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Slowdown and Crisis in the Indian Economy

A Study of the Macroeconomic Developments between the Global Financial Crisis and the COVID19 Crisis (2011-12 to 2019-20)

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Contents

Abbreviations vi
Introduction 1
Section I: Growth Experience Since 2011-12 5
Official 2011-12 National Income Series 5
Possible Overestimation in GVA11-12? 7
Index of Industrial Production 9
IIP Sectors Since 2018 10
GDP04-05 Series and GVA11-12 Series 14
GVA11-12 Series since 2015-16 15
Exports, imports and electricity 18
Trends in GCF 18
Section II: Credit Growth 20
Section III: Employment from CMIE's Surveys 22
Section IV: Exports, Imports and the Current Account 25
Section V: Investment Expenditure 29
Private Sector Investments 32
Section VI - Trends in Inflation 33
Fractured Agriculture Markets and CPI 34
Section VII - Portfolio and Direct Investments 35
Cumulative Flows 38
Section VIII - Monetary Developments 40
M, H and NFA 41
The "Tiger" Period 43
Impact of GFC 46
"Taper Tantrum" 47
Policy rates and bond yields 47
Uncertainty in the financial markets 49
Section IX – Policy and Analysis 52
Policy paralysis 52
Monetary tightening 53
Positive vibes but underspending 54
Unconditional pursuit of fiscal deficit targets 56

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Scaling down MGNREGS 56
Demonetization and delayed effects 58
Authorities enhancing risks and uncertainty 58
Not external factors 59
Real Estate Construction and Growth 60
Infrastructure, and NPAs of banks in the slowdown 60
The GST Effect 63
Tax "terrorism" 65
Taxes in the growth experience 66
Government expenditure 68
Section X– Reflexive, not Reflective Monetary Policy 73
Inflation targeting experiences 74
Supply side inflation 74
Special case of food inflation in transition economies 75
Chinese High Food Inflation Episode 76
Nature of Inflation in India 77
RBI's inflation "forecasts" 80
Wrong weights for food? 81
Expectations Survey 82
Inflation Pass-thru 85
RBI's Inflation Targeting 86
A Broken Compass (or Is the CPI Useless)? 87
Pay Commission Implementation and Distortions in the Core Inflation 88
Section XI: Transmission Issues 91
Synopsis and Conclusion 93
References 96

Preprint not peer reviewed

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Abstract

In this paper we bring out the performance of the Indian economy, and review the approach of macroeconomic policy especially demand management in the Indian economy. After the shock of the Global Financial Crisis (GFC), India's economy did not dip much due to the well-directed fiscal stimulus by the government early on. The government could persuade an RBI which was still "fighting" a supply side inflation to expand liquidity to at least reverse the sharp fall in liquidity that had taken place due to the contagion and capital flight brought about by the GFC.

However, as the fiscal stimulus was being withdrawn from 2011-12, the RBI tightened to raise interest rates, which from 2012-13 put brakes on the economy. Tight monetary conditions continued almost until 2016. The RBI saw rising inflation not only in the non-core part of the CPI, but also on the core, thereby "necessitating" this counter action, in its view Additionally the RBI also in "defending" the currency kept higher than desirable interest rates. Closer examination would reveal that much of the rise in the core inflation was spurious since it was on account of the house rents "going up" due the 6th Pay Commission award which was first notified for the government employees in mid-2009. The spurious impact on the core would have been as high as 4%. [Even today in the midst of the COVID19 Crisis, the large rise in the core now on account of the delayed 7th Pay Commission implementation confuses not only the RBI but the media as well].

The year 2013-14 also saw the RBI move to "inflation targeting", and to continued lightening which kept interest rates record high and created a large fisher open which attracted expensive gross foreign equity capital inflows, though on a net basis the flows were incomparably small in relation to the period of high growth before the GFC – the "Tiger" Period (2003-04 to 2007-08). The "taper tantrum" saw even further rise in interest rates. More importantly for a period as long as 10 years with only short breaks, the low end bond yields remained well above the repo rate, signifying that the repo windows were prematurely closed and the RBI was de facto carrying out credit rationing as well, negating the repo rates as "policy rates". From 2014-15, and only after the economy had slowed down considerably that the interest rates could begin to come down, and even then the anomaly of the market rates being higher than the "policy" remained.

Inflation targeting brought with it many problems for the RBI and the fact that forecasted inflation (conditional on the RBIs own measures) was always higher than realized inflation by a wide margin, which seriously questions the RBI's approach to monetary policy. Similarly, its expectations surveys are off the mark systematically by a wide margin. Even more importantly the RBI's propensity to react to current CPI inflation than to forward looking core inflation means that financial markets (over the longer term and longer maturity instruments) do not react to even the lowering of the

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low end rates, since this approach of the RBI makes the future very uncertain, and therefore the first leg of the transmission is hurt by the modus operandi of the RBI itself.

Moreover, there is very little support to the RBI's contention that even a supply side inflation needs to fought from the demand side to prevent inflationary expectations from building up, since not only have expectations (correctly measured) not shown any secular trend except downwards, but food inflation which drove everything else during this period, can hardly be affected by demand side measures, since the income elasticity of food is very small, even for a poor country like India now that there are few people below the poverty line. The point that India may be at a phase (encountered by all densely populated countries that pierced the middle income barrier) when the terms of trade need to rise in favour of agriculture, to bring the agricultural sector into the home market in a vigorous way, has missed the RBI

On the fiscal side a variety of measures adversely affected investment, and animal spirits. The 'policy paralysis' during the last years of the UPA government was the turning point. However, with the Modi-I government the large reduction in anti-poverty programmes and especially the Mahatma Gandhi National Rural Employment Guarantee Scheme (MNREGS) allocations, the underspending from the budgetary provisions in the first two budgets of the Modi government (as a side effect of the extreme centralization of power in the PMO), besides the "unconditional" commitment to the fiscal deficit targets, further contributed to the demand decline. From the third year onwards of Modi-I the policy and action uncertainties including those let loose on the automobile sector took their toll. The talk of banning diesel vehicles was highly damaging to the industry, that had just made the transition to being able to meet Bharat VI norms.

From 2012-13 growth had fallen but the official 2011-12 series did not reflect the same. Growth from 2012-13 to 2017-18 could not have been more than 5.5% p.a. most probably under 5%. And the investment growth rate especially of the private sector had all but collapsed. Investment share in GDP came down to a mere 32% of GDP from its high levels of 36 to 37% over the "Tiger" period. Public investment in infrastructure often directed sub-optimally from the productivity and value creating standpoint, was dominant. Private investment saw the longest period of near stagnation, ever since its faster growth from the mid-eighties and its acceleration after the Great Liberalisation (GL) of 1991-92, 92-93. The economy seemed to more than recover from the decline brought about by the demonetization, from late 2017 onwards, but the growth of around 7.8 % over three quarters, quickly gave way to a slow down reaching as low a rate as 3% on the eve of the COVID19 Crisis.

While nearly all the programmes of the Modi government were about increasing public and social value, the poor capability of the government at the organizational, coordination, and strategy and design levels cheated the NDA of transformative second generation reforms. Instead, most of these fizzled out. There was little of the creativity of the earlier National Highway Development Programme (NHDP) nor of the Prime Ministers Gram Sadak Yojyan (PMGSY) under Vajpayee, when the government had the wisdom to accept and implement a well-crafted NHDP that actually came from

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the IDFC. Only the Direct Benefit Transfers were improvements. But even here the realized gains were far below the potential. The task of combining (structural and tax) reforms with macroeconomic demand management in a positive way proved beyond the capability of the government. Thus even excellent and politically difficult reform like the introduction of GST, while largely successful in itself, led to increased effective tax rates (precisely because it improved compliance) adding to the downward pressure on demand, when measures to counter act the same could have been used.

Bank lending, which was always a problem given governmental interference and a "laundry-list approach" to regulation pursued by the RBI, went from bad to worse. Much of the lending during the period of the fiscal stimulus was hurried, and began to worry the PSU banks once the slowdown happened. The slowdown itself contributed to their bleak situation which in turn negatively affected whatever little transmission they could have affected. The delay in their recapitalization affected the Non-Banking Financial Companies (NBFCs) and the real estate sector to create a gridlock on lending. The frameworks for private investment in infrastructure (except in the highways) were inappropriate The external sector was benign but the government hardly used the opportunity of falling oil prices. This was because of its single minded pursuit of reducing the fiscal deficit often with the limiting perspective of managing a family budget. An entirely uncoordinated and knee-jerk approach, and literal interpretation of the prime minister's slogan and programmes, by the bureaus meant that many ambitious programmes hardly went beyond tokenism. The steady growth of the world economy did not positively affect India through export growth, as much as it could have, since real effective exchange rates continued to be high relative to its competitors in East Asia that now included Vietnam.

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Abbreviations

AFC	Asian Financial Crisis
BHEL	Bharat Heavy Electricals Ltd
BJP	Bharatiya Janata Party
CAG	Comptroller and Auditor General of India
CBDT	Central Board of Direct Taxes
CENVAT	Central Value Added Tax (of the Centre before GST)
CMIE	Centre for Monitoring the Economy
CPI	Consumer Price Index
CRR	Cash Reserve Ratio
CSO	Central Statistical Organisation
EO, CMIE	Economic Outlook (data base of the CMIE)
FSI	Floor Space Index
GCF	Gross Capital Formation
GDP04-05	The older GDP series with 04-05 as base year
GFC	Global Financial Crisis
GQ	Golden Quadrilateral
GST	Goods and Services Tax
GSTIN	GST network
GVA11-12	The new series with of National Income with 11-12 as base
H	High powered money
HRA	House Rent Allowance for Government and Public Sector workers
ICOR	Incremental Capital Output Ratio
IDFC	Infrastructure Development and Finance Company (which for a while before it turned into a bank to lead private capital into infrastructure)
IIP	Index of Industrial Production
ILFS	Infrastructure Leasing and Financial Services (Leading lender and market developer for private infrastructure investments)
MCLR	Marginal Cost Based Lending Rate
MFA	Multi Fibre Agreement
MGNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme
MIO	Market Intervention Operations
MSPs	Minimum Support Prices
NAC	Non-Agricultural Clearance
NAIRU	Non Accelerated Inflation Rate of Unemployment
NAS	National Accounts System
NBFCs	Non Banking Financial Institutions
NDDB	National Dairy Development Board
NHAI	National Highway Authority of India
NHDP	National Highway Development Programmes
NPAs	Non-Performing Assets (of banks)
NSSO	National Sample Survey Organization
OMO	Open Market Operations
PMGSY	Prime Minister's Gram Sadak Programme (Village Roads Programme)
PMO	Prime Minister's Office
PSBs	Public Sector Banks
PSFIs	Public Sector Banks and Financial Institutions
PSU	Public Sector Undertakings
PVSBs	Private Sector Banks
RBI	Reserve Bank of India
REER	Real effective exchange rates
RERA	Real Estate Regulatory Authority
SBI	State Bank of India
SLR	Statutory Liquidity Ratio
VAT	Value Added Tax (of States before GST)
WPI	Wholesale Price Index

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Sebastian Morris[1]

Introduction

Following from the stabilization and reforms of the Narashima Rao government in 1991-92 and 92-93 (hereinafter referred to as the "Great Liberalisation" (GL)), the undoubted success of India's economic performance had given confidence to policy makers that enhancing the pace of growth was possible. While the "reforms" or the structural changes (most of these amounted to removing controls and liberalizing the economy) has attracted attention, the underlying macroeconomic initiatives ("stabilization as it was then called) have been discussed only among a few. While "reforms" or structural changes which go down to industrial and trade policies, as also sectoral reforms are necessary, they in themselves require the right macroeconomic umbrella to be successful. The crucial role of macroeconomic management in enmeshing with reforms /policy changes of a structural kind is often missed or underplayed. Observed variations in growth tend to be attributed to external shocks and to "reforms" and related actions, rather than to the internal macroeconomic policy stances and actions. A few studies have examined the macroeconomic stances though[2].

The Global Financial Crisis (GFC) had itself followed a period of the highest growth ever achieved by the Indian economy of 8.5% p.a., over a period of 5 years from 2003-04 to 2007-08. [Hereinafter we call this period the "Tiger period" since the economy came close to expanding like the East Asian Tigers]. The quick recovery of the economy after the GFC, created the myth in certain circles within the country that somehow the economy in India is "shielded" from the rest of the world. Similar statements were made about China as well, given its quick recovery from the GFC. While it was true that little of the Indian financial sector was exposed to the sub-prime assets, the economy could have been affected deeply had it not been for the macroeconomic counter actions that quickly followed the crisis.

Active and powerful financial and monetary counteraction in both China[3] and India had kept the growth rates up[4]. And similarly it was inter alia the willy-nilly monetary

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[2] Kapur and Mohan (2014), Nagaraj, R. (2013), Morris, Sebastian (2012) have been some of the exceptions.

[3] Yongding (2009) brings out the elements of China's very large monetary and fiscal counteraction.

[4] Quickly though there was recognition that it was the macroeconomic counter action by both China and India that made them get off the block quickly leaving the GFC to create a very short period deceleration. Kamrany, Nake (2011) writing in the HuffPost clearly identified China's quick recovery to the stimulus of $586 billion, a la the Great Depression response of the crisis.

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expansion from 2004-05 onwards that the high growth pressure before the GFC, in what we have called the "Tiger Period" that pushed the growth to high levels, although that pressure has not been generally recognized[5]. And these aspects are not adequately appreciated today when the demand side has been weak. Often the action to spur demand is seen as a "crutch" to be avoided at the highest levels of policy making. With the thinking of many policy makers rooted in the microeconomics of individual behavior, these statements that pooh-pooh the role of exchange and interest rates, and tax policies is not surprising. Macroeconomic policy is seen by many as being ephemeral. While it is true that macroeconomic policies without a strong structural foundation can do little, neither can reform or structural policy changes in themselves when they are misaligned with the macroeconomic policy stances.

If reforms have to be successful, then macroeconomic policies have to be supportive. The aspect of the coordination between monetary and fiscal policy has drawn the attention of scholars and central bankers in recent times in the advanced countries. In an emerging economy besides this coordination, there is the aspect of coherence between reforms and macroeconomic policies, which leads to the idea of strategic macroeconomic policies.

The tom-toming of India as the fastest growing economy especially since 2014-15, after which China had slowed down to about 6.5% from its searing pace earlier, swamped many indications that growth had actually slowed down, much before, perhaps from as early as 2012-13. The popular discussions have missed the point that macroeconomic policies, whether by design or accident, acting through the demand side, account for a large part of the variations in growth. The supply side has a natural intuitive appeal, among many that includes civil servants, politicians and even many economists, so that the myth of 'reforms' (alone) as the principal driver of growth has arisen. The role of external shocks is typically recognized, but not that of polices that affect demand. Even in academic circles in India, the numbing of minds with regard to demand management i.e. macroeconomic policies over the long years of the reign of equilibrium economists has also meant that the current obvious slowdown, even before the COVID19 Crisis did not bring to the fore the demand side of the story.

To the author, the fact that China was able to survive and come on top of the Global meltdown since 2007, seriously questioned the neo-classical synthesis concerning macroeconomic stability management. Mundle, Sudipto et al (2011) arrives at much lower figures for both India and China, as part of a study of the response of G20 countries. The report also called attention to need for raising other expenditures when the fiscal stimuli were to be withdrawn, which otherwise would put a demand depressionary pressure on the world economy since many within the G20 had given significant stimulus to their economies, with varying effects

[5] Nagaraj, R. (2013) though recognizes the key role of credit expansion. However, the central bank was all long trying to control the money supply with conservative growth assumptions, that were belied due to the positive real economy shocks and the spending multiplier effect of the Golden Quadrilateral (GQ). It is only when the limits of sterilization were reached that the money supply expanded to higher levels well into the middle of this period. Even then the RBI came back with strong responses of reducing the money multiplier, and then giving up the accommodation of the vast inflow pressure. In any case the growth in this period as we will argue was eminently sustainable and not inflationary- the visible inflation being almost entirely due to a supply side inflation, and partly due to spurious measure of the core inflation.

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Attention has almost exclusively been focused on the microeconomic side for example the failure of the NBFCs, or the delays in reforms, without recognizing either the macroeconomic roots of the financial sector's woes or the multiplied impact of the same on demand.

Here we bring out the causal influences on the economy, separating them into those emanating from shocks, and those due to macroeconomic policy actions (and in-action), in response to shocks or otherwise. We also at some length consider structural policies and reform efforts, in their actual unfoldment. Reforms potentially can affect growth acting through both demand and the capacity to produce[6]. When demand is enhanced with rising investment rates, which has the additional effect of adding to capacity after a lag of a few years, there is always the potential to fine tune and compose the same to lay out a smooth path for structural reforms to work. Actually all macroeconomic analyses have to integrally consider the policies and structural reform measures that could change the capacity to produce. The demand and the capacity to produce have to be seen as being two legs of the movement of the economy to higher and higher levels of output.

Even 'excellent' reform can fail, if the demand side contracts as a result, or being ill timed in being taken up when there are demand shocks which are not compensated for. Similarly some reform can be inflationary and would have to be accompanied by demand reducing measures to prevent rising inflation. And as such we attempt to address the important issue of how reform measures, including sectoral and trade policies, to the extent they constitute "regime" changes, have affected the growth patterns acting though both the capacity output, besides aggregate demand.[7]

[6] It is the capacity to produce that should be seen as being equivalent to the "full employment level of output" or the "Non-Accelerating Inflation Rate of Unemployment" (NAIRU) of text books. Given the existence of vast disguised unemployment, and disguised employment as well. Conventional measures of unemployment are likely to be misleading for the purpose of macroeconomic management in the short to medium term. When output exceeds the normal expected usage of capacity (what we have called capacity output), then with a substantial lag we can expect core inflation to rise, or to fall when substantially below.

[7] The treatment is based on the understanding that the macroeconomic "equilibrium" is merely that of markets clearing over the short period of a quarter or so. There are only slow and long drawn processes that move the economy to capacity (or full employment) output, necessitating in the more pronounced cases of deviation of the actual output from capacity output, of intervention to push the economy towards such an "optimal" usage of resources. In the emerging economy context, there is also the issue of strategically enhancing the capital stock since there is ample labour, and hence of reforms and structural changes that can act on the capacity side as well. We avoid the tenets of "policy irrelevance" that had become fashionable with the rise of the New-Classical economists in academia. The GFC and the direct results of the policy actions, put in place during the GFC, have further reiterated the empirical weaknesses of these approaches. Their micro-foundations agenda while well intentioned, was subverted in much of the analysis of New-Classical economists, due to the illegitimate extension of arguments and behavior true of individuals to the collective, in a simplistic manner that suppressed their interactions (or compositional effects). This was the consequence of adopting the approach of the "representative individual" without worrying about their internal interactions, even when it could be conceded that all individuals behave

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The period from 2011-12 has been considered in detail. There are a few analyses on the experience in the run up to GFC, and some aspects of this high growth, relevant to the later period are also considered. [8]

In Section I we review the growth experience in detail. We have used graphs to package the many dimensions of the growth experience together. The section also reviews the earlier period of high growth ("Tiger" period), and the GFC as well, to the extent that these periods frame the period under consideration. The causal factors in the form of external shock, and macroeconomic policy and responses to the shocks have been brought out. Because there is a controversy around the new 2011-12 GVA series of National Accounts, many more indicators than what would have been usual have been covered to bring out the experience in the period immediately following the GFC. In Sections II, III, IV and V we cover the experiences of credit growth, employment, exports and imports, and investment expenditure.

In Section VI we review the trends in inflation (changes), and the forces behind the same breaking these down to supply side (exogenous) and to demand - capacity output imbalances. In Section VII we bring out the trends in portfolio and direct investment, and relate the same to changes in global liquidity, growth and interest rates. In Section VIII we comprehensively review the monetary developments to uncover the intended and unintended consequences of the actions of the RBI and their effect on demand especially investment demand.

In Section IX we gather together the elements to draw a consistent picture of the growth experience since the GFC, relating the same to shocks, macroeconomic policies, and the intended and unintended consequences of structural reform like the GST, the pursuit of a number of programmes to improve governance, and other measures like demonetization. The focus here is on the fiscal and structural side with the demand side providing the backdrop. In the last Section VI, we argue that monetary policy has been reflexive, and doctrinaire, rather than attempting to relate to the real facts and features of the economy including its current historical situation. We argue that inflation targeting which is particularly difficult for emerging economies, where the aspect of supply side inflation is large and not always benign, has proved particularly problematic for the economy.

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rationally. Hence these approaches could not have given results other than efficient equilibrium i.e., the full utilization of resources. In other words, while individuals can and should be modeled as being rational, markets and economies cannot be assumed (or finessed through the representative individual) to be –they have to be shown to be so after taking into account their interactions.

The older more traditional approaches in having behavioral functions cast at the aggregate level, while "theoretically" incomplete, but being true to the real economy, informs our approach. There is little point in working with elegant models that have little empirical support. We are particularly aware of the pitfalls that treat government budgets on par with private budgets. We also understand that the price adjustment mechanism is long drawn out, not so much because there is stickiness in sectoral markets but because, compositionally quick price adjustment is ruled out when there are competing profit maximizing entities.

[8] Nagaraj (2020) comes the closest to putting out an analysis, and has already highlighted some of the aspects that have been covered in this paper.

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In Section X we bring out the limitation of the RBI's approach of inflation targeting, and in Section XI we consider the problem of monetary transmission.

We bring out the various aspects that reflect the working of the state and the macro economy and of the policy/ actions through graphs as much as possible. For variables like GDP which are non-stationary, normally the growth rates have been plotted. Variables like interest rates, policy rates which are stationary in themselves, we use their direct values.

Everywhere we have used the log growth rates, i.e. difference of logs of YoY whether for monthly, or quarterly data, to avoid spurious asymmetries as when on a recovery versus a slowdown. Since the period considered has seen changes as much as 30% over the year in certain cases, use of this measure is important. Given the problem with the official national income data for the first five to six years or so since the new series was put in place, the discussion necessarily involves a longish section to bring out the actual growth experience. Since the focus is on the macroeconomic, wherever possible the quarterly and monthly data have been used. But long time series with the same base is difficult, and moreover the period spans 2010, 2011-12 when changes were made to the price, production indices, and national income series so that multiple measures have often to be considered. All these considerations have expanded the number of series that have been looked at [9] but we hope that one serious about understanding macroeconomic trends, and policy would persist.

Section I: Growth Experience Since 2011-12

Official 2011-12 National Income Series

Official figures of GVA11-12 show a pick up from 5.31% in 2012-13 to 7.83% in 2015-16, before it declined over the next two years. See Table 1, for the quarterly growth figures for the main economic sectors based on the latest GVA 2011-12 series. See also Table 2 Rows B which give the annual growth rate since 2012-13 based on the new GVA11-12 series. Similarly, in the case of manufacturing we observe a peak in 2105-16 before a decline.

From Figure 1 which graphs the quarterly growth rates using GVA2011-12 we observe manufacturing to pick up from the low growth registered in 2011-12 to a high point that was reached in 2016(1,2,3) from where it declined. See the line GVA11-12. The broad trends are in keeping with the expectations that the demonetization whose effects were immediate and had begun in the first quarter of 2017 itself, slowed down

[9] Much but not all of the data has been sourced from the Centre for Monitoring the Indian Economy's (CMIE's) Economic Outlook, a most convenient compilation of Indian data. Direct Government sources are messy, scattered, unfriendly to the electronic world and about as difficult to download and use as can be. The time series aspect, is not something that most government departments are bothered about, given the immediacy of almost all the demands put on senior civil servants.

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the growth. The recovery in 2017(4) and 2018(1,2) proved short lived. Manufacturing shows a recovery centered around end 2015, but fell off from there except for a bounce back from the effects of the demonetization, in early 2018.

Table 1

Growth Rate (Exponential) of Main Sectors Based on GVA11-12 Series				
Year: Quarter	GDPMP	GVA Services	GVA Agriculture	GVA Industry
2012:2	4.8	8.8	1.5	1.6
2012:3	7.2	8.8	1.9	5.5
2012:4	5.2	7.9	1.0	3.4
2013:1	4.2	6.5	1.7	2.5
2013:2	6.2	7.8	3.8	4.7
2013:3	7.1	9.1	5.3	3.7
2013:4	6.3	7.4	6.4	4.0
2014:1	5.2	5.2	5.6	2.6
2014:2	7.7	8.1	2.3	9.0
2014:3	8.3	9.5	3.4	7.5
2014:4	5.8	11.3	-3.1	4.1
2015:1	6.9	8.6	-1.3	6.4
2015:2	7.3	8.6	2.3	7.8
2015:3	7.7	9.4	2.7	7.6
2015:4	7.0	8.8	-2.2	10.5
2016:1	8.7	9.2	1.1	10.7
2016:2	8.3	10.1	4.8	8.7
2016:3	9.2	8.7	6.0	7.4
2016:4	8.2	6.9	7.1	7.9
2017:1	6.1	6.7	7.9	5.8
2017:2	5.6	8.1	5.4	0.6
2017:3	6.3	5.6	5.9	6.5
2017:4	7.4	7.2	5.0	7.4
2018:1	7.9	5.9	6.9	9.8
2018:2	6.9	7.2	3.8	7.2
2018:3	6.0	7.2	2.5	4.7
2018:4	5.4	7.1	2.0	4.9
2019:1	5.5	8.3	1.6	2.5
2019:2	5.1	5.4	2.9	4.1
2019:3	4.3	6.3	3.5	0.5
2019:4	4.0	5.5	3.5	-0.3
2020:1	3.0	4.3	5.7	-0.6
Memo(2012:2 to 2014:1)	5.8	7.7	3.4	3.5
Memo(2014:2 to 2016:4)	7.7	9.0	2.1	8.0
Memo (2017:1 to 2019:4)	5.9	6.7	4.2	4.5

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Figure 1

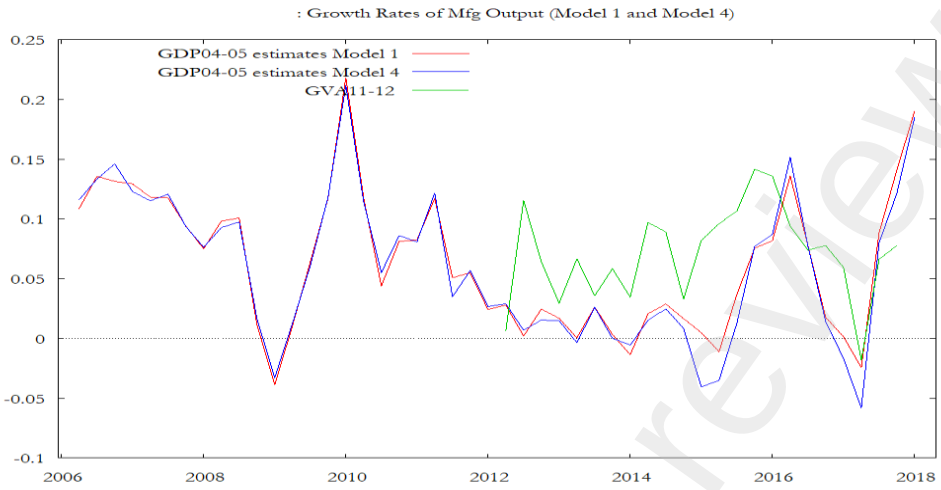

Table 2

Growth Rates (Exponential) of Sectors of National Income (Estimated GDP04-05 and GVA11-12) at Constant Prices (% per annum)							
		2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Manufacturing	A	1.66	0.44	0.22	3.56	5.66	8.21
	B	5.40	4.89	7.54	12.01	7.64	4.21
All Sectors	A	4.98	4.59	4.99	8.07	7.84	5.41
	B	5.31	5.90	6.93	7.83	6.86	5.92
A- Estimate growth rate of GDP04-05 (extended) at constant prices; B- Growth rate of GVA11-12							
Source: Adapted from Morris and Kumari (2019), Table 4							

Possible Overestimation in GVA11-12?

However these trends especially those pertaining to the first four to five years since the introduction of the new series 2011-12 have been questioned by several scholars, including the former Chief Economic Advisor.[10] Other scholars even earlier had been pointing to the anomaly[11]. In an exercise to forward project the GDP04-05 series using physical correlates of the same the difference between the GVA11-212 and the older series are brought out for the period from 2011-12 to 2012-18. The difference between the old (04-05) and the new (11-12) series over a period of nearly 15 months for which we have estimates of both, there is a clear difference of 1.3% implying that

[10] The Economic Survey of 2014-15 had cast doubt on the high growth. So also did the 2015 report of the RBI. RBI (2015). Morris, Sebastian and Tejaswi Kumari (2019), and Subramanian, Arvind (2019) also question the official figures and bring out alternative estimates of the growth rates. See also Nagaraj, R (2015).

[11] Morris, Sebastian and Tejaswi Kumari (2019).

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the new series at least in the initial years of its introduction may have overestimated the growth. See Figure 1 again which brings out the projections using two models of GDP04-05 forward.

The projections are far more reliable for the early years. They show an overestimation of the official series for the years 11-12 to 15-16 after which there is better correspondence. See Table 2 again. Two alternate models based on somewhat different sets of correlates give similar results for projecting the manufacturing sector based on correlations with the indices of industrial production. Hence there is a need to go beyond GDP or GVA of 11-12 in arriving at the growth estimates for India. Thus we have to take recourse to many indicators of performance and piece them together

For manufacturing GDP/GVA, the trends are as follows: From the high bounce up[12] growth of nearly 15-12% reached in the third and fourth quarter of 2009 there has been a fall to about 10% over 10-11. 2011-12 the new series shows a higher growth of 6.5+ % from 11-12 up to 14-15 over which the growth may well have been in the low 5% at best. Most probably they were below 4.5% as has been contended by the former economic advisor. 2015-16 may have been a year of recovery with growth rising to about 9-10% over the second and third quarters, but falling sharply in the last quarter of 2016-17 after the demonetization of Dec 30, 2016. A bounce back has most certainly happened after that in early 2018, which may have been short lived. See Figure 1 again.

For another important and "tangible" sector where the projections of GDP04-05 could be made viz., Trade, Transport, Storage and Communication, we see similar trends and direction, but with no bounce back from the demonetization. In 2011-12 the growth had collapsed to about 4-5%, which does not show up in the new series. However, both the new and the old series shows the decline in 2012-13, the old series shows a sharper improvement thereafter, while the old shows a slow down to about 3.5 to 4.5% to 2013-14, after which the old series too shows a rise, and then a sharp fall due to the demonetization, from which there is no recovery in the extended old series. See Figure 2. In this case too, the extension of the old series is quite reliable since old series over the period that it available correlates very well with the physical measures.

Thus we would suggest that since 2010-11 the GDP growth led by manufacturing fell thereafter, to fall sharply with the demonetization and to a bounce back immediately thereafter, which was however not sustained.

[12] As we will see later, the stimulus in response to the GFC was strong, and may have been marginally overdone, to push the growth to over 8.5 % closer to 9 in the first two years of the stimulus.

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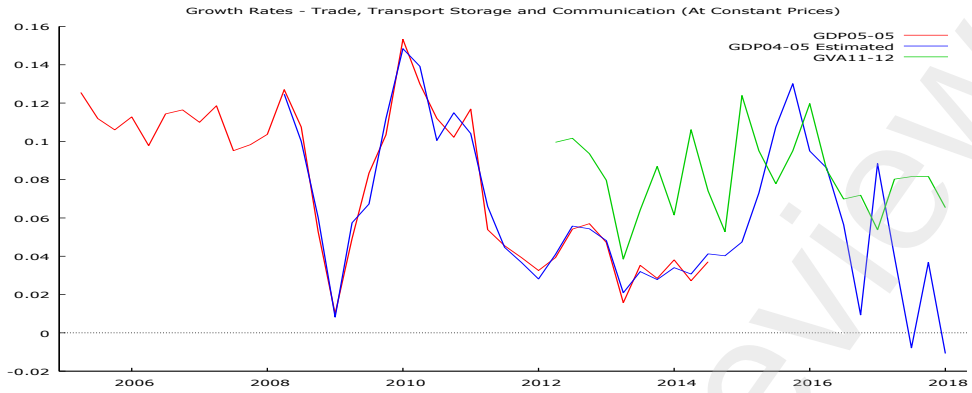
Figure 2



Index of Industrial Production

Since the Index of Industrial Production (IIP) is based on the physicality of output, it is far more reliable as an indicator of the performance of the industrial sector (IS) given the controversies surrounding the GVA/GDP 11-12 series. In any case the index and the subsidiary indices have value in themselves.

The performance of the industrial sector (IIP IS) over a longer period shows that the since the GL, manufacturing growth was at its lowest ever during the period of slow-growth from early 1997-98 to 2002-03, that followed the Asian Financial Crisis (AFC). This was a period when private investments had already slowed down, and the high growth in exports that followed the reform, and the depreciation which was part of the stabilization package, had given way, as the rupee in real effective terms had appreciated from its levels in 1993-04. Indeed, the economy had slowed down before the AFC. (Morris 1997). The AFC with its contagions and the RBI's response of tightening to raise interest rates to fight the contagion brought down private investments even further. A slowdown of the world economy along with the appreciation kept exports on the slow path.

Since 2011-12 the older IIP (Mfg.) shows growth that is probably around 2% whole the new IIP shows a modest 5% up to 2017-18. In contrast the IIP had shown a high growth of around 10-12% in the first four years since the GL and about 12-20% since the economy recovered with the fiscal push provided by the GQ from 2003-04 all the way to the eve of the GFC. The GFC saw a very large fall but a quick recovery as well as the government put together a large fiscal stimulus that encompassed tax cuts, and record spending on infrastructure and MGNREGS, which lasted till 2010-11, when an annual growth of 9% was reached. The "Tiger" Period as well as the period of around 2 and a half years that followed the GL were periods of high growth of the manufacturing sector. The period of the fiscal stimulus after the GFC was also one of high growth though short lived. See Figure 3. A disproportionately large part of the variation in GDP as a whole can be expected to arise from the manufacturing sector second only to agriculture. Since the stimulus was given up the IIP has been on the decline, falling to near negative levels from 2012(Q2) onwards right up to 2015 and

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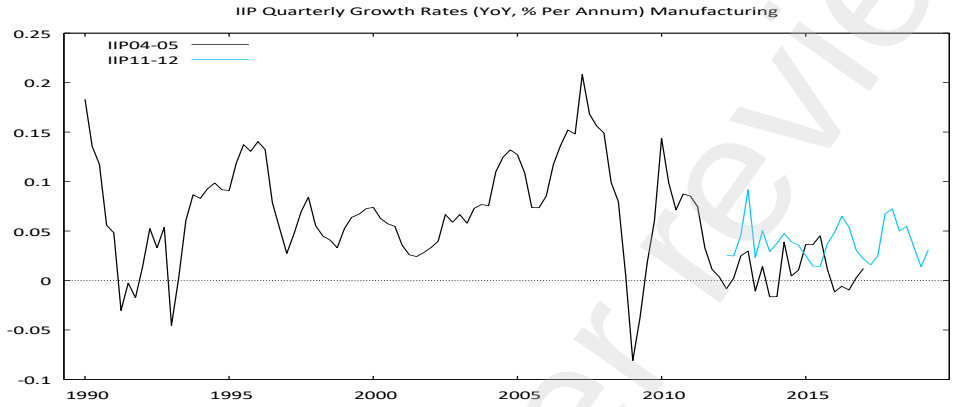
rising again in 2016, only to be rudely shocked by the demonetization. There is a recovery from the demonetization, only to fall again. Going by the new series, the average growth rate going by the newer series from around 2012(Q2) to 2019(Q2) is only about 4.75% in contrast to the high growth of around 8-9% during the stimulus period and much higher during the "Tiger" Period.

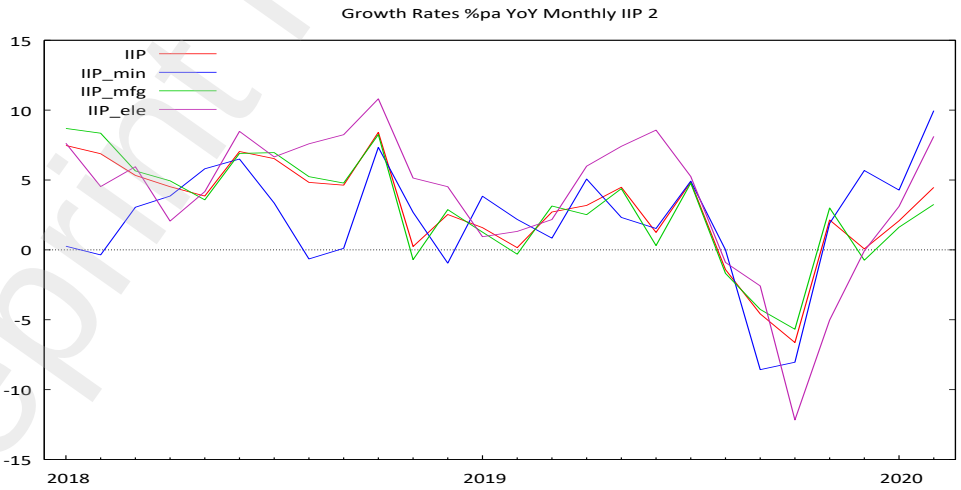
Figure 3



IIP Sectors Since 2018

We have information for the first two months of 2019-20 and the first month of 2020-21. The IIP shows a recovery led by mining and electricity but manufacturing remained muted at less than 4% with the overall IIP growth having reached 5%. See Figure 4 and Figure 5. We see that the recovery in the sense of a positive growth was confined to primary and intermediate goods of the IIP. Capital goods growth which remained negative did recover to -8% from the -20% that it had reached in August and September of 2019.

Figure 4



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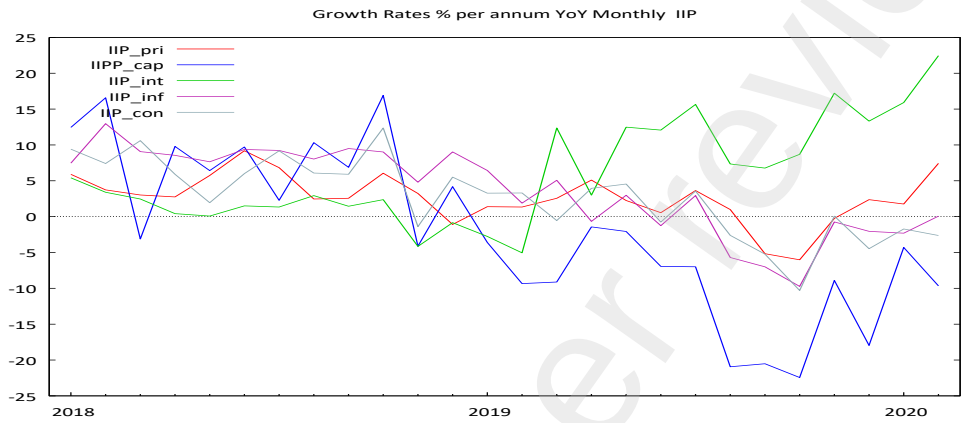
The muted "recovery" if we may call it that was most certainly due to the increased spending on the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) in the build up to the 2019 elections which had started in early 2019. The spending on roads and infrastructure that continued even after the elections pulled up the infrastructure sectors as well as the intermediate goods sectors –especially steel and cement.

Figure 5



See Figure 6. The consumer goods sector despite the demonetization had been holding up at around 5-8%, till early 2019, but thereafter fell off to growth under 5% turning negative over the last four months or so of 2019, to weakly improve but remain negative or near zero thereafter till February 2020. Consumer durables though fell to negative growth after the bounce back from the demonetization. The delay in the impact of the demonetization on consumption, especially on nun-durables, is at first consideration puzzling, but not really so when we recognize that despite its very large effect on the real economy and the financial sector, it was seen as positive. The vast majority of petty traders and producers believed that the adverse effect would be only temporary. To the middle classes it was also projected as an "opportunity" to participate in a revolution to make India "corruption free". As a result, petty producers and traders when their business incomes declined did not reduce their consumption right away but waited quite optimistically for their businesses to bounce back, with increased vigor perhaps. Only when it became clear by late 2018 or early 2019 that it would not, did the consumption began to fall.

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Figure 6

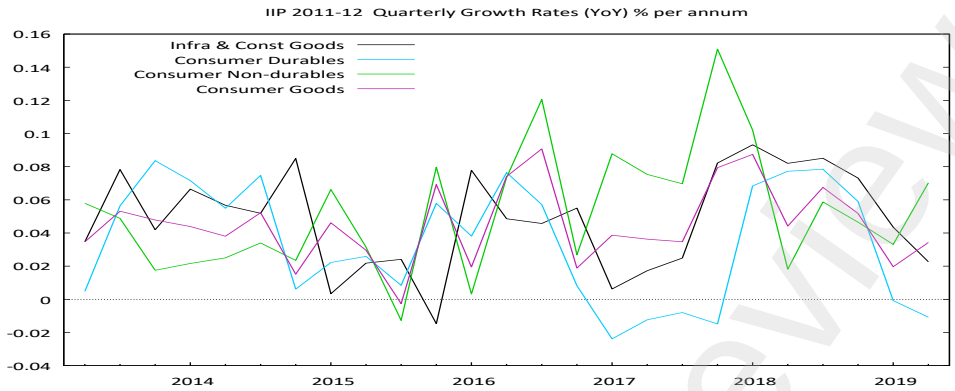
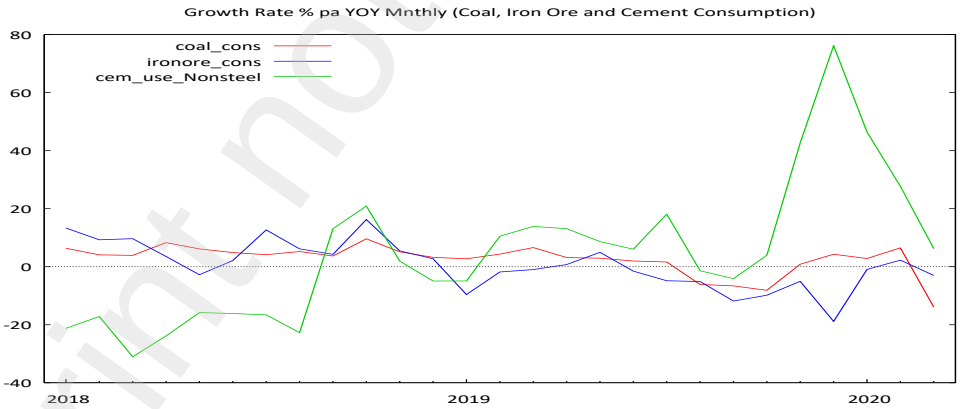


Figure 7 brings out the growth in consumption for important intermediate goods in the economy. Observe that non-steel cement use growth had fallen in 2018 , as the investment rate had fallen, and gross capital formation rate grew much slower at less than 4% on an average since then, and had fallen to even lower levels with the demonetization, rose to reach levels closer to 10% in early 2019 and end 2018, as in the run up to the election and thereafter cement demand went up with the increased spending on roads. This peaked in Dec 2019 (to a record 60+% growth on YoY monthly basis and Jan 2020 only to fall in Feb 2020 before the COVID19 Crisis). The large increases in government spending on roads is the cause, through drift in seasonality could have contributed as well. Iron ore and coal consumption too have been low and falling since 2018.

Figure 7



The trends are seen in the IIP growth for the Motor Vehicles, the most important of all manufacturing in India. The large increase with the fiscal stimulus is evident. See Figure 8. In this case, the growth had already reached a low level by the time the fiscal stimulus was given up and revived only by late 2014 weakly. In the new series the growth is even weaker till 2017 and rises after that in 2018 only to give way. There does not seem to be an immediate and direct impact of the demonetization in either of the IIP Series, though by then the growth had slowed down considerably.

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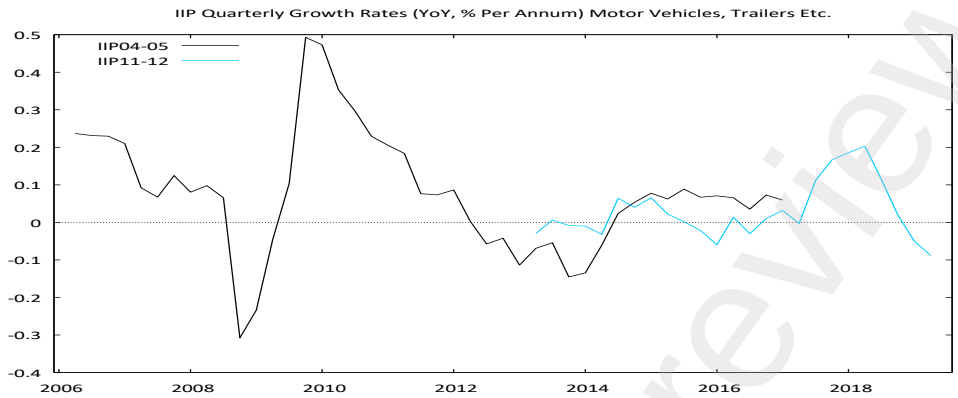
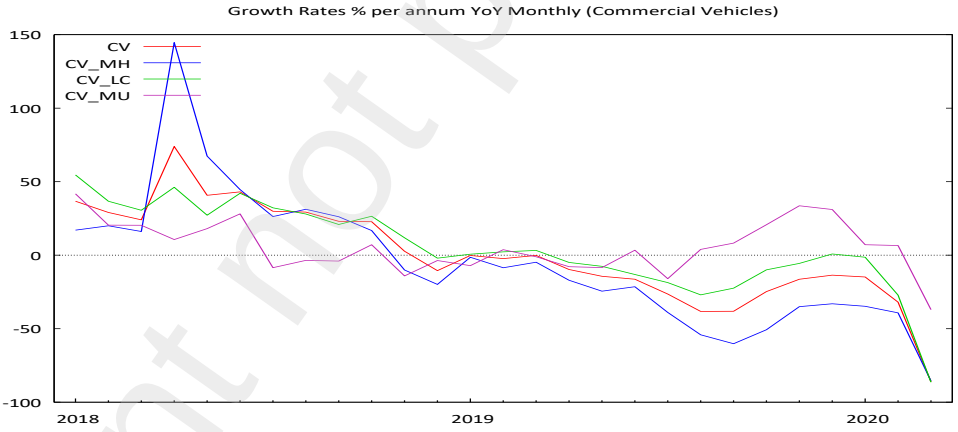
Figure 8



For Commercial Vehicles 2018 was a period of high growth with large variation over the segments. From those high levels the growth had fallen to nearly zero by end 2018 and never really recovered. Medium Sized vehicles show a significant increase during end 2019 as the public spending on roads went up, but since then have collapsed with all two segments registering negative growth, and all collapsing with the COVID19 crisis See Figure 9.

Figure 9



In the months of January, February and March (COVID19) the growth rate collapsed to reach a low of -85% when nearly all economic activity was brought to a standstill.

Container movements especially of domestic containers shows broadly the same trends, the secular decline after the brief restitution from the demonetization, with only a blimp of a recovery due to the spending increases just before and after the general elections. See Figure 10 .

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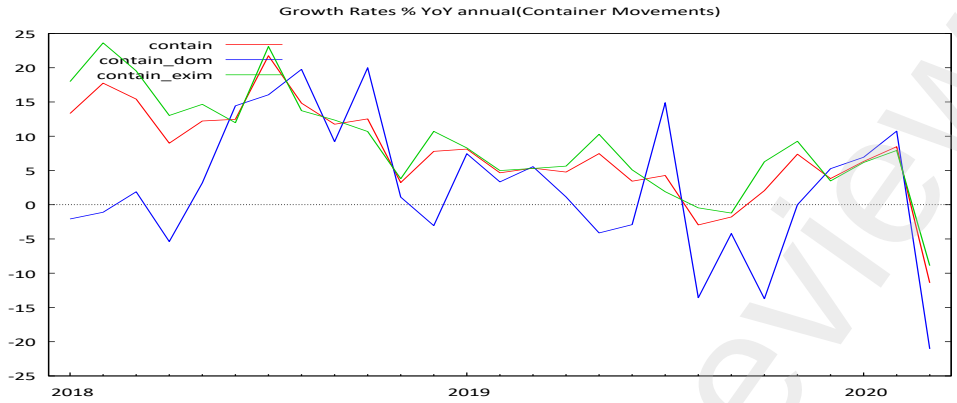
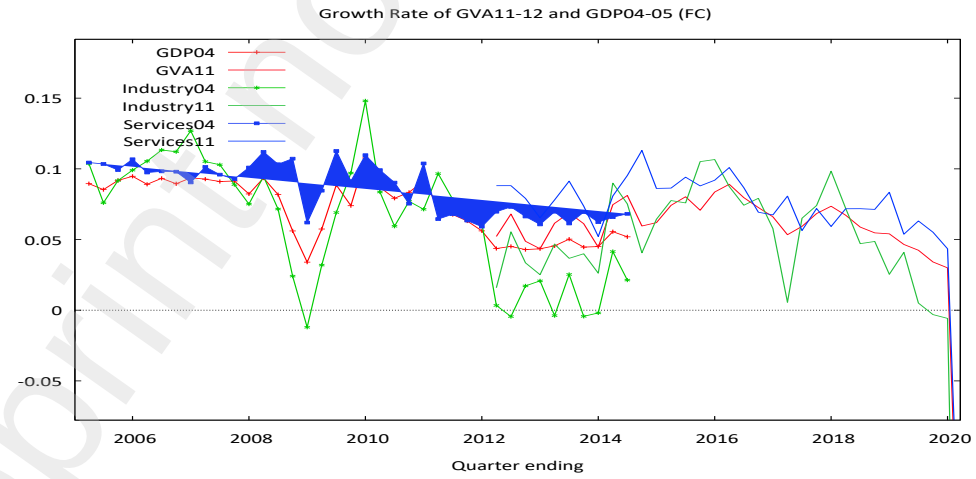
Figure 10



GDP04-05 Series and GVA11-12 Series

The recovery from the GFC was sharp and beyond doubt, and may have resulted in a growth of more than 10% in one quarter 2010(4). Overall, if the entire 2 years 2009-10 and 10-11 are considered, a growth of around 8.5 % marginally less than the growth over the "Tiger" period before the GFC, was regained. Once the stimulus was given up and the monetary tightening also started, the growth fell off to 5% in 2012(1) and remained at that level till 2014(3). The 11-12 Series shows a pick up from 2014 to 2017 at about 6.5 to 7% which perhaps is overestimated; since over the period of overlap of the two series, there is a clear difference of 1.3% between the two. From 2015(4) onwards, there is a decline with a local dip and rise to quarter after demonetization and thereafter. See Figure 11. Recall the earlier discussion on overestimation as well.

Figure 11



We see the same trends for industry and services as well, though the rates of growth for services are generally higher than for industry. Also the dips during the GFC and the demonetization are far deeper for industry than for services, as is only to be expected. Additionally, the dip after the withdrawal of the fiscal stimulus is deeper

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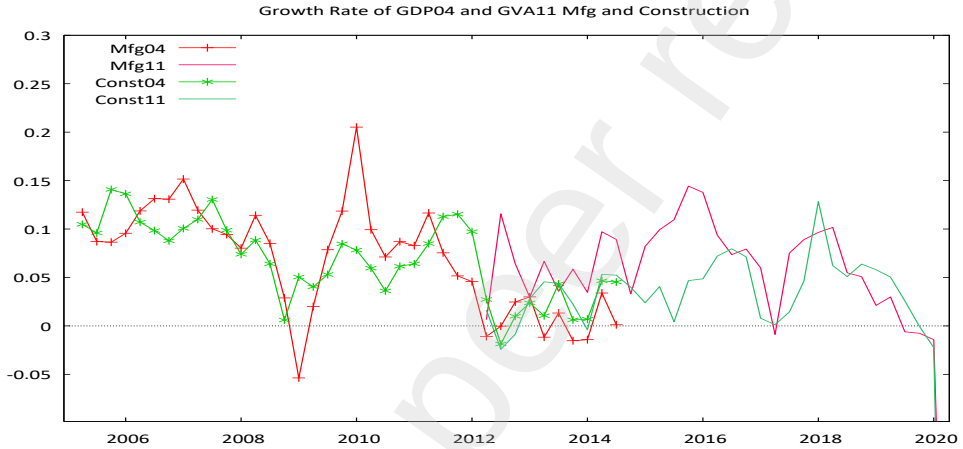
and longer for industry with the growth having hovered around 1.5% or so from 2012(1) to 2014(1) i.e., for over two years. The difference between 04-05 and 11-12 Series is much higher in this case. In the case of manufacturing the difference is sharper as may be seen from Figure 12. The trends are similar to those of industry as is only to be expected. For construction, where the difference between the old and the new series is not much, the slowdown from 11-12 lasted until 2015, after which there is partial revival to reach 7.5% in 2016(4) and a dip and a recovery from the demonetization which had brought construction to a near halt. The fall off from 2018 is to be observed in the case of manufacturing, construction in the GVA11-12 series as well. We see the trends over the period from 2015 in greater detail below.

Figure 12



GVA11-12 Series since 2015-16

Looking at the GVA11-12 in constant price terms (GVA excludes indirect business taxes, in the sector and is akin to GDP at factor cost) we observe that both GVA and GDP after dipping to almost 5.5% due to the demonetization, recovered to 7.5 to 8% in early 2018 only to fall steadily since then to 3% in the quarter ending March 2020. There is a rise in the growth of the services sector in early 2019, from which it had fallen. However, the services sector shows a rather steady growth from 2017, without a dip due to the demonetization. We had earlier questioned the 11-12 series for the period from 2011-12 to early (2018) pointing to its overestimation in relation to the earlier GDP04-05 series.

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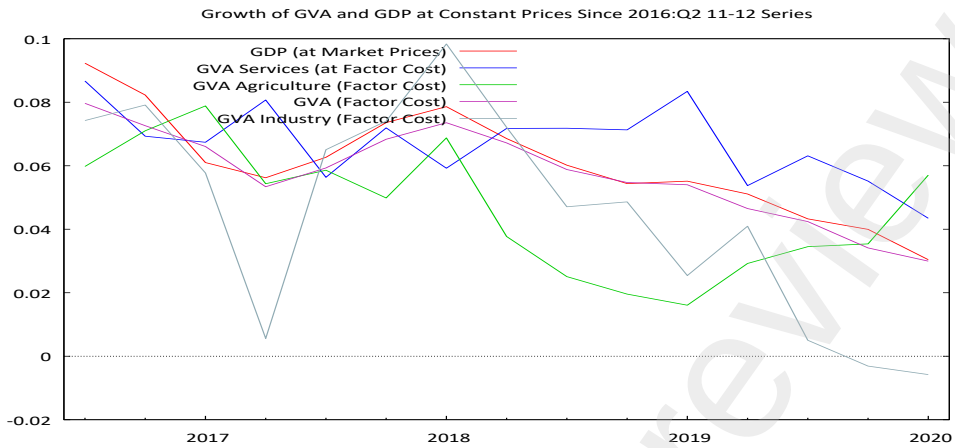
Figure 13



So while we are not sure of the rates (they could have been lower), we could not be in error to accept these as being close to the upper bound of the growth level that the achieved over the period from 2011-12 to late 2016. Industry (as in the IIP which is examined later) shows a sharp decline due to the demonetization, a recovery from there in early 2018, and an unrelenting collapse thereafter. See Figure 13.

GCF and exports show the sharp decline since 2018 to reach negative growth levels by early 2019[13]. See Figure 14. Private Final Consumption Expenditure was somewhat steadier. It does not show the deep fall that one would have expected with the demonetization. However, there is a fall of nearly 2% levels immediately prior to the demonetization to about 5-6%., that it remained at until the late 2018 after which there is fall to a low 3% in the first quarter of 2020. See Figure 14.

Government Final Consumption Expenditure rose steeply in the aftermath of the demonetization to more than 15%, to fall back to its trend of around 8-10%, to rise again in the run up to the 2019 election. Since mid-2019 it was possibly the only item of expenditure that has been keeping the demand side from a steeper collapse in the latter half of 2019-20, as the financial crisis deepened in the economy. Exports which are not a reflection of demand conditions at home, show a fall largely due to the continued non-competitive exchange rates and the disruptions due to many uncertainties. Buffalo (beef) exports were rudely interrupted by the "Cow Vigilantism" and the draconian restrictions imposed on the movement of cattle.

In short all major expenditure items, except Government Final Consumption Expenditure (Govt. FCE) since 2018 have slowed down.

[13] We will the trends in exports and imports in greater detail later.

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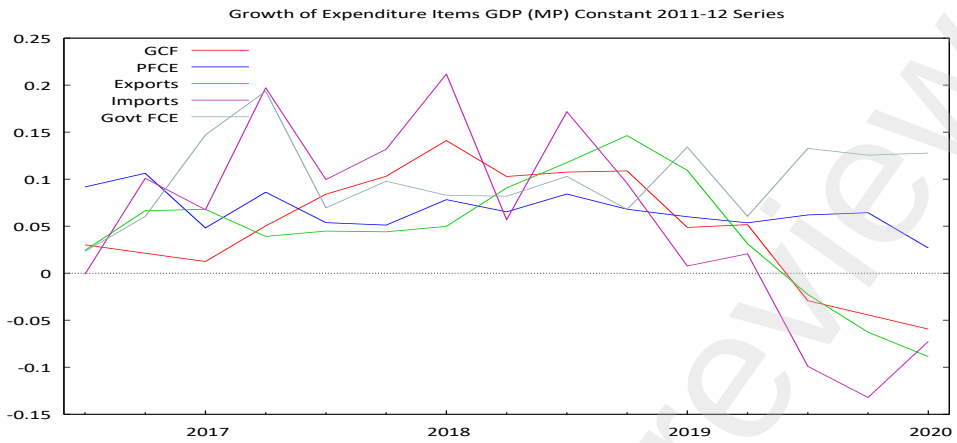
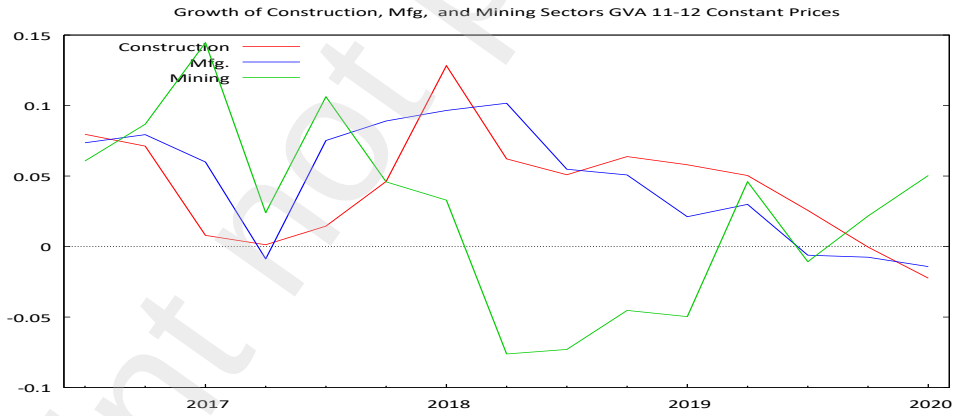
Figure 14



Construction suffered greatly due to the demonetization but bounced back much only to fall steady thereafter to reach negative growth rates in the later 2019. Mining having been subject to ad hoc and idiosyncratic bans and restrictions by governments and courts has seen major variation and was perhaps on the mend when the COVID19 crisis swamped everything. Manufacturing as already seen from the IIP shows a steep fall with the demonetization, a bounce back in 2018, and a free fall thereafter to reach negative levels by later 2019. See Figure 15.

Figure 15



From Figure 16 it is evident that GVA in community, social and personal services arising in part out of government consumption expenditure follows similar trends as brought out above. Financial services had fallen with the demonetization but had a slow recovery till early 2019, after which it has fallen along with Trade, Hotels, Transport etc. which had a steadier growth till early 2019.

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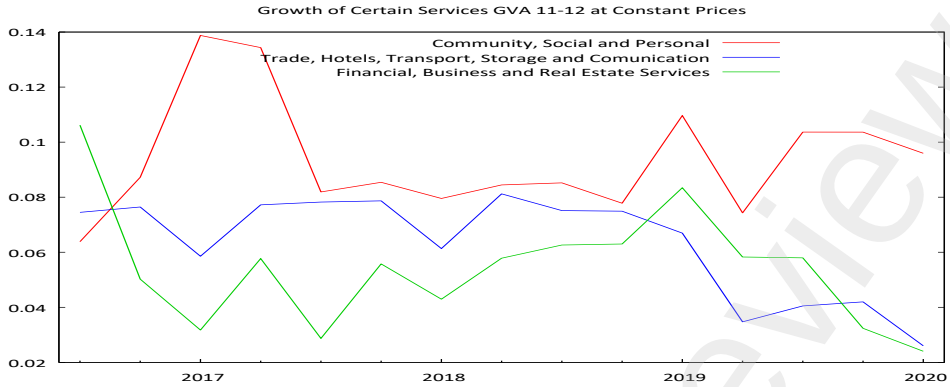
Figure 16

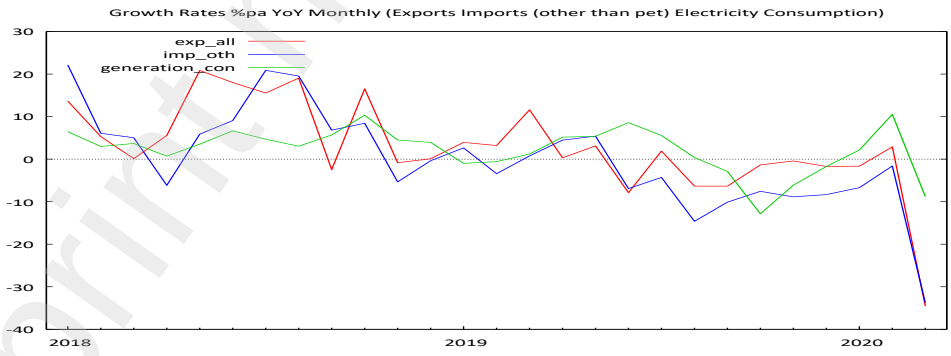


Exports, imports and electricity

Exports have been an important driver of the Indian economy, pulling along the GDP. High growth periods have been periods of rapid growth in exports (excluding petroleum products) (Morris, 1997). In the period since 2018, export growth rate has been on a trend decline along with imports, reflecting slowing demand pressures, in the face of a non-response currency. Imports due to the endogenous factor due to slowing down of domestic demand have also slowed down.

Electricity production shows a decline in growth. See Figure 17 and Figure 14 earlier. Over the medium term, electricity tends to be highly correlated with income, both because of electricity as a final demand and as an intermediate good. Over the very long period too if one recognizes the gradual and expected changes in income elasticity, electricity use per head becomes a workable as a crude estimate of per capita income till a middle income status is reached. The point is that over the period from 2018 onwards, the growth rate has steadily declined. From 2014-15 onwards the growth rate of utility generation has been falling (not shown).

Figure 17



Trends in GCF

The share of GCF in GDP is an indicator of the immediate capacity to grow. The ratio is closely associated with both the capacity to produce in the near future, and to contribute to demand right away. The high growth of 8.5% from 2003-04 the eve of the GFC was accompanied by a rise in the ratio from about 26-27% to nearly 36%, and

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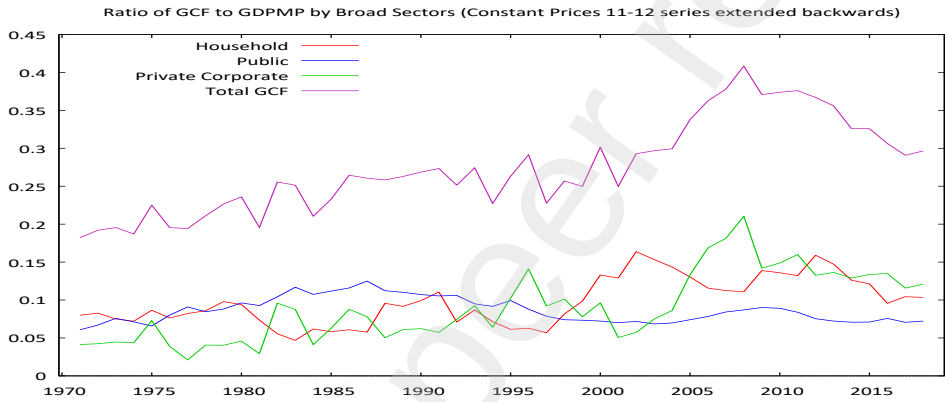
climbing momentarily to above 40% in 2008. This would mean the many critiques of the high growth saying that it was due to runaway credit boom that spawned consumption and housing, and hence implying unsustainability were misplaced since the rise actively created plant capacity as well. It was the private sector component that saw a very large rise from about 6-7% at the start of the period to nearly 18-19% of GDP! The household sector's boom was earlier, prior to 2003-04 when growth had been low at 5.5% per annum, when the household sector compensated in part for the fall in private investment since the Asian Financial Crisis. During much of the "Tiger" Period from 2003-04 to 2207-08, the share of the household sector in gross capital formation had been declining. Public Sector GCF rose modestly over the period by about 3% or so of GDP. See Figure 18.

Figure 18



The fall in the GCF was led by the private corporate sector as is only to be expected. Nevertheless, the fiscal stimulus which upheld growth for a few years after the GFC saw the gross capital formation being held at upwards of 35% till 2010 (end) after which there is a fall to the around 30% by 2016, and then to further falls. Over that period private and household sector saw reduction in the investment ratio. Since the detailed data is not available on a quarterly basis, and it stops at 2018, we cannot push to the recent years.

But quarterly data on the share of overall GCF in GDP is available up to the last quarter of December 2019. See Figure 19. It shows that GCF (after adjusting for valuables) had fallen from its levels of 36.5% to a low 27.5% by 2016 to rise somewhat due to the push in public expenditures around 2019, and the bounce back from the demonetization, to only fall back to a low 26%. With 36.6%, a growth of around 7.5 to 8% was possible up to about 2010-11. Holding the incremental capital output ratio (ICOR) at the same level (4.87) as at 2010-11 to later years from 2016-17 to early 2018, the implied growth potential is only about 5.7% and in 2019-20 it should have been less than 5.3%. The implied growth should have been less than what these indicate since the economy had entered into a situation of falling demand by late 2018.

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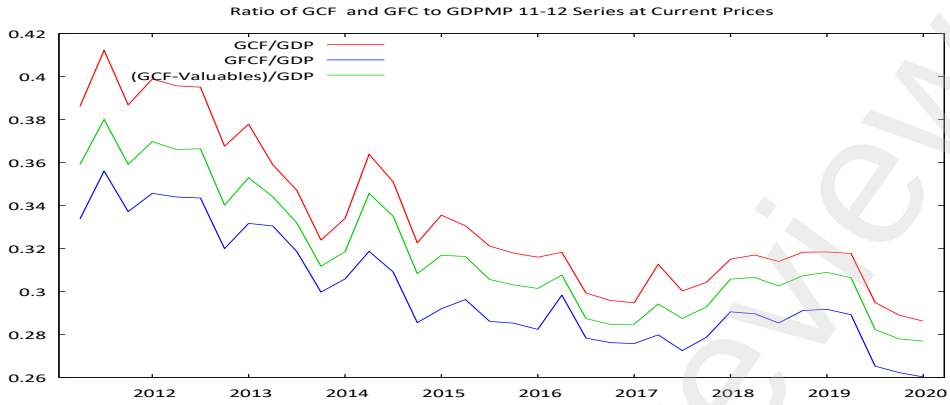
Figure 19



Section II: Credit Growth

In a situation where the money demand is stable, and the interest rate is unchanging and not very low, credit growth would be a good indicator of the growth in nominal GDP. However, this is not always the case, because during periods of uncertainty the portfolio demand for liquidity rises steeply, reflecting credit growth to finance portfolio holdings of money. If money supply is not increased, then the interest rate in the market would rise.

However, the reliability of credit flows in some productive sectors as proxy indicators of the nominal GDP growth in these sectors, would vary depending upon the nature of the sector and the business. There is course the presumption that production entities do not have a securities portfolio that is significantly large. Also when rates for credit are high, and fairly close to the expected return in productive economic activities, there are few reasons even in times of modest uncertainty for firms to hold liquid assets the way a portfolio manager would do. Until the demonetization this may have been the case. End-March when the reverse repo was lowered to 3.5%, credit growth is no longer indicative. The relationship would need interpretation though since the uncertainties in the financial sector, had risen sharply before the COVID19 Crisis, due to the NPA pressures in public sector banks and then in the NBFCs from 2017 onwards after the demonetization, but more certainly since 2018, with little action on either the part of the RBI or the government to inject liquidity and resolve the problems in the sector in a timely manner. Therefore, the implications from credit growth should be treated with caution.

Consider the growth in the credit deflated by the CPI related to non-foods and fuels, i.e., the CORE CPI 2011-12. We observer the decline in overall credit from 2012-14, most certainly from levels close to about 7% to about 2%, during the demonetization, then rises to about 10% levels, only to fall to about 5% hereafter till about February 2020. See Figure 20. We know that there could have been a bounce back from the demonetization in late 2018 to early 2018 which was short lived. Uncertainties in the financial markets (as we shall see later) had begun from the late 2018, after which the

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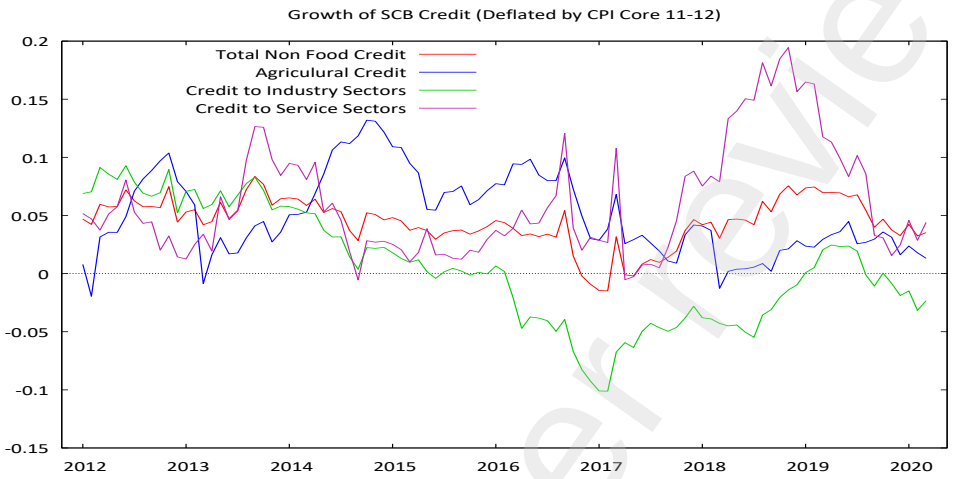
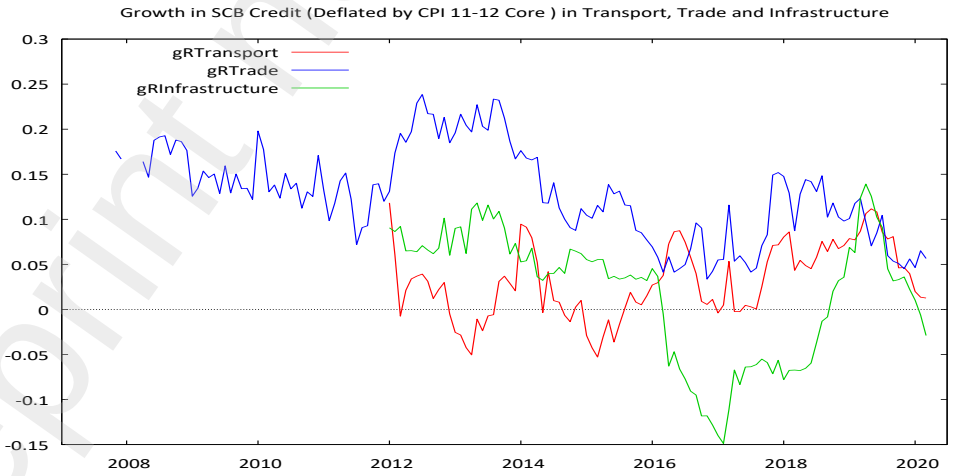
credit growth falls. So it is likely that services sector has had a continued positive growth from 2017 to late 2018 in the range of 5 to 6%, barring the sharp drop due to the demonetization, and a bounce back from the same at 8-12% in late 2018. After that the bank crisis followed by the NBFC Crisis would have brought growth down.

Figure 20



When we look at one of the important subsectors of the services sector, viz. infrastructure sectors, again we see a fall from 2011-12 till 2016, to a negative shock with the demonetization, and a delayed recovery that went on till late 2018 is discernible. See Figure 21. The same trend is broadly discernable in the case of credit to the trade sector. For transport as a whole, there is apparently no effect of the demonetization, credit growth having slowed down by mid-2016 itself. And a rise may be noted from 2018 to 2019 and a fall during much of 2019.

Figure 21



Only commercial real estate shows trends similar to the other sectors considered thus far. Credit to the Housing Sector shows continued high growth from 11-12 of about 9-

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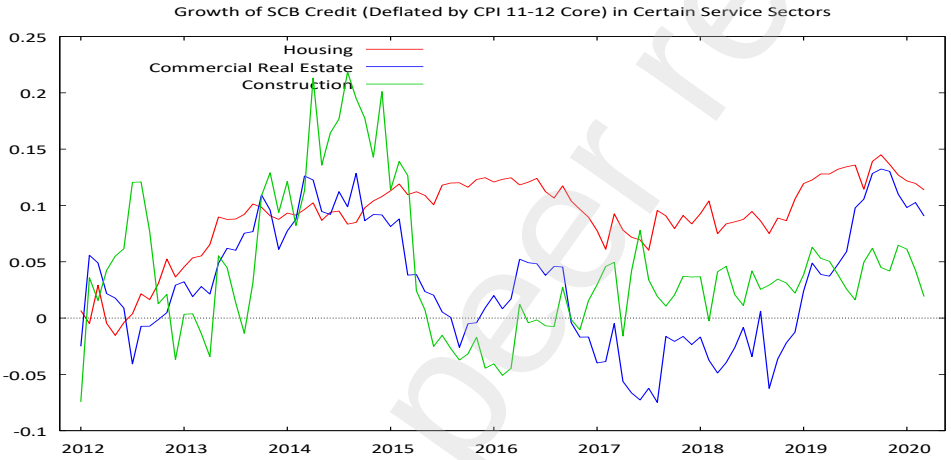
11% with a decline that sets in 2020. However, since we know that housing, commercial real estate and construction was under financial stress from mid-2018 onwards at latest, the rise in credit may be more a reflection of the uncertainties raising the demand for credit (rollovers, NPA, and funding of sales to related parties), rather than upswing in economic activity. By late 2019, when the supply itself was choked and call backs began to rise, and write offs happened on a large scale the fall is evident. These sectors are also credit intensive, and credit can rise as the sales decline, since the dealer would have to hold inventory on credit. See Figure 22. There is only so much that one can infer from changes in credit outstanding to the underlying sectors.

Figure 22



Section III: Employment from CMIE's Surveys

The arrival of CMIE's surveys on employment, unemployment etc. has given a major fillip to the use of the employment and unemployment data for policy analysis including macroeconomic management. Earlier unemployment/employment data of only the public sector, and that too with much delay was available. And it did not have the frequency to be able to be of use directly in macroeconomic management of the economy. That has changed now since fairly reliable data and with little delay[14] is available. We anticipate therefore both monetary and fiscal policies to improve from the current situation of being half blind.

[14] Store sales data could have been just as quicker, but the statistical authorities being still very much hung up on production, do not seem to recognize the value of the YOY growth in these types of data as leading indicators of economic activity. Dua, Pami and Anirvan Banerji (2000), track the coincident indicators to delineate the recovery periods and argue for the wider use of the approach. Similarly, Mohanty et al (2003) attempt leading indicators and argue their utility in identifying peaks and troughs some 6 months before. With GST data on commodity and goods movements being potentially available almost immediately, it should be possible to develop very reliable leading indicators rather easily.

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See Figure 23. It is clear that the COVID19 lockdowns saw unemployment jump up to about 23%. Before we consider the COVID19 situation, there were interesting trends since 2016. Observe that the period immediately before and after the demonetization till about August 2017 was one of falling unemployment rates, which is seemingly in contradiction with decline in growth over the same period that comes out from the data considered thus far. But in a country with vast disguised unemployment (and employment) and with the low and shifting labour participation rates it would be hazardous to work with unemployment figure alone.

Figure 23

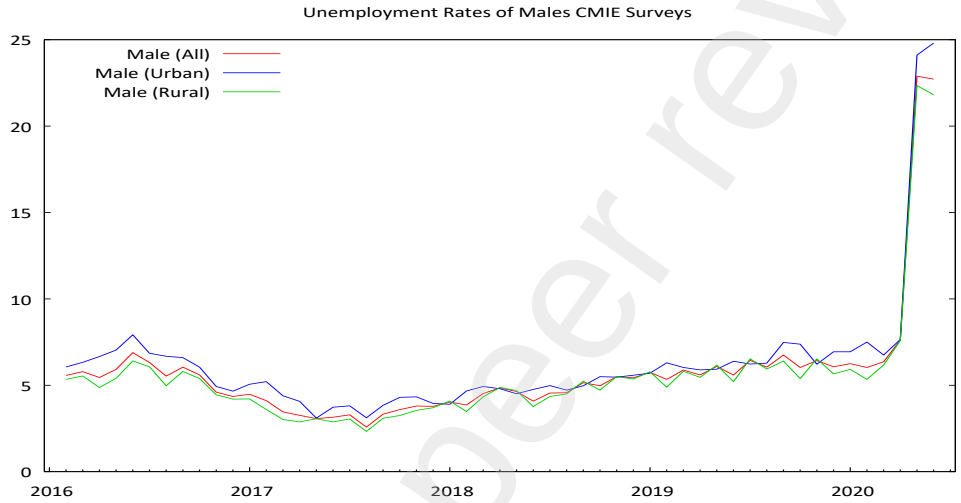

Figure 24 brings out the growth in employment (YoY) from 2017 onwards. It shows that the employment fell some 4 months after the demonetization, rose and then again fell sharply in October and November of 2017 being highly volatile, in the months following the demonetization. The bounce up in output during 2018 is correlated with a rise in the employment growth rate after which the employment growth has steadily declined till the last month of 2019, rising again during the elections and after that as the spending increase including that due to MGNREGS and the expansionary fiscal stance, especially on rural spending and in road construction took root.

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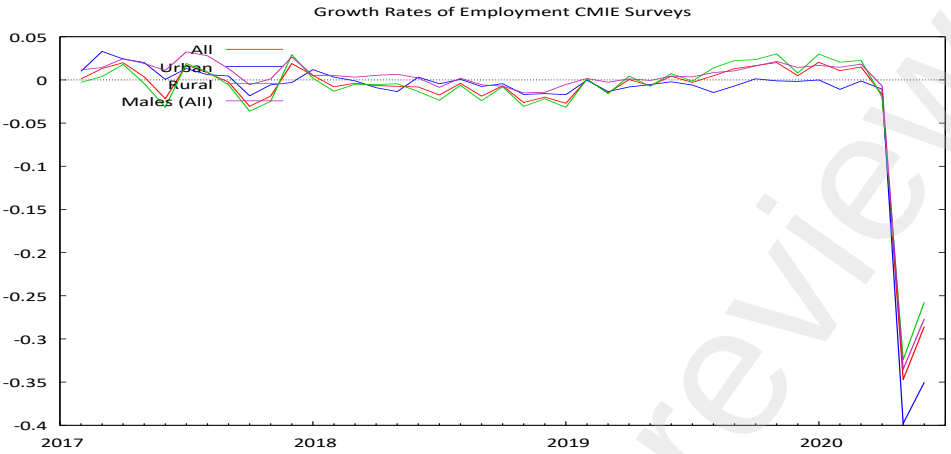
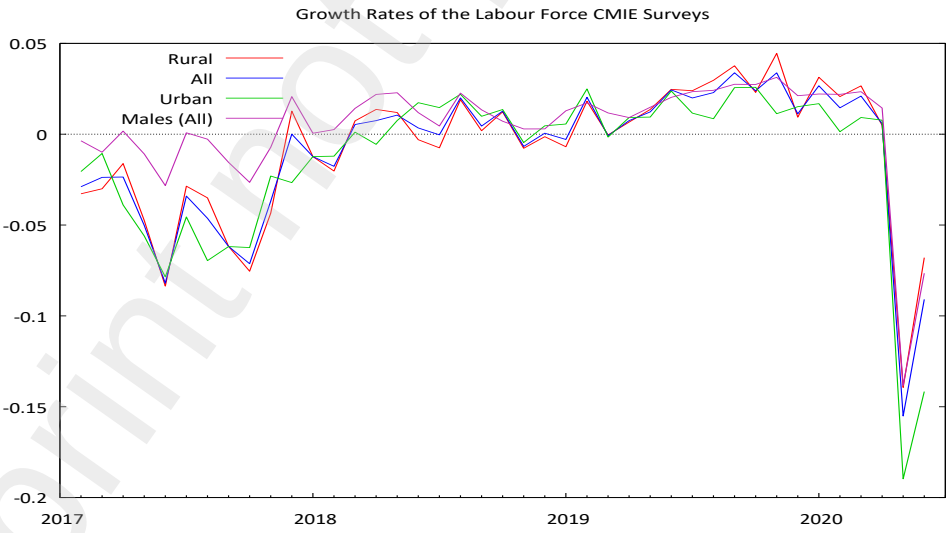
Figure 24



The figures for the labour force are even more telling and reverses completely the apparent anomaly of falling unemployment immediately after the demonetization. Actually the labour force fell very strongly and further than the employment as the futility of searching for jobs may have been driveled home immediately after the demonetization. More likely the vast numbers of street vendors, roadside eateries, push cart businesses would have shut shop and gone off the labour force, only to come back after some 6 months when with the remonetisation transactions of these kinds of retail activities was again possible. See Figure 25.

Figure 25



Therefore, we should be fairly close to the mark if we conclude that since the bounce up of 2018, which was short lived, there has been a decline or little growth till about 2019, after which there was significant but modest growth of around 2.5% at its peak in late 2019, after which the impetus would have been lost, since the labour force growth declined. The unemployment rates have continued to increase from 2019 with

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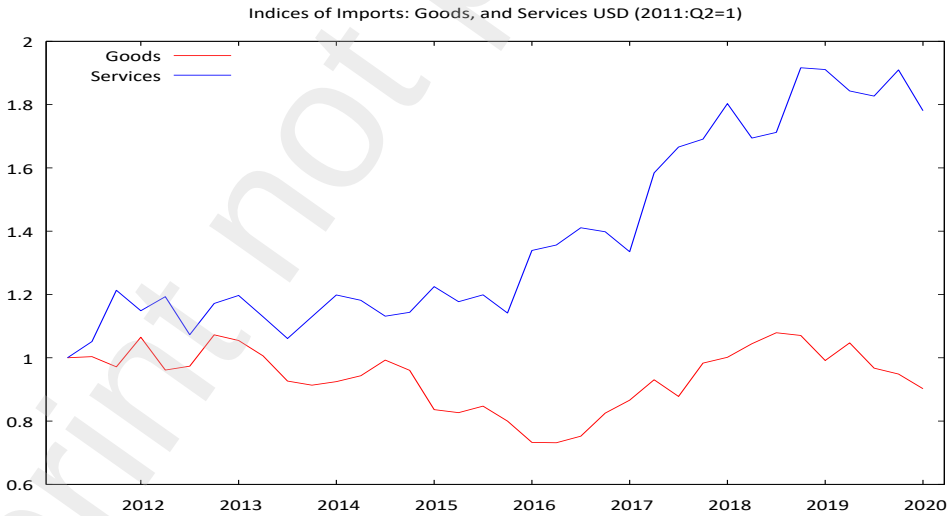
hardly a break. However, some improvement after mid 2019 is again observed when the unemployment stabilizes to about 6.7%. See Figure 23 again.

Section IV: Exports, Imports and the Current Account

One of the important indicators of growth (and investment exuberance) is the growth in imports. High growth typically goes with high levels of import growth, and with larger trade gap; since for long –ever since 1996 the rupee has been structurally undervalued with respect to its competitors. We confirm this from Figure 26. The index of goods imports was declining from 2011:Q2 till 2016, after which it rose along with growth lifting, only to be slowed by the demonetization and a recovery till 2018 along with the bounce up after the demonetization, in the first half of 2018, after which they have steadily declined. Imports of services show similar movements on fast rising trend ever since 2015. Service imports are still very small, so relative to imports of goods being just about US$ 17b in one quarter of 2011 versus 117 for imports of goods. But the imports of services rose to more than 31 b on quarterly basis. They do not as yet reflect overall demand as much as do imports of goods, but the specific demand for the imported services as India has continued with liberalization especially on services. But soon enough imports of services would rise to be determined by general demand.

Figure 26



The trade gap shows a decrease from 2012 to 2016 after which there was an increase which only declined in 2018. The current account gap being broadly driven by the import of goods gap since the services surplus has remained steady over the period, shows similar trends. Thus the imports, and the current account and trade gaps show consistency with the growth trends brought out above. Also note that the current deficit had reduced considerably over 2013 up to2017. With the massive slow down

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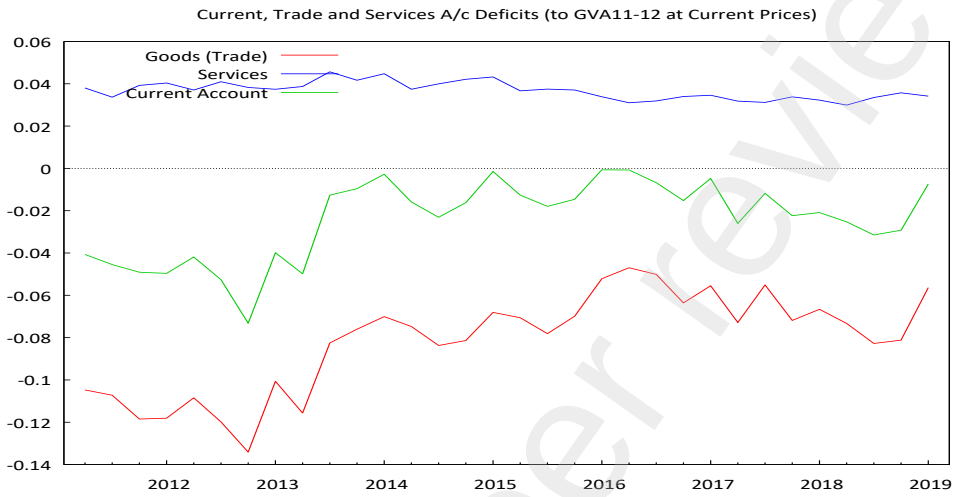
which one would expect the COVID19 Crisis the current account may turn into a surplus, if India growth rate differential above world growth before the COVID19 Crisis of around 2.5 % (5-2.5%) were to reduce, due to the continuing conservatism of both the central bank and the government.

Figure 27



Exports and imports of goods remained muted form 2012 onwards, and thereafter rose only in 2017 continuing into 2018, and then rapidly falling off. Services too show the same pattern but at faster rates. And services growth both imports and exports have fallen since 2018. See Figure 28.

The rise in exports of both goods and services but especially services (for goods it may have been a mere recovery) may be attributed more to the rise in world imports of goods and services especially the former with China and the Euro Area leading.

Figure 28

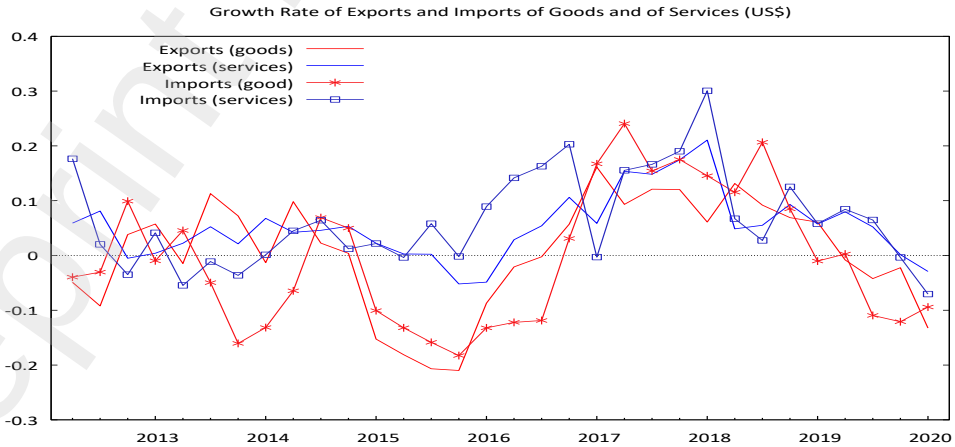


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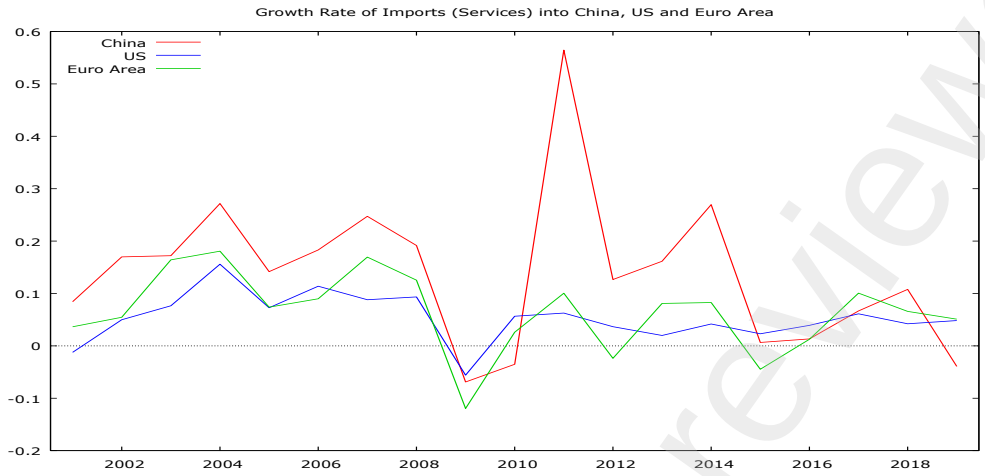
Figure 29



We see a decline in the growth rate of imports in the major economies for 2011-12, which would have adversely affected growth of exports from India, which we have already seen in the index of exports of goods and of service, both of which hardly grew from 2011-12 to 2017. See Figure 29. See also Figure 30 and Figure 31.

Figure 30

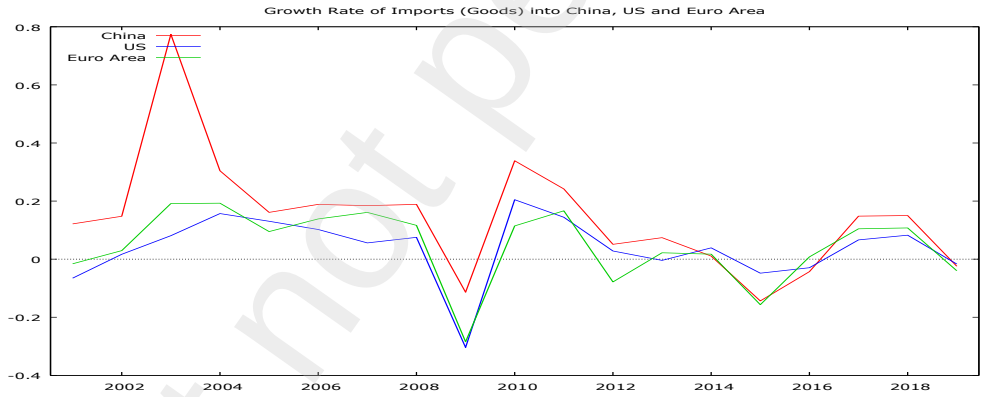


Figure 31

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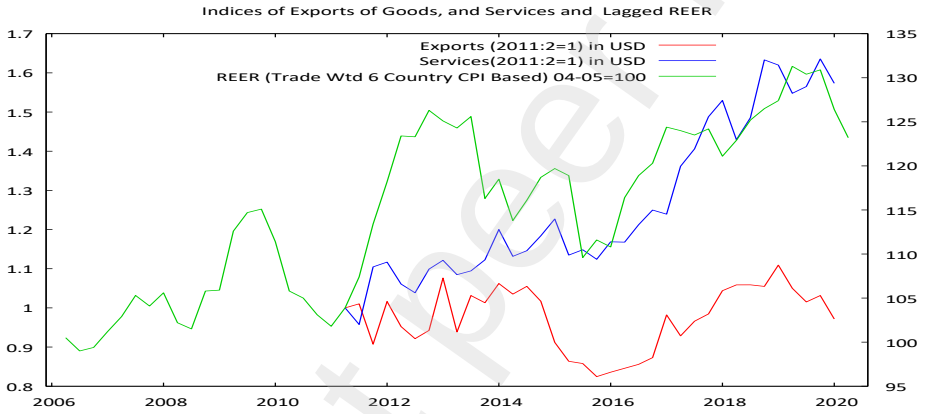
Exports of goods hardly grew in in US$ terms for the period from 2011-12 to 2019-20 considered as whole. However, there was decline was over the period 2014(Q2) to 2016 which coheres with appreciation in the Real Effective Exchange Rate (REER) from 2014(Q1). It is only when the REER's decline from 2017(Q2), that the exports rose over the level of 2011-12. A weak inverse relationship with a one or two quarter lag value of REER, of exports may be discerned. However, the fact that there was no significant movement of exports over as long a period as 9 years, and net exports of goods remained at around -6.0 % of GDP or lower, suggests a structural overvaluation, even after some fall in the REER from 2003. Even from the point of view of the current account rather than the trade account, though the gap is much lower given the well-known large role of remittances and ITES, the current account was never positive and reduced only when the growth was very low in India. Clearly therefore from the point of view of goods trade the rupee is structurally overvalued. See Figure 32.

Figure 32



Exports of services from India (ITES being based largely on absolute advantage) is not as affected by the structural overvaluation, and the trend is quite significant even now after the GFC when the world economies had slowed down from their rates before the GFC. The trend is reflective of world income growth. But even here a relationship around the trend with the REER may be seen.

The relative overvaluation[15] of the Indian rupee could have increased since 2011-12, since the recovery of exports in 2017-18 and thereafter when the world demand

[15] While India's exchange rate shows a PPP factor (PPP GDP to exchange rate (Atlas method) GDP)) is of the order of 3, we consider it as being "undervalued". Populous poor countries, given the large role of non-tradables in these economies, do have such high factors. China's till recently used to be in excess of 3. It has now according to the World Bank come down to about 1.6. More pertinently, a cross country model of this factor can be explained in terms of per capita income (Altas method over the longer period) and size measures (log population and more). This suggests that the East Asian "Tigers" during their fastest and transformative growth periods had high factors far out of line of other countries (1970-1997). While India was about average, the Latin American countries had lower than predicted values. Essentially, countries with underutilized labour and with reasonable diversification actually have a "free-ride" to rapid growth based on utilizing unemployed and underemployed labour. And

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recovered was muted. We see that the REER rose from 2011-12 onwards, and the fall from 2012-16 barely takes it back to the level of 2019-10. Since then it has risen. Thus the relative and structural overvaluation of the rupee may have risen from 2016 onwards given the sharp rise in the REER since then.

Section V: Investment Expenditure

We have considered the share of investment in GVA using the reworked 11-12 series extending the same backwards. Since GCF tends to be highly volatile the growth rates over a period are difficult to assess and can vary much with the choice of the starting year, even though we have only used symmetric growth rates everywhere in this paper. See Figure 33. Observe that the recovery of the 80s is marked by a rise in the GCF share measures in current prices while not in constant prices reflecting in part a rising ICOR and in part where the GCF growth is higher than the growth in output pulling along the same through demand created by these investment expenditures. However, since the GR, the ratio remained the same reflecting the rising efficiency of investment (much of it due to the increasing share of the private 'corporate' sector as we shall soon see). The "Tiger" Period saw substantial rise in the ratio as the growth rate of GDP/GVA itself went up to 8.5 % from the low 5.5% it had reached c.2001. The rise in the GCF ratio from about 0.275 to 0.375 is consistent with a capital output ratio of 5 in the period from 1997-98 to 2001-02 and with 4.11 in the second period 2003-04 to 2007-08 (before the GFC). Even with a GCF/GDP ratio of 40% the capital output ratio actually falls to 4.7 over the period indicating that the high growth period was most efficient and the nomenclature as the "Tiger" period is most apt. The GFC saw a decline in the GCF to GDP/GVA ratio and then an increase of hold on to the levels of around 37% given the fiscal stimulus. But since the withdrawal, the ratio has fallen steadily from the second quarter of 2013, though the ratio has remained above 30% with the measures that have been considered. While there can be some doubt about the values, that the share of investments in total expenditure has undoubtedly fallen since 2011-12, and this decline in the growth rate of investments is an important cause for the slowdown.

undervalued exchange rates have the functionality of allowing them to use inter alia the export markets to grow and employ otherwise under/unemployed labour, without a feedback by way of rising inflation. See Morris, S. (1997, 2005) for the conceptual basis of this argument, the problems with the pure trade theory, and a characterization of export led growth. The evidence that East Asian countries have used this structural undervaluation (which is also largely win-win) to drive their high speed growth is also covered. China was only the largest of these economies which started late. Vietnam is the latest unheralded entrant to this set of countries, if its macroeconomic performance oer the last couple of decades is indicative

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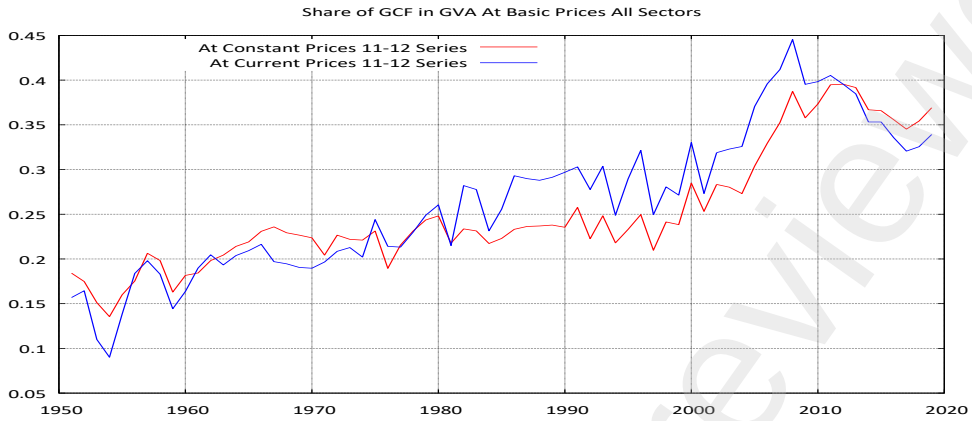
Figure 33



Even more importantly the share of the private sector in GCF has fallen from the levels reached at the high point of the "Tiger" Period. Ever since and including the GL, rising shares of the private sector in investments have been during periods of high growth and falling shares periods of much slower growth, as may be seen from Figure 34. When we consider the industrial sector which is much more responsive to demand conditions, the fall during slowdowns and the rise during periods of high growth is more evident. The response to the right combination of structural reform and stabilization that gave it the winning character, as is well known, lead to acceleration in the growth of private investment. In the first period before the slowdown, much of the same was in the industrial sector including manufacturing, and we see before 1995, the ratio of investments (GCF) to value added in the sector crossed 1! Thereafter due to saturation the ratio had to fall. But they rose again with the GFC, in the industrial sector due to vast growth of private investments in construction both housing and infrastructure, besides in energy. Since the GFC the share of the private sector has only fallen, with the fall being sharper from 2011. See Figure 35.

Figure 34

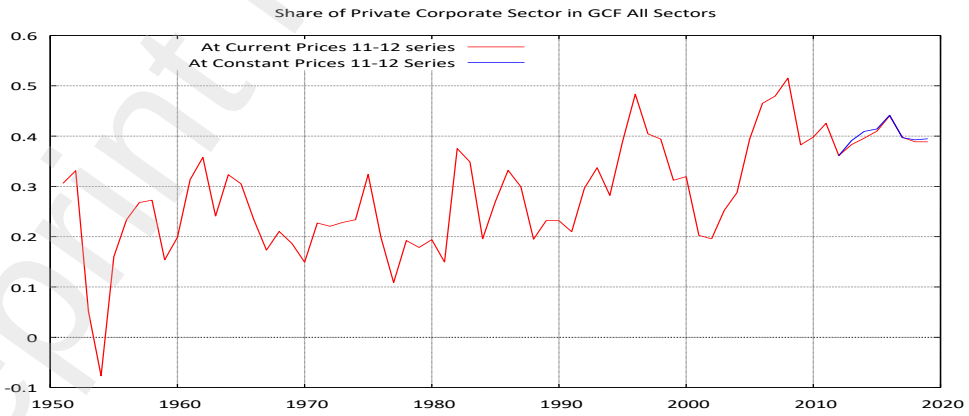


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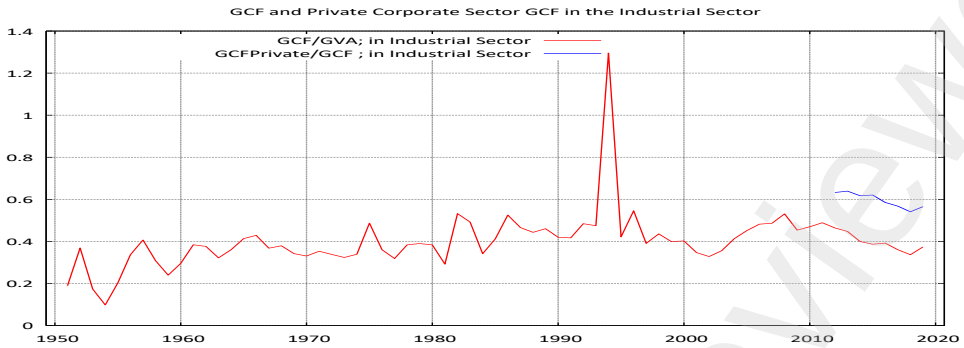
Figure 35



Since the volatility in investment (GCF) is always very high, unlike in consumption expenditure, to be on firmer ground, we further do a detrend of the log of values of public, private and household investments to relate these to the trends in growth. Figure 36 brings out the detrended values (i.e. residuals in fitting the log of values on time) considering the entire post-independence period as one with its period average growth (the coefficient of time) as 12.58% (per annum) which is the average growth of public investments in current prices over the entire period. [There is no ready availability of long GCF time series split between public and other sectors in constant price terms]. Observe that as expected the Mahalanobis period of diversification of the economy and modest growth, was one of rising public investment – growing much faster than the period average. The Hindu period too witnesses faster than period average growth as the well-known dysfunctional private investments by takeover and in non-market failure areas took place. The revival period of the 80s (with growth at around 5.5%) is one of period average growth. Since the reform the public investments had grown at much less than the period average, and rose again with the Tiger period. Since the GFC there has been slow down. So except the 70s (which was a period of very slow growth of private investment, revival and high growth has been accompanied by higher than long term trend growth in public investments, pointing to investment as the core aspect of sustained growth of emerging economies.

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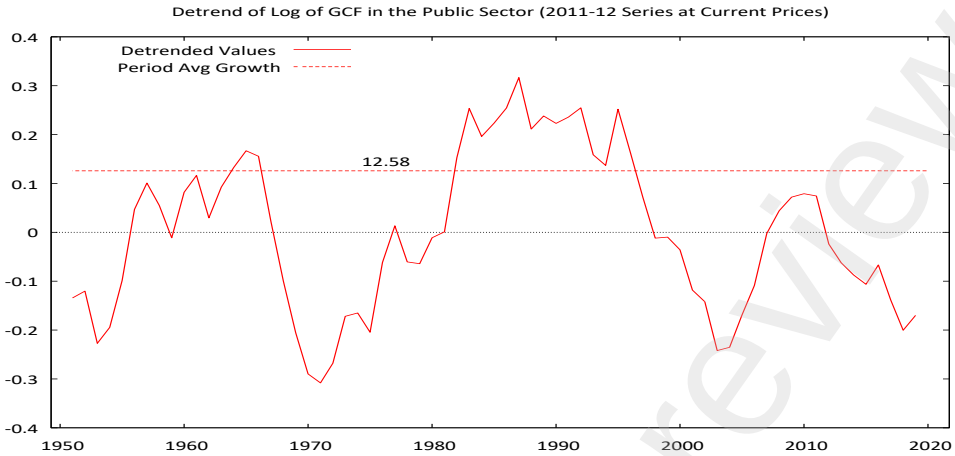
Figure 36



Private Sector Investments

For the private corporate sector we observe that the revival period of the 80s and the post reform period until 1997 was one of acceleration in private investment, with speeding up in the 90s. See Figure 37. The recession of 1997-98 t0 2002-03 is marked by much slower than period average growth of private investment (14.43% per annum), and the "Tiger" period of higher than period average growth with slowdown since the GFC. Household investment (housing today and small firm productive investment) has shown similar volatility with the periods being less distinct, and with a lag when compared to private investments. From the revival of the late seventies /early eighties, all revivals and high growth have been accompanied by higher than period average growth in private investment, and all slow growth periods including the present one from 2011-12 by much slower than period average growth rates.

What is most disconcerting is that, private investment has been growing very slowly ever since the GFC, with so sign of a pickup. That it had grown slowly over the two years of stimulus is only to be expected, so the period from 2011-12 onwards is undoubtedly one of slowdown.

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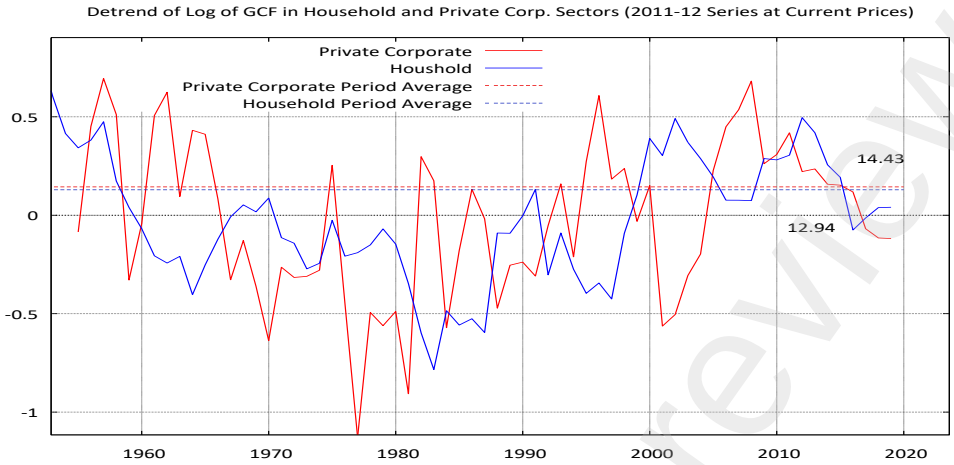
Figure 37



Section VI - Trends in Inflation

Inflation trends for quite a while have been benign. Over the last two years of high growth before the GFC, inflation rose as fuel and food prices rose. Fuel prices rose sharply to 140 $ a barrel, just before the GFC. Agriculture prices reigned high thanks to the demand created by the MGNREGS, and the demand created by the inclusiveness of the "Tiger" Period. The two periods of high growth first from 1992-93 to 1997-98 and again from 2003-04 to2007-09 have been inclusive. Despite agriculture actually growing well in these two periods but especially during the "Tiger" Period, the (small) gap between demand and supply kept agriculture prices on a rising wicket. Inflation fell over the GFC, but prices in India rose because the agricultural prices continued to rise since the gap continued the added pressure on wages created (by now) an expanded MGNREGS. The success of the stimulus in restoring growth back nearly to its original levels also kept inflation from falling. After the stimulus was withdrawn we have seen that the growth had declined. Until 2011-12 the agricultural prices continued to rise since till then the MGNREGS payments, now linked to food prices, allowed the poor to maintain their consumption, which maintained the pressure on food prices. Since 2011-12 as the stimulus was given up, and from 2014 onwards with the change in government and the cut back on the MGNREGS demand for food reduced to bring down agricultural inflation on account of food and fuel; fuel prices having varied less over this period. It reached a negative growth in mid-2017, and in late 2018 due to good harvests, and limited purchases, made market prices fall below MSPs in a number of items. Since about October 2019, food prices had again begun to rise, but their future trajectory with the COVID19 Crisis is going to be problematic both in terms of data and the interpretation since agricultural markets especially for fruits, vegetables, and meat and fish has fragmented with low (dumping) prices at farm gate and mandis and high retail prices for the consumer given the many restrictions in movement. Such trends would remain for a while unless the lockdowns are completely lifted and all movement is restored.

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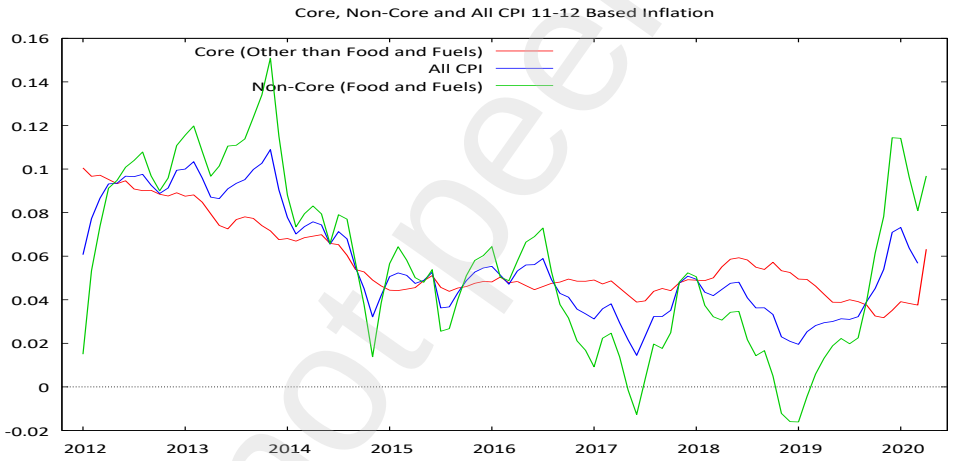
From Figure 38 observe that core inflation moved along with the falling non-core from 2012 to early 2015, after which it has been steady except for marginal drifts entirely driven by current food inflation. Therefore, the pass-thru effects are seen and no expectations of a secular rise, unlike what was believed to be the case by the RBI. However, there is an exception in the period immediately following the demonetization when core inflation "rose" despite food and fuel inflation falling, till about late 2019. Otherwise the synchronicity of core inflation with the major trends in food inflation, and its co-movement with the same, with vastly lower amplitude, is seen right from 2012 to mid-2018, covered by Figure 38. Since 2018 the relationship as outlined may have been fractured due to the lagged effect of the slowdown in economic activity since 2012-13 and more sharply since 2018, since economies considered at the macro-level are quantity adjusting in the short to medium term and price adjusting only over the longer period of about 2-3 years. Core inflation therefore shows a slow reduction trend except for a bump up caused by the demonetization, to reach as low a level as 3% in August and September of 2019.

Figure 38



Fractured Agriculture Markets and CPI

The fracturing of the agricultural supply chains that happened due to "excess production "from 2017 to 2018 finally could have increased the measured retail inflation as production cutbacks could have taken place from mid-2019 onwards; and then market prices were below MSPs. These cut backs and supply chain disruptions could have pushed retail inflation higher on food, even before the COVID19 Crisis. **We will later in the analysis (section Reflexive, not Reflective Monetary Policy) see that the measure of core inflation may be invalid for periods around the implementation of the Pay Commissions c. 2009-12 and from 2018-20, since the HRA and the measure of house rent prices as may have added spuriously some 4% to the measure of core inflation. As such those readers interested only in the trends should also read the last sub-section – "A Broken Compass (Or is the CPI useless)" for completeness of this section. Quickly see Figure 71 and Figure 72.**

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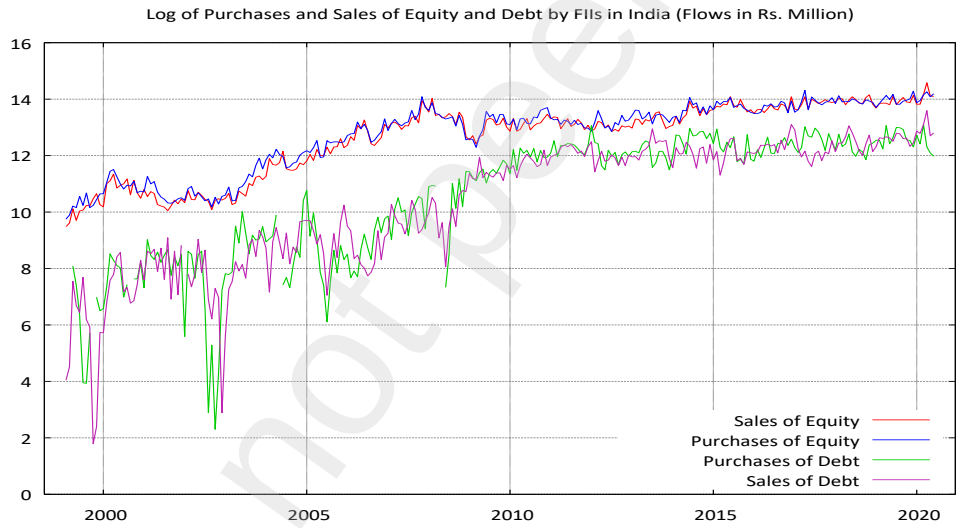
Section VII - Portfolio and Direct Investments

FII inflows both net and gross are highly volatile and net inflows often turn negative with a seeming "randomness" associated with it. We work with the log of Gross Purchases and log of Gross Sales of instruments (bonds, stocks and mutual funds) to observe the longer period trends and the growth rates in Sales and Purchases, and to bring out the turning points or shocks.

Observe from Figure 39 that Sales and Purchases follow each other closely with small lags and leads of about a month or two, as is to be expected with FII investments, since such investments consist of both short and long term flows with the net flows over the trading (shorter) horizon being negative except for the expectation of growth following from the rising absorptive capacity.

Debt flows have been generally more volatile than equity flows and since the debt markets were opened up to FIIs, they have growth faster to reduce the gap with equity flows.

Figure 39



During the "Tiger" years from 2003(04) to 2008(06) before the GFC, equity flows were sustained at a rapid rate of increase, with Purchases being somewhat larger than the Sales. With debt flows the same trend is observed but with much volatility. After the GFC which saw a decline of both equity and debt flows, equity flows have been stagnant till almost the present, with a marginal increase over the period from 2013(05) to 2015(03), after which there is no trend till the COVID19 Crisis. Debt flows continued after a quick recovery from the GFC crisis, once the RBI acted to bring back the liquidity, to grow till about 2011 end after which there is a fall, and the trend has been nearly zero, though one may see and uptick in early 2018 till the COVID19 Crisis.

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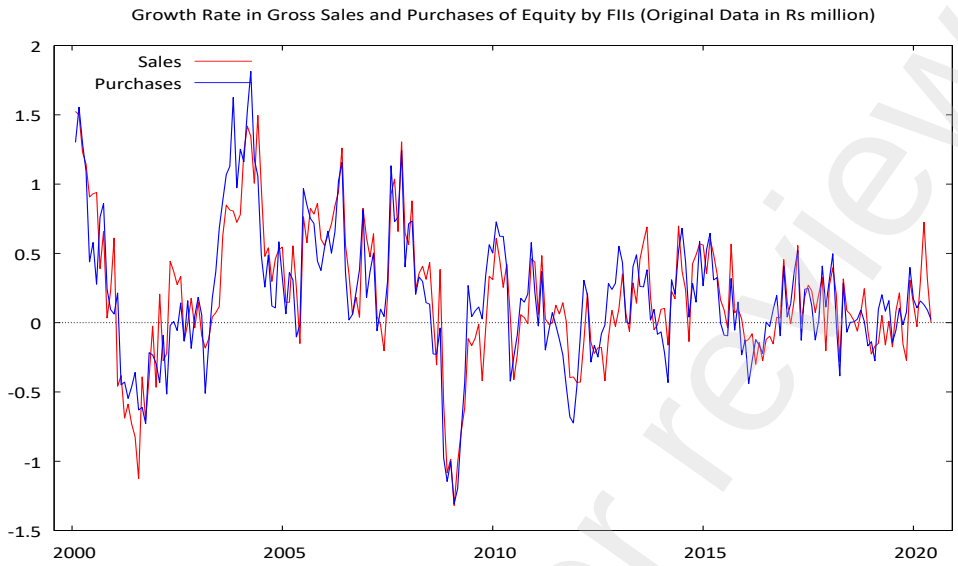
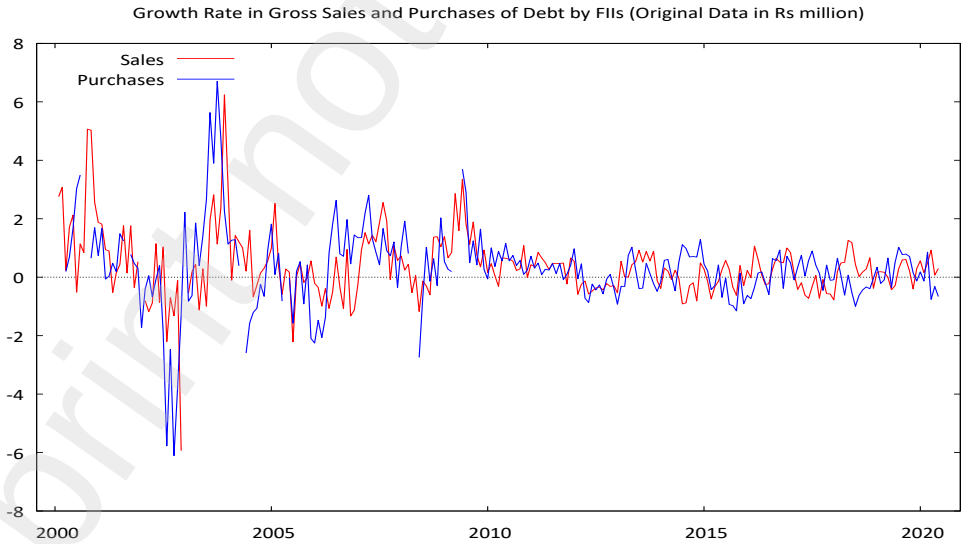
Figure 40



Demonetization seems to have has no direct and immediate influence on equity flows. However, it does have an effect on debt flows. Sales of debt declined, and purchases increased, suggesting that FIIs took advantage of rising yields in the period due to the reduction in liquidity that the demonetization brought about, for a short period of a year or so thereafter.

Figure 41



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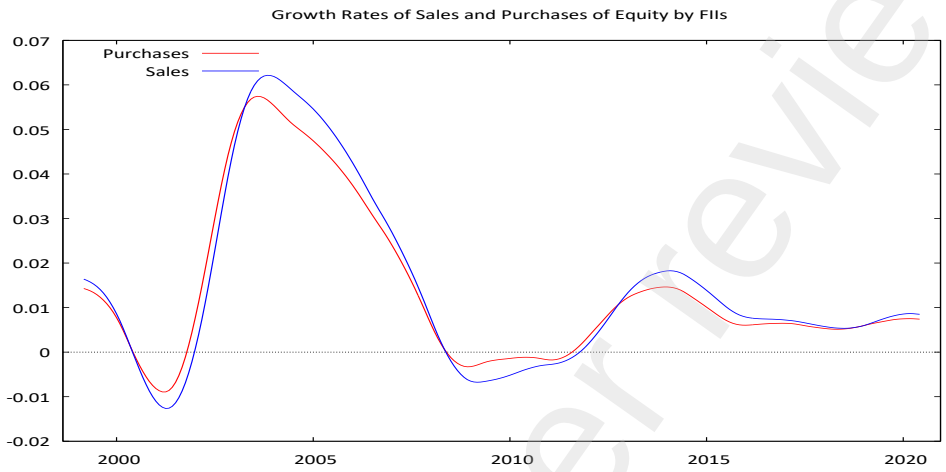
We also carried out an analysis of the longer term trends using a Hodrick-Prescott filter to remove the short period seasonal aspect[16]. Figure 42 and Figure 42 bring out the growth. In such analyses, the growth figures for the first year have to be excluded due to initialization problems.

Figure 42



Observe that the big flows really happened during the "Tiger" years, before the GFC, and with the GFC the flows turned negative, resuming only in 2011(10), by which time the stimulus was being withdrawn. Thus during the period of the stimulus the inflows and outflows were negative with the outflows (Sales) being more negative. Around the "taper tantrum", the flows were at the highest of about 1.5% per annum, a far cry from the flows with a growth rate of about 4.5 to 5% achieved during the "Tiger" Period. Since then they have slowed down to about 1%. We may also note a fundamental difference between the inflows in the "Tiger" period, when it was growth rather than interest rate differential which was the dominant factor. In the period since high interest rate differentials would have been the driver.

[16] Essentially we plot $\ln\left(\left(Y_t - h(Y_t)\right)/\left(Y_{t-1} - h(Y_{t-1})\right)\right)$ where Y is either the Sale or Purchase of equity by the FIIs.

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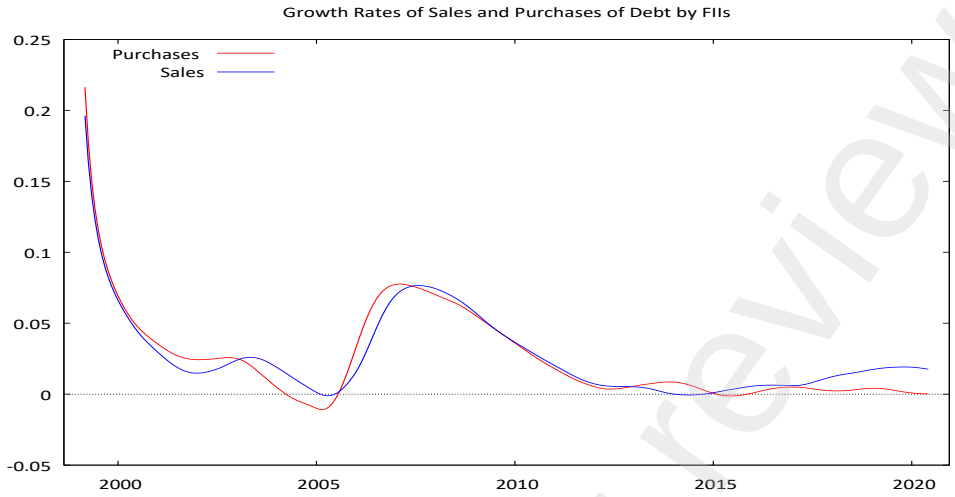
Figure 43



Similar analysis with debt shows that that the flows slowed down quite considerably with the fall in the interest rates that happened from 1999 onwards and rose only after 2005 during the second half of the "Tiger Period". The flows continued into and after the GFC till around end 2011, when there were interest rate shocks. During the GFC, up until 2007(06), the purchases were ahead of sales, but since then they have also been synchronous with little net flows on debt despite the generally high fisher open[17] in India. Since the demonetization outward flows (sales) revived to a growth of around 1.5% while purchases remained at near zero growth. See Figure 43

Cumulative Flows

Another analyses which cross checks the one above is to consider the cumulative value of the gross FII investments (measured in US$ million). The log of the cumulative values is plotted in Figure 44 below. The growth rate is also brought out. Such a transformation has the problem of initialization since the cumulative value at the start is not known. This hugely underestimates the log of values in the early part of the plot and overstates the growth. Hence we ignore the values in Figure 44 till about 1999 or so. Observe that from 2000 onwards the growth was steady and at high rates of around 20% per annum in dollar term dipping in mid-2002- early 2003 and rising even higher as the high growth kick started by the spending on the GQ began. Over the "Tiger" Period portfolio flows fluctuated greatly but overall growth remained high at levels exceeding 20%. The GFC was marked by the collapse and reversal of FII inflows, but there was some restoration with the counteracting fiscal stimulus in 2010-11.

[17] The Fisher open brings out the excess of domestic rates over US (global) rates after taking into account the actual depreciation (ex-post) of the domestic currency. The Fisher open is also the violation of the uncovered parity condition. It is usually positive in the case of emerging market currencies when measured against the US dollar a reserve currency, unless reduced through active monetary and exchange rate management as many of the export led East Asian countries do.

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Since then growth has fallen sharply to reach the low level of under 5% in 2018 to 2020. The slope of the log of values further confirms the same picture.

Of course one observes that FII inflows over the longer term are dependent on the growth of the economy, while in the very short run it is known that sentiment and interest differentials drive. Net FII investment have become less than 0.05% of the gross assets (which values the proportional share in gross assets of corporates in which FIIs have holdings), "controlled" by FIIs, so that on a net basis today their role in capital contribution is miniscule. In contrast the return penalty has become high.

FDI growth shows much volatility, though not as much as in the case of FII. They are known to be driven by growth factors to a larger extent. The slowing down of the economy from 1997-98 led to a fall in the growth rate of FDI to negative values, and then a recovery giving an average growth rate that is probably negative until 2003-04, when it recovered sharply with the kick start provided by the GQ, growing at high level for the entire "Tiger Period" except when the tightening took place in late 2006. [We will witness this aspect again, when we consider the monetary developments]. With the GFC it turned negative and recovered somewhat and despite the fiscal stimulus induced growth, declining after rising in 2011-12. Since 2012-13 it has varied, with little or no growth on the average. The graph of the log of FDI inflows along with the growth confirms these trends and turns. Broadly of course growth has pulled in FDI as is only to be expected. Since 2015-16, FDI inflows growth have been quite muted though highly variable.

Figure 44

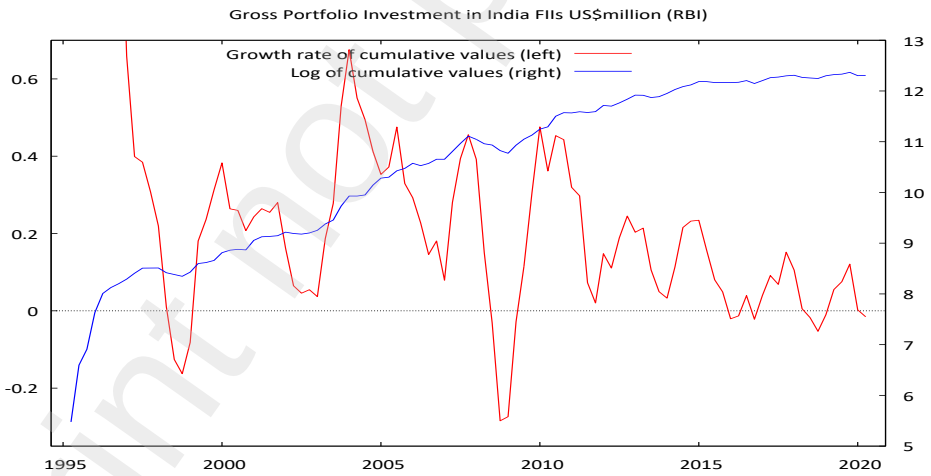

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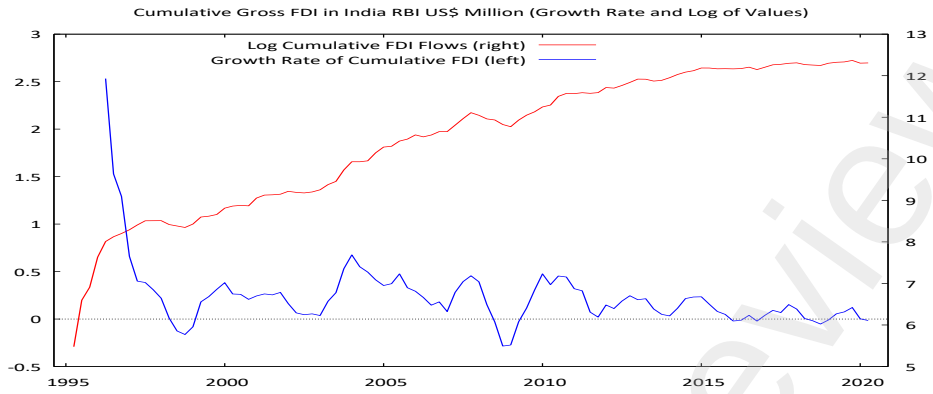
Figure 45



Section VIII - Monetary Developments

Ever since the economy was open to capital inflows (and hence outflows as well) in the early years of the Great Liberalization (GL) (1992-92-93), even without being anywhere near to capital account convertibility, Indian policy makers especially the RBI has to contend with an active capital account with exogenous drivers. Similarly, the liberalization of the financial sector, while not completed as yet, had opened the door to the possibility of developments (shocks) in the financial sector affecting the real economy. Shocks could now have a major and immediate impact acting through the interest rate, credit conditions, foreign exchange rate changes, and the health of the payments mechanism. All but the last of the items above could be impacted by developments originating elsewhere in the world, even in the reserve currency countries. This means that the RBI is tasked with managing /addressing these shocks in such a way as to keep the growth engine up in a sustainable manner. Much of the standard policy making is confined to a limited perspective of the capital account being responsive to interest rate differentials, and does not give due attention to exogenous drivers on the capital account.[18]

[18] This is the implication of the repeated finding that gross capital flows, matter to emerging economies' exchange rates. See Obstfeld (2012). This is not to say net flows do not matter. Over the longer period it is the current account and the growth differences that give a clue of what the sustainable exchange rate should be. However, over the shorter run, there is a swamping of the exchange rate by the "exogenously" driven gross capital inflows and outflows, and the bunching that happens, give a particular power to these flows. This is because unlike goods and services which clear in "flow" markets, capital flows arise out clearance of "stock" markets, with little or no inertia to the resulting flows. The matter is compounded by the practice of easing when liquid assets become a large part of financial portfolios during periods of uncertainty. Instability is transmitted through these flows, thus deeply questioning the idea of the functionality of entirely flexible exchange rates, that efficient market purists are wont to offer. The very volatility of flows and perverse behavior of capital markets, of course justify, from a macroeconomic stabilization standpoint, the holding of foreign exchange reserves by fast growing emerging economies that are open on the capital

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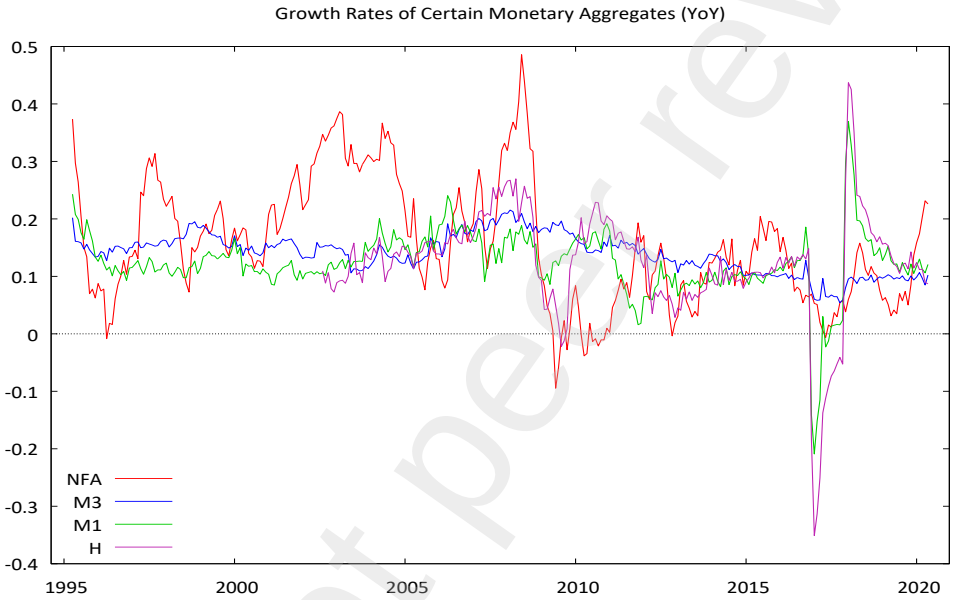
The management of vast and bunched capital inflows though was learned rather early by the RBI which has been using the mechanism of reverse sterilization to neutralize the otherwise large expansionary effect that the accommodation of such flows would have entailed. However, there is much that is wanting in the overall response to the buffeting by the global capital markets, especially in situations of contagion. Responses to short term contagion have been harsh and unnecessarily prolonged and may have even led to the underperformance of the real economy.

M, H and NFA

Figure 46



The RBI from about 1996 had been holding M1 expansion within a range of 10-13% until 2004 or so. H (or high powered money) growth which was higher was necessary in a period of the falling money multiplier. See Figure 46. Until 2002-03, and after the

account, to allow for the normal flow of direct and portfolio capital that can support risk taking in these economies. For mainstream economists but especially the IMF this comes as a surprise, given the long years of a litany of "research" supporting the unconditional functionality of open capital accounts irrespective of the stage of development of economies. See Gourinches, P. and H. Ray (2014) and Adler et al (2020). Through flows from reserve currency countries, the exchange rates can be taken very far from the rate that is consistent with net capital flows (which are the obverse of a current account deficit). Sustainable flows are positive, but limited, and are limited by the growth differential between the country in question and the rest of the world.. When some economies house reserve currencies (the US, and marginally Europe), there is vast asymmetry in currency preferences giving a bias to the preference for dollars (and euros) over other currencies, all out of proportion to the economic weight of their originating countries. See Aliber (1973). This preference for reserve currencies in the normal course is reflected in the fisher-open (or the uncovered parity violation when positive) against other currencies (being positive for these), and in contagion and capital flight out of them in times of stress.

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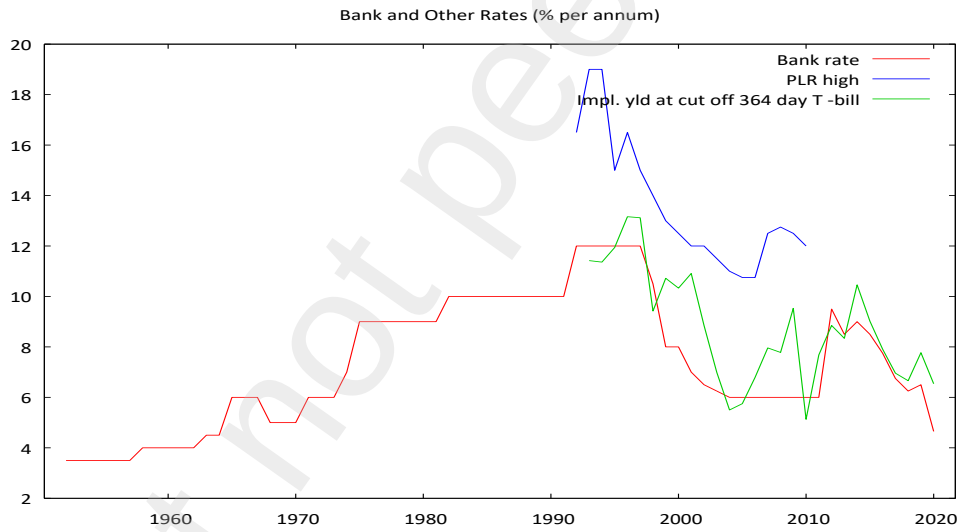
Asian Financial Crisis (AFC) in 1997, growth was slow at under 5.5%. However, rate cuts had happened but only from late 2001 as may be inferred from the PLR and the yield on 1-year government bonds. The draconian interest rate hike to meet the AFC and the prior slowing down of private investment from early 1997 onwards meant that despite low rates there was no pick up, but began to rise only in 2002. and growth remained low. See Figure 33. Investment share in GDP too remained the same.

With this low growth continuing for a while, animal spirits had weakened so that even with the fall in interest rates c. 1999 there was no pick up of the real economy. C.2001 onwards and more so from 2002-03 the fiscal action which came out the vast spending effects of the popularly called Golden Quadrilateral Project (in official parlance the National Highway Development Programme (NHDP)) was required to kick start the economy. Since the auction of T-bills during this period was subject to cutoffs, the interest rates in the primary markets are only indicative. The bank rate too being that of a window where moral suasion was exercised to limit the loans taken, there could have been liquidity (credit) rationing as well. However, that there was a fall from the very high levels of the post reform period is beyond doubt. See Figure 47.

Figure 47



We will refer to the T-bill and bond yields and the policy rates (repo and reverse repo a little later. Figure 47 graphs the T-bill yields and Figure 51 the policy (repo and reverse repo) and the bond yields, which we refer to a little later.

Due to the vast spending by the NHDP and for other reasons[19] growth from 2003-04 was high. Globally the recovery from the AFC was now complete and the continued sharp fall in interest rates globally (7-year bond yields of the US government had fallen to 3.5% by 2002 and continued to fall thereafter) affected the Indian market. Now that India had been open to equity flows through the FII route and to the debt market as well, exogenous capital flows had a major impact on the financial sector. Capital

[19] See Morris (2012) for a quick summary.

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flows had started in a major way almost immediately after the AFC, in response to the high interest rate in India. And accommodated capital inflows (net) continued to grow thereafter albeit more slowly but with much volatility – over 30% during some months, with an average rate of 15% per annum till about 2001. Thereafter the flows accelerated to reach more than 30% growth and remained at that level till early 2004 before falling to about 11-12% by 2005. All through this period the RBI keeping the real economy in mind accommodated the flows. And to prevent the nominal value of the rupee from appreciating, while attempting its best to hold money supply growth to levels that it based on its own assessment of the growth potential of the economy, through significant sterilization of the inflows. The trends in NFA (largely accommodated capital inflows) are expected to different for those of portfolio and direct investments, since these are net effects the entire BoP including the current account as well. Yet a broad synchronicity may be seen with FDI and FII inflows together.

The "Tiger" Period

The rise in the growth from 2003-04 onwards raised the pressures for inward flows, which while volatile continued unabated till the GFC reaching its peak on the eve of the GFC. From 1998 onwards the flows were to a large extent sterilized, which kept the increase in M1 within a range of 9 and 13% all the way till 2004 except for a jump of nearly 18% in December 1999. M3 growth was kept in a narrow range as well. H over the same period grew at varying rates so that the RBI was able to hold M1 and M3 online right up to 2004. From 2005 the ability to do sterilization was limited as the domestic credit of the RBI fell off to become negative, after which the RBI lost the ability to do reverse sterilization. So willy-nilly although the RBI was adopting a monetarist approach of holding the money supply growth to the sum of "allowable" inflation and the expected growth rate, the money supply growth and growth both went out of targets. The money supply growth rose to about 22% when measured on a YoY basis, till end 2006. The RBI continued to accommodate the inflows to keep the rupee from appreciating, which it would have otherwise steeply, thereby moderating the shock to the real economy. The RBI had raised the CRR in September 2004. From end 2006 it raised the CRR seven times in sequence with the CRR reaching 9.25% or so on the eve of the GFC. See Figure 48. Now as the CRR increased, the money multiplier fell sharply as may be inferred from Figure 48 and from Figure 52 below. However, the RBI's forecasted growth was always exceeded, and despite the claimed multiple indicators approach, it had to scale up its expected growth based largely on past growth being higher than its earlier forecasts. The growth was exuberant, but the RBI was convinced that it was inflationary, and hence was convinced of the need to pull back before the inflation blew up. See Table 3 from Deepak Mohanty (2010)'s table 4 reproduced entirely.

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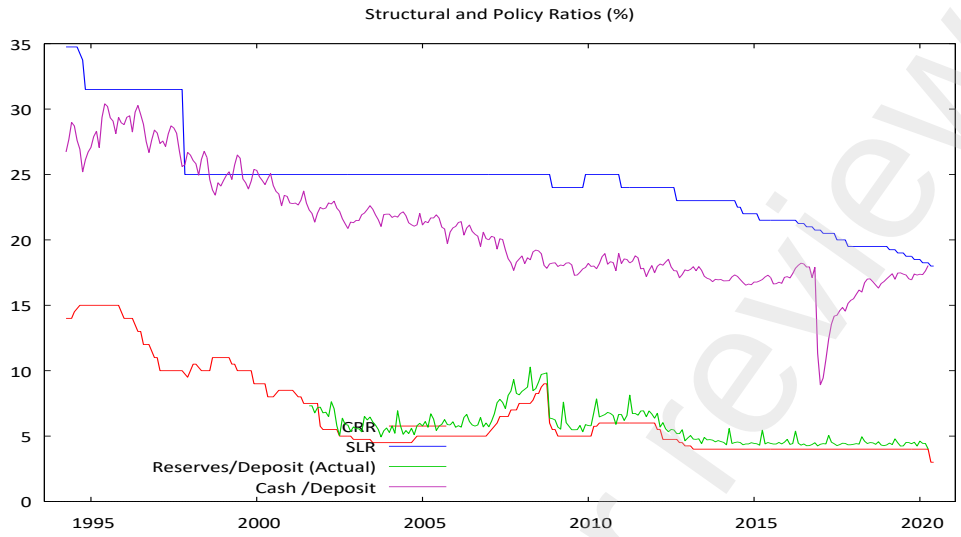
Figure 48



As a result, as said before it raised the CRR many times as the limits of sterilization has been reached. And interest rates moved along with the hike in policy (repo) rates in this period. So there was no "underhand" credit rationing. When the CRR was continually raised, the M growth was moderated (though with much volatility) despite the large growth in H. The bond yields showed much volatility as well during this period. Despite these measures growth was relentless, though it had begun to slow down by early 2007. Towards the end the RBI gave or /reduced the accommodation of inflows, so that the rupee appreciated. The rupee went all the way from Rs. 45 to Rs. 39 a dollar, just before the GFC hit India.

Table 3

"Multiple Indicators Approach : Projections Versus Achievements (Mohanty, Deepak (2010)						
Year	Projections (Per Cent)*			Actual (Per cent)		
	Real GDP	Inflation	M3	Real GDP	Inflation	M3
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1998-99	In the region of 6.0	Should not exceed 5.0-6.0	15-15.5	6.7	5.9	19.4
1999-10	6.0-6.5	Lower than last year, i.e. 4.8	15.5-16.0	6.4	3.3	14.6
2000-01	6.0-6.5	Close to the average of last two years, i.e. 4.5		4.4	7.2	16.8
2001-02	5.0-6.0	Within 5.0	About 14.4	5.8	3.6	14.1
2002-03	5.0-5.5	Around 4.0	14	3.8	3.4	14.7
2003-04	6.5-7.0 with an	4.0-4.4 with a downward bias	Around 14.0	8.5	4.6#	16.7

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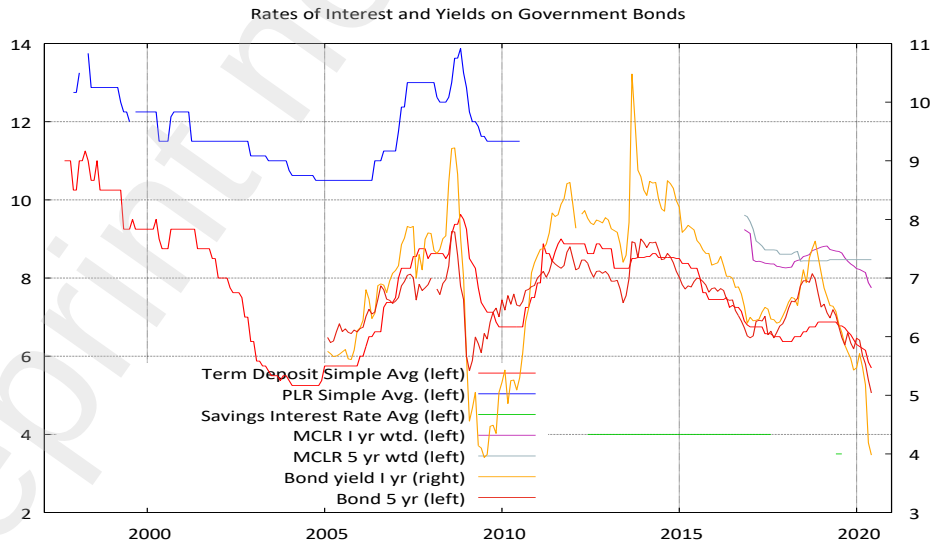
	upward bias					
2004-05	6.0-6.5	Around 6.5	Possibly of Higher M3 cannot be ruled out; initial projection was 14.0	7.5	5.1#	11.8
2005-06	7.5-8.0	5.0-5.5 as projected earlier	Significantly higher than 14.5	9.5	4.1#	16.9
2006-07	8.5-9.0	5.0-5.5 as projected earlier	Somewhat higher than 15.0	9.7	5.9#	21.7
2007-08	Around 8.5	Close to 5.0	Containing M3 in the range of 17.0 -17.5 per may warrant policy response	9	7.7#	21.4
2008-09	7.0	Below 3.0	19	6.7	0.8#	18.6
2009-10	7.5	8.5	16.5	7.2@	8.6^	17.0 ^
* As per the revised projections for the year; # year -on- Year basis; ^ Jan 2010; GDP: Gross domestic product at factor cost at 1999-00 prices; @Advance estimates with based 2004-05 Note: Inflation is based on wholesale price index (WPI)"						
Source: Table 4 of Mohanty, Deepak (2010), verbatim						

See Figure 49 which brings out the rates of financial institutions along with bond yields -1 and 5 yr. The institutional rates are reflective of the cost of capital for much of the productive sector that cannot go into the markets.

Figure 49



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Impact of GFC

The first impact of the GFC was obviously on the financial sector. In any crisis including one which happened in the US, as was the case with the GFC, there is heightened preference for liquidity designated in dollars the reserve currency since there is no other credible currency, and gold is too scarce to be held in significant measure in portfolios. Hence there is a flight to US dollars primarily and to other reserve currencies in a marginal way out from all other currencies –especially those of emerging markets. Emerging markets are therefore badly hit since there is a flight of capital from them for no fault of their own. The heightened liquidity preference is because of the uncertainty. Among smaller and locally oriented national portfolios in the emerging economies, there would be a sympathetic flight to local liquid assets as well.

The RBI's own reaction to this contagion was problematic. It delayed serving the dollars to meet the requirements of the FIIs that were quitting the country. After some delay the demand for dollars was met. But after the heightened demand following the collapse of Lehman Brothers, the RBI while dealing the dollars, did not compensate for the fall in the NFA by increasing domestic credit (DC) to keep the base money on its original trajectory. [20] These adverse forces on businesses and the economy, by way of the light liquidity in the market forcing many to borrow at rack rent rates, were entirely an avoidable pain.

We see in Figure 46 (second reference to figure) the collapse of H along with the sharp fall in the growth rate of M1 and M3. The growth in H had turned negative for a number of months! This is quite surprising, since it is standard practice to reverse sterilize in a situation where the shock is external and purely financial, and not due to any problems with the real economy. With the large reserves of more than 300 billion US$ held by the RBI this would have been the best use of some 20-30 billion US$. It was only much later that the RBI, could be "persuaded" to restore (and expand) liquidity. It was still fighting "inflation" that had been almost entirely of the supply side variety[21] and had emerged from 2006 onwards as petroleum and food prices rose. It took quite a while until mid-2009 before growth in M1 could reach a level of about 12%.

It was expected that growth (without counteraction) would slow down. However, the quick and large fiscal stimulus put together by the government, now with a renewed mandate, was also able to coax monetary support from the Reserve Bank for a while. These measures allowed growth to go back to the pre GFC years with a brief dip. Within a year of the GFC growth had reached about 9%. The credit must go entirely to the government which was able to put together a bundle of measures that included significant cuts in indirect and direct tax cuts, and large increases in MGNREGS and

[20] As Varma, Jayanth (2009) has brought out, the RBI converted a dollar liquidity crisis to a rupee liquidity crisis!

[21] Globally though the inflation could have been moderated by demand side cuts by the major economies US, Europe and China, and all of which were growing faster than before creating a rising demand for oil and commodities. China being in the midst of its industrial transformation was the big demand side factor in the rise of global commodity inflation.

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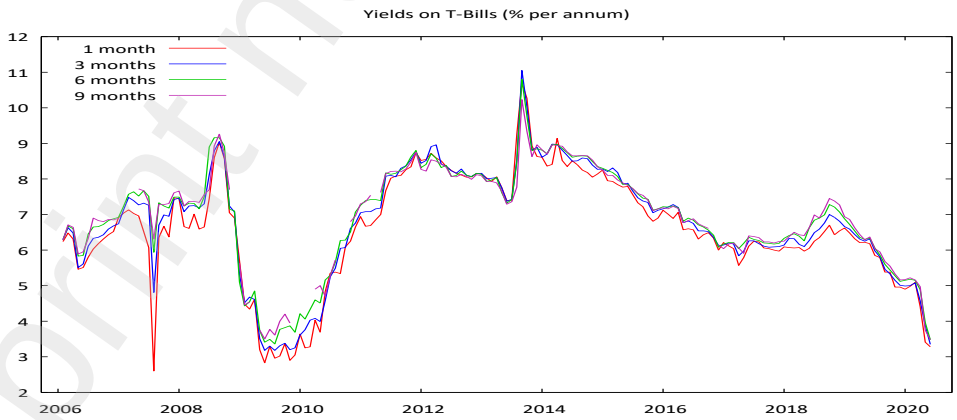
infrastructure spending, with significant growth in M1 and M3. The first two years of the stimulus which was over three phases resulted in an immediate bounce up of growth of 9% pointing to perhaps some overshooting. But the RBI soon 2011(05) had raised t-bill rates to over 8% on fears of an inflation. See Figure 50. Rates remained high at well over 8% even after the financial stimulus had been withdrawn.

"Taper Tantrum"

In May 2013 when Ben Bernanke talked about winding down the quantitative easing, the capital market in the US went into shock, and the so called "taper tantrum" happened, which raised interest rates in the US as markets scurried to respond to the fears of a resulting liquidity squeeze if the quantitative easing was to be pulled back. It affected India, as debt and equity sell offs took place. The policy rates were raised soon thereafter, and the tightening that resulted raised market rates to over 10%, and then only slowly came down despite the fact that the tantrum had gone away quickly with the forward guidance by the US central banker. Apparently, since the repo window was not on autopilot, nor expansion through OMO was responsive, the dollar liquidity demand transmitted as a rupee liquidity demand, and the low end bond yields went far above the repo. Only by 2017 had the low end bond yields fallen to 6%. With monetary policy remaining hawkish, and no expansion on the fiscal side, growth had to be affected adversely. As growth bounced up after the demonetization, from mid-2017, the RBI seeing the core inflation move up tightened again and market rates went up to 7.5% or so at the low end. After that as the signs of slowing down were visible to all, the RBI began to ease. The change in the guard at RBI now to a professional bureaucrat who did not bring doctrinaire baggage may have helped, and the rates had reached a low of 4% before the Covid19 Crisis. Since then they have fallen to record lows of 3%, seen just after the start of the Crisis. Yields on longer duration bonds though fell much less and more slowly reflecting the heightened uncertainty in the financial markets.

Figure 50



Policy rates and bond yields

If the repo rates are to be the policy rates, then it means that the repo window is kept open. The RBI has apparently been trying to determine both the money supply and the rates over certain periods though!

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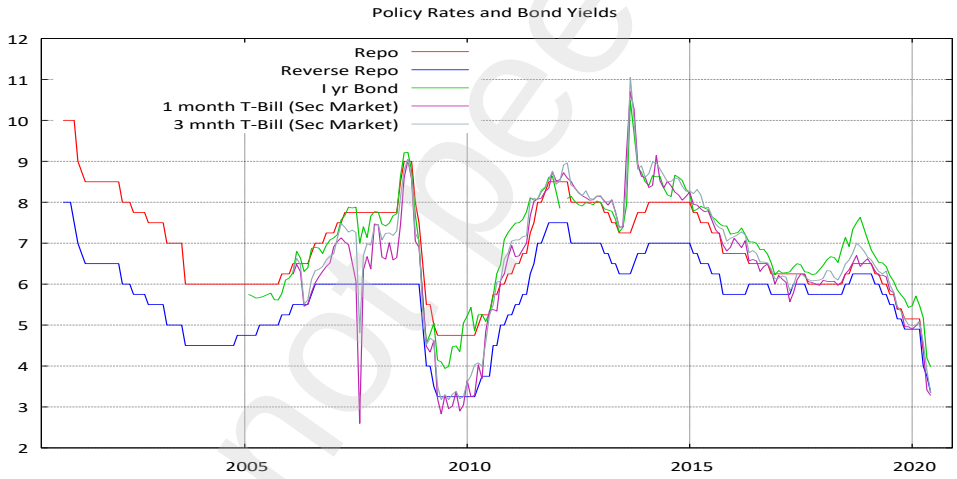
The low end bond yields when the repo window is kept open are collared between the repo and the reverse repo, which allows the RBI to set the rates. In which case the money supply is endogenous and not under its control. This was the case during much of the period before the GFC. During this period the only anomaly was when the reverse repo window was shut, resulting in the 1 and 3-month bond yields falling to below 3 and 5 % respectively when the reverse repo was 6%! After the GFC since the tightening began in 2011-12, yields of 3-month and 1-yr and even 1 month securities were quite often above the repo rates, and during the "taper tantrum", the actual market rates were well above repo making the repo irrelevant as the policy rate. Indeed, right from 2012 almost till 2018 the 3month bond yields were not being collared signifying that the repo widow was not set to work automatically. This behavior on the part of the RBI was quite strange, because all along its major complaint in the policy briefings was that the low rates were not being passed on! However, the fact that the banks did not speak up to say that they could not have passed on the barmecidal dishes to industry while surprising to the outsider is not to someone who knows the hierarchy in officialdom[22]. See Figure 51.

Figure 51



There are of course structural impediments to the final stage in transmission, since the public sector banks have to hold on to high margins between interest on sources and the lending grates. Despite the commitment at the time of the GL that the parasitic SLR requirements on the banks would go, the SLR could be barely lowered to 25% by 2010. It is only since then that it has come down to 20%, still necessitating a high net interest margin. Moreover, we know that banks and FIs saw high risks in

[22] Thus much of the "taking to task the banks" for their "lack of transmission", before they had all but seized up from 2018, may only have been shadow boxing. Of course the PSU BSFIs would never point to the repo window being closed since in India the official (even a junior one) is well above CEOs of PSUs, even of a Fortune 500 company, and would never dream of directly confronting an official or a regulator. See the discussion on transmission later.

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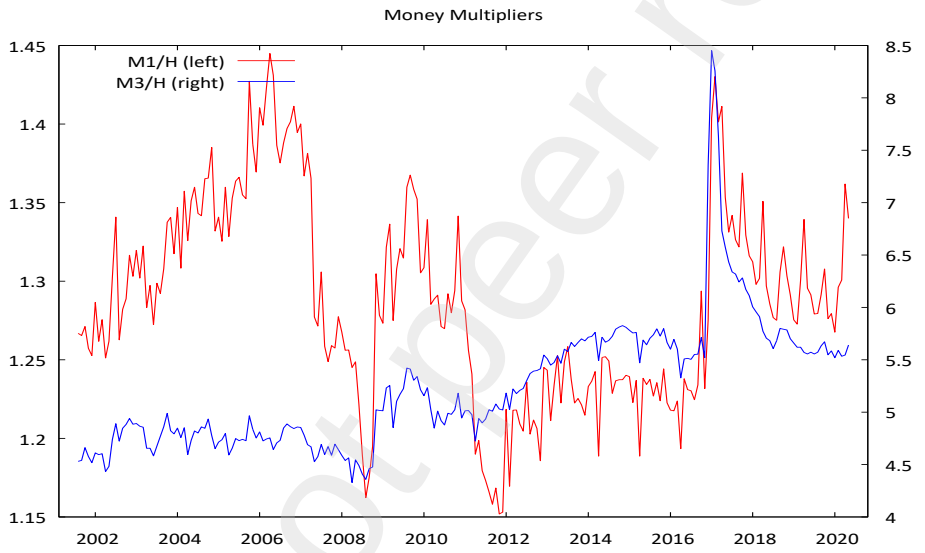
lending in part caused by the poor environment for investments and growth, almost without a break from 2011-12.

The CRR though had been brought down from the dysfunctional 15% before the GL to 5% well before the GFC, which had been raised to fight the "inflation" during the period before the GFC as we saw before. We see that the CRR was raised again in 2010 when inflation had been high by the RBI. The cash/deposit ratio had been steadily falling from 1995 to almost 2008, after which it remained steady till the present, except for the large fall as a result of the demonetization. This means that the money multiplier could have been kept steady allowing the RBI considerable control to meet the buffeting due to capital inflow and outflow pressures. See Figure 52 which brings out the narrow and broad money multipliers.

Figure 52



The lending rates have been high and went up as the RBI tightened to fight inflation as we have seen before by raising the CRR. See the PLR as brought out in Figure 47. Since 2017 when the banks moved over to the Marginal Cost (Based) Lending Rate (MCLR) they were high but did not rise with the market rates in 2018. The fact that the MCLR held steady despite the rise in the 1 yr deposit and the 1 yr/5 yr yield rising is not of much solace to the borrowers because very little was disbursed during this period.

Uncertainty in the financial markets

Uncertainty in the financial markets is not easy to measure. When there is no break in the payments mechanism, but there are sudden shifts in the demand for liquidity, we may measure the same partially. We know that the increase in the slope of the yield curve is indicative of rising uncertainty in the government bond market, which then affects corporate bonds and equities. For very short periods though it reflects the inertia in the transmission of falling low end rate (due to the repo being lowered

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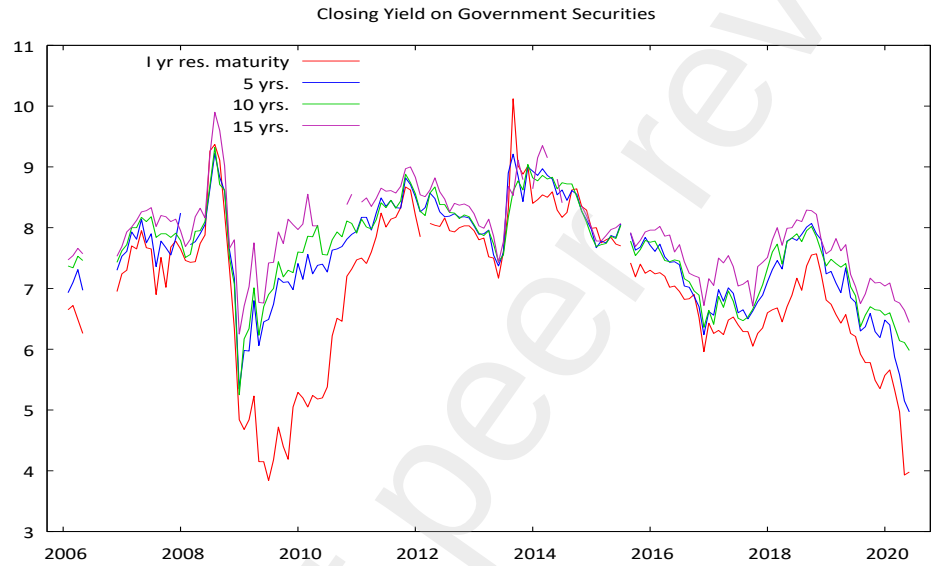
or money supply being increased by low end bond purchases), with the higher end rate falling after some lag as markets adjust.

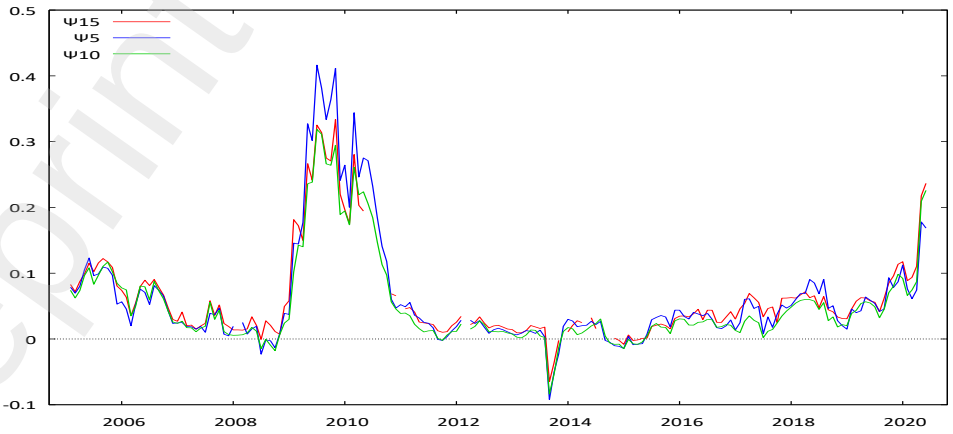
The steepness as measured by the slope of the yield curve had risen from 2017 onwards which is the onset of the NBFC and the banking crisis, indicating that the RBI was not able to meet the liquidity demand that the uncertainty generated. The earlier rise in the same just after the GFC was due to the external shock. Figure 53 brings out the yields on government bonds of various maturities, since 2006.

Figure 53



We have defined a measure of uncertainty in the bond market of a certain duration n as $\psi_n = (\frac{y_n}{y_1} - 1)/\ln(n)$; where y_n is the yield on a bond of maturity n. These are expected to be highly correlated. Figure 54 for plots of ψ_n from which the uncertainty is easier to infer.

Figure 54



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As seen before the RBI was able to expand M3 at a rate of 10% which came down to 8.5 and 9% in early 2020. See Figure 47 again. However, while this may seem sufficient, the RBI had to increase H at a higher rate, implying that the demand for liquidity was from the financial sector, i.e. for portfolio requirements. Growth and Inflation being low and with nominal GDP growth being no more than 10 or 11%, the transaction demand for money was not the issue, but the vast increase in the portfolio demand due largely to the prolonged uncertainty in financial sector, and more generally in the economy. That the uncertainty measure rose to high levels during the global crisis is not surprising since central bankers then led by the Bernanke had to learn to expand liquidity in a very large way to quell the uncertainty by meeting this sudden rise in the requirement of liquidity. This was as is widely known done through massive injection of funds through quantitative easing. When there was talk that such easing may have to be withdrawn the taper tantrum happened. However as forward guidance continued the demand for liquidity could ease.

During the COVID19 Crisis as both US and Europe expanded liquidity further to lower the yields, the rise in the uncertainty (in the financial market) could be quelled much faster. The whiplash effect of the "Taper Tantrum" reversed the slope of the yield curve, making the uncertainty measure turn negative for a while. Thus the global shock passed through India with no counter measures, and reversed itself only when the assurance of the US Fed calmed global capital markets. Since April 2020 it has risen further as high end yields have continued to hold while low end yields have fallen.

In March 2020, as the COVID19 Crisis hit the Indian economy, the H growth plunged to 8% and by April 2020, reflecting the inadequate and slow response of the RBI in dealing with the liquidity hunger that the Crisis would have brought about, on top of the already heightened demand.

We may define the uncertainty in the corporate bond market similarly as $\psi_n = \left(\frac{y_n}{y_1} - 1\right)/\ln(n)$, where y_n is the yield on a zero coupon triple A corporate bond of maturity n.

The uncertainty measure for AAA corporate bonds which was anyway very high, increased in 2019, came down marginally in early 2020 only to rise rapidly as the yields on 3-yr AAA corporate bonds rose, which by now would have spread to bonds of higher maturity as well. See Figure 55 and Figure 56. Uncertainties in the real economy would have changed independently with policy and environmental factors turning adverse from 2018 onwards. However, since the uncertainty measure here has broadly followed the uncertainties in the government bond markets, the financial markets have been the major source of uncertainty for the real (productive) economy, both due to shocks that arise externally and the RBI's response /non response to these shocks. Thus the correlation of ψ with ϕ over the period from 2018 is high.

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Figure 55

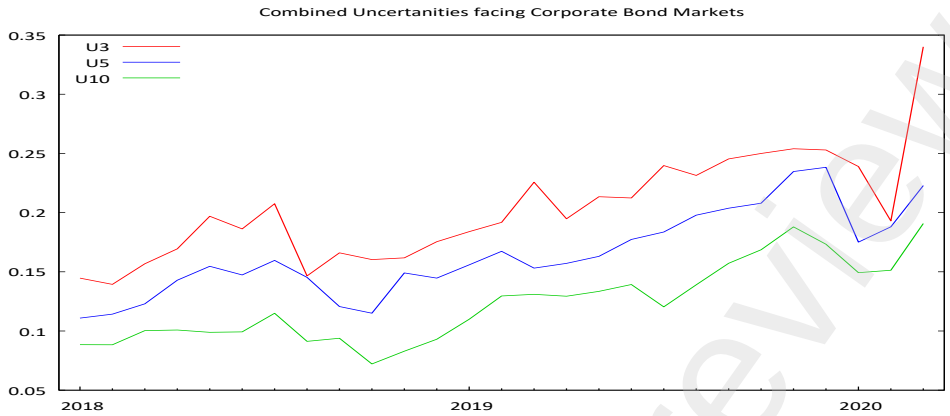
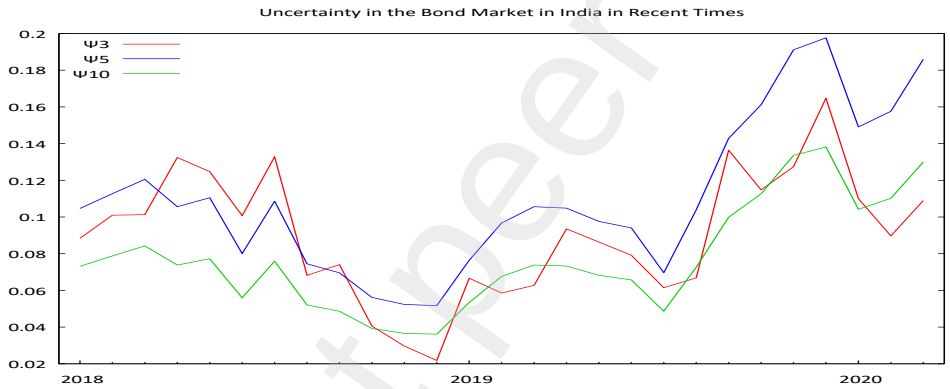


Figure 56



Section IX – Policy and Analysis

We have already seen that the period since 2011-12 had been problematic with slowing down of growth, and with only a short lived bounce up in 2018 from the demonetization, which was not sustained.

Nagaraj (2020) in a quick piece brings out the broad dimensions of the slowdown and also points to demonetization, crony capital and inadequate public investments.

Why has the growth been low? We list several factors some of which are shocks, and some due to policy or even non-response to shocks which could have been easily countered.

Policy paralysis

The so called "policy paralysis" was certainly important in having contributed to the slow down from 2011-12 onwards. Especially impactful was the ban on iron-ore mining and the series of court decisions that increased the uncertainty- for instance the ban on sand mining. And the Supreme Courts indictment of the coal allocation process. The mess created by the shoddy way in which coal blocks were allocated,

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could be "resolved" only with the coming of the Modi government in 2014. The CAG pointed to the lack of proper bidding in the allocation of licenses and spectrum for the 2G services. The fairer more transparent and fee maximization with which the 3G auctions were conducted seemed to suggest much loss of revenue to the government, when indeed earlier the policy was to not to allocate the spectrum separately. The so called "2G Scam" hurt the Congress government, and contributed immensely to the growing uncertainties, since it seemed to suggest that courts and audit organizations could reverse decision of the government. At that time the sharp decline in output, and especially that of capital formation was discussed exclusively in terms of policy paralysis[23]. However, the sharp tightening which happened just when the fiscal stimulus was being withdrawn was perhaps more important.

Monetary tightening

But we must not underestimate the macroeconomic developments especially the non-response or the angular response of the RBI in tightening when the fiscal stimulus of 2019-10 and 10-11 was withdrawn, as we have already brought out. The continued tightening in the management of shocks whether it was in response to external shocks like the taper tantrum, or the pressures for depreciation of the currency, were perhaps the most important of the factors.

The real interest rates were high, the gap between Indian and global rates were very large. While these large gaps could temporarily attract some FDI and FII investment, there is no spending out of the flows. Net flows are known to depend upon growth differential between the host country and the rest of the world, and spending is not necessarily co-terminus with investment inflows

Typically, high rates, high differentials and high real interest lower the investment spending by both domestic and foreign businesses. Tightening when due to domestic credit shrinkage as compared to fall in NFA can have differential spending effects as between domestic capital dependent firms and those having access to foreign flows during times of an otherwise exuberant economy. The entire period up to 2018 has been one of high interest rates (actual) as measured by the corporate bond yields and the MCLR /PLR /Base rate. While the latter are relevant to corporates which have the

[23] C. Rangarajan the Chief Economic Adviser to the PMEAC argued that the sharp rise in the incremental capital output ratio (ICOR) was reflective of the large hold up of assets under construction. He also noted that the growth fell more sharply than what had been caused by the fall in investment. Moreover, "*investments did not commensurately translate to output*" was the claim. FeBureau (2013). However, we know that when investment spending falls then with immediate effect given a large demand multiplier of the order of 2, output should fall increasing the ICOR. The productive aspect of new investment is not in the picture in the short run. However, the report also noted the sharper than expected fall in the core inflation, suggesting room for monetary expansion. [Later we will see that the earlier rise as well as the fall in 2013 may have been spurious – due to the movement of "housing rentals" rather strangely computed by the CSO]. We know that this was a period of massive tightening though by the RBI even as the stimulus had been pulled back, and further collapse of investments took place.

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scale to raise funds in the capital markets, the vast bulk of the MSMEs and even many large firms it is the lending rates of banks with is important.

It is only since 2018 that the RBI brought down rates, but by then after years of punishment due to inadequate liquidity which had kept interest rates up and had already brought down growth and demand through the fall in capital formation, renewal of capital formation cannot take place merely on account of a fall in rates. When rates declined, finally, there were no "animal spirits" left, to respond to the lower rates in 2018. Housing investments which are known to be sensitive to demand conditions and respond to low interest rates (even when expectations of future incomes are not bright, unlike productive investments), could possibly have responded, but the cuts in interest rates were not deep enough. And soon enough lenders to the real estate sector began to see their loans being rolled over. RBI's insistence that these be recognized as NPAs, without any attempt to revive housing demand, in the face of large unsold inventory further contributed to the mess.

The NBFCs which lend to smaller units too being badly affected, contributed to the ineffectiveness of low rates in 2018 and thereafter, to be able to raise investment or for that matter any kind of spending.

Positive vibes but underspending

Mr. Modi's government was ushered in, in 2014 with a huge mandate, and there was near unanimous expectation, almost tantamount to conviction, that the government would go about setting the economy right. Early in June 2014 the government took charge. From early February itself when it was clear that the advantage lay with Mr. Modi the Nifty had risen from about 5935 to 7623 before the government was sworn in. In anticipation of the positive actions to help the economy and business, that nearly all believed would come, the market rose further to 8763 by March 2015, at the time the second budget was presented. The overall rise of 47% happened within a year, when there was no marked improvement in the economy on the ground; so large were the positive vibes generated by the Mr. Modi. However, when the anticipated measures to improve the investment climate and the demand conditions did not materialize the market rather reluctantly accepted the situation, and slowly gave way. The belief in Mr. Modi's intentions and capability to set the economy right continued all through the period, certainly even into the early COVID19 lockdown phase. In other words, the market has been ever ready to respond positively to the government.

Over the 9 months that was the tenure of the first budget, the spending was actually less than what was budgeted! Underspending in democracies is rare, and the matter does require an explanation. The underspending as indicated by the revised estimates when compared to the budget estimates for Non-Plan expenditures presented in the 2015-16 budget for the year 2014-15 (1st 9 months of Modi-1) was as much as 1.05%, i.e. Rs. 18863 crore. But the underspending on Plan-Expenditure was by as much as Rs. 112356 crore which was close to 6.26% of the budget estimates. And on total expenditures it was Rs 131219 crore or 7.31% of the budget estimated of 2014-15. On capital expenditures – largely a part of Plan expenditures it was short by Rs. 30100 crore i.e., 1.68% less than the budgeted figures! Capital expenditures are known to

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have large multiplier effects of well over 2.0 and Plan expenditures of around 1.5. [24] These overall expenditure shortfalls amounted to over 1.04 % of GDP of 2014-15 at factor, and with an immediate multiplier effect of 1.5 overall the hit to GDP growth would have been in the range of 1.5% per annum! It was only in the expenditures of 2015-16 that the budgeted expenditures were reached. See Table 4.

It was contented by many senior civil servants that the lag in expenditures from budgets and approvals had increased due to the extreme centralization by the PMO.

Table 4

Estimates of Revenue and Expenditure and Actuals as Assessed in March 2016, of 2014-15 (Rs. Crore)								
			BE	Actuals	Actuals over BE	Actuals over Budget (%)	Excess as a % of GDP	Excess as % of Budget
1	Revenue Receipts		1189763	1101472	-88291	-7.4	-0.70	-4.92
	2	Tax Revenue (net to centre)	977258	903615	-73643	-7.5	-0.58	-4.10
	3	Non-Tax Revenue	212505	197857	-14648	-6.9	-0.12	-0.82
4	Capital Receipts (5+6+7)$		605129	562201	-42928	-7.1	-0.34	-2.39
	5	Recoveries of Loans	10527	13738	3211	30.5	0.03	0.18
	6	Other Receipts	63425	37737	-25688	-40.5	-0.20	-1.43
	7	Borrowings and other liabilities *	531177	510725	-20452	-3.9	-0.16	-1.14
8	Total Receipts (1+4)$		1794892	1663673	-131219	-7.3	-1.04	-7.31
9	Non-Plan Expenditure		1219892	1201029	-18863	-1.5	-0.15	-1.05
	10	On Revenue Account	1114609	1109394	-5215	-0.5	-0.04	-0.29
		of which,						
	11	Interest Payments	427011	402444	-24567	-5.8	-0.19	-1.37
	12	On Capital Account	105283	91635	-13648	-13.0	-0.11	-0.76
13	Plan Expenditure		575000	462644	-112356	-19.5	-0.89	-6.26
	14	On Revenue Account	453503	357597	-95906	-21.1	-0.76	-5.34
	15	On Capital Account	121497	105047	-16450	-13.5	-0.13	-0.92
16	Total Expenditure (9+13)		1794892	1663673	-131219	-7.3	-1.04	-7.31
	17	Revenue Expenditure (10+14)	1568111	1466992	-101119	-6.4	-0.80	-5.63
	18	Of Which, Grants for creation of Capital Assets	168104	130760	-37344	-22.2	-0.30	-2.08
	19	Capital Expenditure (12+15)	226781	196681	-30100	-13.3	-0.24	-1.68
20	Revenue Deficit (17-1)		378348	365519	-12829	-3.4		
			-2.9	-2.9				
21	Effective Revenue Deficit (20-18)#		210244	234759				
			-1.6	-1.9				
22	Fiscal Deficit {16-(1+5+6)}		531177	510725				
			-4.1	-4.1				

[24] Bose and Bhanumurthy (2010).

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23	Primary Deficit (22-11)		104166	108281				
			-0.8	-0.9				
		GDP# (memo)	12653762	12653762				
		Budgeted Expenditure total	1794892	1663673				

$ Excluding receipts under the market stabilisation plan
*Includes indrawn balance
#Advance estimates from the CSO
Source: Absolute figures from Tables Budget at a Glance from India Budget of 2015-16 and 2016-17

Many mainstream departments despite having the approvals for expenditures nevertheless actually expended only when they were sure that the PMO was fully conscious of these expenditures.

Unconditional pursuit of fiscal deficit targets

The commitment to containing the fiscal deficit was almost total and overriding without any nuance conditioning it on the state of the economy. The government may well have been misguided by the growth estimates in this period based on the new GVA11-12 series which clearly over reported the growth in the period from 2011-12 onwards perhaps till 2017-18. See Morris and Kumari (2019). However, there were other clear indicators that were ignored – the index of industrial production, credit growth, and exports, besides physical transaction indicators that all pointed to a slow down. Even the new series showed a decline in the rates of gross capital formation to GDP. Yet the stance of the government was that growth must be high! The newly introduced Periodic Employment Survey (PES) was available to the government from 2016-17, but these were not released to the public since the high unemployment and low employment growth in these would have gone against the government's posturing[25]. The CMIE's employment surveys could be dismissed as being "unofficial', never mind its extensive coverage and high reliability. Perhaps very importantly the belief that the Finance Minister understood it all, prevented any nuanced understanding. The approach of the government to its budget was dysfunction in being that of a householder to his home budget, where frugality, and tightening at times of adversity are recommended, and spending within "means" is appropriate. The government seemed to have attached an unconditional value to reducing the fiscal deficit, and took pride in achieving its fiscal deficit targets. It may have been playing to international rating agencies[26].

Scaling down MGNREGS

The BJP government's DNA was quite against the MGNREGS. The scaling down of the same without its replacement by any other spending programme would have reduced overall spending to put downward pressure on demand. The usual assumption that

[25] This could also have been the result of conviction that the growth (as indicated by the new series) being high was in contraction with the findings of the PES, to delay the release by a quarter or so at best. Continued non-release puts doubt on the intentions of the government.
[26] Much the same approach and attitude has continued into the COVID19 crisis to make the government's response so utterly at divergence to what is required.

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reduced government spending crowds out private spending, was not true during much of Modi –I since the "animal spirits" were down, despite the hope, and the economy was wilting under declining demand. In the year 2012-13, under the UPA, Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) allocations has been scaled down from 0.43% to 0.383% of GDP. It was scaled down further to 0.26% for 2013-14. And in the first two years of he Modi –I it was as low as 0.23% to 0.26% of GDP. It was only in 2016-17 that it reached some 0.374% at which level it remained until it was scaled down again in 2020-21 (budget estimates).[27] See Table 5.

Table 5

Trends in the Expenditure on the Mahatma Gandhi National Rural Employment Guarantee Scheme (MNREGS)					
Fiscal Year	Expenditure on MGNREGS Rs Crore	GDPMPCP Rs crore	MNNREGS Expn /GDPMP at Current Prices (%)	Growth of MGNREGS Expn. (% per annum)	Source
06-07	8823	4490190	0.20		Ehmke (2015)
07-08	15857	5172840	0.31	58.6	Ehmke (2015)
08-09	27250	5974910	0.46	54.1	Ehmke (2015)
09-10	37905	7083670	0.54	33.0	Ehmke (2015)
10-11	39377	8106950	0.49	3.8	Ehmke (2015)
11-12	37073	9202690	0.40	-6.0	Ehmke (2015)
12-13	39657	10363200	0.38	6.7	Kulkarni (2018)
13-14	29870	11504300	0.26	-28.3	Kulkarni (2018)
14-15	28967	12574500	0.23	-3.1	Kulkarni (2018)
15-16	37216	13965200	0.27	25.1	Kulkarni (2018)
16-17	58063	15513100	0.37	44.5	Kulkarni (2018)
17-18	63649	17140000	0.37	9.2	MNREGA Site as on June 2020
18-19	69619	18493700	0.38	9.0	MNREGA Site as on June 2020
19-20	68058	20343070	0.33	-2.3	MNREGA Site as on June 2020
20-21	24010	22173946	0.11	-104.2	MNREGA Site as on June 2020

This scaling down of the MGNREGS which had been scaled up to 0.5% of GDP after the GFC, was one of the important reasons for the slowdown. The aggressive reduction that followed in the last years of UPA and the early years of Modi –I further exacerbated the demand shortfall. By the time it was sought to be revived from 2016-17 onwards, the other expenditures, especially investment had been reduced to near stagnancy.

[27] Now with the COVID19 Crisis the allocations under the NREGS are expected to double.

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Demonetization and delayed effects

The demonetization was instrumental in reversing a moderate rise in the growth that had begun sometime in 2016. As we had already seen from the data the index of industrial production, fell sharply. But then there was a quick rebound (2018Q1), which was also short lived. Demonetization reduced the incomes of many petty producers who had customers with whom they could not have operations on a credit basis when there was little cash in the economy. Thus vendors in public places like railway stations, busy street corners etc. had to pull in their businesses. Similarly, those with high transaction intensity using cash were badly affected for a shorter period. The demonetization was known to the government to have been a blunder almost a few days into its announcement, and the government through the RBI went about restoring the cash in the system as quickly as it could.

The RBI without much thought replaced the 500 and 1000 denomination demonetized notes with notes of 2000 denomination, thereby perhaps aiming to optimize the available capacity of impressions per unit of time, ignoring the transaction potential of the system of notes now with 2000. 2000 has poor transaction intensity (velocity of circulation) when without notes of 500 and 1000, since these would be used in exchange when purchases of below 1500 are made with a 2000 note. A mix of 2000, 1000 and 500 would have been transactionally more efficient[28], and the need of the day. It was the rise in speed of circulation of 100 notes, thanks to locally emergent systems of collection and circulation by note carriers that saved the days. The net result was that the pain of demonetization was prolonged due to the RBIs naivety.

As argued earlier demonetization affected consumption adversely with a delay of around 12 to 18 months, in 2019-20. Because of this delay the Nifty index of consumption, and the prices of shares of FMCG and white goods companies began to fall only in early 2020. We have already reviewed the pattern through the IIP for consumer goods both durables and non-durables.

Authorities enhancing risks and uncertainty

The government's penchant for high centralization, and going beyond the voice of reason or practicality, with all good intentions, as in the case of the demonetization was evident in other episodes as well. Thus the push towards electric mobility was not nuanced, nor based on any reasonable trajectory. High degree of commitment, in the government's thinking, meant tougher and harsher measures to push the economy to shift, forget about recognizing any of the nuances that are involved. The Indian automobile sector facing the regulatory jump from Bharat IV directly to Bharat VI in 2020 had responded very well, with vast investments to make the transition on a very hard target of April 2020. Earlier, the Indian oil companies had already invested to produce cleaner fuels meeting Bharat VI requirements. In September 2018, the government announced the move to electric vehicles, while the Bharat VI assets were being created or had yet to be sweated! In August 2019 it announced a series of concessions for electric vehicles 5% GST (normal vehicles had 28% GST), a reduction in direct taxes for those buying electric vehicles up to Rs. 2.5 lakhs. Yet there was little

[28] Joshi and Mukherjee (2017).

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clarity on the policies or measures required to bring about a charging infrastructure. So despite the incentives no major shift could have taken place.

Later, the government had to announce that it will not ban diesel vehicles since by then loose statements on banning diesel by senior politicians had been picked up by the media. In no country has the shift been accompanied by bans or deadlines. Bans and unrealistic deadlines for obsolescence create far too great a loss of social value. Bans, unlike incentives and taxes which price goods and services, are difficult for markets to value, and result in heightened uncertainty. Investments in the sector which had slowed up except for meeting BSVI all but seized up. Even consumers felt the uncertainty, which resulted in delaying or putting off purchases. Government further multiplied the hurt by raising the registration rates by insisting on collecting 3 years tax at one go, which raised the initial cost of ownership quite considerably. In some cases the hike could be as high as 400%. [29]

Thus the sharp decline in auto sales from April 2018 and which has continued to date is not difficult to account for. See Figure 8 and Figure 9 again. Motor vehicles are an important industry of the manufacturing sector which along with its immediate input and user industries account for some 45% of manufacturing in India. These adverse policies have been to affect demand, except for the bounce up in early 2018 after the demonetization dip.

Not external factors

A few commentators have called attention to "external shocks" that pushed growth down. But the period since quantitative easing was put in place by the US and the EU has been one of steady if moderate growth globally. Oil prices have remained quite benign, rising only marginally before the COVID19 Crisis. The Chinese economy had slowed down after the GFC still grew at 7.5 to 8.5 % till 2014-15, and slowed down thereafter to about 6-6.5%. While the "taper-tantrum" was severe it was entirely on the financial market side, and need not have affected the real economy, had the central banker provided the compensating liquidity, instead of allowing the rates to go up to shockingly high levels. The crisis in global trade by the Trump-Xi trade wars could have affected performance only in 2019 or thereafter.

However, the slow growth of IT and services exports than before the GFC would have had its effects. But service exports did grow from 2011-12 to 2018-19, at nearly 7% in dollar terms. See again Figure 28Figure 38. Service exports were not so dependent on pricing given the "absolute" advantage that India has in many services especially ITES. Export of goods nearly stagnated over the same period but varied much with some dependence on the REER. Exports of manufactures could easily have been put on a higher growth path with a more aggressive pricing of the rupee. But depreciation has not been on the agenda of the of either the Government or the Central bank. Instead as we have seen they have sought to uphold the exchange rate and prevent its depreciation, through raised interest rates. And even one Commerce Minister seems

[29] Apparently with the COVID19 Crisis government has put a hold on this increase.

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to think that exchange rates are determined by markets, and hence missed recognizing the instrumentality of the exchange rate.[30]

Real Estate Construction and Growth

The real estate sector has been in deep trouble. Again here besides the high taxes suddenly brought about by the reform that included the sales in the sector under GST, high interest rates and a series of 'shock' regulations have been important. The RERA while well intended, and having many positive aspects, nevertheless meant increased capital mobilization on the part of the builders, since now they could not divert funds from project to project to (mis) use client funds. This created a demand for credit which came at a time when the credit was being curtailed. Not all of them had the credibility or equity to borrow to make up for the additional requirement. The problems of slower income growth, higher interest rates which arrested consumer demand, and the liquidity shortage which they faced, made them delay deliveries which further compounded the problem since buyers were unwilling to make purchases without seeing substantial construction on the ground. Inventories increased even as construction slowed down. Buyers had been hit by rising rates over 2011 to 2015, and when the rates did not fall after 2015 the slowness in income growth had its effect.

The real estate sector in India has large problems of a structural nature that range from absurd regulations on layout, very low regulated FSIs, very little land being released for urbanization especially in metros, problems in land aggregation, requirement of Non-Agricultural Clearance (NAC), non-existence of even a modicum of coordination between layout and land-use on the one hand and articulation infrastructure on the other, large risks of title, and so on[31]. Yet the immediate slow down, and the situation of many of the players reaching illiquid situation can be attributed to the overall slowdown , and the problems with the NBFC and the banking sectors , compounded by the NPAs arising out of the real estate and infrastructure sectors. See also Varma and Morris (2020) who argued for an immediate resolution of the problems in the sector.[32]

Infrastructure, and NPAs of banks in the slowdown

Bad lending practices by the public sector is no doubt an important reason for the erosion of their capital and high NPAs. This is well recognized as a problem. However, the reasons for the same as arising out of the lack of autonomy (from government),

[30] Thus Dr. Suresh Prabhu one of the very able ministers, who talked of incentives, and structural changes, nevertheless could not see the instrumentality of exchange rates, in a interview with Mr. Prannay Roy of NDTV, at a time when world imports had picked up quite substantially. See https://www.youtube.com/watch?reload=9&v=xiLfJgX7yh4

[31] See Morris (2017).

[32] They proposed a "comprehensive resolution mechanism that can clean up the mess in the real estate sector, stabilize the financial system, and help put the economy back on the growth path". A variety of models to price the impaired asset including hedonistic for real estate, and standard gravity models for transportation assets for takeover and re-auction were outlined. For electricity generation "the eroded value could set the takeover value, while the price could be determined by an auction now under a policy that allows fuel prices ….as pass-thru".

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attempts to micromanage by the government, and an overbearing regulation that removes from them the responsibility to be accountable for performance and risks taken, are not widely recognized as being the core underlying reasons. The political pressures that make them give credit to risky clients favoured by the government of the day, as a reason is also well recognized. Perhaps more that the latter the former is important. It is also what makes them vulnerable to political pressures, and therefore it is ultimately the dysfunctional design of their interface with the government and the regulator that is responsible. The RBI in itemizing good practice, prevents the embedding of responsibility. See Morris (2019).

But above all the role of the slowdown in amplifying the NPAs of the banks, is not generally recognized. NPAs are expected to be counter cyclical, rising during periods of recession and slow growth, only to improve later when the growth picks up. The suddenness of the decline in gross capital formation and collapse of construction from 2013 onwards was instrumental in increasing the NPAs. Had the economy recovered quickly perhaps these current very large back breaking NPAs would not have materialized despite the structural (managerial) weaknesses of the PSU Banks. The continued slowdown brought not only PSU banks (2018) but many NBFCs (2019) and private banks, to their knees. Poor and delayed responses by the RBI and the government to the crisis in real estate, infrastructure, and in the NBFCs both being linked together (as when government chose to ignore the Dewan Housing Finance collapse, and the collapse of the ILFS, were important contributors. Similarly, the government delayed the inevitable requirement to re-capitalize the PSU banks worsening their problems.

Weakness in assessment of loans by PSU banks, may also have been due to the poor financial structuring of PPPs, which allowed interest rate risks to be borne by developers. When there is rise in rates they have an incentive to shift the same the adverse effects of the same on to the PSBs, when government could not be cajoled into making concessions. See Morris (2019) for the details of how private infrastructure capital could play the government and the public sector banks to limit their downside risks, allowing them to take on unwarranted risks as many of them chased rents. Even reputed capital may have been caught in the maelstrom since when some developers could bid aggressively taking on risks others were also forced to do so, or accept being out of the business.

Consider the growth rate in NPAs measured in per cent per annum of NPA in nominal terms. See Figure 57 and Figure 58. When the economy recovered with high growth rates, the growth rates in NPAs of all Scheduled Commercial Banks, fell from rates close to 10% to about -10% by 2006. The same is true of all banks, though in the case of both Private Sector Banks (PVSBs) and Foreign Banks (FBs) there is considerable volatility. And as the CRR began to be raised in 2006, the rates climbed up again for the PSBs more slowly than for the PVSBs or FBs. This could reflect a slower recognition of NPAs by PSBs relative to the others. But the rates of growth continue to rise, for PSBs even during the period of the fiscal stimulus after the GFC. For PVSBs there was lull from 2010 to 2014 after which they too began to rise. Thus the problem of NPAs of banks is very strongly correlated with interest rates and growth, and hence the argument of macroeconomic policy of adverse interest rates and slow growth having

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driven NPAs of the banking sector including the private banks (other than foreign private banks) has much support.

The proportion of NPAs in all assets though would be higher for the weaker PSBs. By 2016-17, the weaknesses in lending and the adverse selection interacting with the structural weaknesses of the banks, pushed the NPA growth to even higher levels of 60%, before falling to about 20% in 2017. With large NPAs the lending would also break and this is evident in the growth of credit, seen earlier. Visit Figure 20 and Figure 21 again. We may also see that NPA reductions take place when credit growth is high, and when credit growth has suddenly fallen especially after 2011-13 the NPA's as proportion have risen.

Figure 57

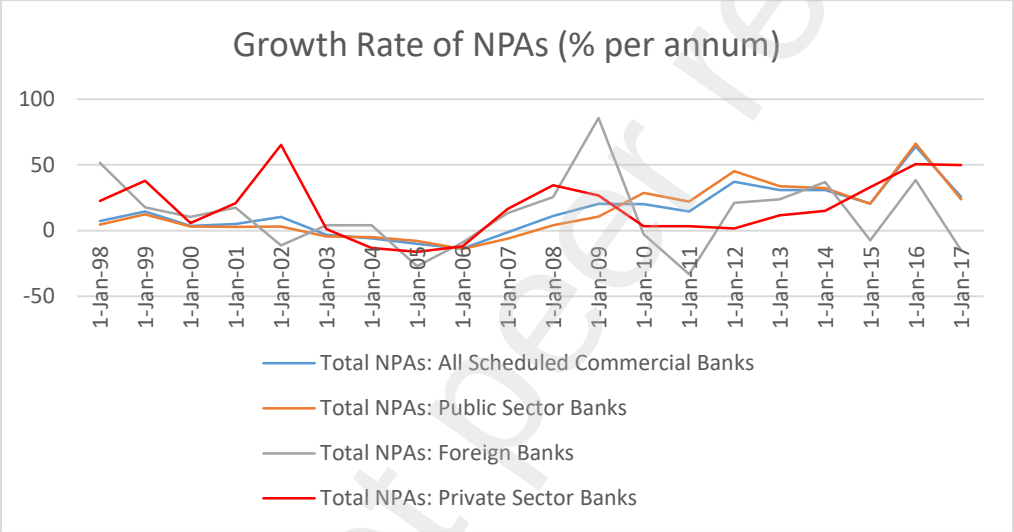
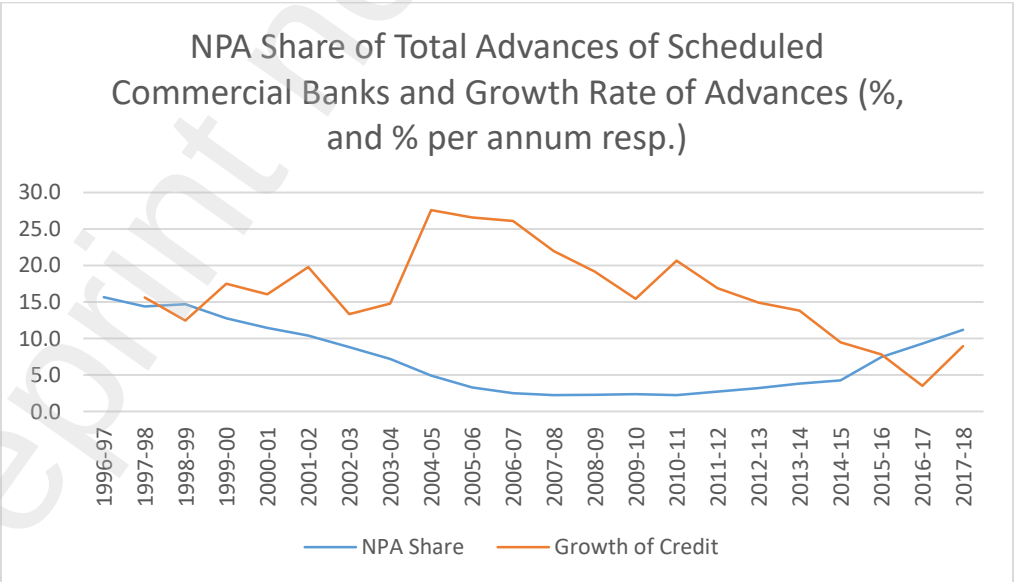


Figure 58



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The GST Effect

India has been going through tax reforms, the success and significance of which is generally underestimated. Some key distortions though continue - viz. disparate rates and a most painful (at least to honest taxpayers) tax administration. Reforms brought indirect taxes on the value added principle and fewer chapters. And now with the GST the integration of taxes across the state and the centre, and across both goods and services is essentially complete[33].

It is a remarkable political achievement to have made GST a reality. This was especially so since the benefits to the states are quite asymmetric. Being a destination oriented scheme, taxes, accrue to the government of a region based on the (final) consumption in that region. As such production oriented states (states with much production and not too high a level of consumption - Gujarat, Chhattisgarh, Andhra Pradesh, Tamilnadu) would stand to lose much. Gujarat had opposed the GST and was asking for a revenue neutral rate of 23% which would have (at least in an accountant's calculation where feedback effects on demand are not considered) seemingly protected its current revenues. [34]There was commitment of the centre to protect the revenues of losing states like Gujarat – essentially ensuring a revenue growth of 15%

[33] In this regard India is 'ahead' of China. In China GST embraces only goods production and services taxes are left to provincial governments, and there is no cross vatting between the two. But the economic distortions continue more rampantly in India since the wide disparate rates across goods and services are based less on economic logic (elasticity, non-distortion) and more on public perceptions of what should and should not be taxed. Moreover, the GST has veered somewhat closer to the revenue neutral rate of the states which were production oriented

[34] The major reform in going over to GST, was that the tax rates are uniform across the country, and the value added principle (taxes on inputs being reimbursed to the producing entity) is complete –being now across both goods and services. Service taxes had been placed on value added basis from 2007 onwards. The GST rate is split into 2 equal rates. One for the central kitty and the other the states. When goods and services move from one state to another, the state which collected the taxes (on intermediate goods or on the good when sold to a dealer), has to cough up the same to compensate the state where the final good or service sales takes place. This is a destination based tax, and has to be distinguished from zero vatting which takes place in international exports. Therein the exporting country strips the good and service of all taxes. Here the exporting state collects but gives the taxes to the state where the consumption takes place; in effect. All states have the same taxes, so that a dysfunctional tax based incentives to attract investments becomes difficult. The states together collect 50% of the merged GST. Being a destination oriented tax the producing states stand to lose much while the consumption states gain. The fiscal incentive to attract investments and production activities is also much reduced, for the regional governments, which does not bode well for an economy which is still to make its economic transition. Locational tournaments between regions have been an important facet of the high investments that make for the transition in large countries such as China, Canada, and the US. But now with GST being a done deed, the answer to overcoming this disincentive to attract investment, does not lie in moving away from it or in distorting the same, but in increasing the weight for local value addition and investments in the devolution of funds from the Centre. Perhaps as much as 40% of that collected by the Centre ought to be devolved on the capital formation aspect. See Morris et al (2019) for a discussion and estimation of the RNR at the state level.

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annually. The shortfalls below this trajectory were to be made good by the centre over the first five years, had already been made. But it was clear that Gujarat would lose after this period.[35] It was only once Mr. Modi became prime minister that Gujarat's interest could be kept aside for the larger gain of the country. The much feared inflationary impact proved a damp squib, since the GST rates mimicked the existing rates with very little change from earlier on a product by product basis.[36]

Therefore, the opportunity to bring about fewer chapters and rationalization was missed. But this was not such a debility as most think since in the future convergence to fewer rates is always possible. The big achievement was to get the states to agree.

The GST as was widely anticipated would reduce the avenues for avoidance, since compliance was built into the process, and paying entities would demand GST paid certificates from their input suppliers in order to get the input tax credit. In any case one leg of any transaction including a good or service produced or bought by a GST registered entity would be captured even if the other entity is not registered, thus increasing the probability of capture of inter entity transactions and hence improving compliance. Improved compliance in a sudden and significant way, is equivalent to an increase in the effective tax rate. And any increase in the tax rate has the effect of reducing demand. The point is that the GST should have been implemented with a somewhat reduced rate if this increased compliance effect could have been worked out ex-ante, i.e. the effective rate should not have unwittingly increased. Else the GST should have been implemented with other counteracting measures on demand. Such a move of combining structural reform with macroeconomic policy in a positive way is necessary for the reform to be successful, and for growth to be maintained if not to improve. The merit of the GL of 1991-92 and 92-93 was that it combined in a positive way structural reform with the stabilization specifically demand management to result in an increase in the growth rate to 6.7 % from the pre-reform growth of about 5.5% after a dip over just about a year due to the pull back in dysfunctional public spending. Similarly, the design of the NHDP resulted in the economy being kick started from 2003-04 after it had entered into a slow growth period from 1997-98 onwards. It is not clear whether this was actually intended.

GST rates as much as the combined excise and sales tax rates earlier (CENVAT and VAT together prior to the implementation of the GST) can hardly be said to be in any way optimal. Many rates which are high (28% and some of the 18% rates) could actually be higher than the even the revenue maximizing rates! Short run price elasticities being low or negligible may have acted to obfuscate this issue, for a government

[35] Morris et al (2019) points out that in its current form, without the Finance Commission making an upfront allocation of some 40% of the central GST collections on the basis of production / gross capital formation in tradable goods and services production, i.e. without giving due weight for origination, the fiscal incentives to engage in locational tournaments would fall substantially, at too early a stage in the country's economic transition, reducing the probability of success. The report also brought out the vastly different revenue neutral rate of taxation (RNRs) as between the "producing" states and the consuming states, much higher than what had been estimated by the NIPFP. See Rao, K., & Chakraborty P. (2013).

[36] Morris et al (2018)

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whose senior officials are forever fire-fighting.[37] There is an opportunity for the government to actually lower taxes in some major goods like automobiles which can actually be revenue enhancing. However, it is unlikely, given the accountant's approach to taxes that the government would see this opportunity. The GST Council has approached the problem of taxation with a price inelastic assumption. It has not yet commissioned any studies to assess the price elasticity of demand. Assumptions of what is luxury, and what the "common man's need" are, have driven rates. There is another perhaps unintended consequence of the GST and the instrumentality of the GST Council. An across the board tax cut in indirect taxes would be difficult since now the GST Council would have to agree. An ability to make sudden cuts or increases is necessary for macroeconomic management of demand when the economy is hit by large demand shocks[38]. Today the only way would be for the centre to reduce its rates, which would then destroy the neatness of half the collections being to the centre, and also affect businesses since they will have to worry about two distinct rates.

Tax "terrorism"

When the BJP came to power it was aware of the uniquely Indian phenomenon of "tax terrorism", an aspect of dysfunctional-governance that had been going on for many years ever since the tax officers has been made accountable for collections fixed at the level of the finance minister. It is the illegitimate demand for taxes made by the tax department (typically made at the senior levels but not limited to them). The Central Board of Direct Taxes at the highest levels face demands for a certain tax target that is usually quite large in relation of the previous year's collections, typically by over 15%. If the nominal growth of the economy is around 12% or more, the target is not too difficult to realize. But when GDP has slowed down as it did from 11-12 onwards, targets of 15% were far too onerous. The CBDT instead of going back to the finance minister with realistic targets would be cowed down to accept these targets however irrational they were. They would then get about collecting the same from the PSUs especially the oil companies and other large entities like SBI, BHEL by sending them illegitimate tax notices, typically around February to meet the year end targets. Then of course the victim PSUs would file cases, which the tax authorities would not seriously contest, allowing the PSU to get back much (but not all) of the extra tax payments it had made. The dead weight losses in this uniquely Indian "tamasha" are

[37] There have been no studies which have looked at the GST rates, especially those in the high brackets of 18 and 28% from the point of view of revenue maximization, which would have meant working out the medium to longer term price and income elasticities of demand. There is the distinct possibility that many of the rates are well above the revenue maximization rates, so that with reduction in the rates, the revenues could actually go up. This is probably the case with automobiles in the 28% GST bracket. Railways have been operating at well above "revenue maximizing tariffs" for decades now, throwing freight on to the roads which brings about massive (and entirely avoidable) vehicular pollution. The same is true for electricity especially for industrial, commercial and top bracket household consumers. See Pandey, Ajay and Sebastian Morris (2017).

[38] In the response to the COVID19 Crisis the singular unwillingness of the government to cut tax rates in sharp contrast to the quick response during the GFC, is notable. The outside lag for tax cuts/increases which are known to be small is now therefore, makes it an important policy instrument in demand management.

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not inconsiderable[39]. The cycle would of course repeat itself, the demands becoming onerous particularly in a year of slow growth in the nominal GDP. Mr. Arun Jaitly as soon as he assumed office as Finance Minister, promised to put a stop to the same. But the demands for direct tax collections continued to be very high while the economy had slowed down and the official growth figures were not bringing out the extent of the slowdown fully. The tax officers with continuing tax demands on a slow economy, now extended the "terrorism" to even the private corporate sector, and started raking up old cases. The damage done to "animal spirits" was considerable, and the understanding of the Indian government being parasitic and arbitrary could only have been strengthened, never mind the expected "business friendliness of the government". Similar, behavior may have begun in the indirect tax departments as the GST targets of 15% increase have become absurdly high in an economy with a nominal GDP growth of under 10% in the last year and half.

Taxes in the growth experience

From Figure 59 notice that the growth in tax revenues at a high 20% during the "Tiger" Period, when the nominal growth of GDP would have been around 13.5%. (Real growth of 8.5% and core inflation of no more than 5%). Yet the taxes grew faster showing an elasticity of nearly 1.5%, from around 2003-04 to the eve of the GFC. Once growth was restored from 2009-10 taxes may have grown at 10% toll about early 2013, after which it fee marginally to rise to a growth of around 11-12% during the bounce back the demonetization; and had then fallen to about 3% from about mid-2018 onwards when growth fell off. The taxes here include all - both direct and indirect - taxes, and as expected bear a strong relationship with the broader patterns of growth. The period immediately following the GFC, though it had high growth over two years, shows a lower tax growth, since this growth was not so much due to private spending as much as due to public investments and spending. Yet we do see a rise even if very briefly centered around 2010-11.

[39] The author could not understand why such behavior had gone on for long without the senior Central Board of Direct Taxes (CBDT) officers putting up a defense to make the target determination more scientific. The problem seemed to have nothing to do with the party in power. The lack of institutional investment in government organizations meant that the CDBT had never thought of a model, based on expected inflation and growth to get at working estimates. Clearly in the Indian context power overrides information or knowledge, leaving experts and autonomous organisations very vulnerable. And finance ministers would push for ambitious targets, with vigor since in the popular discussion there is so much tax evasion! While admitting that such a model would have helped not only to get a reference for the overall target, but also to fix the regional targets 'scientifically', and would have great value generally, the CBDT officers nevertheless felt powerless since all of them were firefighting and were always dealing with some high profile case or the other! (Anonymous CBDT officers in private conversation with the author).

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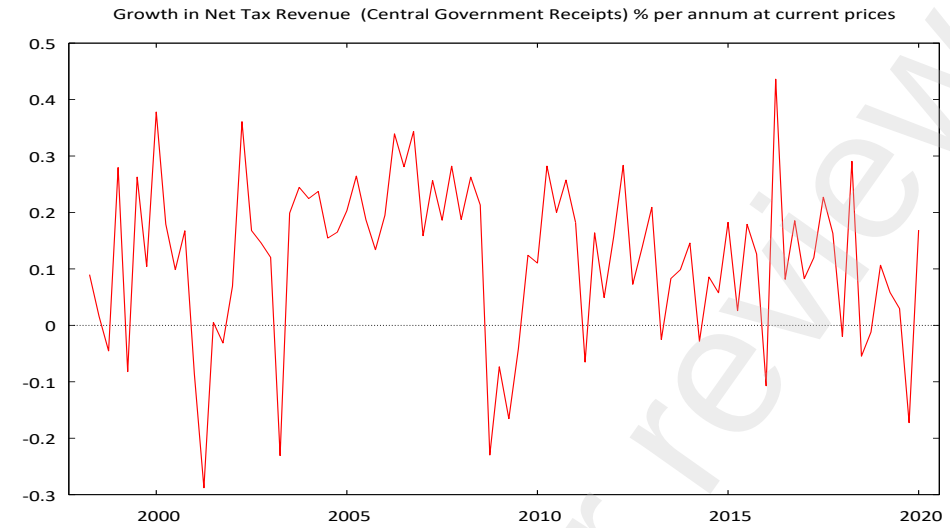
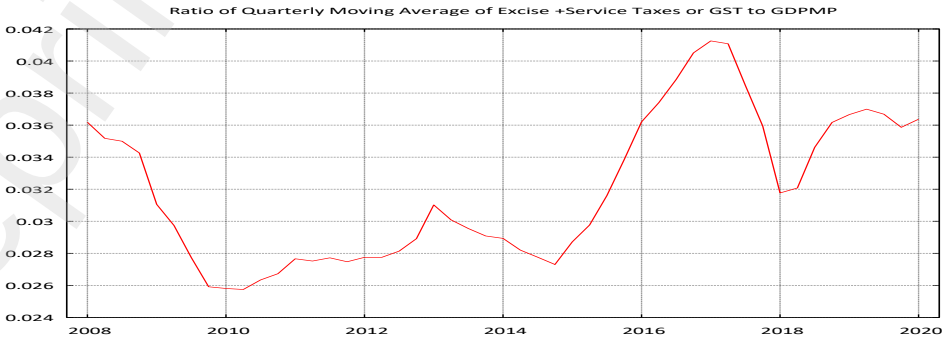
Figure 59



The question of whether or not GST affected the demand is an interesting one. Earlier we had suggested that conceptually the GST, when rates are unchanged and morphed from the earlier service, excise and VAT rates to the GST without much change in the overall incidence, then prima facie there is no GST effect is to be expected. But GST also meant vastly improved compliance given its design, the GSTIN backbone, with its all India basis. Essentially, even if one leg of any payment /purchase came for a GST registered entity, the other leg whether or not registered would be revealed and splitting the entities would not help as well, since there were rather tight limits on the sales of the entities that could avoid registration. Data, covering major items, in a way that we can build series over a time period that covers the GST period as well as the period before is not available. Adding excise, service and GST taxes of the centre though we can get a consistent time series of the tax collected by the centre on the same base/s. We have taken the moving average over 4 quarters of such figures and divided the same by the 4 quarter moving average of the GDPMP (spliced series at 2011-12 that chains with the 2004-05 series). This ratio is reported in Figure 60.

Figure 60



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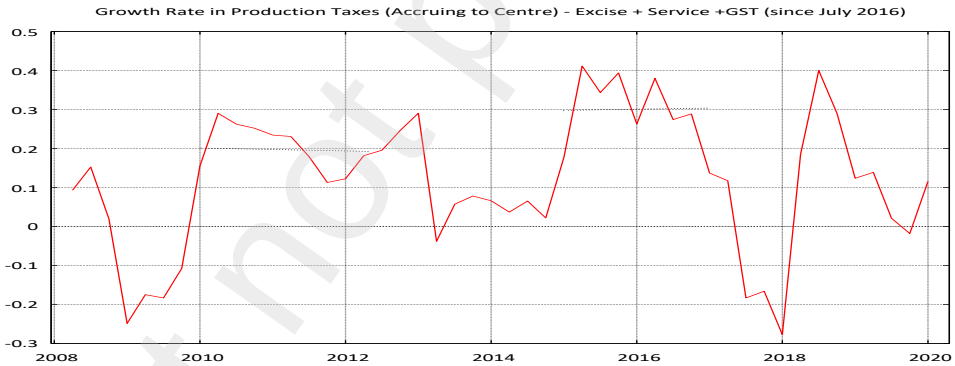
Observe that as the massive fiscal stimulus of 3% (ex-[40]post) of GDP was put in place from 2008 onwards, which continued to 2011-12 in part, the ratio fell from 3.6% to 2.6% and then rose to about 3.1% and continued to rise over 2015 and 2016 as the economy had slowed down. But the sharp rise from mid-2016 onwards which coincides with the introduction of GST provides support to the expectation that the GST (even though there was little change in rates) brought greater compliance and higher "effective" rates. The tax pressures may also have been compounded by the effects of the demonetization which certainly brought down the denominator in the measure. The sharp but short lived bounce of the economy in 2018 results in a fall in the ratio, a rise back from 2018 onwards. Figure 61 computes the YoY on quarterly data of tax collected by the central government on the same items –excise, service and GST.

Both the increased "diligence" and the tax "terrorism" mentioned earlier, besides the natural step up in compliance from a shift to GST would most certainly have increased tax collections in relation to GDP to result in downward pressures on demand, and hence a slowdown. This is unfortunate and could have been avoided by reducing the GST rates especially on those goods and services (given their high price elasticity of demand) that would have had rates (and hence prices) well above their revenue maximization rates.

Figure 61



Government expenditure

Government expenditure rose as the stimulus was put in place to overcome the demand shock posed by the expected fall in exports following the GFC. The Central government's expenditure rose from 8.5% of GDPMP to as much as 11.0% in 2009-10 and 2010-11, before it began to fall. Capital expenditure in contrast went up by less than 0.5% and may have remained stagnant thereafter. From 2011-12 capital expenditure was marginally lower in relation to GDP. Despite the stimulus having been substantially scaled down by 2011-12, the revenue expenditure by GDP continued to be high. In 2014-15 it reached the pre-crisis level. However, this slowness

[40] Ex-ante it would have been even higher, given the high multiplier effect of public investment spending in India. Bose and Bhanumurthy (2013).

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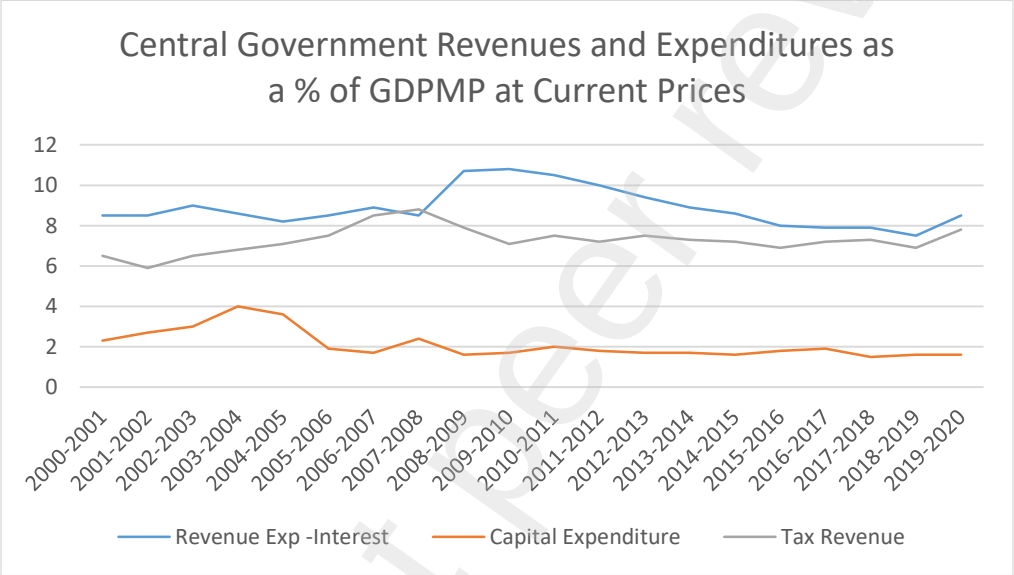
in the fall is more because of the denominator i.e. the GDPMP falling, since the monetary side was tight as we have already seen. In a major strategic thrust to the demand a much greater thrust to capital expenditures could have been given. That it was based largely on account to revenue expenditure increases would have reduced its efficacy. Recall that the start of the "Tiger" Period was due to the rise in expenditures brought about by the NHDP and the PMGSY. Since then there have been no such transformative second generation reforms that have had positive demand and supply side effects.

Figure 62



From Table 6 see a rise in the share of Overall Combined Government Expenditure prior to 2003-04 which provided the fiscal kick –both through revenue and capital expenditure. Once growth picked up the ratio declined. It rose again in the wake of the GFC as the stimulus was put in place. When the stimulus was given up it however fell very little since the economy had also slowed down thanks to the monetary tightening. From 2015-16 onwards government expenditure has been at higher levels, particularly in 2018-9 and 2019-20. The share of the government in capital expenditure rose because from 15-16 onwards despite the government's fiscal conservatism, the overall capital formation had fallen so significantly that the government was doing an increasing part of the same. The growth rates in government expenditure confirms these observations. After the GFC as the stimulus was active, government expenditure increased in its rate, to slow down since then with a bump up in 2016-17 and 2018-19 in a weak way. The weak pick-up in capital expenditure (earlier it had short up during the "Tiger" period) again in 2016-17 whose growth effects fizzled out may be seen. The fiscal counter action in 2010-11 and 2011-12 was less due to capital expenditure. See Figure 63.

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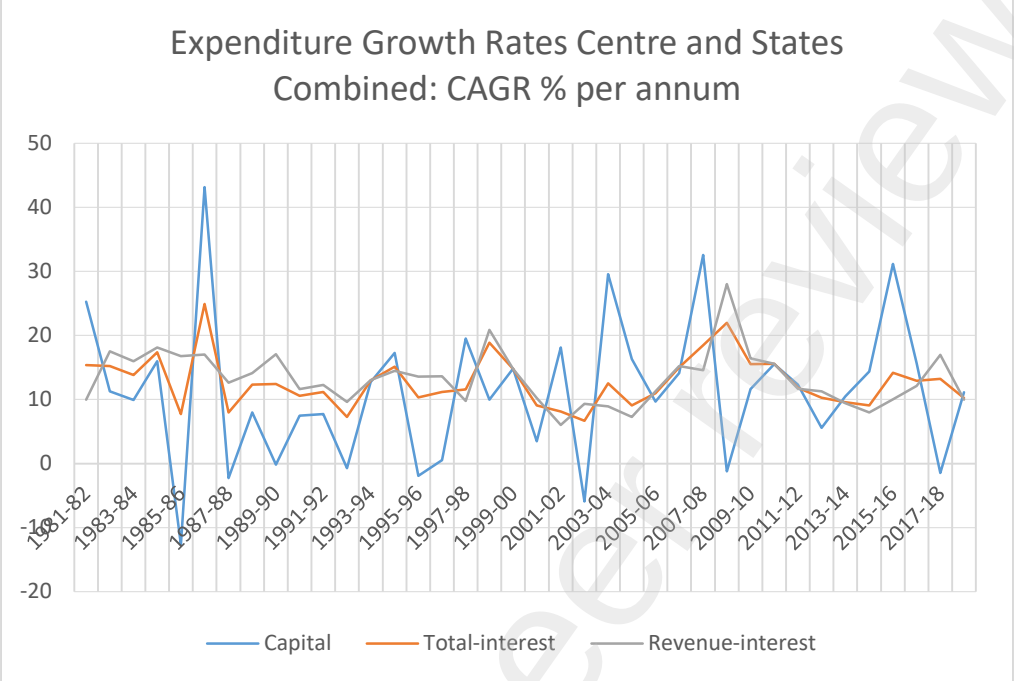
Figure 63



A good package to overcome any one of the many public health or urban problems could have provided the country with the opportunity for fiscal stimulus all through 2011-12 to the present. It is not surprising that the NIPFP finds the capital expenditure multiplier to be as high as 2.88 immediately and over 4 in the long run.

Table 6

Ratio of Combined Expenditure of Central and State Government to GVA and of Capital Expenditure to Gross Capital Formation (All at Current Prices %)			
	Combined total /GVA	Combined Capital /Gross Capital Formation	Combined total other than interest /GVA
1999-00	29.8	12.2	23.7
2000-01	30.5	14.2	24.1
2001-02	30.7	13.5	24.0
2002-03	30.8	11.7	23.8
2003-04	31.0	13.7	24.1
2004-05	29.9	12.5	23.3
2005-06	28.9	11.3	22.7
2006-07	28.4	10.7	22.5
2007-08	29.3	11.9	23.5
2008-09	30.9	11.4	25.4
2009-10	31.0	10.9	25.7
2010-11	30.3	10.4	25.4
2011-12	29.9	10.4	24.9

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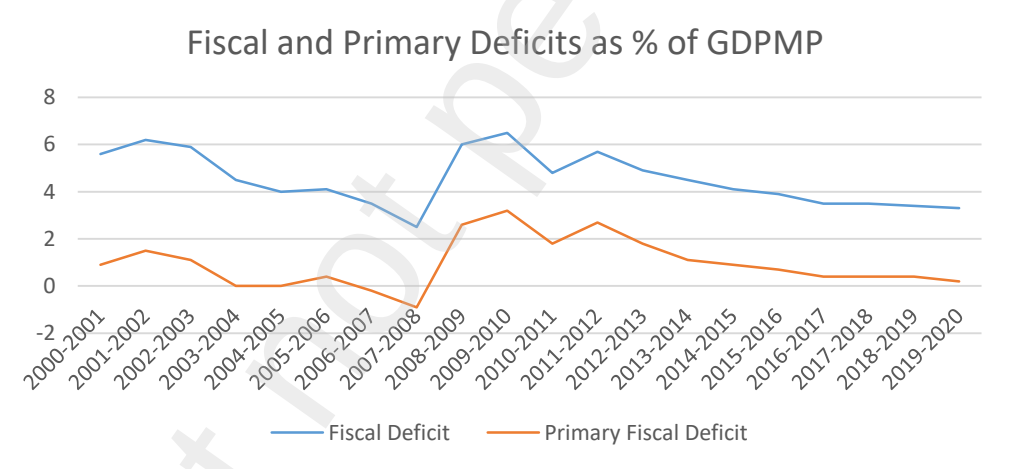
2012-13	29.3	9.9	24.3
2013-14	29.0	11.0	23.8
2014-15	28.6	11.4	23.5
2015-16	29.9	15.0	24.8
2016-17	30.5	16.7	25.4
2017-18	29.1	12.8	23.9
2018-19	32.2	14.8	26.9
2019-20	33.1	15.6	27.6

The fiscal deficit reduced rapidly over the ”Tiger” period from around 6% it had reached around the end of the slow growth period (1997-98 to 2002-03) to as low as 2.5% on the eve of the GFC. Since the GR, the fiscal deficit has always fallen during periods of high growth, and high growth more than cuts in government expenditure had been important. However, from 2013-14 onwards and including the Modi-I despite the slowness of growth, fiscal deficit targets were pursued with a vehemence that may have contributed to the slowdown itself. The fiscal deficit had soared during the first three years since the GFC when the stimulus was given to the economy. The primary deficit closely following the same. See Figure 64.

Figure 64



Since the GL, it is quite remarkable that the centre had in fact during the peak of the ”Tiger” period brought down the same to actually achieve a surplus of 0.2 and 0.9% of GDP during 2006-07 and 2007-08, just before the GFC. This points to the great opportunity provided by rapid growth (based on private investments and exports) to overcome structural problems. There is little basis to the critique that the high growth was dysfunctional being credit led[41] and inflationary in their view.[42]

[41] See for instance Nagaraj, R (2013). While the credit did expand rapidly (and all high growth requires credit expansion) it was eminently sustainable in terms of both the current account and the fiscal deficit.

[42] That inflation increased over the period is certain. But whether therefore the growth was inflationary requires deeper analysis which we do later. Essentially most of the commentators

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In an ex-post realized sense, the part of the fiscal stimulus that provided the counter action on account of revenue expenditure increases rose from 8.5% in 2007-08 to 10.7% in 2008-09 and then to 10.8% in 2009-10 and then to 10.5% in 2010-11, before it slowed down to 10.0% in 2011-12. See Figure 62 again. The capital expenditures which had been at a high 2.4% in 2007-08, actually fell to 1.6% in 2008-09 and then rose to 1.7% and to 2.0%. Since the expenditures were on a trajectory of decline, and may have been front loaded coming early in 2007-08, we can say that they moved up by around 0.1% approximately on an ex-post basis giving a total central government expenditure thrust on an ex-post basis to be 2.25% rise on account of revenue and 0.1% on account of capital as a proportion of the GDP, i.e. to total of 2.35%. Since a multiplier of roughly 1.5 may be assumed over the short period to these expenditures, the ex-ante fiscal thrust would have been around 2.35/(1-0.04-0.0235*1.5) i.e. approx. 2.57% of GDP[43].

Similarly, the tax revenues of the Centre fell from 8.8% to 7.1% in 2008-09 and to 7.5% in 2009-10 giving an average decline over the two years of 1.5%. This again would have ex-ante been about 1.66% giving a combined ex-ante thrust of around 4.23% of GDP. [44]

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did not distinguish between a supply side and demand side inflation, being carried away by the fashion of the day. This was the case with the RBI as well which desperately tried to fight the supply side inflation just before the GFC arguing that the inflationary expectations had been rising. Later we present evidence that the data covering core inflation in the CPI was spurious.

[43] We assume that the real GDP growth would only have been 4% had not the stimulus measures been pursued due to the effect of all external shocks – especially emanating through the current account. Estimates have no-counteraction GDP growth have ranged from 3.5 to 4.5%.

[44] Kumar and Vashisth (2009) estimate direct additional counteraction measures of 2% (consisting of reduction in indirect taxes, spending on infrastructure, and export incentives) in 2008-09 which had followed MNREGS and rural expenditures of 4.23% of GDP, giving a 6.23% of GDP. The latter 4.23% were made for political considerations and consisted of loan waivers, additional allocations on NREGs, Bharat Nirman and PMGSY, besides fertilizer and electricity subsidies. However, all helped to provide counter action. If about half the 4.23% and the additional 2% is taken as having helped to counteract from the trajectory post the shock, then these estimates are approximately the same as combined tax and expenditure estimates of 4.23% that we have estimated. Mundle et al (2011) use an estimate of US $ 4.1 billion as the initial thrust (Rs 20,500 crores at exchange rate of Rs. 50 /USD c.2008) to carry out their simulation. This was followed by a second thrust of roughly the same amount (Kannan, K.P., undated C.2009?). The Kumar et al (2009) notes a direct fiscal stimulus in the first year of the crisis of 1.3 % of GDP(para 5.2), which in its view was quite small in comparison to that of other countries, but justified by the starting point of high fiscal deficit. The paper noted correctly that India was already on a slowdown, but assumed it was due to business cycles, rather than to the severe monetary tightening and the allowed appreciation of the rupee that happened in the last year before the GFC.

Kumar and Soumya (2010) writing a little later noted that the government expenditure had gone up even before the GFC due to the elections, which may have come in handy as an

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Section X– Reflexive, not Reflective Monetary Policy

In this section we re-examine the approach of monetary policy in India, including the stated objective of "fighting" inflation. Perhaps the most important factor in the slow growth since 2011-12 has been the RBI's penchant for reflexively reacting to inflation without a thorough going consideration of either its nature, or its role in the given situation. Ever since 1997, the RBI may have constrained growth; except for the time when under Dr. Y.V. Reddy, which was also the period when the economy had the benefit of large and multiple positive forces on the real side. Even then if we go by Dr. Mohanty's analysis of the regime of the so called "multiple indicators approach", the RBI underestimated the growth for about three years before its expectations caught up with the reality. This was despite the RBI having correctly anticipated that the fiscal expenditures under the Golden Quadrilateral Project of the NHAI would enhance the demand in a flagging economy to give it a high growth. This we see from Table 3, again, that on the rise (from 2003-04 to 2007-8) of growth rates due to the GQ, and other positive factors, the actual growth rate was higher than the projected or anticipated growth.

Since the GFC, on the fall, the reverse was the case, perhaps indicating that the forecasts of growth were not particularly sensitive to expected world demand changes, or to the fiscal actions, or to the consequences of reserve accumulation /flight that happened over the period and may essentially have been an inertial model forward projecting the past without due regard to the shocks or their unfoldment. More importantly the forecasted inflation was generally higher than the actual except in the very last year. The RBI over the period from 1998 was carrying out a multiple indicators approach (away from monetary targeting) to ostensibly target inflation as the ultimate target, with direct inflation targeting being the approach from 2012-13 or so.

Although it is not clear when the RBI formally adopted inflation targeting it would have been before 2013 when the RBI accepted a report of its own internal committee (RBI, 2014) which went into the approach to recommend inflation targeting and its specific practice in some detail.

expenditure that maintained expenditure pressure even after the negative shock of the GFC. In addition, they note a counter action amounting to 1.8% of GDP (through three stimulus packages) and an effect of the budgetary expansion of nearly 3% of GDP during 2008-09 and 2009-10.

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Inflation targeting experiences

While inflation targeting has become fashionable, and has been accepted by governments and central banks as the "gold standard", the reality is that inflation only of the demand imbalance kind can be overcome by the demand management through monetary policy. Very high inflation of course requires the shock treatment of the "monetary approach"[45] where the domestic credit is contracted to bring a sudden arrest of the reserve money with only the forward looking sustainable and absorbable inflows on capital account providing a moderation. Supply side inflation is only weakly amenable to counter action through monetary policy, and even then only with massive losses in terms of growth and output. This was amply demonstrated by the stagflation that followed the oil shocks of 1974 and 1979 in the US. Inflation could come down only on its own accord when the higher oil prices passed through completely by end 1986. The reversal of the tightening that happened, in 1983-84 was no doubt responsible for the US being able to overcome the slow growth and high unemployment, and by then theory changed to accommodate the idea of exogenous supply side inflation. However, since then the idea of monetary targeting gained much ground. After a bout of successful monetary targeting in the 80s and 90s seemingly resulted in control over inflation, with low inflation in the US (and in Europe) from the mid-90s to almost the present.

In the nineties as the money demand function "became" unstable, using interest rates to target inflation became a dominant paradigm, and control seemed excellent. But the reason for the control may well be due more to the positive supply side shock which began to kick in due to cheap East Asian and Chinese imports into the advanced countries and the general rising trade openness of countries, as also because the WTO countered the restrictions under the MFA from 1999 onwards. For the US, the sustainability of low inflation was ensured by the trade treaty with China much earlier in 1993. The moderate to high growth with low inflation from 1993 including the Greenspan years till the GFC and almost to the present is no doubt due to the aggregate supply schedule exogenously having moved lower (negative supply side inflation) as the US and Europe benefited from the falling terms of trade of their imports from China and more broadly from the emerging Asian countries. Today inflation in the advanced countries would remain low unless disturbed by rising supply side inflation, since the potential for inflation to rise due to demand imbalances would be countered by cheapening imports unless there are movement restrictions. So only commodity calamities could disturb the low inflation 'equilibrium'.

Supply side inflation

In the LDCs and other emerging economies[46] (especially those that are not following export led growth) inflation has a high probability of being caused by both demand

[45] In the sense of the IMF's monetary approach to stabilization and the hemorrhage to the balance of payments. IMF(1977).

[46] Inferences from studies of emerging economies, have been unduly influenced by the experiences of the Latin American economies. This is because they have witnessed more crisis than have Asian countries. For India the most relevant cases for emulation and critique ought

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side imbalances and by supply push up due to import prices and food prices rising. While the latter can hardly be directly addressed by macroeconomic demand side measures, the former can and ought to be. The argument that even in the case of supply side inflation, expectations need to be quelled has some merit when the same is sustained, and is accompanied by (high) inflation due to demand imbalances since the two can spirally feed each other. Most often though the argument is specious since to quell expectations that arise from a secular rise in prices of basic commodities and food, would mean the policy has to hit overall demand very hard, since these items especially food would be basic demand arising at very low incomes after which they are income (and price) inelastic. Instead for emerging markets like India allowing for quick adjustment of prices of food and fuels to a relatively higher level is the best approach, since the pressure was for such a relative price increase in the first place[47]. Of course even in such an approach care has to be taken to not allow a secular rise in inflation of the non-commodity i.e. core items. Pass thru would imply that as long as non-commodity inflation rises *and falls* with commodity inflation there is little need for tightening.

Special case of food inflation in transition economies

In the case of food inflation since food demand is income inelastic except at very low levels of income, (and even India may be above or just crossing this level of income), there is not much of an option to reduce supply side food inflation (beyond increased imports and other similar supply side measures) by demand reduction that works through overall income reduction since food demand is almost entirely consumer

to be the fast growing Asian economies – Taiwan, Korea, China, Vietnam, Malaysia and Thailand. Latin American countries have witnessed run-away hyper inflations many times, which even today mainstream macroeconomics is unable to explain in terms that are not tautological. In these economies, macroeconomic policies serve the interest of the upper classes, and their interests lie beyond their own economies for reasons of class and race. Capital flight is their unifying characteristic with the net outflows over a cycle being very large to sustain the elites spending in the richer western countries. While the "explanation" that poor macroeconomic policies have resulted in capital flight is true, the real question is why have they been so poor, and systematically so, now for many decades, when they are anyway under the tutelage of the IMF. Rather obviously, if policy has to support the spending power of the elite in dollars, macroeconomic policy (exchange and interest rate) most notably would have to allow the elite to spirit resources out at country at the earliest sign of a crisis in the balance of payments. This only increase the chance of a crisis and deepens the same when it happens. As such their approach to the capital account is not functional but doctrinaire in contrast to that of many Asian countries. Interestingly though the IMF has been peddling the line of open capital accounts rather unconditionally, which it apparently modified only after the massive contagions of the Asian and the Global Financial Crisis. In any case the LA economies can hardly be called transition economies when they have been in a middle income situation for well over a century!

[47] Due to accumulating differences in the growth of productivity between the dynamic non-agricultural and agricultural sectors, even when the latter grows well. If these differences are not corrected, the income inequality can only rise, further constraining the home market demand.

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demand[48]. Such attempts would only reduce growth without affecting the commodity prices, unless the demand reduction could go all the way down to bring down incomes to the range when the demand for food is elastic!

Food inflation in emerging economies that are making their transition to middle income countries with poor land man ratios can be marking the sharp terms of trade shift in the favor of agriculture to compensate for the limited range of (labour) productivity growth that agriculture is capable of. If this process of allowing a higher rate of growth of prices in agriculture over the rest of the economy is interrupted before a substantial shift in the terms of trade, the vast (in numbers) rural sector remains poor to contribute very little to the demand for the production of manufactured and service goods elsewhere in the economy.

Chinese High Food Inflation Episode

For China the period from 1982 to 1995 was of high inflation in food, which pulled along inflation elsewhere albeit at a lower rate. China's central bank (and government) after recognizing it to be supply side inflation chose not to address the same from the demand side. Policy makers understood that a small gap between the rising demand for food and the rising supply was creating this inflation due to the price and income inelasticity of demand. They expected the gap to be overcome in a few years and held on to their understanding, despite the cacophony from nearly all external commentators that included the Economist, that China was overheating and would soon crash. [49]By the late nineties inflation in China was down to low levels from where it has hardly moved up, rising a little during the financialisation of commodity markets that happened during the very high growth before the GFC, through the rise in the price of imported commodities like ores, crude and such like[50]. That hump of

[48] Demand side measures in a situation of rising supply price of capital goods could on the other hand be so handled by merely reducing the investment expenditure. Similarly, even fuel inflation though with considerable cost in terms of growth could be pulled down by hitting incomes of all. Food demand can come down only if the poors' income can be beaten down. Even unemployment increases may not bring down the same!

[49] See for instance R.A. (2011), Economist (2003), Economist (2010).

[50] However, the IMF with models without the space for specific agricultural supply side inflation was surprised to find the collapse of inflation from 1994 onwards despite the rise in growth. Previously the two boughts of high inflation were associated with growth, which it took to mean that growth was inflation in China necessitated demand response; when there was the possibility that the same was entirely on account of food and its passthru effects. Not surprisingly the IMF repeatedly predicted the "overheating" of the Chinese economy. Thus a paper notes "however the reduction in inflation in the fourth cycle [1991-997], apparently having being achieved even more rapidly than even the model [essentially a Phillips curve output gap based estimation] would predict. … not only did inflation come down from its high in 1994 in a soft landing [without sacrifice of output], it did so in the face of apparently persistent positive excess demand.", p.13 in Peppers, Orik (1997), IMF., matter in brackets added. The author of course goes on to "explain" that the excess demand having been driven by fixed investment rise worked differently. This is important, in any understanding of export led (rapid) growth strategy but could not have affected the inflation in the same period since

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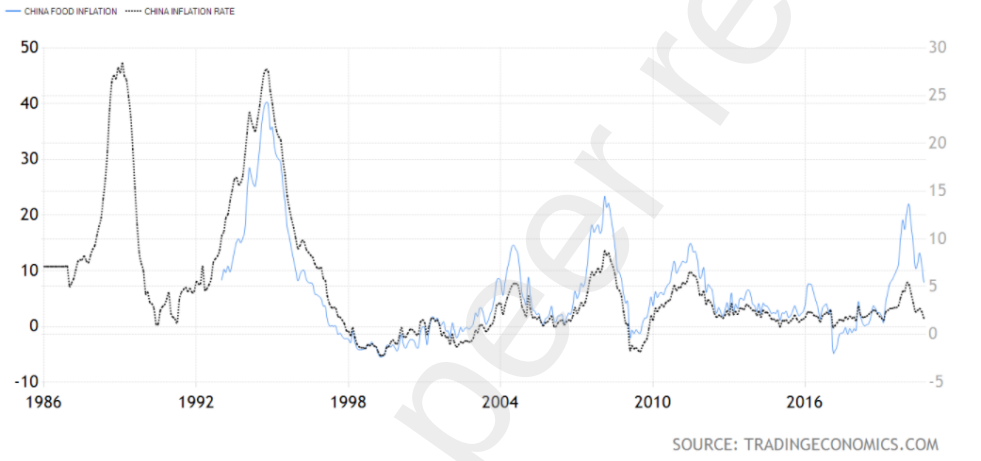
higher inflation on food over the rest of the economy was crucial for China enabling it to break the so called "middle-income trap". See Figure 65. The second half of the eighties and the nineties were the period when China's food inflation being some 20% higher than overall inflation allowed an upward rise in the terms of trade to reduce the gap between rural and urban incomes. As may be seen, overall inflation was merely a pass thru effect of this food inflation with no secular trend being suggested despite the very high inflation. In this century the inflation has remained moderate and the temptation to tighten has been avoided despite significant rise in food inflation in 2018, and in 2011,12.

Figure 65



Nature of Inflation in India

In India, the same situation has manifested itself some 12-13 years after the opening up in 1992. Unfortunately, though, the RBI in refusing to understand the nature of food inflation has been aggressive in attempting to ward of the same, with little success (on account of its own measures) till 2011-12. Since then, when the food inflation began to decline as the food output began to reduce the gap, and investment growth which is related to new employment all but collapsed, overall inflation has also come down. Since 2018, the gap has gone on to reverse, leading to a fall in the terms of trade of agriculture with respect to the rest of the economy. See Figure 69. Since the COVID19 crisis with a fracturing of agricultural markets the farm side prices have gone down while the consumer side retail prices have rapidly risen.[51]

From a macroeconomic standpoint practically the entire core inflation in India can be explained by the pass-thru effect of food and fuel inflation, and the inertia of its own

investments resulting in capital assets would take much longer than 3 years to contribute to output.

[51] One hopes the RBI would not raise rates or even erode the rate decline due to this "inflation"!

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past values. We have considered the core to be non-food, non-fuel component of the CPI, that the RBI has been using in recent times. The inertial aspect suggests a slow attenuation in the expectation of the core inflation since the overall coefficient of the core inflation on its past values is less than 1, as we shall soon see.

First observe that core inflation generally declined from 2012 to 2020 with it rising sharply over March 2020 when the lockdown happened due the fracturing of the agricultural produce markets especially for perishables. The variation over the trend seems dependent upon the food and fuel inflations which have varied much over the period and has taken along the core inflation with them, both over the shorter and longer periods, though obviously the volatility of the core inflation is as is only to be expected much lower. See Figure 38 again.

We set up as a simple "error correction" model where the inflation of core items C_t is dependent on its past $C_{t-1}, C_{t-2}, \ldots C_{t-p}$ and on food inflation F_t and its past, and on fuel inflation P_t and its past[52]. By adding terms in the past only as long as they reduce the AIC (Akaike Information Criteria) we finally arrive at a model, the results of which are reported in Table 7.

Table 7

OLS Regression of Core Inflation (C_t) on Food (F_t) and Fuel Inflation (P_t)					
Variable	Coefficient	Std. Error	T- ratio	P-value	Level of sign.
Constant	0.001939	0.000784	2.472	0.0153	**
Core (-1) (C_{t-1})	1.16574	0.101238	11.51	2.17E-19	***
Core (-2) (C_{t-2})	−0.258623	0.094158	−2.747	0.0073	***
Food (F_t)	0.072856	0.020965	3.475	0.0008	***
Food(-1) (F_{t-1})	−0.0719871	0.034093	−2.112	0.0375	**
Food(-2) (F_{t-2})	0.011441	0.020007	0.5718	0.5689	
Fuel (P_t)	0.041927	0.01179	3.556	0.0006	***
Mean dependent var.		0.056732	S.D. dependent var		0.017103
Sum squared residues		0.0004	S.E. of regression		0.002108
R-squared		0.98576	Adjusted R-squared		0.984811
F(6, 90)		1038.382	P-value(F)		8.50E-81
Log-likelihood		463.7179	Akaike criterion		−913.4358
Schwarz criterion		−895.4128	Hannan-Quinn		−906.1482
rho		0.052289	Durbin's h		6.73872

[52] In a model that is derived from the augmented Philips curve one would use output gap measures as well. But since we are here using monthly data, no satisfactory measures of output gap could be constructed. However, the fact that the regression explains as much as 98% of the variation in the core inflation by supply side factors implies that introducing a lagged measure of the output gap could most probably improve the significance of the food and fuel inflation in explaining the core inflation.

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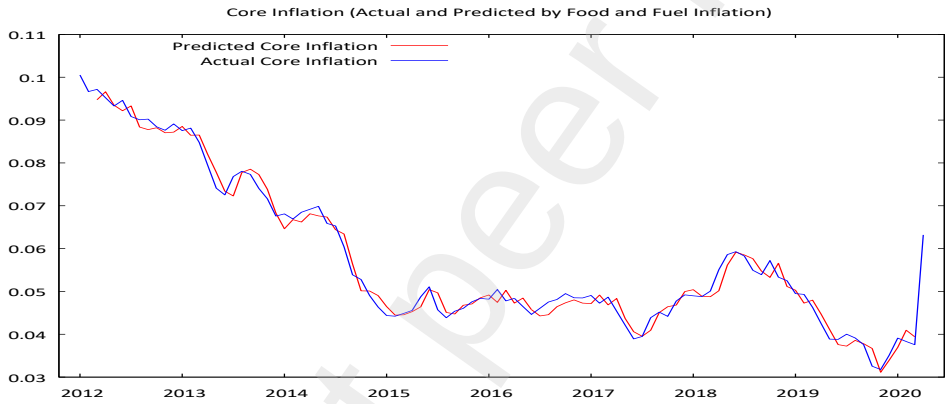
Observe that there is no case at all for the argument of the expected inflation rising. Indeed it may have fallen since the combined coefficient of C_{t-1}, C_{t-2} is 1.16-0.26=0.90 so that the expected core inflation was actually on a secular decline, so that the case that the RBI overreacted even on its own expectations argument cannot be dismissed. Moreover, it is clear that the pass-thru effects of food and fuel inflation explains the trajectory of core inflation over the entire period given its initial value, other than the secular pressure to fall of around 10% (1-0.90) every year, coming from the demand side being curtailed. The constant being 0.19% and one-shot aspect may be ignored. [The constant becomes insignificant if the rise in the last two months since the COVID19 crisis is removed from the data][53]. That the model predicts the core inflation rather well may be seen from both the Adjusted R-squared and the AIC. See Figure 66 which brings out the trace of the actual core inflation and the model predicted one period ahead core inflation.

Figure 66



But the larger point is that higher inflation on food is a necessary transition phase if much of rural India has to be included into the growth process, which unfortunately has been missed by the RBI. Even the government has not seen it this way as it piles on one administrative measure after another to deny farmers the upside in markets while allowing downsides to hurt them.[54]

[53] We will later justify this removal of the later years due to the spurious data on core inflation, it being based on rather untenable estimates of the increase in house rent allowance for government and public sector employees with the implementation of the 7th Pay Commission recommendations! See sub-section "A broken compass (or is the CPI useless?) later.

[54] Ideally efficiently carried out market intervention operations (MIO in milk, and in vegetable oil till recently) on the lines of the National Dairy Development Board (NDDB), which reduces price volatility low allowing much more of the moderate prices increases to benefit the farmer is the need of the hour. Alas that can never be given the incompetence of the government, and the lack of operational autonomy to the Food Corporation of India (FCI)! Government action amounts to adhoc ban on exports, imports, on stock holding, and knee jerk administrative measures, which could include restrictions on movement, all of which actually make the problem much worse. In the Indian scheme of things nobody, neither consumers, nor traders nor farmers gain. Procurement by the FCI and state agencies other than by the NDDB come at great cost which could have been avoided had the FCI the autonomy to do scientific MIO.

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The idea of inflation targeting itself is problematic, when the inflation is of the supply side type. However, control of demand side inflation is possible with deep (core) inflation prediction models. Since demand side inflation (i.e. due to imbalance between the actual output and the full capacity to produce (or full employment level in the advanced countries) is best described by

$$\tilde{P}_t = \left(\tilde{P}_e = \tilde{P}_{t-1}\right) + \lambda(Y_{t-\tau} - Y^F_{t-\tau})$$

Where $\tilde{P}_e$ is the expected inflation, and can in the case of supply side inflation show exogenous movements as well. When $Y_{t-\tau}$ the actual market determined level of output is close to the full capacity Y^F_t there is no pressure for the inflation to change from its expected value. Thus a reduction in inflation from its expected value to a lower value is only possible with an output gap that is maintained for a while, despite all the claims of the rational expectation equilibrium economists. However, an exogenous push in the expected inflation (such as that arising out of a favorable inflation shock) can reduce the inflation without a sacrifice of output.

We draw attention to the lag τ which is of the order of 15 months, which makes the task of even demand side inflation control difficult. Thus the only way for an authority to do inflation targeting is to forecast in a well calibrated model[55] one and two year ahead inflation (core), and if these are different (say higher) than the target inflation to take steps **now** to reduce the level of output today, feed these actions into the model to now get a predicted inflation given the action to be the target, and to announce the targets today. Thus when the so predicted (with the action included) inflation is close to the realized inflation, then the authority has been successful. It would also be necessary to demand that the deviations have no bias.

RBI's inflation "forecasts"

In the Indian case the RBI has systematically erred i.e. it has got the predicted inflation and in a several years together higher than the realized inflation often for as many as 8 quarters in a sequence. Thus: "*In its statements since early 2015, RBI consistently expected retail price inflation to rise to 6% by January 16 from the prevailing levels of around 5%. Actual inflation in March (3.9%, YoY), undershot RBI's forecast of 5% by a wide margin. Subsequently, RBI in its April statement projected inflation at 4.5% for the first half of fiscal 2018 (April to September 2017). But actual inflation averaged only 2.6% over the six months..*"[56]. The RBI's study itself shows that actual inflation has undershot its forecasts. Thus "*ever since India adopted an inflation targeting approach to monetary policy in June 2016, the government set a medium-term inflation target of 4% with a band of +/- 2% for the period from August 2016 to March 2021. But actual inflation has undershot RBI forecast for more than three years in a row*"[57]

[55] This cannot be any regression model but a structural model which is capable of out sample (true) predictions.
[56] Kundu, Tadit (2019)
[57] Nayak, Gayatri (2019)

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RBI should be putting out forecasts (conditional on its actions) of the core inflation and getting them right.

Wrong weights for food?

Actually to put out CPI inflation forecasts, where food has a weight of 45% in CPI and fuel another 5%, is meaningless and is best left to a survey organization, or to microeconomic analysts who worry about the details of commodity markets in food and fuel items.

Another problem that has not yet been even identified in the discussion on CPI inflation, is the large 45% weight for Food that is there in the CPI. This is an error, and arises out of the way the CPI weights are determined. The CPI weights are based on the NSSO Consumer Expenditure Survey of 2011-12. This gives a combined rural and urban weight of 45.86 for Food and Beverages. However, the share of agriculture alone in GDP is only 17%, and that of Private Consumer Expenditure is around 55-57% in GDP. This would imply that the weight for food could not be much more than 37%. This divergence between expenditures as per NSSO and NAS has been a long standing problem. Here what matters is that Food (a very volatile item in India) has a high weight, and Food itself is largely moved by vegetable and pulse prices, so that the RBI has been managing macroeconomic demand management essentially by basing itself on vegetable, and pulse prices besides fuel prices in effect!

The RBI's approach has been to insist that the CPI with 45% weight for food should be the target of policy since inflation on food is important for the bulk of the people. Since food is a commodity where given high price elasticity, small shortfalls would drive prices and inflation. The very high correlation of food and fuels with overall inflation due to both its high weight and higher volatility is the reason for the RBI's use of the same as a reference. But RBI itself admits that it can do nothing. However, it still wants to worry about food and fuel because it transmits itself and in the process of transmission it believes that there can be inflationary expectations which needs to be suppressed or killed. We have already seen that the inflation on the rest of the economy is a pass thru effect of food, with little or no expectations of a secular rise in inflation which is built in since the constant term is a mere 0.2% per annum which goes away if the COVID19 period is excluded[58]. The RBI itself notes a high correlation with commodity inflation of overall inflation. The point is not the overall inflation but the core, which has steadily come down as overall food inflation has moderated except in the last phase just before and during the COVID19 crisis. If we consider the

[58] However, this sharp rise in the core in 2020 is puzzling on two counts. Movements in the core being largely of fix price items ought to be gentle especially when from these low levels. Moreover, the period from 2018 onwards has been one of declining demand and a precipitous slowdown so that there is no way a demand imbalance (with a lag) as in the standard understanding of economies could have raised the core inflation. The fracture in the markets of flex price commodities (food and agricultural items due to the COVID19 lockdowns could not have affected the core so quickly). We examine this wayward behavior in the core CPI later by considering the CPI 2001 for Industrial Workers which is available for a longer period, with surprising results.

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RBI's position, then it is tantamount to taking upon itself what it can never do viz. attack a supply side inflation at the most basic of all commodities i.e. food. The only way demand side policies could work given the low income elasticity of food demand is for its demand side restrictions (through high interest rates, and credit restrictions) for incomes to fall (especially among the poor) so low that their demand for food is reduced. Even when we consider the argument of expectations, then it means that instead of letting a structural shift in the terms of trade in favor of agriculture through, it is targeting a declining inflation in the rest of the economy to allow for only a modest inflation on food since the relative terms of trade shift is beyond its control. Then we come back to the huge punishment that such a policy would impose on the rest of the economy, which it has done over the period since 2012-13[59].

Expectations Survey

The RBI has put much weight in survey based assessment of the inflationary expectations[60], without as much as a check on whether these anticipate the future CPI or are actually are projections of the past. Not only so they differ from the actual inflation by a wide margin, that it is difficult to understand the RBI using these so called expectations. See Figure 67. There is a very large deviation amounting to as much as 4% on the average between the actual CPI (whether we use the 2001 or the 2012 series) and the forward projected inflation as in the expectations of both the 3 month and the 1 yr! With such a deviation we fail to understand the value of the exercise of relying so much on the Expectation Survey. Of course with reference to the implicit deflator the deviation is even more. This is because the weight for food is unduly large in the CPI as mentioned before. Closer examination would suggest that the "expectations" are backward looking by as much as 4 quarters, and may be weakly capturing the past inflation on the CPI rather than anything else with a standard bias upwards.

Thus a regression of the 3-month forward expectations (forwarded by 3 months i.e. one quarter) on the CPI01 and its past shows the constant or the bias term (constant) to be very large, and a weak forward projection of the past! See Table 8.
Here we have estimated the equation below:

$$E(3m)_{t+1} = \alpha + \beta_o \tilde{C}_t + \beta_1 \tilde{C}_{t-1} + \beta_2 \tilde{C}_{t-2} + e_t$$

[59] See RBI (2014). The merit of this document is that it lays out clearly the inflation targeting approach that RBI adopted subsequently or almost at the same time. The earlier multiple indicators approach while not clear, seemed to be nuanced and not entirely one sided. It also makes clear the institutional mechanism for the conduct of macroeconomic policy, the organizational and legal framework under which the recommended Monetary Policy Committee is to operate.

[60] We have used the data as conveniently available in the CMIE's Economic Outlook. We have made the quarters as close to the standard quarters in a year. Had to remove the data for some additional months in between quarters reported by the RBI.

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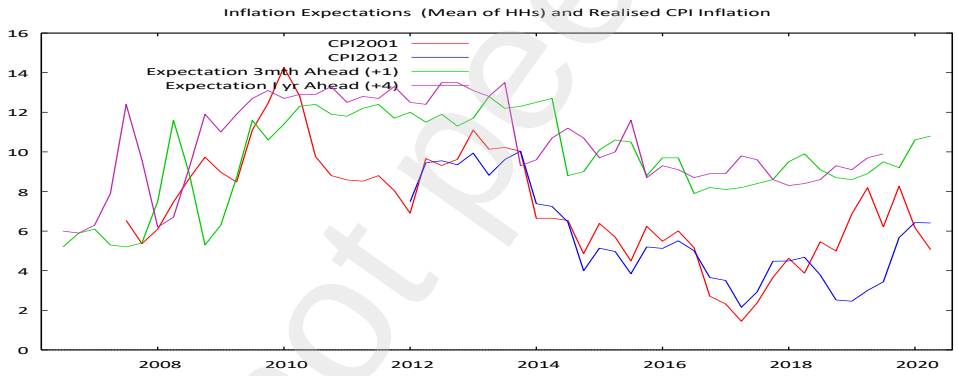
Thus the three month ahead expectations have little value, and the high value that arose out of the same would have most certainly misled the RBI.

Similarly, for the one year forward expectation from the household survey the relevant equation that checks the ex-post veracity of the survey is

$$E(1yr)_{t+4} = \alpha + \beta_o \tilde{C}_t + \beta_1 \tilde{C}_{t-1} + \beta_2 \tilde{C}_{t-2} + \beta_3 \tilde{C}_{t-3} + \beta_4 \tilde{C}_{t-4} + e_t$$

The one-year ahead forecasts are somewhat better and are able to weakly anticipate the inflation a year hence (the current inflation CPI01 is significant), even when there is an equal bias of the inflation today (i.e. a year past). Even here the constant term is large and highly significant reflecting the upward bias in the expectations. See Table 9. The one year ahead forecast is better since the current inflation (agriculture driven acting through its weight) is passed thru over a one year period, and the households are able to project current inflation as the expected 1 yr ahead inflation[61]. In contrast the Inflation Expectation Survey of

Figure 67



[61] Given these tests of both measures, it is necessary for the RBI to abandon these simple expectations based on household surveys and instead have an agricultural submodel focused on the core items that have supply side conditions today and anticipated at harvest based on crop sowing and weather events as additional inputs, besides stocks to forecast the agricultural prices a year, 3 and six months ahead. The largest component of demand is the agricultural output itself and the prices with procurement and some MSPs being used as additional inputs. On fuels the ideal approach would be to use forecasts of global prices, with additional inputs in the form of the government's tax rates. Here the demand side (ceterius paribus on the RBI stand on macroeoconomic policy) would have to be considered since fuel unlike food has an income elasticity even if low.

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Figure 68

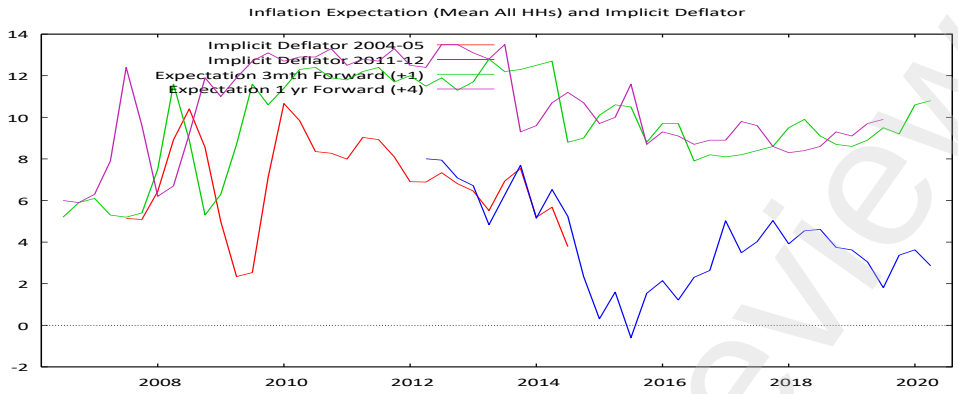

Table 8

Regression Results of Expectation of 3 Month Forward Inflation (Forwarded by One Quarter) on Current and Past Inflation (CPI2001)					
	Coefficient	SE of estimate	t-ratio	p-value	sign.
α	7.26015	0.627773	11.56	3.28E-15	***
β_o	−0.0145245	0.153871	−0.09439	0.9252	
β_1	0.099738	0.207018	0.4818	0.6322	
β_2	0.312752	0.153986	2.031	0.0481	**
Mean dep var	10.178	SD of Dep. Var		1.805015	
Sum sq. resids.	100.9812	SE of regres.		1.481636	
R-squared	0.367467	Adj R Sq		0.326215	
F(3,46)	8.907828	P-value(F)		0.000092	
Log-likelihood	−88.51972	Akaike criterion		185.0394	
Schwarz criteria	192.6875	Hannan-Quinn		187.9519	
rho	0.516397	Durbin-Watson		0.917042	

Table 9

Regression Results of Expectation of 1 yr Forward Inflation (Forwarded by 4 Quarters) on Current and Past Inflation (CPI2001)					
α	6.56261	0.49596	13.23	5.30E-16	***
β_o	0.29054	0.12043	2.413	0.0206	**
β_1	0.00426221	0.16687	0.02554	0.9798	
β_2	0.0927865	0.17155	0.5409	0.5917	
β_3	−0.118627	0.17079	−0.6946	0.4914	
β_4	0.321654	0.12493	2.575	0.0139	**

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Mean dep. Var	10.93111	S.D. dependent var	1.809171	
Sum sq resids.	44.5657	S.E. of regression	1.068976	
R-sq.	0.650878	Adjusted R-squared	0.650878	
F(5,39)	17.40612	P-value(F)	4.91E-09	
Log-Likelihood	−63.63403	Akaike criterion	139.2681	
Schwarz criterion	150.108	Hannan-Quinn	143.3091	
rho	0.358647	Durbin-Watson	1.197484	

Inflation Pass-thru

The RBIs position on the inflation transmission is not entirely clear. We know that the empirical evidence for change in inflation when caused by the demand imbalances $Y_{t-\tau} - Y^F_{t-\tau}$ is with a lag, which for the Indian economy should be only somewhat shorter than in the advanced economies. It is only supply side inflation change transmits by direct pass thru effects, these are independent of the output gap. The supply side inflation causes its own gap in reverse which is what stagflation is all about. The parallel that the RBI and others draw to the situation faced by the US in the wake of the oil crisis is only partly true. The core difference is that then, with a brake on investments and overall growth it is possible to reduce the consumption of oil and hence a least in part and for a while, the march of inflation emanating from the supply side, and to keep the transmission purely to that required for a secular upward adjustment in the relative price of oil, quelling inflationary expectations make sense.

In India when as admitted by the RBI the inflation in the CPI has been largely on account of food, there is little that the demand side squeeze can do anyway. The very low income elasticity of food would imply this. And since whatever little income elasticity is there on food had to be on account of the poor's income being cut back. There is little the RBI can do to selectively cut the income of the poor during times of high food prices to moderate through the demand side the price increases.

Additionally, there is an upper bound to the relative inflation between food and non-food since once this differential has created a terms of shift trade in favour of the agricultural sector, there is little pressure on agriculture for prices to continue to rise, being an inferior good, unless there are large unmitigated production shocks.[62] After such an adjustment, one can expect the inflation in both to be in sync and the changes in the same to be driven by overall GDP gap i.e. $Y_{t-\tau} - Y^F_{t-\tau}$ with a lag. Resisting agricultural inflation in the current situation is not only futile[63] but is a guaranteed recipe for slow growth, and keeping alive the threat of inflation caused by agricultural inflation, and forever being under the (low) middle income trap. The tragedy is the

[62] The value of high levels of buffer stocks where the climatic type of the monsoon impose high variability in output cannot therefore be overemphasized.

[63] Unless the RBI has a "secret instrument" to hit at the incomes of the poor! More correctly the bottom 2 deciles of the population who still have some elasticity in food consumption especially with regard to vegetables, and food grains other than carbohydrate staple.

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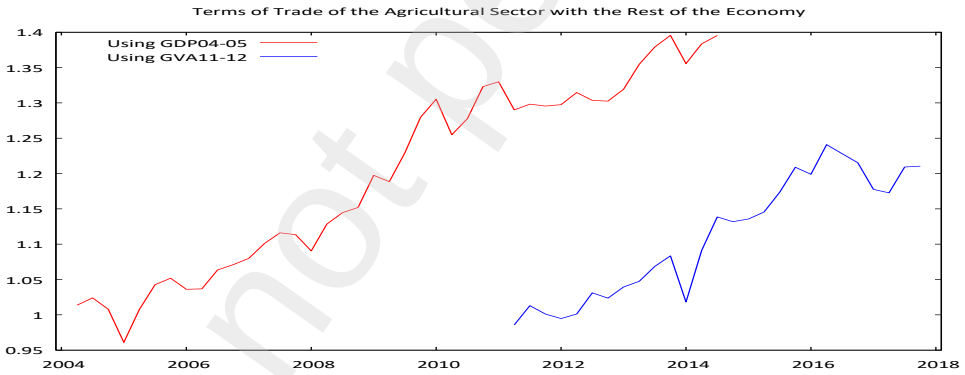
humongous potential of growth and of the manufacturing sector of the country is being denied thereby.

RBI's Inflation Targeting

The RBI's review of the practice of monetary policy (RBI, 2014) which laid the modus operandi for the era of "inflation targeting" was based more on what the majority of countries do, and on doctrinaire considerations, rather than on the specificities of the situation in India could have suggested. It should have recognized the specific historical situation with regard to the agricultural terms of trade. The government did not live by its minimum support prices (MSPs) and allowed the market prices to fall below the so called "MSPs", and given the deep cuts on MGNREGS, and the unrelenting pressure on constraining demand that brought down the investment rate to under 30%, the terms of trade after having risen for a while has now begun to go against agriculture. See Figure 69 below.

The rise in the terms of trade had followed a long period when the terms of trade remained within bounds from 1970 or so. Notice that from the start of the GFC till almost 2012-13 there was little rise in the terms of trade despite the massive fiscal push.

Figure 69



To put in a somewhat different way, the rise (and fall in inflation) from the inflation in the core inflation is only to be expected for a while. CPI cannot be targeted for the food part, only the non-food (and partly non-fuel) part can be, and that is the core essentially. What is important is to keep the core inflation under control say at no more than 4%. To target the core would require a sophisticated approach of forecasting the same conditional on no action (continued monetary stance) through a model, and then to input all shocks that could be anticipated, which includes the output (price and inflation) of the agriculture sub-model, and the known and expected changes in fiscal policies /actions. Next it would have to, in the model, impose its own monetary policy actions including exchange rate changes that it would allow/ plans to, interest rates of both short and longer term, besides money supply aggregates, such that the re-forecasted an inflation level at varying periods ahead (6, 12 and 18

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months), is on its desired and targeted inflation trajectory. It would then have to reveal these target (trajectory) and also desirable the actions that it would/ has taken. The success of the core inflation targeting, would have to be judged by the mean and the standard deviation of the difference from realized values. A zero mean over a period of half a business cycle (about 6 quarters) would be the test of the model and the correctness of the action. The standard deviation of the overall inflation which is reflective of the efficacy of the "agriculture" sub-model and the model for core inflation would obviously be much larger, and a non-zero mean for a somewhat longer duration is acceptable. We have already seen, that assuming any such exercise was being done by the RBI, then its success with inflation targeting is anything but successful. Recall the wide and large gap between inflation targets and realized inflation which so many have commented upon. See Footnotes 56 and 57. The fact that inflation has come down in itself is no measure of the RBI's efficacy since inflation can always be brought down over a period by draconian cuts in credit expansion and high interest rates, or there could have been the case of a supply side positive shock. In the Indian case if we review the entire experience of growth and inflation together and recognize the multiple influences, then in short the inflation came down largely because of the supply side having improved with agriculture growing quite rapidly between 2013-14 onwards. It may have been hastened a little at great cost to the economy through very restrictive monetary policies that had deep income reducing effects by hurting investments to bring the same down to a crawl from 2013-14 onwards. Even without the active curtailing of demand by the central bank inflation would have come down by 2017-18 when the supply finally caught up with demand. The government's action in cutting down on MGNREGS may have been far more effective in bringing down the demand since that programme can directly affect the poor where there is significant if declining income elasticity of demand still left.

This is about all that can be done by way of inflation targeting, given that economies are inflation adjusting only with a lag and slowly after, with the lag being known to be as long as 18 months in the advanced economies. Even in India the lag is unlikely to less than 12 months.

A Broken Compass (or Is the CPI Useless)?

The rise in the core so suddenly towards the start of 2020 and in the later months of 2019 is puzzling. We checked using the CPI2001 for Industrial Labour which is available for a longer period. We calculated the core as the non-Food non-Fuel by taking away from the overall CPI2001 For Industrial Workers (CPI2001 IW) the Food and Fuel indices taking due account of their weights as in the weighting table given in Labour Bureau (2006). See Figure 70 below. Observe that the core (other than Food and Fuels) rose sharply in 2010. In this episode there is a link with the prior rise in the inflation on account of Food and Fuels so potentially this could be considered as a pass thru effect of commodity inflation with or without a rising expected inflation. (This period was not included in the earlier analysis being not covered by the 2011-12 series). The sharp rise in the core in the second half of 2018 and thereafter which also

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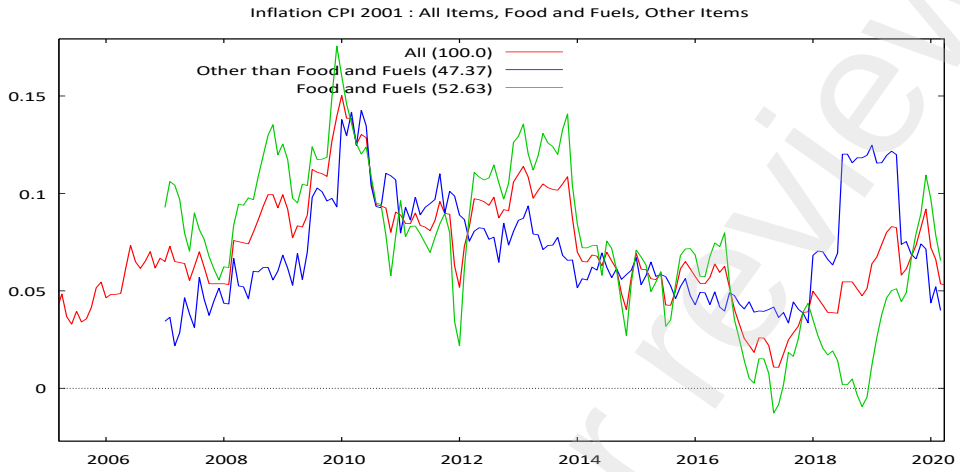
came down before the COVID19 is also puzzling. Clearly in this it could not have been the effect of a pass thru of commodity inflation.

Figure 70



Looking at the main components of "Other", it consists of Housing (15.27), Clothing, Bedding and Footwear (6.57) and Miscellaneous items (23.26), besides Pan, Intoxicants etc. The inflation in the three major items are graphed in Figure 71 below. Observe that the behavior of Housing is altogether unexpected. There is a sharp rise of 30% c.2010 which was preceded by a rise of 20% in 2010, and similarly the rise of over 25% in late 2018 and 2019. Housing given contracts and with excess supply and being among the most fixed price of all services is hardly expected to show this dramatic behavior, clearly implying that there is something seriously amiss with the CPI 2001 Industrial Workers. At a rise of between 25% with a weight of 15.27% (to the overall CPI) it would have contributed to a rise of (25*15.27)/(100-46.2), i.e. a whopping 7.09% in the core CPI (other) misdirecting any macroeconomic policy, and throwing to the winds any attempt at inflation targeting! Is this rise in Housing expenditure for real?

Pay Commission Implementation and Distortions in the Core Inflation

Apparently not if the "caution" flagged by the Ministry of Labour is to be understood. In estimating the "price" of housing the CSO/Ministry of Labour does not include House purchase prices since house is a capital item but the services from the same are included. It has split the set of survey households into those who pay rents, those whose employers play rents, and those which are free. The problem is that those for the latter two the rents/cost are imputed based on the HRA paid, which with the Commission suddenly changes. While these are costs to employers they are not to the employees[64]. Moreover, to use the same to impute the "rates" to all rentals of the

[64] This is mentioned in CSO(2010). We could not locate a manual for the 2001 Series but we presume that the Manual published in 2010 would apply to the approach underlying the 2001 series. In India, acquisition of a house is treated as capital expenditure. As such expenditure

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second and third type is problematic. There is no data on the weights for employer provided housing. But it should be small since most industrial workers would be staying in their own houses or would have rented from the market. Only PSU and government industrial workers would be staying in government quarters for which there is an implied rent. Most importantly it would be conceptually incorrect to consider the rent burden on the housing to be the HRA which jumps up with DA and with the Pay Commission award. Essentially then housing (or at least that part of the same i.e. indexed to HRA would move with the CPI, i.e. largely the commodity part of the index, and would get a big jolt when the Pay Commission Awards are implemented. Thus the shooting up of the house part of the CPI takes place after the implementation of the 6th and 7th Pay Commission awards. Since the Central government is the first to implement, followed by PSUs, then "Autonomous" Institutions, and then state governments the lag with the peaking around the time the PSUs implement is only to be expected. We have checked with various OMs and the dates for actual notification of the implementation of the 6th and 7th Pay Commissions are respectively 29th Aug 2008 and 7th July 2017[65] . This method of computing the rent as the housing license or charge back by the employee, and its extension to many more who are not government or quasi government employees vitiates any use of the CPI as an index of inflation for macroeconomic management, even if it is meaningful as a cost of living index where the counter part is the total income of the household. [66]

incurred on purchase of a house is not taken into account as consumption expenditure for purpose of weighting diagram. However, the expenditure incurred on payment of rent including minor repairs, if incurred by the tenant, is accounted for construction of weighting diagram. Further, data on house rent is also collected regularly for compilation of index. Sample dwelling units for collection of house rent data are of three types: (i) rented dwellings, (ii) dwellings supplied by employers under various labour or other acts completely free, and (iii) self-occupied. The dwellings which are provided by employers for which house rent allowance is not allowed in addition to license fee charged by the employer, also come under the category of rented dwellings. Earlier Government used to charge 10% of the basic pay as the license fee besides the house rent allowance which used to be a fixed percentage of again the basic pay. Thus, the rent of such accommodation depended on the basic pay of the employee occupying the dwelling. Though the license fee has now been standardised for different categories of accommodation, house rent allowance still depends on the basic pay. In other words, rent on such accommodation will undergo a change in the event of change in the occupier. This change in rent could be upwards or downwards with no relation to the market situation. The housing index and resultant general index gets affected by this. This fact may be kept in view while interpreting the housing index and resultant general index when sample of dwellings selected for collection of regular house rent data consists of such dwellings.

[65] Vide GOI (2008), GOI(2017)

[66] It also raises the aside of the interesting price feedback effect of pay increases through the dearness allowance. Thus when there is pay increase the rise in HRA etc for those staying in government houses is partly notional, as the large rise in the CPI (housing driven) due to the same (it should not have risen for the population at large), can be said to partly neturalised. However, the subsequent rise in dearness allowance creates a feed back effect akin to "indexation". With the public sector workers being few, when based on the same rise in CPI

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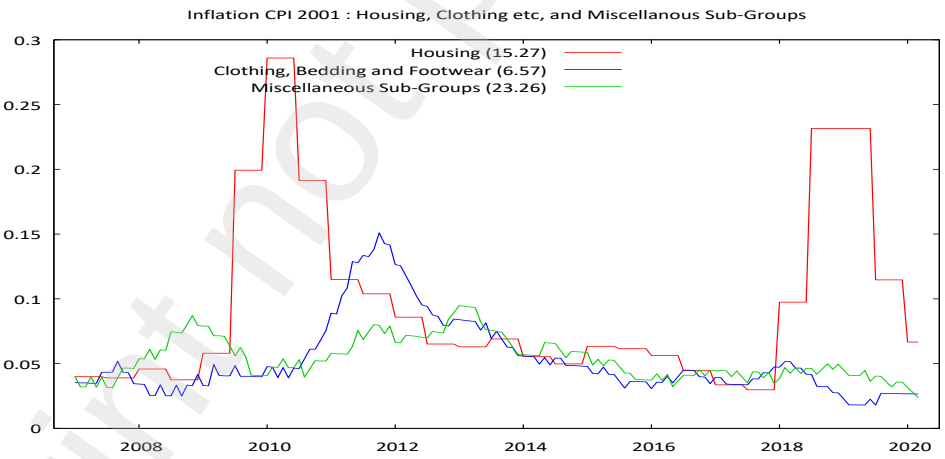
Thus: "*Further, data on house rent is also collected regularly for compilation of index. Sample dwelling units for collection of house rent data are of three types: (i) rented dwellings, (ii) dwellings supplied by employers under various labour or other acts completely free, and (iii) self-occupied. The dwellings which are provided by employers for which house rent allowance is not allowed in addition to license fee charged by the employer, also come under the category of rented dwellings. Earlier Government used to charge 10% of the basic pay as the license fee besides the house rent allowance which used to be a fixed percentage of again the basic pay. Thus, the rent of such accommodation depended on the basic pay of the employee occupying the dwelling. Though the license fee has now been standardised for different categories of accommodation, house rent allowance still depends on the basic pay. In other words, rent on such accommodation will undergo a change in the event of change in the occupier. This change in rent could be upwards or downwards with no relation to the market situation. The housing index and resultant general index gets affected by this. This fact may be kept in view while interpreting the housing index and resultant general index when sample of dwellings selected for collection of regular house rent data consists of such dwellings*." (p.21. CSO (2010))

Once we adjust the core by removing housing we see the see the core to be closer to the expected behavior. See

Figure 71



Once we adjust the core by removing housing we see the see the core to be closer to the expected behavior. See Figure 72 below. Even then the very sharp rise in 2011 end and in 2013 can be understood as arising out of the pass thru effect of high food inflations caused in these periods due to the supply side inflation that was high in food during these periods. See Figure 38 again. However, the rise in inflation of clothing

the RBI puts contractionary policies in place all others than government and parastatal employees are the losers through the decline in investment, job creation and overall demand.

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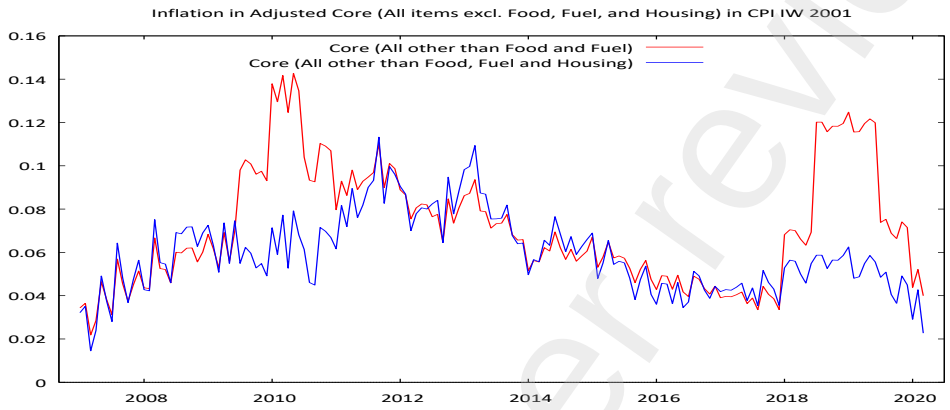
bedding etc. to as high as 15% needs further examination in terms of the veracity of the survey and weighting processes. Indeed, from the data available the inflation on almost all non-commodity items are questionable.[67] A serious re-examination of the CPI surveys needs to be carried out and meanwhile it would be irresponsible for the RBI to use the CPI to guide policy action.

Figure 72



Section XI: Transmission Issues

The problem of monetary transmission has been repeatedly referred to by the RBI, often with the tone that it can do very little given the unwillingness of the banking system to pass on low rates at the repo window to the ultimate borrower. A critical examination of this position, which is also widely shared by sections of the media and possibly even the government, is called for.

We believe it is useful to consider the transmission process into three distinct "stages" which of course need not be separated in time, since the markets can often anticipate the developments in an "earlier" stage, especially in price auction markets that are capital markets. The first is really how well the low end bond yields are being collared by the repo and the reverse repo. We have already seen that for long periods the low end bond yields were above the repo rates. Refer again to Figure 51. From end 2010 to early 2012 this was the case and after a brief gap again right until early 2015. During the "taper tantrum" the gap was as much as 300 basis points!
This means that the policy rate (repo) was not meaningful as the policy rate since it was not the marginal cost of capital at low duration for the banks. The repo window was not open enough to allow the market to remove the gap by increased bond

[67] The approach to surveys of fix-price produced goods has to very different from that of flex price goods like commodities and near commodities. Thus a six-month gap to elicit rents in (rightly) justified by the CSO as ". However, when the resulting rents of its housing index shows a jump

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purchase which would have happened if enough liquidity had been provided through the repo window. Or the OMOs were not sufficient enough so that banks had borrowed on all their securities over the SLR requirements. We know that the case was 1, since there were enough situations when banks had excess securities. There is a false idea that liquidity and rates are independent. At the low end, rate is simply the price of liquidity and there is no way the actual rate (yields on t-bills) can fall to be collared by the repo unless the repo operations continue /bond purchases by the central bank (OMO) takes place till the rates get collared.

So one of the major points in the poor transmission is that there is nothing to transmit since the low end yields are still high whatever the repo rate. It is then an infructuous rate much as the bank window was before the emergence of collateralized markets when moral suasion used to be exercised.

The second stage is when the (low) rates at the low end get passed on to the higher ends as the stretch of the yield curve from the low end rates having been lowered the central bank, is worked upon by the markets to reduce the middle and upper ends with the passage of some time. Often when markets are not convinced of the intent of the central bank, the mid end and longer end would not fall despite the lowering of the low end t-bill rate. This would happen when the gap at the low end itself communicates conflicting signals to the market. In addition, when the central bank is inflation targeting the way it does (reacting to every rise in the CPI inflation with a rate rise or a delay in the original target of rate reduction), then the markets understand that the rate over the medium term would not (should not) have a strong relationship with the current short term rates, thereby increasing the delay, and in a situation of inflation (not core inflation) uncertainty – since the RBI uses the CPI rather than the core as the 'target' – market reactions can hardly be expected to be such as to normal yield curve. Instead it would be steeper, with the steepness rising in periods of uncertainty. The RBI can overcome the diffidence in the market by avoiding its particular mode of inflation targeting[68]. In addition, it can also resort to term repos linked to OMOs that buy /sell government securities of various maturities including those going to 10 years and doing so with a view to keep the term structure at the desirable level. Since the RBI is well recognized by the market to react to inflation (CPI inflation) more like a lever, there cannot be the conviction required to carry forth lowering of low end rates to the middle and higher end. This continued the stretch of the yield curve we have already brought out.

It is only in the last stage when banks have to transmit to the productive sector. This stage may again be seen as consisting of two sub-stages that again partially overlap – one through corporate bonds of top ranked entities, and another by way of loans and credit to the economy and specifically to the productive sectors. That in the first case there has been little difficulty with the banks may be seen from observation that the

[68] See the earlier discussion on what inflation targeting could be given the understanding of late and delayed adjustment of core inflation to demand imbalances and supply side inflation shocks. Inflation targeting is not particularly easy either.

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rise in the combined uncertainty measure with regard to corporate bonds is accompanied by the rise in the uncertainty with regard to government bonds. See Figure 55 and Figure 56. It is on the high lending rates to prime borrowers, vis-à-vis the corporate bond yields for triple-A rated entities, that the banks can be asked to account for. While the two are divergent, the real problem is the lack of lending to all but triple-A rated entities. Since banks are under pressure to lend at low rates when the corporate bond yields are high they resort to non-lending, and in any case as commercial entities they see very high risks of lending to corporate entities which have learnt the art of shifting risks on to public sector BSFIs and governments[69]

This is not surprising at all, and measures to correct the same have to lie in government reducing the fickleness in its policies and in the RBI trying not to control the rate and the quantum of liquidity, since only one can be determined without a rationing. The public sector banks which have weak incentives for financial performance, have been weakened, and organizationally so violated that it would be foolish for mangers to stick their necks out to lend, when so much of the reactions and corrective actions when loans sour are entirely dysfunctional. The core problem is that they lack the autonomy to be accountable. And RBI's reduction of regulation to a laundry list of items (with many of these being actually internal to a regulated business) to check, is also a force that has displaced accountability since banks are left with one option – to play the "game of catch me if you can". Of course political interference has been highlighted in the popular and academic discussions. While undoubtedly important, this dysfunctionality becomes possible only because of the lack of autonomy and the perversity in regulation[70]. The potential ability of the mangers to work towards task performance, with the requisite changes in their interface with government and with the regulation is about as good as one can expect[71].

Synopsis and Conclusion

In this paper we bring out the performance of the Indian economy, to review the approach of macroeconomic policy especially demand management since the GFC India's economy did not dip much due to the well-directed fiscal stimulus by the government early on. The government could persuade an RBI which was still

[69] See Morris, Sebastian (2019b) which brings out the details of how this risk shifting behavior happens in the case of infrastructure investments by the private sector.

[70] We say this because even in the same political environment those state owned entities or parastatals that truly have autonomy have all performed rather well – the ISRO, NTPC, RBI itself, the NDDB, the NHAI etc. Since this autonomy is not going to come, the right agenda for change with regard to PSU banks should be dilution to a point where government shareholding is below 50% no golden share, and "social objective" that are brought in through their regulatory equivalents rather than through direction.

[71] For more detailed analysis of the problems of PSU banks particularly in the context of lending to private infrastructure see Morris, Sebastian (2019).

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"fighting" a supply side inflation to expand liquidity to at least reverse the sharp fall in liquidity that had taken place due to the contagion and capital flight brought about by the GFC, thanks due to the RBI not carrying out a reverse sterilization.

However, as the fiscal stimulus was being withdrawn from 2011-12, the RBI tightened to raise interest rates, which from 2012-13 put brakes on the economy which continued almost until 2016. The RBI saw rising inflation not only on the non-core but also on the core, thereby "necessitating" this counter action. However closer examination would reveal that much of the rise in the core was spurious since it was on account of the house rents "going up" due the 6th Pay Commission award which was first notified for the government employees in mid-2009. The spurious impact on the core would have been as high as 4%. [Even today the large rise in the core now on account of the delayed 7th Pay Commission implementation confuses the RBI]. The inflation measure, not to speak of the core is therefore quite spurious and the discussions on inflation in India for now since 2010-11 have been quite meaningless. The use of the CPI with a 15% weight for Housing which can rise in one year by as much as 30% makes little-sense. The wrong CPI on this count and on the gross overweighting of food in the CPI by as much as 18% further, in a regime of inflation targeting would surely have resulted in major error in monetary policy on the part of the RBI, which would have resulted in significant underperformance of the economy since 2009-10.

The year 2013-14 saw the RBI move formally to "inflation targeting", and to continued lightening which kept interest rates record high and created a large fisher open which attracted expensive gross foreign capital inflows, though not much on a net basis. The "taper tantrum" saw even further rise in interest rates. More importantly for a period as long as 10 years with only short breaks, the low end bond yields remained well above the repo rate, signifying that the repo windows were prematurely closed and the RBI was de facto carrying out credit rationing as well, negating the repo rates as "policy rates". From 2014-15, after the economy had slowed down considerably that the interest rates could begin to come down, and even then the anomaly of the policy rates being lower than the market rates remained.

Inflation targeting brought with it many problems for the RBI and the fact that forecasted inflation conditional on the RBIs own measures were always higher than realized inflation by a wide margin, raises doubts about the approach. Similarly, its expectations surveys are off the mark and systematically so by a wide margin. Even more importantly the RBI's reaction to current CPI inflation than to forward looking core inflation means that financial markets (over the longer term and longer maturity instruments) do not react to even the lowering of the low end rates, since this approach of the RBI makes the future very uncertain, and therefore the first leg of the transmission itself is hurt by the modus operandi of the RBI.

Moreover, there is very little support to the RBI's contention that even a supply side inflation needs to fought on the demand side to prevent inflationary expectations from building up, since not only have expectations (correctly measured) not shown any secular trend except downwards, but food inflation which drove everything else during this period, can hardly be affected by demand side measures. This is because

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the income elasticity of food is very small, even for a poor country like India now that there are few people below the poverty line, and considering the same as analogous to other commodity inflation especially of energy like oil is quite unwarranted. There is also the point that India may be at a phase (encountered by all densely populated countries that pierced the middle income barrier) when the terms of trade in favour of agriculture rises to bring the agricultural sector into the home market in a vigorous way.

On the fiscal side a variety of measures adversely affected investment, and animal spirits. The 'policy paralysis' during the last years of the UPA government was the turning point. However, with the Modi-I government the large reduction in anti-poverty programmes and especially the MNREGS allocations, the underspending from the budgetary provisions in the first two budgets of the Modi government (as a side effect of the extreme centralization of power in the PMO), besides the conditional commitment to the fiscal deficit targets, further contributed to the demand decline. From the third year onwards the policy and action uncertainties including those let loose on the automobile sector took their toll. The talk of banning diesel vehicles was highly damaging industry had just made the transition to being able to meet Bharat VI norms.

From 2012-13 growth had fallen but the official 2011-12 series was not reflecting the same. Growth from 2012-13 to 2017-18 could not have been more than 5.5% most probably under 5%. And the investment growth rate especially of the private sector had all but collapsed, coming down to a mere 32% of GDP from its high levels of 36 to 37% over the high growth period. Much of the same was public investment in infrastructure often directed sub-optimally from the productivity and value creating standpoint. Private investment saw the largest period of near stagnation from the mid-eighties. The economy seemed to more than recover from the decline brought about by the demonetization, from late 2017 onwards, but the growth of around 7.8 % over three quarters, quickly gave way to a slow down reaching as low a rate as 3% on the eve of the COVID19 Crisis.

While nearly all the programmes of the Modi government were about increasing public and social value, the poor capability of the government at the organizational, coordination, and strategy and design levels cheated the NDA of transformative second generation reforms. Instead, most of these fizzled out. There was little of the creativity of the earlier National Highway Development Programme (NHDP) nor of the Prime Ministers Gram Sadak Programme under Vajpayee, when the government had the wisdom to accept and implement a well-crafted NHDP that actually came from the IDFC. Only the Direct Benefit Transfers were improvements. But even here the realized gains were far below the potential. The task of combining (structural and tax) reforms with macroeconomic demand management in a positive way proved beyond the capability of the government. Thus even excellent and politically difficult reform like the introduction of GST, while largely successful in itself, led to increased effective tax rates (precisely because it improved compliance) adding to the downward pressure on demand, when measures to counter act the same could have been used.

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Bank lending which was always a problem given governmental interference and a "laundry-list approach" of regulation pursued by the RBI went from bad to worse. Much of the lending during the fiscal stimulus which were hurried began to worry the PSU banks once the slowdown happened. The slowdown itself contributed to their bleak situation which in turn negatively affected whatever little transmission they could have affected. The delay in their recapitalization affected the NBFCs and the real estate sector to create a gridlock on lending. The problem was not the stimulus per se but the fact that the frameworks for private investment in infrastructure were inappropriate except in the highways and rural roads sectors.

The external sector was benign and the government could hardly use the opportunity of falling oil prices, in its single minded pursuit of reducing the fiscal deficit often with the perspective of managing a family budget, and an entirely uncoordinated approach of the bureaus that the government had to depend upon. The steady growth of the world economy did not positively affect India as much as it could have since real effective exchange rates continued to be high relative to its competitors in East Asia which now included Vietnam.

The issues of coordination between demand management both fiscal and monetary with structural reforms can no longer be avoided under doctrinaire considerations, nor can territories of control stand in the way. The GFC brought back the issue of monetary and fiscal coordination for the advanced countries throwing to the wind the academic yarns of continuous optimality. They had also brought to the fore the aspect of rising liquidity demand in the face of uncertainty, taking first and foremost a demand for reserve currency liquidity, especially dollars, creating a special position of responsibility for the US and in part for Europe. For large countries like India and China they create some need to address local currency liquidity, even while having large foreign currency reserves becomes a necessity. India, unlike China seems to be entrapped in a doctrinaire web the severity of which to hold growth down is amplified by the poor organizational and strategic capacity of the bureaus, even when politicians are able to highlight important agenda for structural change.

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