5 to 8 over 2016-18, when the repo rate was 6 pointed to a vicious cycle tight money policy was caught in. Restricting OMO purchases of G-secs today can raise borrowing costs, FDs and borrowing requirements tomorrow. Under attempts to reduce government expenditure public investment is the first to be cut, increasing bottlenecks and raising inflation tomorrow.

These simple stylized facts question several prevailing myths.

1. *Investment does not respond to interest rate changes.* The large cut in 2009 did raise GFCF by 2011-12 (Figure 2 and Table 2). Even credit growth rose (Figure 1) before falling again with rise in interest rates. Since the interest elasticity of consumption demand is rising, a smaller cut may be effective now. Aggregate demand (AD) estimations using the gap between the policy rate and the natural rate give an interest elasticity of demand of -0.21 similar to advanced economy (AE) levels (Goyal and Arora, 2016). Kapoor and Ravi (2017) get an estimate of -0.14. The weight of consumer durables in the new IIP has risen to 12.84.
2. *Firms were not investing because of debt.* Private corporate sector savings reached almost peak 2007-08 ratios of 9.4 in 2015-16, after falling in the middle—not all corporates are indebted. Debt was high since 2009/10 but did not hold back a sharp rise in GFCF in 2011/12. Table 3 shows sales not debt to be the constraint on credit. A rise in demand and capacity utilization would induce investment.
3. *Banks with high levels of stressed assets did not have the funds to lend.* Banks were sitting on funds—there was no demand from highly rated firms. They held G-secs ten per cent in excess of regulatory requirements because of lack of credit demand.
4. *Stressed public sector banks were not lending, others were.* Neither foreign nor private banks lent much to firms over 2011-17. Foreign banks held the largest share (above 40%) of G-secs. Private banks lent largely to retail. Firms' external and domestic market borrowings were also low.

5. *The slowdown in 2016 was due to temporary policy-induced supply-side disruptions.* But it started before demonetization, which began in November 2016, and seems rather to have followed the export slowdown and rise in real producer interest rates.

Demand had to be the constraint when consumption, investment, government expenditure and exports were all slowing. Yet monetary policy aimed to suppress demand further. That growth bottomed out in 2017 Q2 as a temporary rise in oil and food prices both revived export demand and reduced real rates supports the argument.

4. Inflation targeting

The literature on inflation targeting (IT), and country experience with it, specially mentions the importance of flexibility, of reflecting society's priorities, and of avoiding being labelled an "inflation nutter", in order not to lose society's support and eventually damage independence (Mishkin et. al., 2001, 1998). Although inflation has priority, IT is an 'information inclusive strategy' that uses many variables. Flexibility is meant to accommodate supply shocks and reduce output sacrifice. This does not adversely affect inflation anchoring if communication is good. Anchoring Indian inflation expectations need not take long if communication is good and supply shocks are favourable, since these dominate household inflation expectations. Flexible forecast inflation targeting, which was what India adopted, allows the use of multiple indicators with a more focused signal. Although it was feasible, there was no consideration of the impact of interest rate policy and bank regulations on firm and bank balance sheets and on G-secs markets.

4.1 Indian macroeconomic structure

In India during episodes of tightening such as 2008, 2011 and 2013 inflation remained high and sticky despite sharply higher policy rates, while growth fell in the quarter immediately following peak rates. Since rates remained high after 2011 the slowdown was sustained. This experience as well as research suggests that output is demand determined. Econometric estimations surveyed in Goyal (2015a), all support an elastic supply but dominance of supply shocks.

Goyal (2011) is a basic dual economy DSGE used to derive AS and AD curves. AS is flat but a number of factors tend to push it upwards. Goyal and Arora (2016) estimate the slope as 0.13. Goyal and Kumar (2018) get a value of 0.1 for the elasticity of inflation to changes in

marginal cost. Shifts in AD and AS are negatively correlated, so that a negative supply shock reduces demand. Factors such as habit persistence and volatility in real exchange rates increase the slope of the AS. Goyal and Tripathi (2015) show on estimating supply shocks correctly the AS slope falls from 0.2 to 0.03.

In a mature economy steady-state growth can be regarded as separately given by productivity and population growth but not in an economy in transition. It is necessary to identify factors that shift down the AS curve and adjust policy accordingly. During effective labour transition, structural unemployment becomes cyclical implying that output can increase without raising inflation. Output is demand determined. But inefficiencies and bottlenecks continue to push up costs. To reduce these continual supply-side reforms are required in governance, land and labour markets. Sensitivity to food inflation makes increasing agricultural productivity especially important. Fiscal policy should therefore pay particular attention to the composition of government expenditure. Public expenditure that creates public assets has a higher and more persistent growth multiplier compared to the public consumption expenditure multiplier, because, apart from maintaining demand, it also reduces costs. Expenditure on non-tradables also leaks less abroad (Goyal 2017). In addition, technological improvements raise potential output and lower inflation.

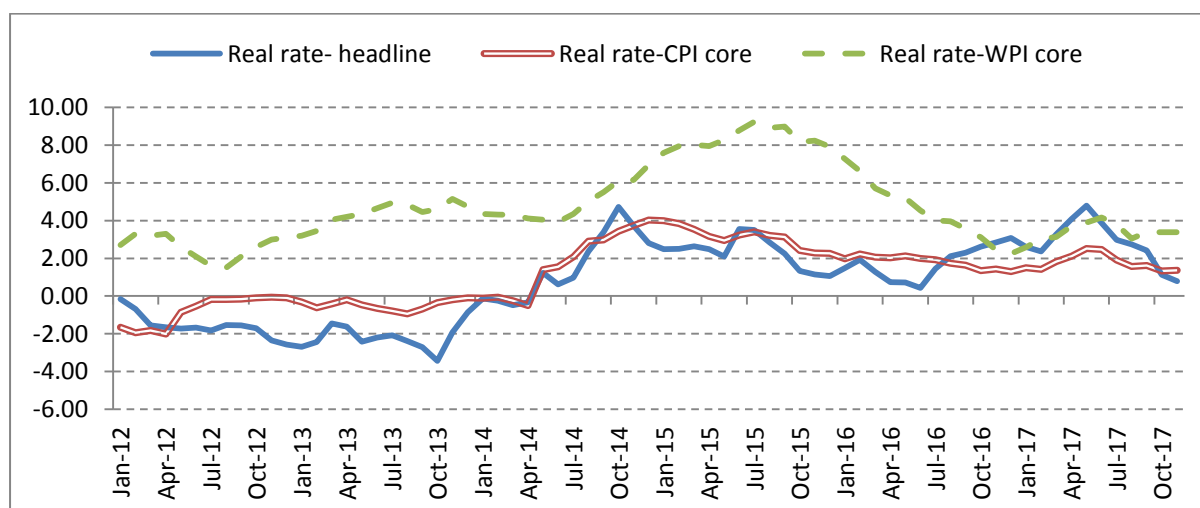
Monetary policy can anchor wage-price expectations that shift up the AS. Nominal appreciation, consistent with a competitive exchange rate, can also shift down the AS. Optimal coordination during transition requires policies to work together to shift the AS downwards because of the high output cost of a pro-cyclical demand squeeze. If there is evidence of productivity rise and fiscal supply-side action, monetary policy should be accommodative.

The output gap is positive if output exceeds potential, or actual exceeds potential growth. This indicates excess demand. Standard time series measures give output gaps as negative for India, but they may still be underestimating potential growth since they give extra weight to the recent past. As growth falls, the measured potential will then also fall, indicating the gap is narrowing. Goyal and Arora (2013) suggest using inflation to measure potential output in the Indian context. If core inflation is sustained above some threshold due to second round effects, only then would growth have reached potential. Growth that is below potential can induce a shift to a lower growth path creating persistent losses (Goyal and Kumar, 2018).

4.2 Experience of inflation targeting in India

Even though repeated research, at the RBI itself and included in its initial Inflation Targeting Report, showed the importance of food prices for household inflation expectations, while the output gap played a limited role, the weak demand reduction channel was emphasized in the initial years of inflation targeting. The bimonthly monetary policy statements from 2014-16 show the one- year-ahead inflation announced was almost always about one per cent above realized inflation. This reduced the effectiveness of the expectation channel. If a forecast is unbiased it should undershoot as often as it overshoots. The expected inflation path depicted was always U-shaped or flat, with inflation rising eventually, even if it fell in the short-term⁵. Since from 2014, on IMF advice (IMF 2017a pp. 15-16), a positive natural rate of 1.25 to 1.75 per cent was built in, the forecasting bias meant real interest rates were actually in the contractionary range of 2.25 to 2.75 at a time when estimates of natural rates for AEs were being brought down to zero. This discouraged durable goods consumption demand as well as investment that could have reduced supply side bottlenecks. India with more underemployment and indebted firms, whose balance sheets were sensitive to high interest rates, should also have been a candidate for lower natural rates. High unemployment and excess capacity meant the real rate should have been reduced to 1 per cent (Goyal and Arora, 2016), especially when r^* was negative.

Figure 5: Real interest rates



⁵ On the glide path the April 2014 forecast was 8 per cent CPI by January 2015, but CPI fell to 5.2 per cent. The April 2015 CPI prediction for March 2016 was 5.8 per cent by, but it fell to 4.83 per cent. The early 2016 prediction for March 2017 was 5 per cent, but CPI fell to 3.89 per cent.

Figure 5 shows the real policy repo rate was positive exceeding all types of inflation after mid-2014. It was especially high when calculated with core wholesale price inflation (WPI), thus burdening firms. Headline CPI was not expected to fall rapidly but it did so that real rates, even in terms of the RBI target inflation rate were above 4 per cent in 2014 and in 2017.

The new Monetary Policy Committee (MPC) (RBI 2017a, b) continued with the same communication that future inflation is expected to rise, thus undercutting the expectation channel. Moreover, the arguments given to support an expected rise in inflation were weak (RBI 2017a). One was that core CPI inflation is sticky. But this fell sharply in 2012 from 10 to 8 per cent and in 2014 from 8 to 4 per cent along with a fall in household inflation expectations (Figure 5). It follows these, built into wages, affected core inflation, rather than excess demand for services due to shortages of skills as the MPC argued. As food inflation remained low, core inflation fell again over April-June 2017, reaching 4 per cent in June, pushed down by falling education and health services, prices of which the MPC had regarded as sticky. A second reason given was rising agricultural wages. But a low rate of increase can be absorbed by productivity increases. It is only the double-digit type rise in wages as occurred in 2011, following double digit food inflation that causes inflation. A third one was fear of oil price rise, outflows and rupee depreciation. But US shale production and renewable energy initiatives cap price rise, while some rise in oil prices is good for Indian exports.

Moreover, inflows and the rupee strengthened despite US fed rates that began to rise. Indian political stability and growth prospects continue to be the primary drivers of inflows. That the interest rate differential led to excessive debt inflows in the first half of 2017⁶, suggests it was too large. External risks should not and need not dominate the domestic cycle. Since foreign investment in G-secs is kept at less than 5% of stock, it need not affect domestic interest rates unless policy chooses to let it as it did in 2013 and 2017. Indian high interest rates and strong currency gave excess returns to debt FIs after 2013. Finally, structural improvements, such as adoption of new technology and products, better market integration and ease of doing business that are improving productivity were ignored.

⁶ Of \$ 27 billion inflows from foreign institutional investors, \$ 17.5 billion were debt inflows.

The MPC (RBI 2017a, pp. 5) severely over-estimated inflation which averaged 3.3% in 2017. It reduced its April average inflation forecast of 4.5 per cent in the first half and 5 per cent in the second half of 2017-18 to 2.8 and 4 per cent respectively in June (RBI 2017b, pp. 5), but raised it in October and in December to a range of 4.2-4.7 (RBI 2017c, pp.5). Although headline CPI inflation rose in December to 5.2 the vegetable and oil price related spike was expected to be temporary, and was still well within the inflation target band, especially allowing for statistical effects such as the rise in house rent allowance.

In addition to inflation, future growth also tends to be over-estimated, since then rates can be kept higher. For example, the December 2017 MPC estimate (RBI 2017c, pp.5) for growth of Gross Value Added in 2017-18 was 6.7, which required Q4 growth to go up to 7.8, compared to the advance estimate from the CSO of 6.1.

The February 2018 MPC resolution (RBI 2018) for the first time projected a fall in future inflation to 4.5-4.6 in the second half of the year, despite the current rise, and did not raise rates utilizing the space available since the repo rate was at 6, giving a real rate of 1.5, and had not been reduced despite the fall in headline inflation to below 3. The flexibility given by the target band was utilized. The MPC also for the first time talked of the necessity of nurturing the nascent growth recovery. Although the policy stance remained neutral, this moderation of the past hawkish tone shows evidence of welcome learning by doing. Since it assuaged market fears of rate rises, the G-secs rate also softened.

Policy impacts have long lags in India because of a large share of backward-looking behaviour. So delays have large costs, and can also create instability. The expected path of policy rates has a major impact on market, firm, and bank decisions under forward-looking behaviour. But the latter is limited so large policy action is not required. More uncertainty also supports a small and therefore a fast response. But a small change works best as part of a well-communicated sequence of moves. This also makes the policy stance important.

5. Implications for policy

In the Indian economic structure, monetary policy affects demand relatively more than inflation, while fiscal policy has a greater impact on supply-side costs and therefore inflation. While both policies increase demand, in a more open economy some fiscal stimulus leaks abroad, and appreciates the real exchange rate, thus reducing export demand. A monetary

demand stimulus becomes more effective, as lower interest rates reduce debt inflows and depreciate the exchange rate. Moreover, the interest elasticity of demand rises in liberalized markets. But fiscal policy gives more weight to growth and monetary policy to inflation. Thus each can act more effectively on the other's objective. Without cooperation, outcomes can easily result in higher than optimal inflation and lower than optimal growth thus reducing the welfare of both.

Optimal coordination during transition requires policies to work together to shift the AS downward. In a rules framework, during overall macroeconomic stabilization, there is little space available to each policy. So it is important that whatever is there should be used in a coordinated fashion.

Independent of whether policy needs to tighten or become accommodative, a better balance of power will improve coordination. Possible alternatives to achieve this are:

If forward looking policy quantifies factors that shift down the AS, these could be discussed, and coordinated strategies worked out in structured junior level meetings that could provide inputs to senior policy making meetings.

There is a potential conflict of interest since overestimation of future inflation and output allows higher policy rates and lowers the RBI's risks in meeting its objective. This, however, imposes a larger than necessary output sacrifice on the economy. Therefore a weighted average of five forecasts with the best past performance could be used in flexible inflation forecast targeting. These forecasts could be from market analysts, academics and government agencies apart from the RBI thus creating valuable competitive improvement.

In a framework of FIT and FRBM delegation to a pro-growth RBI governor and a conservative finance minister is likely to lead to optimal coordination. The first will not implement IT too strictly. The second, in order to resist democratic populist pressures, will have to pay attention to composition of expenditure and supply-side reforms (Goyal, 2007).

While independence of the RBI is valuable, it needs to also be accountable to the voter. There is an MPC now but the RBI still has the dominant vote so responsibility rests with it. Accountability can be increased by instituting formal reporting to Parliament. Parameters can be set to evaluate if inflation targeting is being implemented flexibly. In the early years after independence before fiscal dominance set in, under the constitution and the division of

responsibilities, if the RBI said no to the finance minister, the government would have to go to Parliament, which could assert some discipline. Now, under monetary dominance, if the RBI says no to the finance minister, it should have to justify itself in Parliament.

Finally, the inflation targeting agreement itself can be changed. Equal weight can be given to inflation and to growth if inflation is within the band. The band could be made asymmetric: + 3 and – 1 around 4%. Since forecasting headline CPI is difficult, core CPI could be made the target.

6. Conclusion

EMs need to discover combinations best suited to local conditions that support catch-up growth from reallocation to more productive jobs. Instead, a strict and narrow type of inflation targeting was initially implemented. Because a threat of outflows and a downgrade from rating agencies supports fiscal conservatism, in the context of FIT and FRBM, there was in effect a switch from fiscal dominance to monetary dominance. Even so, an active central bank with autonomy and the support of foreign investors may still not be able to force the government to implement inflation and deficit reducing policies because adverse movements in growth, and revenues and high interest rates may make it difficult to implement optimal changes in the composition of expenditure. Under a resource squeeze public investment is the first to be cut.

In the Indian economic structure coordination of fiscal and monetary policy works better than dominance of either. Output is demand determined but frequent supply shocks push up costs. The effect of aggregate demand on inflation is limited, since there is a negative output gap. Monetary policy affects demand relatively more than inflation, while fiscal policy has a greater impact on supply-side costs and therefore inflation. Fiscal policy, however, gives more weight to growth and monetary policy to inflation. Thus each can act more effectively on the other's objective.

For optimal coordination during transition policies should work together to shift the AS downward thus reducing the high output cost of a procyclical demand squeeze. Flexible inflation targeting should focus more on anchoring inflation expectations, with supportive fiscal supply-side actions. This would keep the employment sacrifice of inflation targeting low. Policies that work in narrow silos without an overview or sense of interacting parts are

likely to be counter-productive. Good communication can also coordinate markets to better outcomes.

Rates may need to go up or down. Independent of the particular stage of the domestic cycle, a better balance of power will facilitate the required coordination. Possible alternatives to achieve this are discussed.

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