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Sebastian Morris
Macroeconomic Policy in India Since the Global Financial Crisis
Trends, Policies and Challenges in Economic Revival Post-Covid
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This book is dedicated to the memory of my mother Imelda Morris, who lived completely selflessly for her children.

Preface

The belief that India is the fastest growing economy is widely held, and the government in recent years has made this claim repeatedly. After 2015 China slowed down, and India's growth was in the same range as China's. The comparison, if truly driven by a keen desire to make the economic transition, as it should be, would have to be with the East Asian Tigers and China, during their transformation phases. Korea and Taiwan grew at around 8% over more than three decades, with brief interruptions caused by global shocks (most notably the Oil shock, during the late 70s). They were able to lift themselves well above the "middle-income levels" to reach nearly advanced country status. Singapore went on to become one of the richest countries in the world on its own steam with no natural endowments. While the case of Singapore could perhaps be kept aside due to its small size and city status, the cases of Korea and Taiwan are most relevant. From 1979 till almost 2014, China has grown at rates above 9% to take the economy to within striking range of being an advanced country.

Yet, these economies hardly find mention among the policymakers and academics in India. The facts of their growth experience are readily pooh-poohed by the Indian intelligentsia, even by the few among them, who are concerned about growth and the economic transition. Others, who worry about the human agency, are predisposed to ignore growth. They create a false hiatus between growth and (human) development. The evidence is overwhelming that no country of any substantial size has made sustainable human development without economic development. Though the two are not exactly parallel, their trajectories tend to be in step. Deviations are almost entirely explainable in terms of the distribution of income, which in turn may have been caused by social and economic factors.

For many others, the economic transition does not seem to matter. It is some archaic notions of identity and culture that they seem to be concerned about. Modernization (with the inclusion that goes with it) appears alien and intrusive to them. Unfortunately, this segment of the intelligentsia has grown in recent years. Limited growth, in not being able to include all, but having benefitted the middle classes substantially, may have contributed to the rise of this segment. The political discourse today reveals that Indian society is at an inflection point where the middle classes as

a whole are beginning to show their impatience with the inclusive democracy that is India, and take more than potshots at it. The failure to provide public services is at the root of this impatience, slowness of growth has limited inclusion. Elites who believe in modernization and democracy underestimate the dangers of not having high enough growth, and in leaving the problem of public services delivery unaddressed.

The so-called "middle-income" barrier has entrapped many nations, and the few instances of escape are almost exclusively the export-led (high) growth economies. Additionally, our poor land endowments per person, similar to Korea, Taiwan, and Japan, make these cases relevant. Would India be able to follow these economies? If it does not, risks to its unity would arise, belying the great political program of an inclusive society that was initiated with independence. When the cake grows slowly, the concern about where the cuts are made takes precedence over growth. The slowness of economic growth in India casts doubt on whether it is on its way to its economic transition. We know that the later a country has successfully transited, the quicker its transition has been.

Social media is rife with the country's achievements both real and fictional. The reality that India houses some 30–40% of the world's misery be it disease, poverty, unemployment, hurt due to pollution, child undernourishment, or illiteracy stares starkly at anyone who chooses to make even a casual glance at the reality. Countries with vastly superior endowment of natural resources—many of them African, Central Asian, and Latin American—can at least reach the middle-income level riding on the dynamism of the advanced countries and China. India has no option but to create its own high-speed engine of growth. The Philippines' approach of depending largely on remittances is out for India. It is just too big. That approach cannot, even for the Philippines, ensure the economic transition. The thin original middle class of India that exported much of the younger generation out to escape to a better life cannot be the model for the billion that waits.

We overcame hunger through the high growth that raised the poor's incomes, aided by the MGNREGS. But over the last 9 years or so growth had been slow. The COVID crisis has been particularly harsh on the poor and many millions have lost their jobs. Now, with almost 2 years into the crisis and recovery, the GDP has just crossed the pre-COVID level, and the effective employment is much below the pre-COVID levels. The years before the COVID were also nearly stagnant on employment. It is no longer possible to explain (away) the slowdown by pointing to the external conditions and shocks. While these are important, the small size of the economy, yet relative to the world economy means that it is action and policy within that would determine the course of the economy.

It is on this matter of growth that we focus. The framework of analysis is essentially macroeconomic with the demand determined level of output being central. The structure of the economy, with the impact of policy and action on the structure, in influencing the capacity to produce, is also important. But we do not cover all aspects of the same. We know that demand and the capacity to produce (the emerging economy equivalent of the full employment level of output in the mature economies) have to rise keeping in step. Reform for the better can be held back if

demand is not in sync. Excessive demand, without the reforms to extend and improve capacity, can only be ephemeral and inflationary.

The fact that India has vast surplus labor would mean, at an abstract level, that over the longer term, there is only one real constraint that policymakers need to accept—land. Capital and hence the capacity to produce is only a current "constraint" that can be overcome with investment—an objective of macroeconomic policy. And much (though not all) of technology can conceivably be "imported". And even technological development is actionable by policies that attempt to counteract the market failure in its generation. Skill development is part of the process of reform and structural change. In other words, growth is the best recipe to overcome constraints, even as policies—industrial, trade, and tax—besides governance and administrative reform that address constraints make room for growth.

Hence, the fact that India is not growing at high rates is a matter of much concern. There is little comfort in it growing at anything less than 7%. We believe that with the potentially great dynamism of the private sector, policymakers would have to work hard to give it less than 5%! Yet, there seems to be an acceptance of low growth by many in positions of power and influence. The RBI in giving itself "inflation targeting" may have veered away from a concern for growth. Understandably, growth cannot be achieved by monetary policy alone. But in an emerging economy context (with the existence of idle labor), the mantle of growth cannot be shirked away by appealing to doctrinaire notions that may have been functional in the developed country context of labor tightness. The current fashion should not be acceptable on its currency alone. Left leaners also cannot neglect high growth. In a market economy, when the technology itself (as capital intensity expands) can give an aggregate labor productivity of nearly 5%, growth at any less rate cannot lead to labor absorption. This does not mean that the march of innovations and capital investments be restrained, or that work norms be lowered. That would amount to backpedaling. At 9% growth, there would be labor absorption at about 4%. And that when sustained over a couple of decades would undoubtedly ensure the economic transition. The demographic dividend is not automatic, unlike what many populists believe it to be. It can only be achieved with high growth, and the "asking" rate for its achievement only increases with the backlog of idle labor that slow growth engenders.

Today, it is a little less difficult to argue against orthodoxy that "governments and the central banks have a role merely in inflation control". The Global Financial Crisis (GFC) has shaken the foundations of the sterile and unreal world of rational expectations equilibrium schools. Their tenets of policy irrelevance and equilibrium of markets and the economy as a whole, which vice-like held their reign over the academic macroeconomics, are fading away. Similarly, the aspect of coordination between central banks and the government on macroeconomic matters cannot be easily dismissed. In the case of emerging economies much more is required from the visible hand. The aspect of strategic macroeconomic policy that recognizes as its objective, the use of idle labor to export to the rich countries and more generally, needs recognition. The macroeconomic dimensions of export-led growth constructed from the stories of China (until today), Taiwan and Korea (till about 1997), and Japan much earlier need to be brought to the forefront in policymaking in India.

No country of any substantial size has made the economic transition without a prior or simultaneous agricultural transformation. Today India may well be at that point when the terms of trade need to rise in favor of agriculture. Only then can agriculturists' incomes rise to slow the divergence between rural and urban incomes. Otherwise, inclusion would be hurt, and the home market would constrain. China, with its somewhat higher level of income (and far more egalitarian distribution), reached this stage almost immediately after its open-door policy. Despite the growth of agriculture at 6% or so since then for 8 years or so, inflation largely on account of food prices was high given the small but sustained gap between demand and supply. Chinese policymakers' understood the structural context and the supply-side aspect, and did not respond to this inflation to curtail demand through macroeconomic particularly monetary measures. The inflation over a decade and a half passed over as the food demand growth slowed down. Today we see the RBI targeting inflation—not just the core—and being ever ready to tighten as if that could bring down food demand—the most basic of all demand which for most (other than the very poor bottom 40%) would be income inelastic. Not only does it arrest inclusion but also retards growth with no gain in terms of reduced inflation. The fact that high growth has made nearly all—even the urban poor—calorie "sufficient" c. 2015 should have given the RBI greater confidence to pursue growth, recognizing the structural necessity of including the agriculturists in the home market demand. Of course, supply-side initiatives, including measures that improve the farmers' take from the consumers' expenditure on food, are important, but that gets into strategies for agricultural transformation and falls outside the scope of this book.

Analyses of the macroeconomy cannot anymore relegate the financial sector to the background. The quantum of financial assets in portfolios has gone up much faster than either assets or GDP. This has been a global phenomenon, and while the advanced countries have taken the lead, the emerging economies too show large rises in financial asset holding. Low costs of financial transactions, heightened information availability (though not of valuation), and participation through algorithms have meant the development of leverage and more frequent determination of market prices. The concomitant demand for liquidity arising out of portfolio demand relative to the transactions demand has been rising sharply. Similarly, exchange rates over the short run are almost entirely determined by capital flows, even though the current account would have a role in driving expectations. Hence, the gamut of monetary policy has expanded to include besides liquidity (and/or low-end rates) to actions along the yield curve, to direct support of private entities (quantitative easing), besides of course the foreign exchange markets.

Executives and administrators rightly think in terms of action, and the sharp distinction between policy and other actions is not clear in their minds. However, for governments and central banks, it is important to think in terms of policy and underplay action/intervention of a direct kind, or indulge in advice. Notably, the government in India goads the industry to process more food, while the tax policy is completely orthogonal to that objective. RBI desires a high level of transmission by banks, but its own policies and stances could drive banks to poor transmission. As the economy matures it is important to move away from action and discretion,

to working through policies. It has become fashionable among the many in the intelligentsia to blame all our failures on the politician. Some go to the extent of creating the "political class" on whom if the problem can be ascribed, so no more analysis is required. We would think this is self-defeating. Most of the problems of the country are correctible through a change in policy, law, framework, organization, design, etc., and the academic has the role to discover the specific leverage points for change in society. Crisis present opportunities for change, but more often than not the constructive answers for change are not ready with policymakers. The few instances when they were—as during the balance of payments crisis of 1991–1992, the Great Liberalization followed, to deliver the economy out of the mess of the previous decade.

This book takes a detailed look at the growth experience of India since the GFC. It has to take a detour into the measurement issues given the significant divergence in growth as computed from the older 2004–2005 GDP series and the new 2011–2012 series. Many more series than what is used in conventional analysis had to be considered to build a consistent picture.

The period covered includes the terms of the UPA-II, Modi-I, and Modi-II which is on today. The regime changes have been sharp. Not only the executive, but the judiciary through its actions had amplified uncertainties on the economy. While I don't cover the high growth period that preceded the GFC nor the GFC itself, references to the same, are inevitable in any discussion. The presentation and the approach of the analysis majorly work on the determinants of demand and of inflation whether these arise from external shocks or internal actions including policy with a focus on the fiscal and the monetary. The discussion is on "high growth". Why did it elude India after having had two rounds of high growth? References to the East Asian Tigers cannot be avoided, though this is hardly a comparative study.

It is almost a truism that India has to find ways of engaging its vast "idle" population. And to do that demand for manufactured goods and tradable services—through exports and home market demand—has to grow rapidly. Investment ratio, employment growth, and export growth, therefore, become the true indicators of performance. A brief consideration of manufacturing performance, although not strictly within the domain of macroeconomic analysis, is also included.

So also, the GST being destination-based would create fiscal disincentives for production-oriented regions in their support of investments, a role that regional governments ought to keenly play at the current phase of development of the economy. The Goods and Services Tax (reform) becasue it integrates the home market and removes distortions is vital. Should there not be compensatory mechanisms for the production states?

Over time, I hope very much that the perspectives developed here would help in framing the issues in macroeconomic management after the more detailed analyses are contested and debated.

Ahmedabad, India Sebastian Morris

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Contents

Abbreviations

AFC	Asian Financial Crisis
AIC	Akaike Information Criteria
AIEI	Association of Indian Engineering Industry (now absorbed into the CII)
APMC	Agriculture Produce Marketing Committee
BEL	Bharat Electronics Ltd
BFSI	Banking, Financial Services and Insurance (companies)
BHEL	Bharat Heavy Electricals Ltd.
BHEL	Bharat Heavy Electricals Ltd.
BICP	Bureau of Industrial Costs and Prices (now includes the Tariff Commission)
BIMARU	(The Indian States of) Bihar, Madhya Pradesh, Rajasthan, and UP
BJP	Bharatiya Janata Party
BSE	Bombay Stock Exchange
CAG	Comptroller and Auditor General of India
CBDT	Central Board of Direct Taxes
CBM	Coal Bed Methane
CENVAT	Central Value Added Tax (of the Centre before GST)
CII	Confederation of Indian Industry
CLSS	Credit Linked Subsidy Scheme (of GOI)
CMIE	Centre for Monitoring the Economy
CPI	Consumer Price Index
CRR	Cash Reserve Ratio
CSO	Central Statistical Organization
CSR	Corporate Social Responsibility
DBT	Direct Benefit Transfers
DEITY	Department of Electronics and Information Technology (now MEITY)
DIPP	Department of Industrial Policy and Promotion (now DPITT)
DISCOM	Distribution Companies (in the electricity business)
DPITT	Department of Industry and Internal Trade

DSGE	Dynamic Stochastic General Equilibrium
ECIL	Electronics Corporation of India Ltd.
ELG	Export-Led Growth
EO, CMIE	Economic Outlook (database of the CMIE)
EPR	Effective Protection Rate
FBs	Foreign Banks
FCI	Food Corporation of India
FDI	Foreign Direct Investment
FII	Foreign Institutional Investment
FMCG	Fast moving consumer goods
FPI	Foreign Portfolio Investment
FSI	Floor Space Index
FSSAI	Food Safety and Standards Authority of India
GCF	Gross Capital Formation
GDP04–05	The older GDP series with 04–05 as base year
GFC	Global Financial Crisis
GL	The "Great Liberalization" of 1991–1992 and 1992–1993
GOI	Government of India
GQ	Golden Quadrilateral
GST	Goods and Services Tax
GSTIN	GST network
GVA	Gross Value Added
GVA11–12	The new series with of National Income with 11–12 as base
H	High powered money
H	High Powered Money
HCL	(earlier) Hindustan Computers Ltd. (now HCL)
HRA	House Rent Allowance for Government and Public Sector workers
IAS	Indian Administrative Service
ICOR	Incremental Capital Output Ratio
IDFC	Infrastructure Development and Finance Company
IESA	India Electronics and Semiconductor Association
IIP	Index of Industrial Production
ILFS	Infrastructure Leasing and Financial Services
ITA	Information Technology Agreement
ITES	Information Technology Enabled Services
ITS	Indian Trade Service
LA	Latin America
LFPR	Labor Force Participation Rate
M0	Base Money
M1	Narrow Money
M3	Broad Money
MCLR	Marginal Cost Based Lending Rate
MCLR	Marginal Costs (of funds based) Lending Rate
MEITY	Ministry of Electronics and Information Technology
MFA	Multi-fiber Agreement

MGNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme
MIO	Market Intervention Operations
MODVAT	Modified Value Added Tax
MRO	Maintenance, repair and overhaul (of aircraft)
MSF	Marginal Standing Facility
MSME	Micro Small and Medium Enterprise
MSPs	Minimum Support Prices
NAC	Non-agricultural Clearance
NAIRU	Non-accelerated Inflation Rate of Unemployment
NAS	National Accounts System
NBFCs	Non-banking Financial Institutions
NCD	Non-Convertible Debentures
NCLAT	National Company Law Appellate Tribunal
NDA	National Democratic Alliance
NDDB	National Dairy Development Board
NEC	(earlier) Nippon Electric Corporation (now NEC)
NELCO	National Electronics Company
NHAI	National Highway Authority of India
NHDP	National Highway Development Programs
NMDC	New Delhi Municipal Corporation
NPAs	Non-performing Assets (of banks)
NSE	National Stock Exchange
NSSO	National Sample Survey Organization
OMO	Open Market Operations
PBDIT	Profit before depreciation interest and tax
PES	Periodic Employment Survey
PFC	Power Finance Corporation
PFCE	Private Final Consumption Expenditure
PLI	Production Linked Incentive (Scheme)
PLR	Prime Lending Rate
PMEAC	Prime Minister's Economic Advisory Council
PMGSY	Prime Minister's Gram Sadak Program (Village Road Program)
PMMSY	Prime Minister's Matsya Sampada Yojyana
PMO	Prime Minister's Office
POL	Petroleum, Oil and Lubricants
PSBs	Public Sector Banks
PSFIs	Public Sector Banks and Financial Institutions
PSU	Public Sector Undertakings
PSU	Public Sector Undertaking
PVSBs	Private Sector Banks
RBI	Reserve Bank of India
REC	Rural Electrification Corporation
REE	Rational Expectations Equilibrium
REER	Real effective exchange rates
RERA	Real Estate Regulatory Authority

RNR	Revenue Neutral Rate RNRS: Revenue Neutral Rate for a State
RRCA	Relative Revealed Comparative Advantage
SBI	State Bank of India
SLR	Statutory Liquidity Ratio
TB	Treasury bills
TLTRO	Targeted Long-Term Repo Operations (of the RBI)
UPA	United Progressive Alliance (led by the Congress Party)
VAT	Value Added Tax (of States before GST)
VGF	Viability Gap Funding
WPI	Wholesale Price Index
WTO	World Trade Organization

List of Figures

Chapter 1
Introduction

1.1 The Great Liberalization

Following from the stabilization and reforms of the Narashima Rao government in 1991–92 and 92–93 (hereinafter referred to as the "Great Liberalization" (GL)), the undoubted success of India's economic performance had given confidence to policymakers that enhancing the pace of growth was possible.

For an understanding of the strategy of reforms then, the holism in the approach and its political feasibility, see Ahluwalia (2006) who recalls the actions that constituted the "Great Liberalization" and the reasons for their success. Essentially the macroeconomics and the structurally oriented reforms (de-licensing, privatization and trade reforms, the opening up of the economy to liberal capital inflows), all spurred private investment and raised exports, while the stabilization ensured curtailment of government spending. Moreover, the political feasibility was ensured by the sequencing and the "gradualism". Its very success in bringing about growth rates higher than before and in an eminently sustainable way, crowded in political support. Rising growth rates so significantly in the more typical stabilization pursued by the IMF has been very rare, as the many Latin American episodes would illustrate. For an early analytical review see Joshi and Little (1996). The fact that growth at over 6.7% per annum was not kept up from 1997–98 onwards was in the main due to lack of second generation (those requiring deeper understanding, more "constructive thinking" and deeper involvement of many government departments) reforms (Ahluwalia, 2002b, 2006). Private investments slowed down as a result. On the macroeconomic side, the slowdown in private investments from its searing pace and the appreciation in the real effective exchange rate were the core reasons both of which had happened to effect before the Asian Financial Crisis (Morris, 1997). The response of the RBI to raise interest rates in overcoming the contagion brought about by the AFC contributed as well. The slow down gave way when fiscal expenditures moved up as the Golden Quadrilateral spending began to effect from 2003 to 2004. See Annex to chapter.

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While the "reforms" or the structural changes (many of these amounted to removing controls and liberalizing the economy) have attracted attention, the underlying macroeconomic initiatives ("stabilization" as it was then called) have been discussed only among a few. "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 exclusively to external shocks and to "reforms" and related macroeconomic actions are often lost sigh of. A few studies have examined the macroeconomic stances though. Kapur and Mohan (2014), Nagaraj (2013), Morris (2012) have been some of the exceptions.

Ahluwalia (2002b) brings out the challenges for a country like India as it liberalizes the capital account, and of the need for care in the management of capital flows, and the risks in complete capital account convertibility. Reddy (2002) reviews the interrelations between market reforms, financial development, and the movement towards integration that had taken place since the GL, and of the challenges ahead.

1.2 Global Financial Crisis

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 subprime assets, the economy could have been affected deeply had it not been for the macroeconomic counteractions that quickly followed the crisis. See Jeasakul et al. (2014) and Kamrany (2011).

Active and powerful financial and monetary counteraction in both China and India had kept the growth rates up. Yongding (2009) brings out the elements of China's very large monetary and fiscal counteraction.

1.3 The "Tiger" Period

The "Tiger Period" of high growth averaging 8.5% (2003–04 to the 2007–08) was kickstarted by vast spending on the Golden Quadrilateral (an example of successful "second-generation reforms"), high growth of the ITES. The growth was enhanced willy-nilly by the monetary expansion from 2005 to 2006 onwards before

the GFC, although that influence has not been generally recognized. And these aspects are not adequately appreciated today when the demand side has been weak. Nagaraj (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. Again, though not intentional perhaps, the positive combination of structural initiatives enhancing private investment (owing to second-generation reforms in infrastructure) and the macroeconomic stance gave India its fastest growth ever.[1]

1.4 "Reforms" and Macroeconomic Policy

Often the action to spur demand is seen as a "crutch" to be avoided, at the highest levels of policymaking. With the thinking of many policymakers rooted in the microeconomics of individual behavior, these statements that pooh-pooh the role of exchange and interest rates, and tax policies are not surprising. Many see macroeconomic policy as being ephemeral. It is true that macroeconomic policies without a strong structural foundation can do little to affect potential output positively. Neither can reform or structural policy changes in themselves when the macroeconomic policies are misaligned to their realization.

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 even 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.

Macroeconomic models are almost always short term in their approach.[2] Principally, in considering the full employment level of output to be fixed, they cover only the short run movement of the economy. While this may be adequate in discussions of the advanced countries, in the context of an emerging economy that is at the start of its economic transition, macroeconomic policy has to necessarily consider the

[1] For the view and intent of the key policymaker behind this episode of high growth and of the earlier "Great Liberalization", see Ahluwalia (2020, 2006, 2002a).

[2] Dynamic Stochastic General Equilibrium (DSGE) models close the full employment level of output, but then by not allowing for a substantial difference between the actual demand determined level of output and the full capacity output, and over extended periods, they lose their applicability in policymaking.

full employment (or more correctly the full capacity) output as being amenable to a variety of policies—industrial, trade, besides macroeconomic.

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.

In the context of emerging economies,[3] there is the possibility of combining policies that raise demand, while simultaneously increasing the full capacity output. As mentioned earlier, it was the right combination of "structural" measures with the macroeconomic measures that characterized the stabilization of 1991–92 and 1992–93 that gave India its roaring growth. In other words, "reforms" and structural measures (industrial, trade, tax, etc.) cannot be considered as unchanging in the discussion of macroeconomic measures (interest, exchange rate, tax, spending, etc.) Similarly, structural reform measures would have to be consistent with macroeconomic policies. It is with this framework that we have considered the growth experience since the GFC to the present (November 2021).

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 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.

1.5 Macroeconomic Policy Could Hurt Reforms

Even "excellent" reform can fail, if the demand side contracts as a result, or is 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 (elsewhere) to prevent inflation from rising. 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 the aggregate demand.

[3] Particularly those with substantial diversity to their export and production system and which have vast underutilized or unutilized labor which is often disguised.

1.6 Equilibrium Not "General"

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 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 labor. Reforms and structural changes need to act together to enhance capacity creation (through capital formation, wider use of modern technology, new technology) becomes actionable. We of course 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 "equilibrium" approaches that also imply policy "irrelevance". Their micro-foundations agenda while well intentioned was subverted in much of the theory building by the 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 the interactions among them, even when it could be conceded that all individuals behave rationally.[4] 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 so assumed (or finessed through the representative individual)—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 are "theoretically" incomplete. But they are true to the real economy and inform our approach (Krugman, 2018; Vines & Wills, 2018). 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.

[4] It is interesting that the failure of the rational expectations equilibrium approaches (REE), and the limited workability of New Keynesian Models which share parentage with the REE, brought out by the GFC and the actions that actually worked to restore economies, behavioral perspectives that build on deviations from classical rationality are being actively explored. However there is the potential to go back to rational expectations where individual behavior is considered as rational while collective not necessarily so, with collective behavior being simulated by approaches that do not shy away from modeling the interactions among individuals. The perspectives on uncertainty, the propensity to invest, and in the demand for money by Keynes (1935, reprinted 2010) as also are so-called "co-ordination" failure argument of the New-Keynesians are true to this approach.

1.7 Incorporating Financial Sector (Monetary Side) Stocks

One of the important learnings from the experience of the GFC was that shocks can emanate from the financial sector (Gopinath, 2019; Aikman et al., 2019; Brunnermeier, 2019). The need to understand the financial sector better has been stressed by many economists, in their reviews of macroeconomics. In the standard IS-LM framework, the portfolio demand for money is modeled as a stable function of interest rate. We need to incorporate the role of uncertainty, an original Keynesian insight, besides interest rate into the portfolio demand for money. Any rise in uncertainty especially in financial markets, or even in the goods and services market when of a fundamental kind, increases the demand for liquidity—money—increasing its price (the interest rate). Then the financial shock an act upon the LM. We propose that the ex-post (though not the ex-ante) uncertainty reveals itself in an appropriate measure of the slope of the yield curve[5] and in a heightened demand for liquidity. Provision of liquidity in such situations therefore helps to mitigate the effects of uncertainty by keeping values of portfolios higher than what they would have been.

The increasingly unstable demand for money function since the mid-80s is itself reflective of the increasing role of the portfolio demand in relation to the circulation or transaction demand for money. This happened in the wake of the emergence of financial portfolios as the principal mode of holding wealth. The international equivalent of this phenomenon is the demand for dollar liquidity by all international portfolios. It implies that global financial markets, in periods of heightened uncertainty (whatever is the source), demand liquidity in reserve currencies. Hence in a crisis, there is the flight of short-term "capital" to the US as the principal reserve currency country. It does not matter that the source of a crisis is the US itself (as in the GFC) or another country Thailand (as in the AFC). Vast exogenous and volatile short-term "capital" movements are therefore the norm today.

1.8 The Problem of Global Capital Flows

This understanding is in keeping with the repeated finding that gross capital flows, matter to emerging economies' exchange rates. See Obstfeld and Rogoff (2005) and Gourinchas & Ray (2013). 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

[5] 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. For various maturities, this measure is highly correlated and quite close, so that it gives a measure of the market situation rising in the buildup and during a crisis. Post a crisis that has affected the financial sector (e.g., the Great Depression and the Global Financial Crisis), when the central bank through liquidity enhancement fights to keep financial portfolios and institutions from collapse, the measure falls as well. It essentially captures the prospect/belief of an interest rate change in the future.

swamping of the exchange rate by the "exogenously" (to the economy in question) driven gross capital inflows and outflows, and the bunching that happens, which 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 volatility is eased somewhat by the practice (since the GFC) put in place by Bernanke (2019) of easing and monetary expansion, which keeps through the fall in discount rates of earning assets—bond and stocks—keep valuations high. The global flows despite such counteraction are immense. The dominance of capital flows questions the idea of the functionality of entirely flexible exchange rates that efficient market purists and monetarists are wont to offer. Moreover, the bunching of capital flows in both inflows and exit, and their large volumes in relation to the current account make capital flows as much as weather, or world incomes a source of shock to most emerging economies.

The very volatility of flows and perverse behavior of capital markets (in seeking to move to dollar assets), 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 account, kept open to allow for the normal flow of direct and portfolio capital that can support entrepreneurial risk taking and technology inflows into these economies.

1.9 Exchange Rate Management

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 Gourinchas and Ray (2013) and Adler et al. (2020). Through flows from and into 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 much more limited and are a function of the growth differential between the country in question and the rest of the world, being positive when the country can engender growth higher than 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 being positive, i.e., the forward premium for the dollar in the emerging economy in question, systematically overestimating the actual depreciation of the currency for long periods in normal times, and in vast "capital" flight and dollar liquidity demand in times of crisis—wherever the origin of the crisis. Hence, the functionality of holding vast reserves; as the ELG countries and China are won't to do. This does not mean that it is functional to have fixed exchange rate regimes,

only that the central banks of emerging economies are better off approaching the problem of volatile capital flows from the strength of vast reserve holdings and a currency value that is somewhat under the market value, so that the pressure from the market is for appreciation. When the same approach is extended strategically for consistency with export-led growth, then the undervaluation can be significant. See Morris (2003).

1.10 Trends and Their Determinants

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 inactions), 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.

The tom-tomming of India as the fastest growing economy especially since 2014–15, from which date 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 COVID-19 crisis did not bring to the fore the demand side of the story. 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.

The period from 2011 to 2022 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. Nagaraj (2020) comes the closest to putting out an analysis and has already highlighted some of the aspects that have been covered in this book.

1.11 After the Global Financial Crisis

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 to 2012, the RBI tightened to raise interest rates, which from 2012 to 2013 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", in its view, this counteraction. Additionally the RBI, 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%. [Again in 2019 the core went up due to the delayed 7th Pay Commission implementation which has confused the media as well].

The growth rate estimates for the period since 2011–12 have been problematic. There has most certainly been an overestimation of around 1.5% of GDP going on almost until 2016–17. Thereafter it is difficult to make any firm statements on the overestimation. Since then even the new series shows a slowing down. Thus to draw a reliable picture of the performance of the economy, many more indicators than what is usual have to be considered. The new GDP measure has been problematic in the first 5 years or so, and the CPI too has issues, discussions around the macroeconomic performance have to necessarily address the data and measurement issues.

1.12 Movement to Inflation Targeting

The year 2013–14 also saw the RBI move to "inflation targeting", and to continued tightening which kept interest rates record high and created a large fisher open[6] 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" in May 2013 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 to 2015, and only after the economy had slowed down considerably, did

[6] The deviation from the uncovered parity condition. When positive, the global capital markets show a forward premium for the dollar that is significantly and systematically larger than the actual depreciation of the currency, even in the short run.

the interest rates begin to come down, and even then the anomaly of the market rates being higher than the "policy" remained for a while.

1.13 Should the CPI be "Targeted"?

Inflation targeting brought with it many problems for the RBI, most serious of which could have been avoided by targeting a properly defined core. Can the RBI actually target the CPI when nearly half the weight arise from food and fuel? The fact that forecasted inflation (conditional on the RBIs own actions/measures) was always higher than realized inflation by a wide margin, seriously questions the RBI's approach to monetary policy during 2011–12 to 2018–19. Similarly, its expectations surveys are systematically off the mark by a wide margin. Even more importantly the RBI's propensity to react to current CPI inflation than to estimated values of 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 is hurt by the modus operandi of the RBI itself.

1.14 Supply-Side Inflation

That supply-side inflation has to be distinguished and addressed differently from demand side is admitted in the standard approach of inflation targeting that was the bible even before the Global Financial Crisis. See Bernanake et al. (2007) who contend that a demand-side core inflation when expected to be above the target inflation has to be addressed with measures that cut spending (in advance), necessitating the use of forecasting models of the core inflation to which commodity inflation becomes an input. However in the case of supply-side inflation they do suggest a one period "tolerance" of the supply-side core inflation (the due to the pass through effect), before the same is addressed by demand-side measures to prevent an inflationary spiral acting through expectations. They are very clear that experience from all over the world, with hardly any exceptions, inform that there is no "costless" adjustment from high to low inflation rates, unlike what the Rational Expectations Equilibrium (REE) and Real Business Cycle (RBC) schools would believe.

We do believe that Bernanke et al. (2007) may have been overly optimistic of the success of inflation targeting in the world before the GFC, attributing to approach the climb down in inflation in the principal advanced countries, with only modest costs being paid for in terms of forgone output. In reality, the rise in the terms of trade that many of these countries experienced in their imports from the Asian tigers and especially from China since 1993 as China's trade exploded, may have been the more important factor. In other words, a phenomena, the obverse of the oil shock of the late 70s and early 80s, i.e., a positive supply shock (the aggregate supply

schedule continuously shifting downwards), may have given much benefit in the form of "growth-deflation" (the polar opposite of "Stagflation") to the US economy over the Greenspan years and after almost until the Trump-Xi war. And now that Chinese exports are no longer rising,[7] this positive aspect from the standpoint of US and Europe is no longer there, exposing them potentially to higher inflation.

1.15 Food Inflation is Special

There is very little support to the RBI's contention that even a supply-side inflation needs to be 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. This is so because 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 the beginning of a phase (encountered by all densely populated countries that pierced the middle income barrier) when the terms of trade need to rise in favor of agriculture, to bring the agricultural sector into the home market in a vigorous way, has missed the RBI.

1.16 Fiscal Conservatism

On the fiscal side a variety of measures adversely affected investment and animal spirits. The "policy paralysis" during the last years of the United Progressive Alliance (UPA) government was the turning point. With the Modi-I government the large reduction in anti-poverty programs, 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 Prime Minister's Office (PMO)), besides the "unconditional" commitment to the fiscal deficit targets, further contributed to the demand slowdown. 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 emission norms.

From 2012 to 2013 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

[7] Due to both the conflict, and China itself putting the Green agenda above growth as the recent closure of so many polluting industries would suggest.

infrastructure (often directed sub-optimally from the productive and value creating standpoint) was still buoyant. Private investment saw the longest period of near stagnation, ever since its faster growth from the mid-80s and its acceleration after the Great Liberalization (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 slowdown reaching as low a rate as 3% on the eve of the COVID-19 crisis.

1.17 Reforms During Modi-I

While nearly all the programs of the Modi government were about increasing public and social value, the poor capability of the bureaucracy[8] at the organizational, coordination, and strategy and design levels cheated the National Democratic Alliance (NDA) of transformative second-generation reforms. Instead, most of these fizzled out. There was little of the creativity of the earlier National Highway Development Program (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 the IDFC and the Planning Commission. 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 counteract the same should have been used.

[8] The capability of the Indian bureaucracy and administration as a system has been low and has hardly improved over the years. Core to this weakness is the lack of autonomy within departments, the dysfunctional interface of the PSUs with the government, the ill-design of many policies and their angularity with the law. These are compounded by the orientation of the civil service—poorly valuing expertise, domain knowledge, and principles to derive actions in contrast to power, inertia, subordinated expertise, and rule orientation. Corruption, unlike the widely held belief, is not the problem as much as the result of years of dysfunctionality. Similarly, the dysfunctional behavior of the so-called "political class" itself has its roots in the ill-design of the relationship between the elected executive and the bureaucracy, and the continuous failure of the system to deliver on public services. Only exceptionally, due to the yeoman efforts of individual civil servants, who went far beyond their roles, could movements for the better take place. And these have been durable only when institutionalized. Thus liberalization and privatization (in areas of competition), which is somewhat simpler to bring about as compared to second-generation reforms (where major restructuring of organizations and the design of systems are involved) have delivered. The country awaits major second-generation reforms. There have been few successes of second-generation reforms—the National Highway Development Program, the Delhi DISCOM privatizations. Sectors like electricity, municipal water and sewerage, city and regional roads, education, and heath care continue to languish. See Morris (2002) for the issues in governance in India in the context of delivery of public services. See Fukuyama (2014) for governance in a comparative and historical framework.

The steady growth of the world economy did not positively affect India through export growth, as much as it could have, since India's real effective rates had appreciated since the reform. Moreover, they are pitched to leave a deficit on the current account, while east Asian real effective exchange rates give those countries trade surpluses. There is also an uncompensated "Dutch-disease" that operates against the country's exports due to the large inflows of remittances, and the success of an absolute advantage industry, viz., ITES.

Bank lending, which was always a problem given governmental interference, and the "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 programs,[9] by the bureaus meant that many ambitious programs hardly went beyond tokenism.

1.18 The COVID Crisis

The COVID crisis was poorly handled by the government. The territorial and total aspect of the lockdowns with plant closures and movement restrictions as the principal mode of coping with the crisis enhanced the shock to result in a negative demand effect of over 15%. The stimulus measures unlike at the time of the GFC, this time around was modest and would have given a pep of around than 2.5% to the GDP growth, so that the year finally ended with a de-growth of around 8%. Recovery has been slower than in the major countries, and even to date the levels of output prior to the crisis were being just reached. The stimulus of "20 lakh crore" is an aggregate of all the measures including liquidity, credit, and borrowing limit enhancement of state governments. Some items that were already included in the budget just before, besides fiscal measures. The fiscal cost measures specifically to counteract the demand amounted to about Rs. 1.72 lakh crore (0.84%of GDP). There were many policy measures, some continuing from the pre-COVID years, but their efficacy

[9] The contrast between the capability shown by the Planning Commission then when Vajpayee made the announcement of "Roads from Kashmir to Kanyakumari" and to Modi's "Swatchh Bharat", "Smart Cities", or "Make in India" (all of which point to issues vital for the country's success in the economic transition) may be noted. Lately through the "Make in India" seems to have got a new life with the creative efforts of the Niti Aayog under Amitabh Kant.

(barring perhaps the Production Linked Input Subsidy mechanism (PLI) scheme) may have been constrained by poor design and/or lack of coherence with macroeconomic stance, especially the continued conservatism on the fiscal side.

1.19 Employment Decline

But the output figures mask the employment decline that has been steep in the manufacturing sector. The agricultural sector has acted as a reservoir of the (really) unemployed by providing those leaving manufacturing and related activities, disguised "employment" in the sector. Moreover, employment had hardly grown in the years since 2014. The problem of real unemployment has increased quite considerably when we recognize that over the period of nearly zero growth of employment (or decline if female employment is taken into account), the working age population would have grown quite rapidly. The fall in the labor participation and its weak recovery further corroborates the picture of a partial recovery, and weaker inclusion of the masses. The larger firms, especially those listed, show high valuation. The high valuation is actually justified on the basis of lower interest and associated discount rates, the promise of the PLI, reduced corporate tax rates, reduced share of wage and interest payments, working on even on a modest growth and recovery. Inequities would have risen sharply.[10]

1.20 RBI's Dynamic Response

Expansionary monetary measures by the RBI in response to the COVID crisis were bold and helped to prevent the collapse of many MSMEs and steer the economy to a recovery. Most notably it helped to overcome the debilities, and adverse policy environment of the banks and non-bank financial institutions, which had not been addressed till 2018 and was only beginning to be addressed in 2019. This time around monetary measures were counteracting the crisis, while fiscal measures were lukewarm, unlike in the response to the GFC when the fiscal side did the heavy lifting and the RBI had reluctantly eased monetary measures briefly for 2 years before it went back to tightening. Most notably the RBI's penchant for keeping the low end bond yields above the repo (observed over long periods before the crisis until 2018 or so) was no longer there. Indeed, the RBI had to activate the reverse repo recently.

The liquidity measures by the RBI should have given much buoyancy to the government's fiscal measures with an attenuation in the impact of spending on the fiscal deficit as percent of GDP given the large denominator effect. But because the fiscal measures were lukewarm, an opportunity to recover quickly and get on to

[10] Indeed the sharp contrast between the government's response to the GFC and now to the COVID crisis is worth noting.

a high growth path has not yet been realized. When we recognize that the global environment is better than benign, when considered from the point of view of the country, given the China plus, China Green, and fast US recovery, this is indeed a missed opportunity for India.

1.21 Manufacturing Kickoff?

However, some of the industries with export markets (IT, auto and parts, drugs and pharmaceuticals) could see rapid growth (electronics, some chemicals especially those which are going through "re-import substitution" having earlier been lost to China, electric vehicle components, light machinery exports to US).

Similarly the government's initiative to support select industries by subsidizing them in proportion to their additional value added has begun to excite industry, although it too early to measure its effect. This is the Production Linked Incentive (PLI) scheme. The approach of the government to the crisis has been less to stimulate demand—other than through a revival of MNREGS, and continued spending on infrastructure—and more to attempt "structural" reform especially with regard to manufacturing. But manufacturing over the period since 2012–13 had witnessed its slowest growth since the Great Liberalization. Besides the Production Linked Incentive (PLI) scheme, the institution of Goods and Services Tax (GST), digitization of government operations, improvements in the ease of doing business, reduction in corporate taxes, and the PLI for certain select manufacturing industries could be considered as being the more important. We already mentioned that the GST—a good structural reform measure, since it was not dovetailed correctly with the macroeconomic measures, proved to be onerous. The potential of PLI in a benign monetary policy environment could be large. Nevertheless it should not be compared with the explosive growth of manufacturing resulting from the pursuit of export-led growth (ELG) policies in the East Asian "Tigers" and China, and now in Vietnam, since their strategic macroeconomic stances were/are different.

Manufacturing policies had been quite perverse, with tariff inversion in many an industry, very high taxes which curbed the expansion of the domestic market. These continue. Similarly the modestly priced currency (in contrast to the aggressive exchange rate stances of China and Vietnam), the comparatively high interest rates despite its fall, and reflected in large positive deviation from the uncovered parity condition—much more than that for China, generally kept export profitability lower than domestic sale profitability. Low or zero bound tariffs in expanding and modern industries like electronics (especially mobiles, tablets, and laptops, other electronics consumer goods, especially flat screen TVs, solar panels) with high input tariffs meant that tariff policies were orthogonal to the emphasis on manufacturing despite the "Make in India".

1.22 GST and Its Effects

The implementation of GST was a major political and design challenge, and its final fruition is to the credit of both the policy advisory provided by the National Institute of Public Finance and Policy (NIPFP) and the political statesmanship of Mr. Modi, who as Prime Minister was able to override the long-term interest of production-oriented states including Gujarat. Being a destination tax that is ultimately driven by consumption (including government consumption expenditure) the loss to the production states we estimate to be much larger than what has been recognized thus far. For some states such as Gujarat, the revenue neutral rate of GST assuming no negative feedback on to demand is around 28%, well above the rates that the compensation model worked with. This fact obviously does not mean a retreat from the GST or even extending the years of compensation beyond 5, but of actually ensuring that the Finance Commission makes a major shift to recognize origination in the devolution of at a large part (about 40%) of central tax collections, before the criteria of poverty and equity are brought in. Without such a measure the incentive for states to attract investments (oriented to tradable services and investments) and support them through spending on infrastructure would be greatly attenuated. And India is at a very early stage in its economic transformation when the incentive for regional governments to promote such investments has to be strong. There is of course the larger issue of fiscal transfers in India not being win–win, since the transfers thus far to the poor states have not resulted in their faster growth. The need for their faster growth cannot be denied, despite the partial mitigation of regional inequity in the vast interstate migration of labor. The subnational character of the states makes it imperative that all have (except perhaps the small states of the northeast) their locally embedded engines of growth.

1.23 The Coverage

Chapter 2 brings out the trends in growth focused on GDP, GVA, and GCF besides electricity demand to estimate the growth over the period from the GFC to the eve of the COVID-19 crisis. 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), to the extent that it frames the period under consideration. The causal factors in the form of external shocks, 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 used to bring out the experience in the period immediately following the GFC.

In Chap. 3, we review the growth experience in the light of credit and employment growth. In Chap. 4, we cover the trends in capital formation, FDI and FII inflows, and exports and imports. In Chap. 5, we bring out the trends in inflation and the

monetary side of the economy. Besides the data, we also attempt to characterize the stances of the central bank over the period. We trace the uncertainty in the financial markets through a measure that builds on the slope of the yield curve.

Chapter 6, besides covering the fiscal side of the economy, is essentially analytic seeking an "explanation" for the observed trends in growth, inflation, and other macroeconomic variables. In Chap. 7, we present the thesis that except in the last year or so when Dr. Das headed the RBI over much of the period, RBI's approach was doctrinaire and to have contributed to the slow down due to its second-order repercussions on the financial sector.

Chapters 8 and 9 cover the experience of the COVID crisis, the response to the same by the Central Government and the RBI and the recovery from the crisis. The RBI's functional and accommodative stance was most important in shoring up the financial sector and in tiding over the crisis. The Government's approach was more to push for reforms. The counteraction by way of expansionary fiscal policies was in sharp contrast to the very functional approach adopted by the government during the GFC.

In Chap. 10, we study the GST, compute the revenue neutral rate for a few states. We argue that to counteract the disincentivization of the regional governments to support investment, the Finance Commission's approach has to change to use origination as a criteria to cover a significant part of the devolution. We also discuss the effect of the governance framework of GST on using the tax rate (on indirect taxes) as an instrument of macroeconomic management.

We bring out the various aspects that reflect the working of the state and the macroeconomy 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 and 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. 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[11] but we hope that the serious reader of macroeconomic trends and policy would persist with the large number of graphs and tables.

The analysis in this book is drawn partly from the working papers, Morris (2020) and Morris et al. (2018 July).

[11] 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.

Annex: Indian Growth Experience

Sourced from: Morris (2012)

"Indian growth experience since the reform of 1991–92 can be considered in several phases. After a year of decline in 1991–92 and 1992–93, growth accelerated for reasons that are well known.[12] The textbook fashion in which stabilization was carried out (deep depreciation, monetary tightening, and large cuts on public expenditure) reduced expenditures and redirecting them to tradables goods production allowed the economy to reach a non-inflationary position of demand being well within the supply potential. Inflation could come down only with a lag. The major and coordinated structural initiatives that were simultaneously or quickly followed—freeing private investments, opening the economy to foreign investments both portfolio and direct, abolishing the Industrial Policy Resolution 1956, that had kept many important sectors reserved for the public sector, complete convertibility on the current account, all unleashed the inherent and long suppressed potential of the economy to grow rapidly. It grew at rates than exceeded 6.5% on the back of exports that grew at nearly 20% p.a. in US$ terms. For nearly four years after the reforms, belying the near consensus widely held that Indian exports and the current a/c gap is unresponsive to currency values. Equally importantly private investments grew so rapidly that despite the fall in public investments, overall investments could accelerate, so that the share of investment in GDP rose to nearly 29% of GDP, by the end of 1996–97. The structural reforms, especially de-licensing, FDI openness, and privatization greatly improved the competitiveness as well as overall efficiency of investments. Additionally infrastructural performance improved in areas like telecom, ports and airlines. These meant that the potential output could outpace the demand increases due to export increase and investments to result in a non-inflationary high speed growth. (Joshi & Little, 1996; Morris, 2007).

Rapid growth was arrested largely because the rupee was allowed to appreciate from 1995–96 in real effective terms, which slowed down exports with a lag starting from early 1997. Additionally the lack of clarity with regard to regulation and frameworks for private investments in most of the infrastructure sectors –roads, electricity, water, transport, municipal services, slowed down private investments from 1996 onwards, so that the impending recession could be predicted. (Morris, 1997). Indeed growth had slowed down well before the East Asian crisis, which then provided a bogey for policy makers. Monetary conservatism from 1997–98 onwards, the high interest rates and the attempt to lower the fiscal deficit by cutting government expenditures, kept growth low at under 5.5% from 1997–98 to 2003–03. (Morris, 2003). Reserve money growth in this period was no more than 13%. Willy-nilly the money supply growth increased from 2004–05 onwards since the capital inflows, which hitherto were largely sterilized by reducing domestic credit, could not anymore be carried out as the domestic credit level had turned negative! The high growth in money which had followed the vast increase in government expenditures, on account of the

[12] See Joshi and Little (1996) for an early macroeconomic study of the period till 1995–96.

spending on the Golden Quadrilateral (finally the contract form and the policy for highway development the NHAI got right in 2002), the large autonomous increase in service exports, and the revival of the global economy, pushed Indian growth to a high level of 9.5, with an average growth of 8.5% over the period from 2003–04 to 2007–08. Significantly well before the global crisis began, in response to the largely supply-side inflation from 2006 onwards, the RBI began to tighten monetary expansion by raising the cash reserve ratio (CRR) repeatedly, and then allowing the rupee to appreciate even in nominal terms.

On the eve of the crisis growth had slowed down from a high of 9.5% to under 8.5% when measured on a quarterly basis. The RBI's response to the immediate dollar liquidity crisis was to first restrict dollar availability. Then when the Lehman Brothers' collapse took place resulting in large outflows of capital by all FIIs. The RBI after some delay sold dollars, but without the concomitant reverse sterilization by expansion of domestic credit, to keep reserve money growth on its target. As a result the dollar liquidity shortage was converted to rupee liquidity crisis and that braked the economy sharply! (Varma, 2009) It was only much later that the central bank in view of the global liquidity could be persuaded to expand liquidity reluctantly, which when carried out resulted in a bounce back, which was sustained on the back of a fiscal boost provided by the central government, amounting to some US$50 billion. This boost although not compositionally the optimal, allowed for the quick rise in public spending to restore growth to 8.5%. The composition of the stimulus could have been much better had the share of investment in the same been higher. While there was a significant component of infrastructural spending both urban and rural, not only were these expended at lower levels of efficiency than earlier, but the component of consumption was large, since the increased outlays on the [Mahatma Gandhi] National Rural Employment Guarantee Scheme (NREGS) was a significant part of the stimulus. The tax deduction component was not particularly consumption oriented since the private savings rate did not fall in this period.

In less than a year and a half after the stimulus, under the general demands from policy commentators and the central bank to exit the stimulus, the tax concessions, both direct and indirect were withdrawn first, then government expenditures fell. These combined with the RBIs monetary tightening on account of high inflation resulted in a steady deceleration of growth and especially of investment which now fell to less than 3% growth after having reached a record 19.5% at the peak during the high growth phase. Growth itself would fall to less than 5% in the second quarter of 2012–13. The inflation being on the supply side due to limitations in the growth of agricultural side (on the high demand unleashed by inter alia the NREGS and the high growth period which was also poverty reducing) to quickly respond, and to a resurgence of commodity prices did not count for much in the RBIs thinking. In effect then over the last year a situation of inflation has been converted to a situation of stagflation and the RBIs stance has been that the continuing fiscal deficit gives it little room for action".

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Chapter 2
Trends in Growth Since the GFC

2.1 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 2 years. See Table 2.1, for the quarterly growth figures for the main economic sectors based on the latest GVA 2011–12 series. See also Table 2.2 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 Fig. 2.1 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 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.

2.2 Possible Overestimation in GVA11-12?

However, these trends especially those pertaining to the first 4 to 5 years since the introduction of the new series 2011–12 have been questioned by several scholars, including the former Chief Economic Advisor. 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 and Kumari (2019), and Subramanian (2019) also question the official figures and bring out alternative estimates of the growth rates. See also Nagaraj (2015). See also Dholakia and Nagaraj (2018) who question the new series' manufacturing output, by relating the same to the Annual Survey of Industries to bring about its

S. Morris, *Macroeconomic Policy in India Since the Global Financial Crisis*, India Studies in Business and Economics,
https://doi.org/10.1007/978-981-19-1276-4_2

Table 2.1 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

Source Author's tabulation from the CMIE, Economic Outlook.

Table 2.2 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.

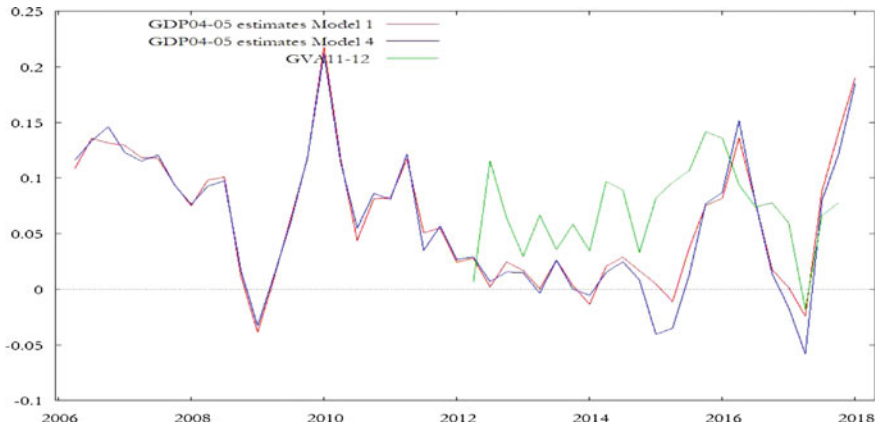

Fig. 2.1 Growth rates of Mfg. output (model 1 ad model 4)

possible underestimation. 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 is 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 the new series at least in the initial years of its introduction may have overestimated the growth. See Fig. 2.1 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. 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.

Fig. 2.2 Growth rates—trade, transport, storage and communication (at constant prices)

For manufacturing GDP/GVA, the trends are as follows: from the high bounce up[1] growth of nearly 15–12% reached in the third and fourth quarters 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 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 December 30, 2016. A bounce back has most certainly happened after that in early 2018, which may have been short lived.

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 show 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 Fig. 2.2. 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. There was a sharp fall with the demonetization and to a bounce back immediately thereafter, which however was not sustained.

[1] 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 2 years of the stimulus.

2.3 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 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 4 years since the GL and about 12–20% since the economy recovered with the fiscal push provided by the GQ from 2003 to 2004 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 was 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 Fig. 2.3. 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 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.

2.4 IIP Sectors Since 2018

We have information for the first 2 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 Figs. 2.4 and

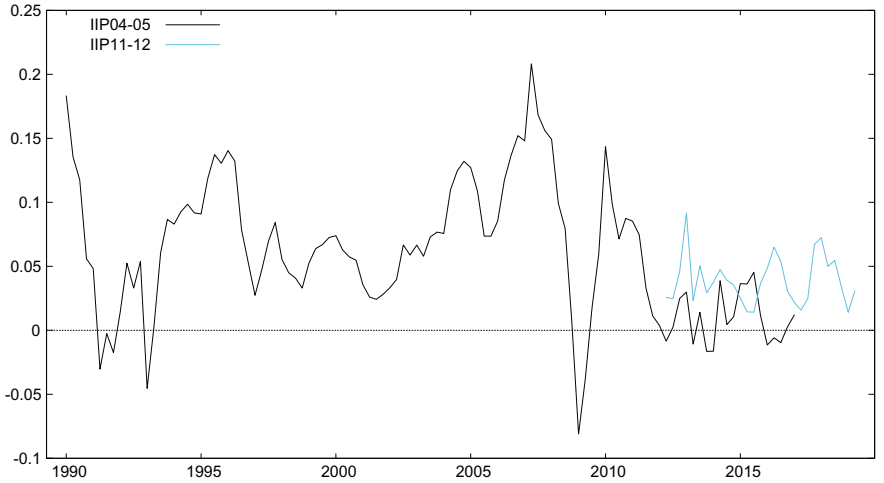

Fig. 2.3 IIP quarterly growth rates (YoY, % Per annum) manufacturing

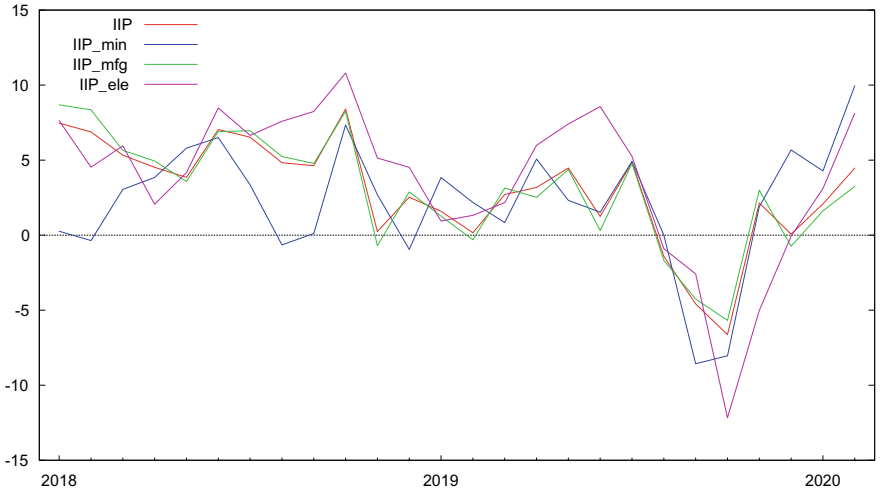

Fig. 2.4 Growth rates % p.a. YoY monthly IIP

2.5. 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.

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.

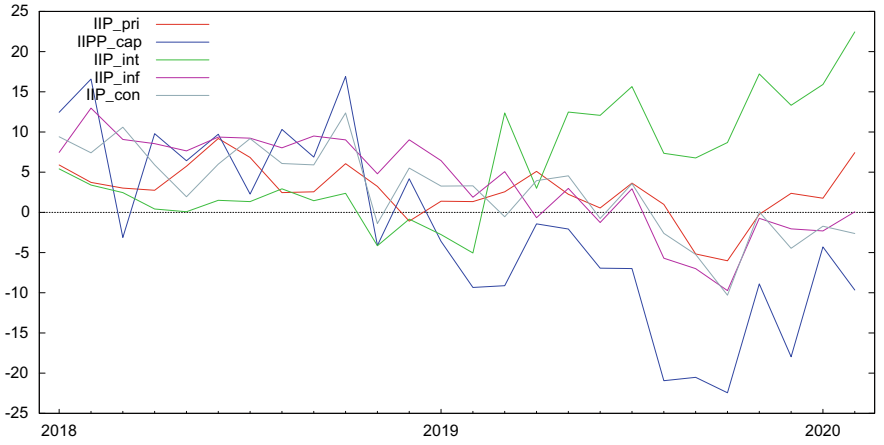

Fig. 2.5 Growth rates % per annum YoY monthly IIP

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.

See Fig. 2.6. 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 4 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

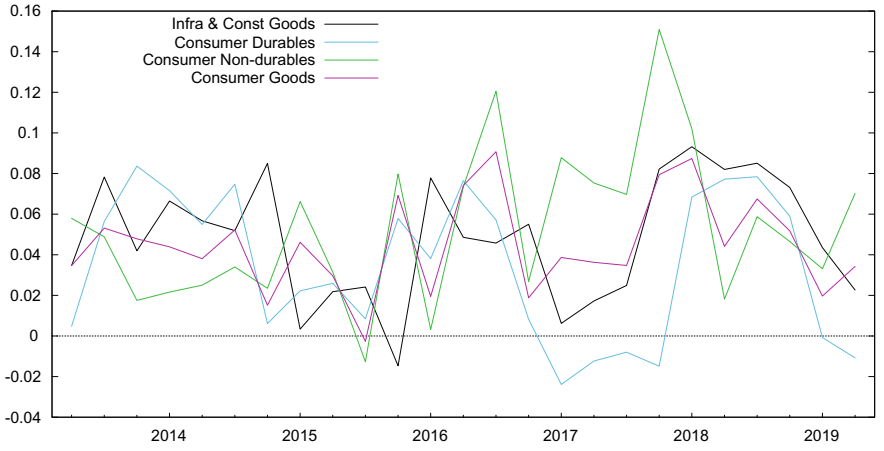

Fig. 2.6 IIP 2011–12 quarterly growth rates (YoY) % per annum

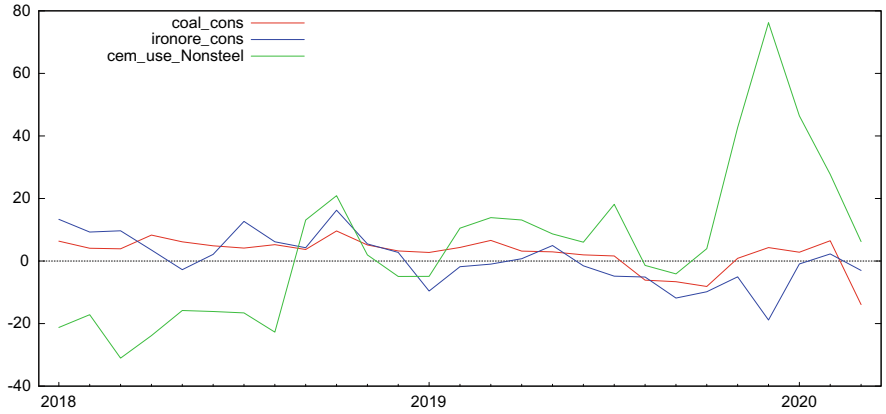

Fig. 2.7 Growth rates % pa monthly (coal, iron ore ad cement consumption)

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.

Figure 2.7 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 December 2019 (to a record 60+ % growth on YoY monthly basis and January 2020 only to fall in February 2020 before the COVID-19 crisis). The large increase 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.

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 Fig. 2.8. 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.

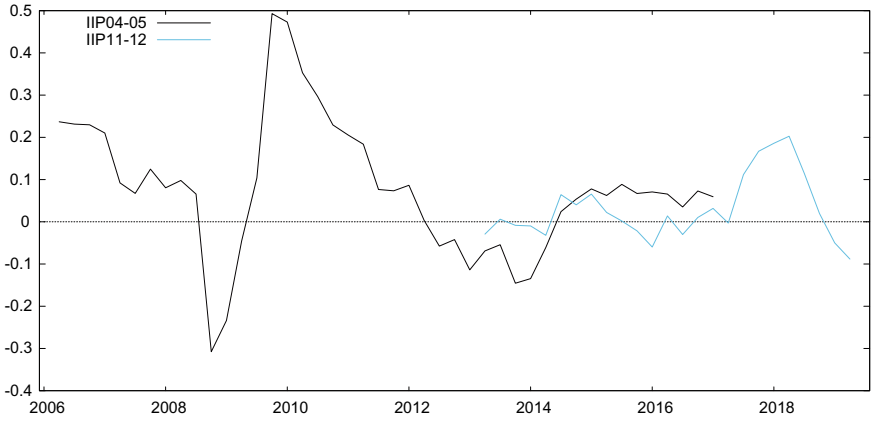

Fig. 2.8 IIP quarterly growth rates (YoY, % Per Annum) motor vehicles, trailers etc.

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 COVID-19 crisis, see Fig. 2.9.

In the months of January, February, and March (COVID-19), the growth rate collapsed to reach a low of -85% when nearly all economic activity was brought to a standstill.

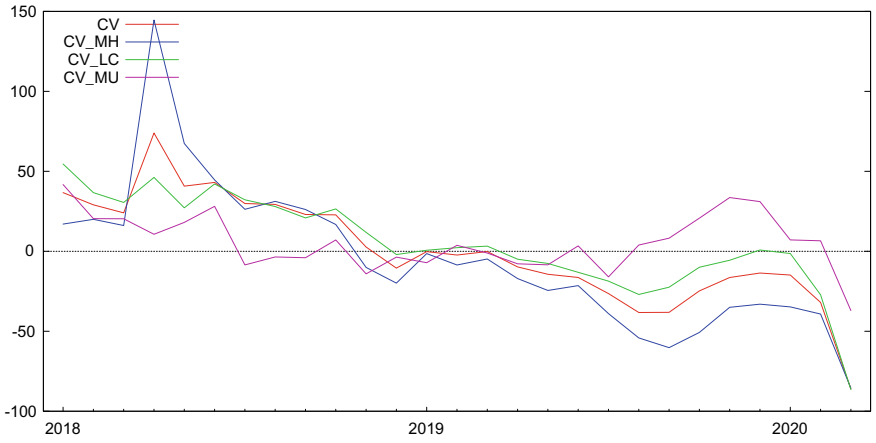

Fig. 2.9 Growth rates % per annum YoY monthly (commercial vehicles)

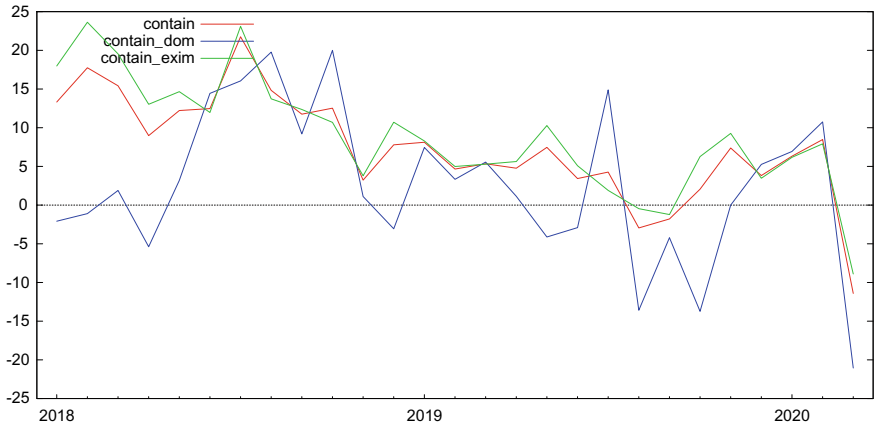

Fig. 2.10 Growth rates % YoY annual (container movements)

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 Fig. 2.10.

2.5 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 Fig. 2.11. Recall the earlier discussion on overestimation as well.

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 and longer for industry with the growth having hovered around 1.5% or so from 2012(1) to 2014(1), i.e., for over 2 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 Fig. 2.12. The trends are similar to those of industry

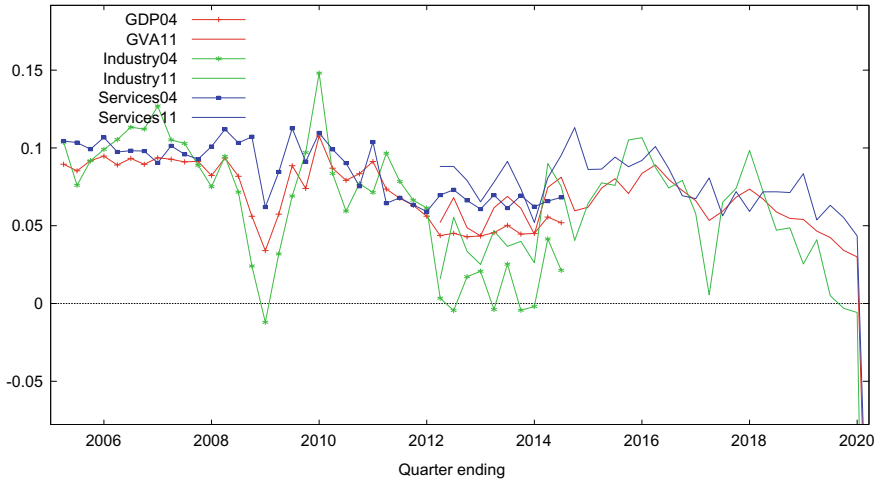

Fig. 2.11 Growth rate of GVA11-12 and GDO04-05 (FC)

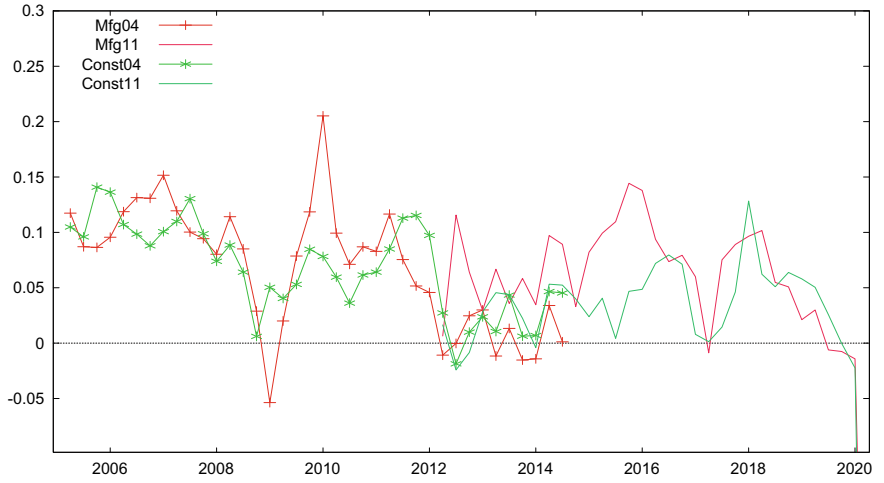

Fig. 2.12 Growth rate of GDP4 and GVA11 Mfg. and construction

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 to 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.

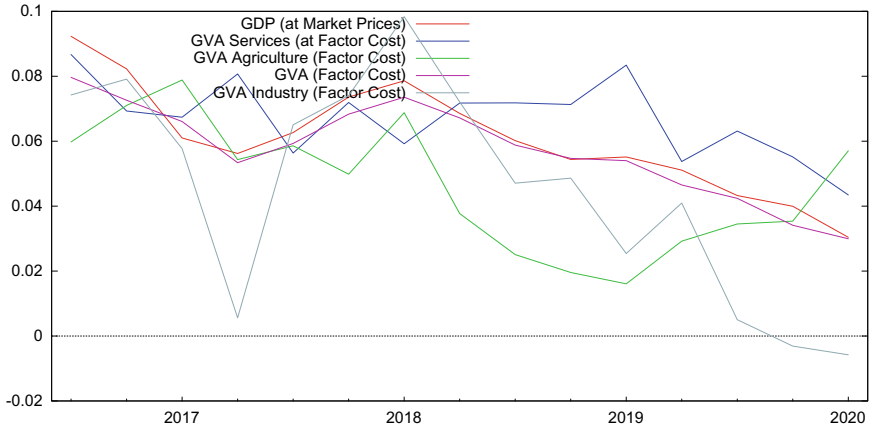

Fig. 2.13 Growth of GVA and GDP at constant prices since 2016:Q2 11-12 series

2.6 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.

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 is 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 Fig. 2.13.

GCF and exports show the sharp decline since 2018 to reach negative growth levels by early 2019,[2] see Fig. 2.14. 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 Fig. 2.14.

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

[2] We will cover the trends in exports and imports in greater detail later in Chapter 3.

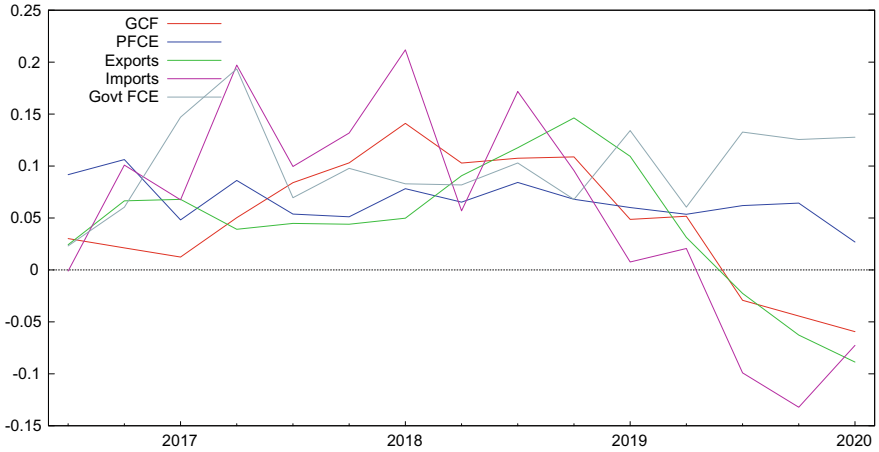

Fig. 2.14 Growth of expenditure items GDP(MP) constant 2011–12 prices

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 2019–2020, 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.

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 COVID-19 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 Fig. 2.15.

From Fig. 2.16, 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.

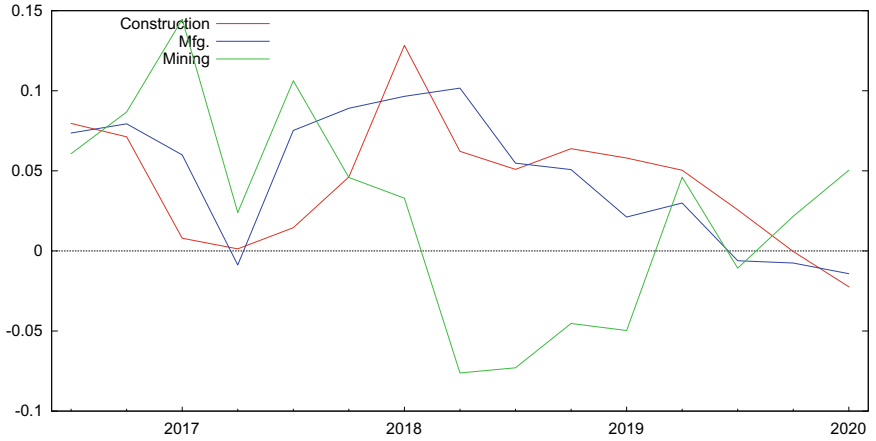

Fig. 2.15 Growth of construction, Mfg., and mining sectors GVA 11-12 constant prices

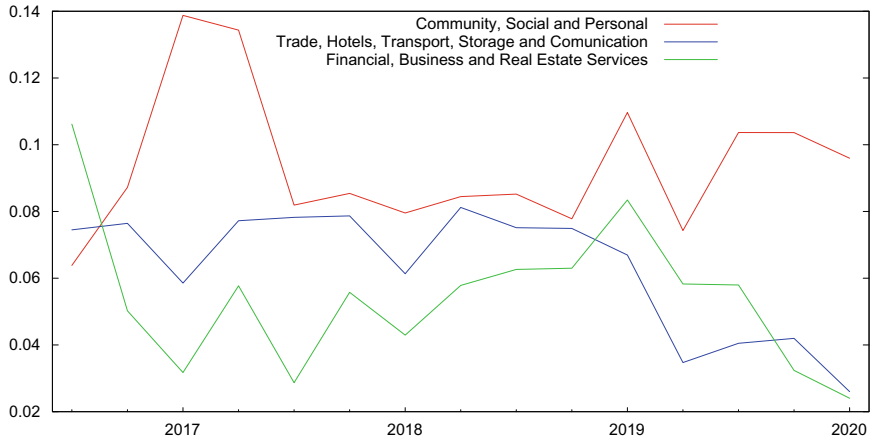

Fig. 2.16 Growth of certain sectors GVA 11-12 at constant prices

2.7 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-responsive currency. Imports slowed down due to domestic demand having slowed down.

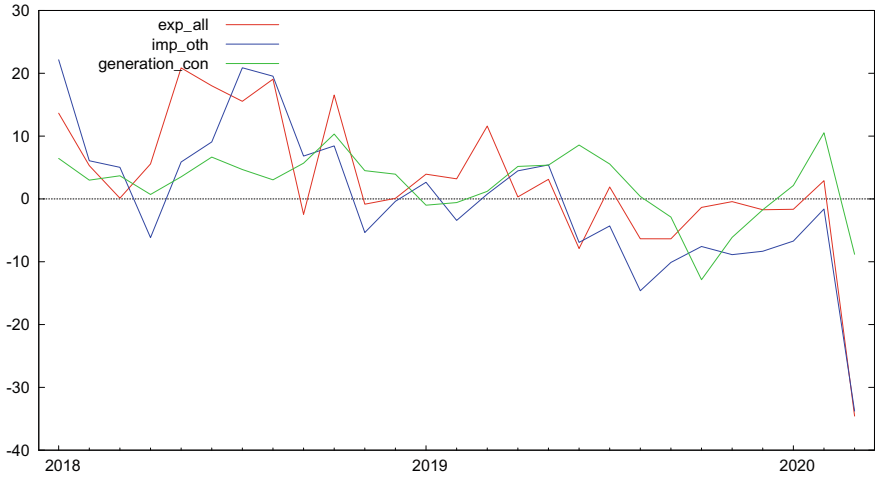

Fig. 2.17 Growth rates % pa YoY monthly (exports, imports (other than pet.), electricity consumption)

Electricity production shows a decline in growth. See Figs. 2.17 and 2.14 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 to 2015 onwards, the growth rate of utility generation has been falling (not shown).

2.8 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 to 2004 the eve of the GFC was accompanied by a rise in the ratio from about 26 to 27% to nearly 36%, and 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

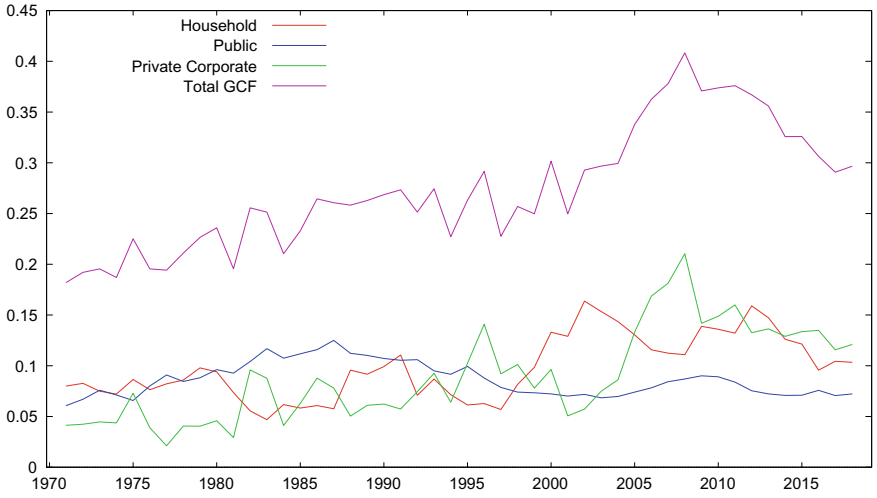

Fig. 2.18 Ratio of GCF to GDPMP by broad sectors (constant prices 11-12 series extended backwards)

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 Fig. 2.18.

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 around 30% by 2016, and then to further falls. Over that period, private and household sectors 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 Fig. 2.19. 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.

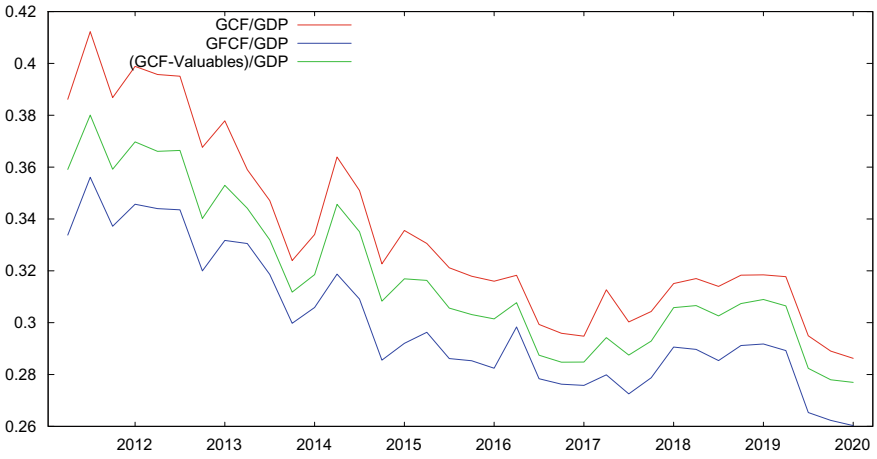

Fig. 2.19 Ratio of GCF and GFC to GDPMP 11-12 series at current prices

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Chapter 3
Credit, Employment, and the Current Account

3.1 Growth and Credit

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. Furthermore, if the financial institutions have difficulties in lending then other sources of capital–capital markets, private equity, and international flows can supplant.

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 of 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. By the end of 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 COVID-19 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. There was little action on either the part of the RBI or the government to inject liquidity or resolve the problems in the sector in a timely manner. Therefore, the indications 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 observe the decline in overall credit from 2012 to 2014, 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

S. Morris, *Macroeconomic Policy in India Since the Global Financial Crisis*, India Studies in Business and Economics,
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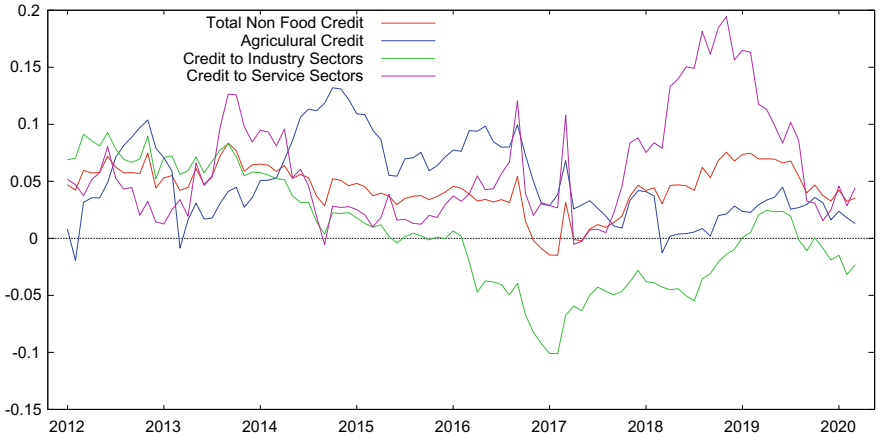

Fig. 3.1 Growth of SCB credit (deflated by CPI core 11-12)

about February 2020. See Fig. 3.1. 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 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 5–6%, 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.

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 Fig. 3.2. The same trend is broadly discernible 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.

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 to 12 of about 9–11% with a decline that sets in 2020. However, since we know that housing, commercial real estate, and construction were 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 Fig. 3.3. There is only so much that one can infer from changes in credit outstanding to the underlying sectors.

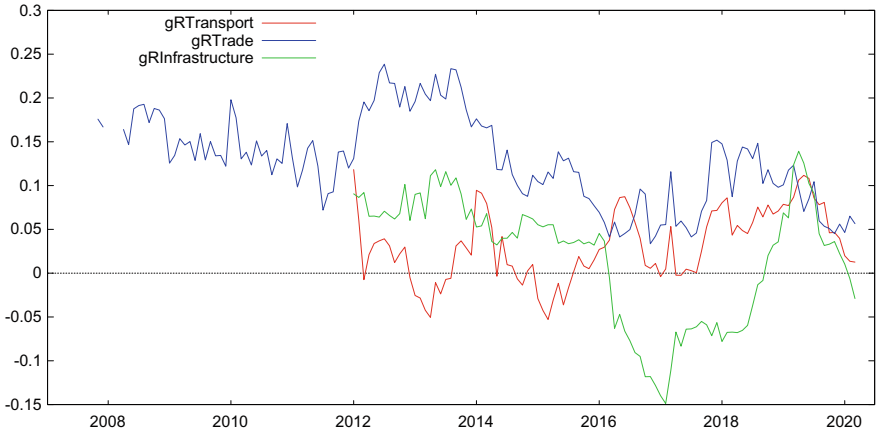

Fig. 3.2 Growth in SCB credit (deflated bu CPI 11-12 core) in transport, trade and infrastructure

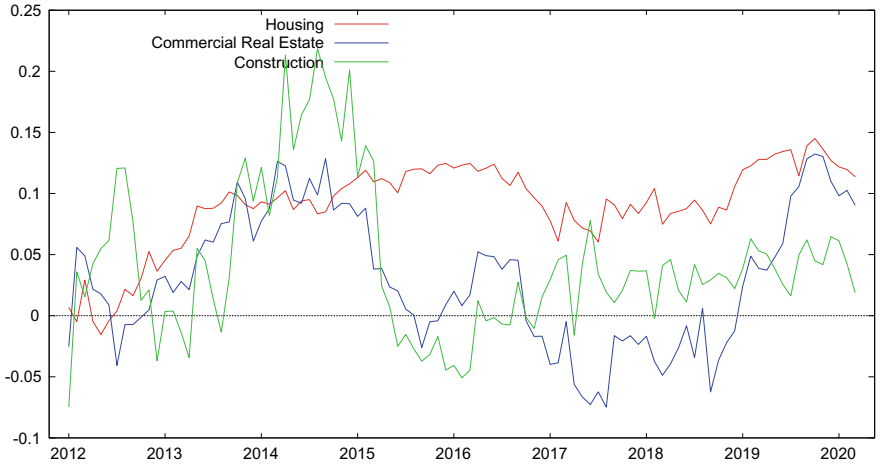

Fig. 3.3 Growth of SCB credit (deflated by CPI 11-12 Core) in certain service sectors

3.2 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 now changed since fairly reliable data and with little

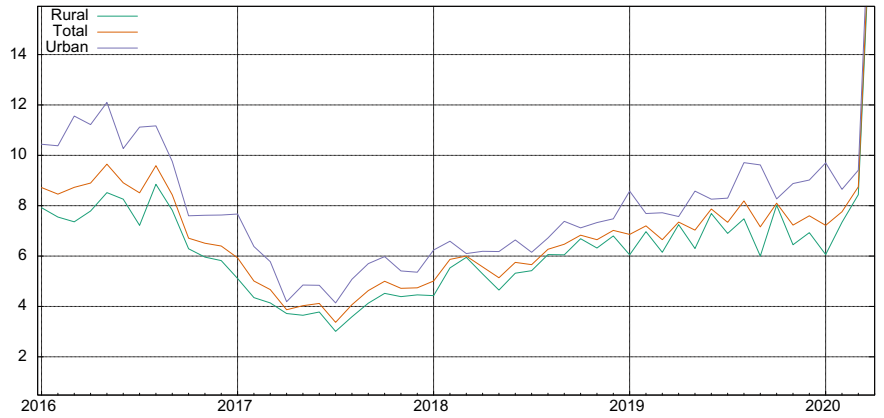

Fig. 3.4 Unemployment rates for males CMIE surveys

delay[1] is available. We anticipate therefore both monetary and fiscal management for macroeconomic policy to be on firmer ground.

The COVID-19 lockdowns saw unemployment jump up to about 23%. (Not shown in Fig. 3.4 because we cut of the vertical axis to bring out the earlier trends clearly.) Before we consider the COVID-19 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 labor participation rates it would be hazardous to work with unemployment figures alone.

Figure 3.5 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.

[1] 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 et al. (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.

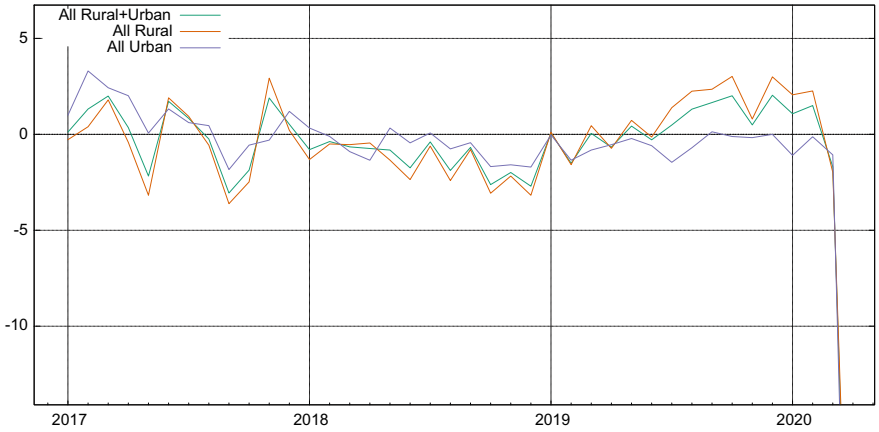

Fig. 3.5 Growth rate of employment all (% YoY) CMIE surveys

The figures for the labor force are even more telling and reverse completely the apparent anomaly of falling unemployment immediately after the demonetization. Actually the labor force fell very strongly and further than the employment as the futility of searching for jobs may have been driven home immediately after the demonetization. More likely the vast numbers of street vendors, roadside eateries, and push cart businesses would have shut shop and gone off the labor force, only to come back some 6 months later, when with the remonetization transactions of these kinds of retail activities were again possible. See Fig. 3.6.

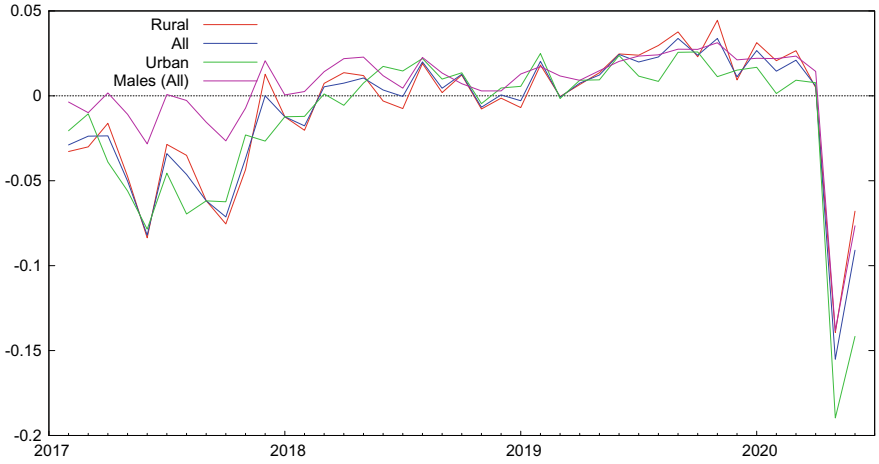

Fig. 3.6 Growth rates of the labour force CMIE surveys

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 labor force growth declined. The unemployment rates have continued to increase from 2019 with hardly a break. However, some improvement after mid-2019 is again observed when the unemployment stabilizes to about 6.7%. See Fig. 3.4 again.

3.3 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 Fig. 3.7. The index of goods imports was declining from 2011: Q2 till 2016, after which it rose along with growth improving, 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 it has 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 U$ 117b 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

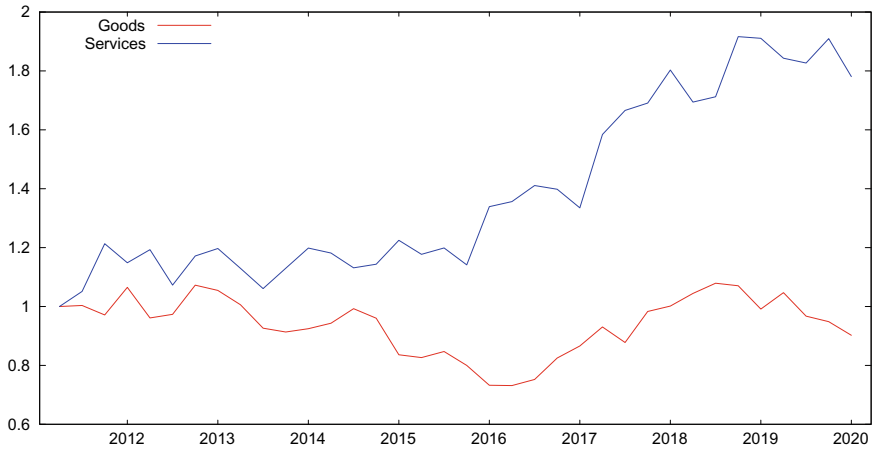

Fig. 3.7 Indices of imports: goods, and services USD (2011:Q2=1)

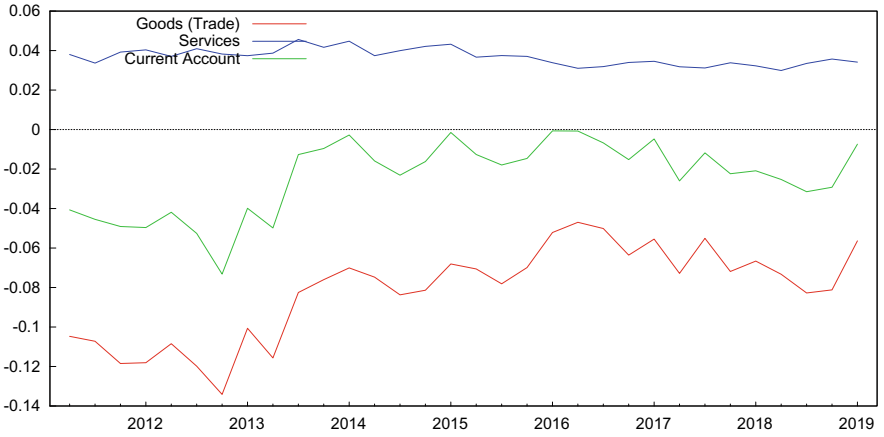

Fig. 3.8 Current, trade and services A/c deficits (to GVA11-12 at current prices)

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.

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 which one would expect the COVID-19 crisis the current account may turn into a surplus, if India growth rate differential above world growth before the COVID-19 crisis of around 2.5% (5–2.5%) were to reduce, due to the continuing conservatism of both the central bank and the government.

Exports and imports of goods remained muted from 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 Fig. 3.9.

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.

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 Fig. 3.10. See also Figs. 3.11 and 3.12.

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

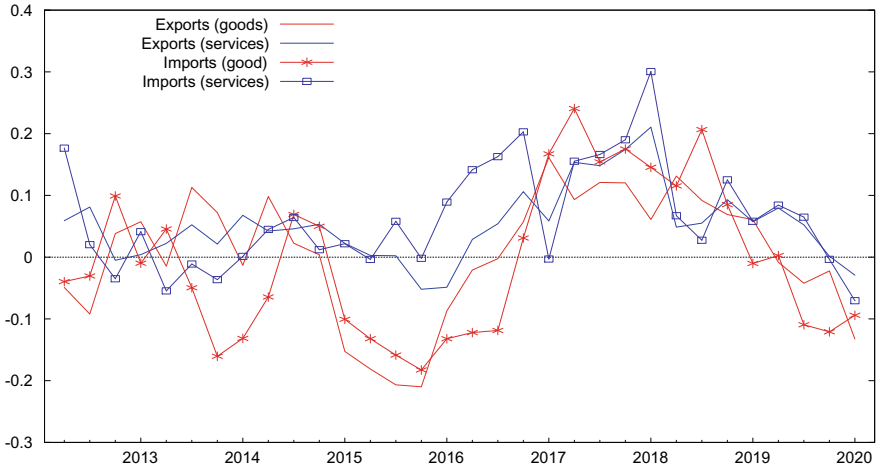

Fig. 3.9 Growth rate of exports and imports of goods and services (US$)

Fig. 3.10 Growth rate of imports (services) into China, US and Euro Area

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

Fig. 3.11 Growth rate of imports (goods) into China, US and US and Euro Area

Fig. 3.12 Imports growth rate (goods, and services) world and China

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 Fig. 3.13.

Exports of services from India (ITES being based largely on absolute advantage) are 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

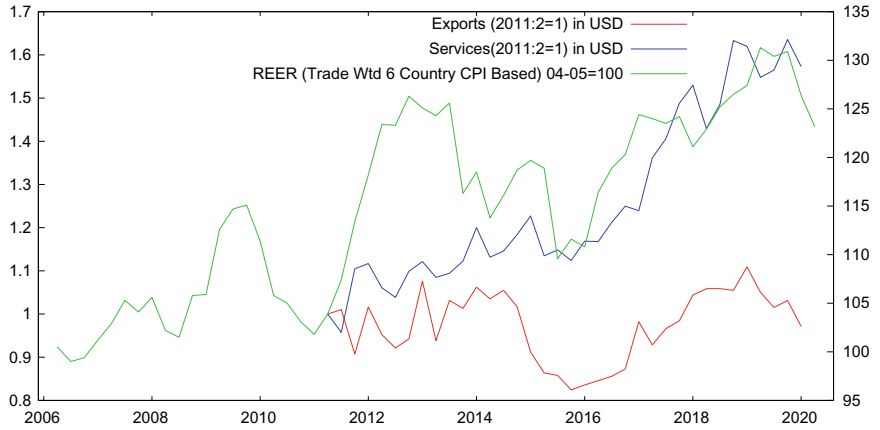

Fig. 3.13 Indices of exports of goods, and services and lagged REER

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[2] of the Indian rupee could have increased since 2011–12, since the recovery of exports in 2017–18 and thereafter when the world demand recovered was muted. We see that the REER rose from 2011 to 2012 onwards, and the fall from 2012 to 2016 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.

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Morris, S. (1997). Why not push for a 9% growth rate? *Economic and Political Weekly*, *32*, 20–21.

[2] Relative under or overvaluation is a concept that has been developed in Morris (1997). Essentially, when the exchange rate GDP to the PPP GDP is low after adjustment for structural factors such as size, relative to other countries in a cross-country panel regression.

Chapter 4
Capital Formation and Foreign Investment

4.1 Gross Capital Formation

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 Fig. 4.1. 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, 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.

S. Morris, *Macroeconomic Policy in India Since the Global Financial Crisis*, India Studies in Business and Economics,
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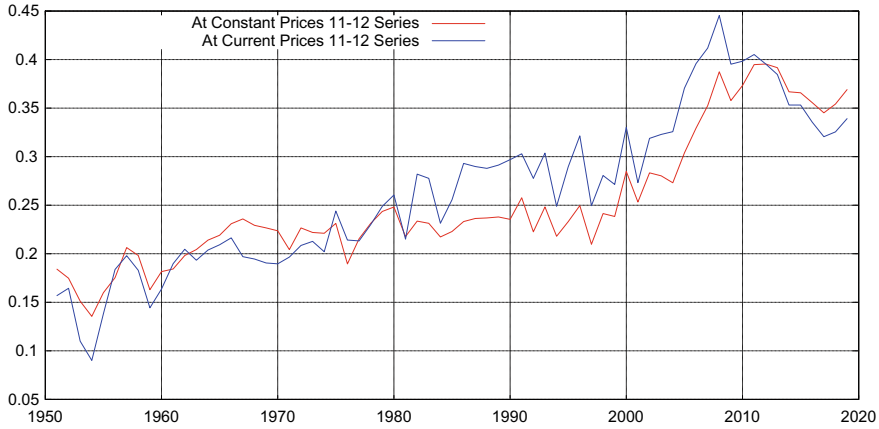

Fig. 4.1 Share of GCF in GVA at basic prices all sectors

4.2 Private Investment

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 or stagnant shares periods of much slower growth, as may be seen from Fig. 4.2. 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,

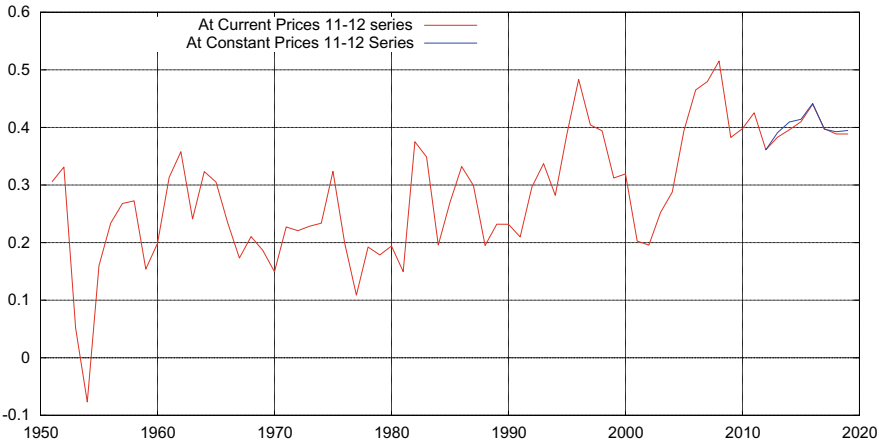

Fig. 4.2 Share of private corporate sector in GCF all sectors

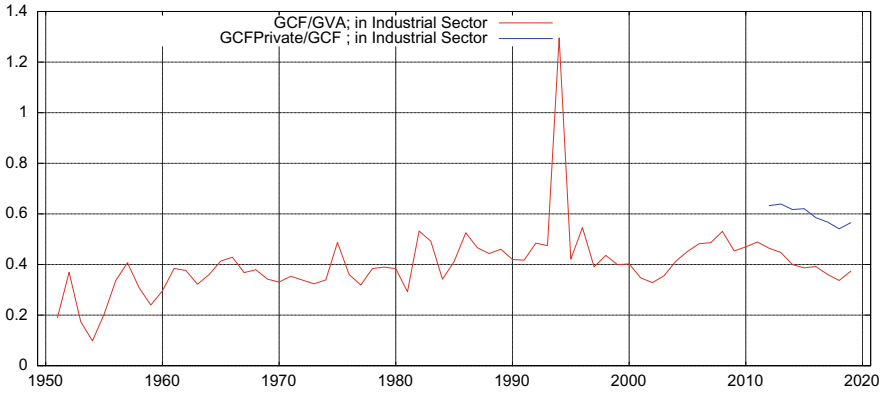

Fig. 4.3 GCF and private corporate sector GCF in the industrial sector

leads 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 of 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 2009. See Fig. 4.3.

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 4.4 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 investments—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 growths. 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 70 s (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.

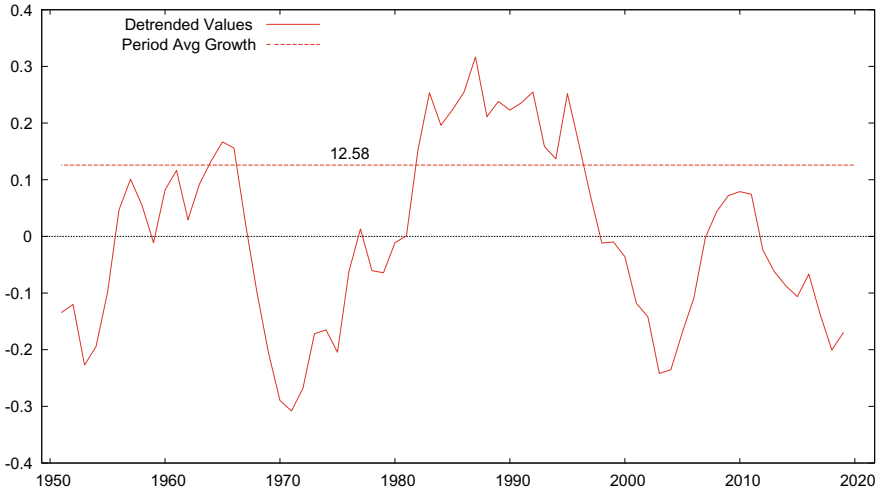

Fig. 4.4 Detrend of log of GCF in the public sector (2011–12 series at current prices)

4.3 Private Sector Investments

For the private corporate sector, we observe that the revival period of the 80 s and the post-reform period until 1997 was one of the accelerations in private investment, with speeding up in the 90s. See Fig. 4.5. The recession of 1997–98 to 2002–03 is marked by much slower than period average growth of private investment (14.43% per

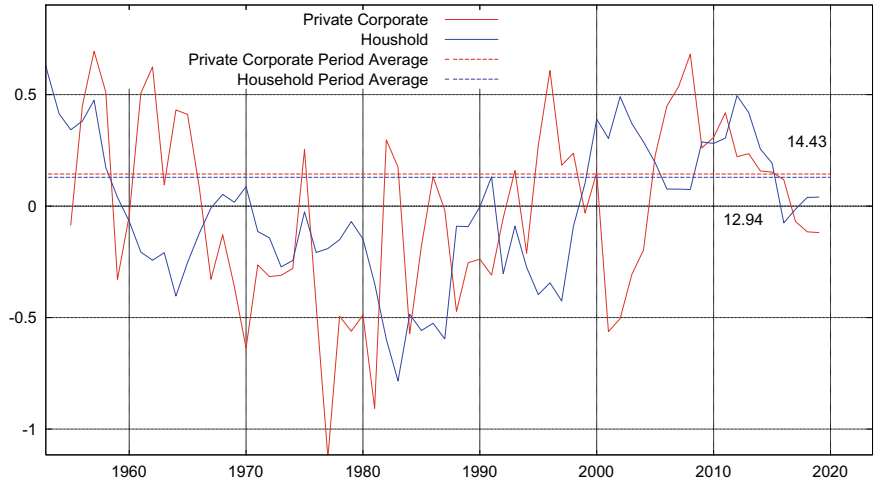

Fig. 4.5 Detrend of log of GCF in household and private corporate sectors (2011-12 series at current prices)

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 70s/early 80s, 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 to 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 2 years of stimulus is only to be expected, so the period from 2011 to 12 onwards is undoubtedly one of slowdown.

4.4 Portfolio Flows

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 Fig. 4.6 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

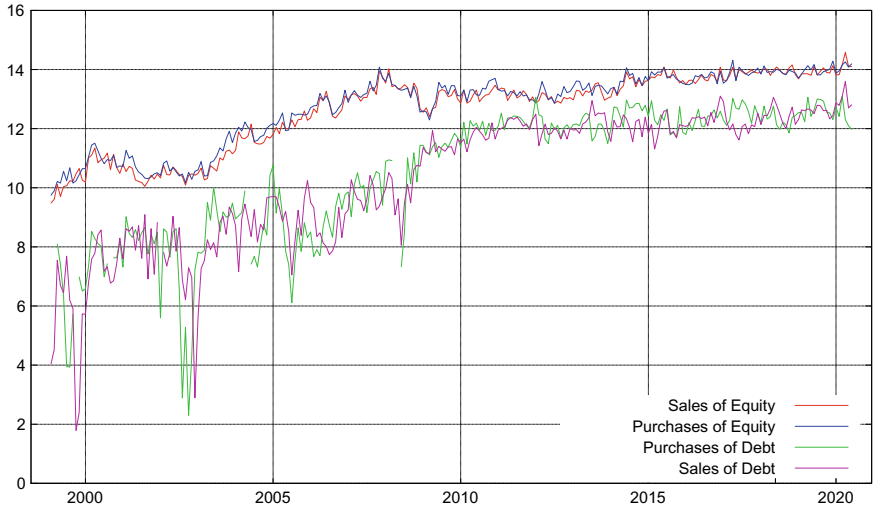

Fig. 4.6 Log of purchase and sales of equity and debt by FIIs in India (flows in Rs. Million)

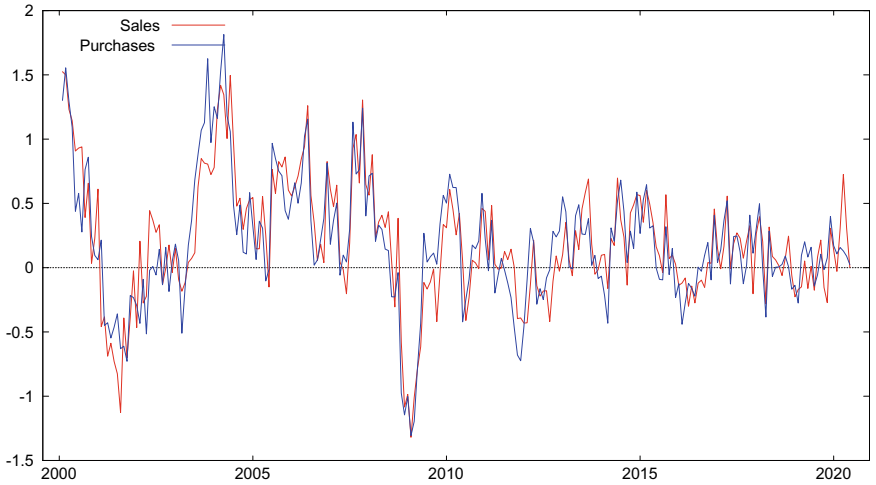

Fig. 4.7 Growth rate in gross sales and purchases of equity by FIIs (original data in Rs. Million)

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 grown faster to reduce the gap with equity flows.

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 COVID-19 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 an uptick in early 2018 till the COVID-19 crisis (Fig. 4.7).

Demonetization seems to have 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 (Fig. 4.8).

We also carried out an analysis of the longer term trends using a Hodrick-Prescott filter to remove the short period seasonal aspect.[1] Figure 4.9 brings out the growth.

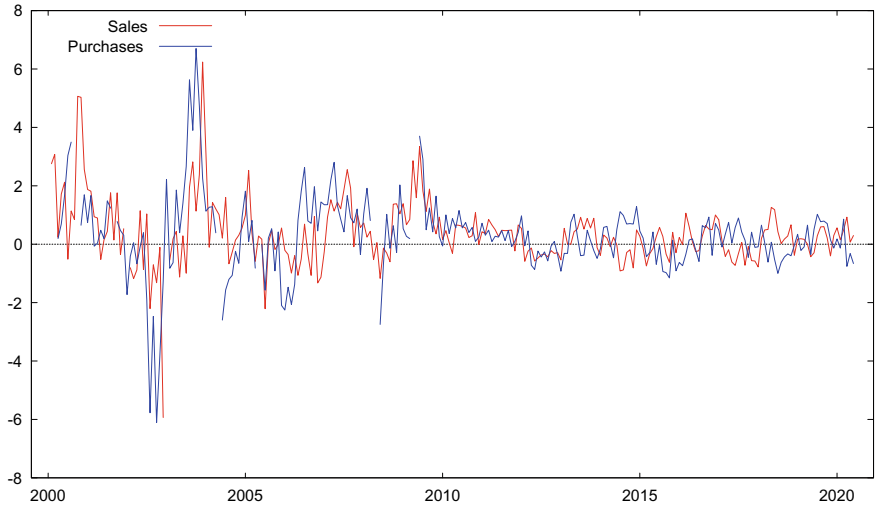

Fig. 4.8 Growth in gross sales and purchases of debt by FIIs (original data in Rs Million)

Fig. 4.9 Growth rates of sales and purchases of equity by FIIs

In such analyses, the growth figures for the first year have to be excluded due to initialization problems.

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,

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

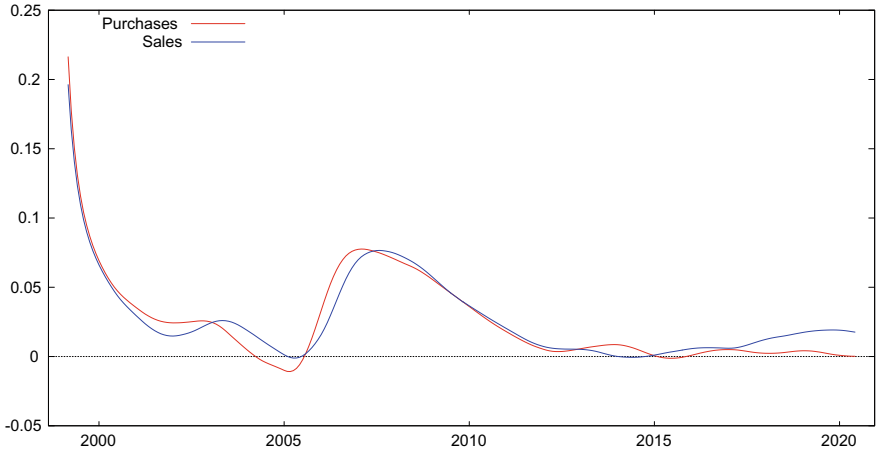

Fig. 4.10 Growth rates of sales and purchases of debt by FIIs

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.

Similar analysis with debt shows 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[2] in India. Since the demonetization outward flows (sales) revived to a growth of around 1.5% while purchases remained at near-zero growth. See Fig. 4.10.

4.5 FDI

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 to 1998 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

[2] 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.

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 movements. Broadly of course growth has pulled in FDI as is only to be expected. Since 2015–16, FDI inflows growth has been quite muted though highly variable (Fig. 4.12).

4.6 Cumulative FII Flows

Another analysis 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 Fig. 4.11. 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 Fig. 4.11 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

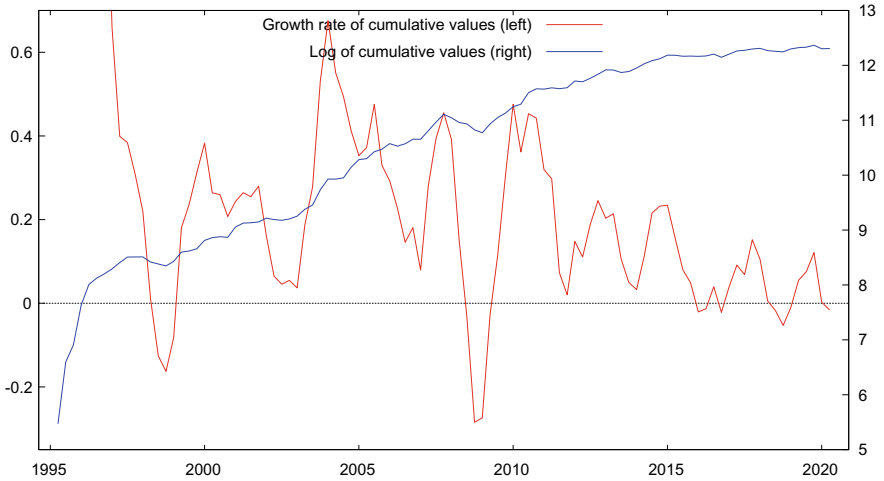

Fig. 4.11 Gross portfolio investment in India FIIs US$ Million (RBI)

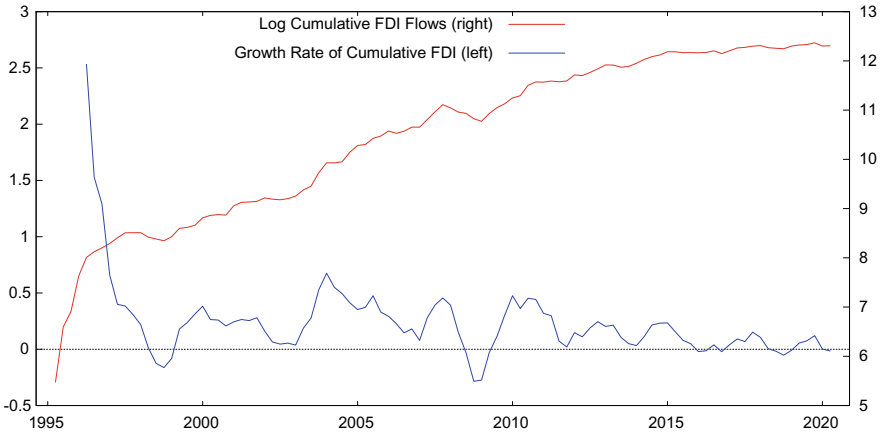

Fig. 4.12 Cumulative gross FDI in India RBI US$ Million (Growth Rate and Log of Values)

stimulus in 2010–11. 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 has 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.

Chapter 5
Inflation and Monetary Developments

5.1 Inflation Trends

Inflation trends for quite a while have been benign. Over the last 2 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 to 2007–09 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, and 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 cutback 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 COVID-19 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

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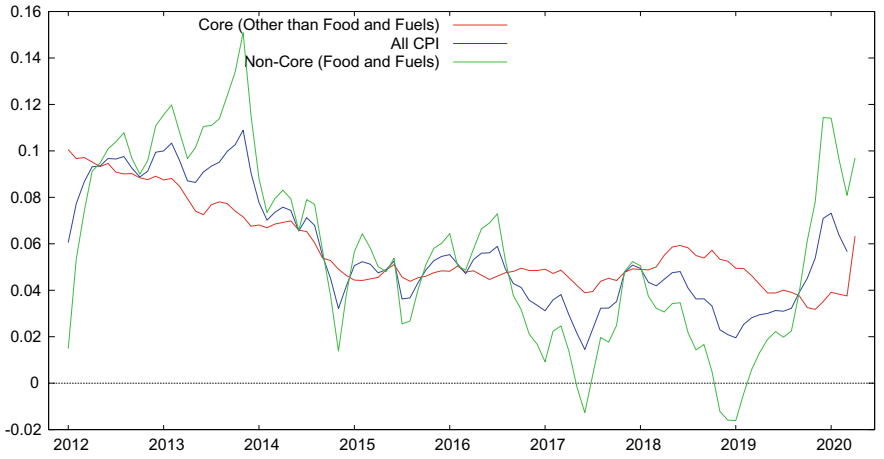

Fig. 5.1 Core, Non-Coe and All CPI 11-12 based inflation

trends would remain for a while unless the lockdowns are completely lifted and all movement is restored.

Observe from Fig. 5.1 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 Chap. 7. 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.

5.1.1 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 cutbacks and supply chain disruptions could

have pushed retail inflation higher on food, even before the COVID-19 Crisis. We will later in the analysis (Chap. 7 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 to 2020, 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 Figs. 7.8 and 7.9.

5.1.2 Challenge of Monetary Policy with Open Capital Account

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 policymakers, especially the RBI, has to contend with an active capital account with exogenous drivers. Similarly, the liberalization of the financial sector, while not complete as yet, had opened the door to the possibility of developments (shocks) in the financial sector affecting the real economy. Shocks originating in the financial sector (both within and without) 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 policymaking 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.

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.

5.2 Trends in M, H and NFA

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 Fig. 5.2. Until 2002–03, and after the 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 Fig. 4.1. 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 to 2003, the fiscal action which came out the vast spending effects of the popularly called Golden Quadrilateral Project (in official parlance the National Highway Development Program (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 Fig. 5.3).

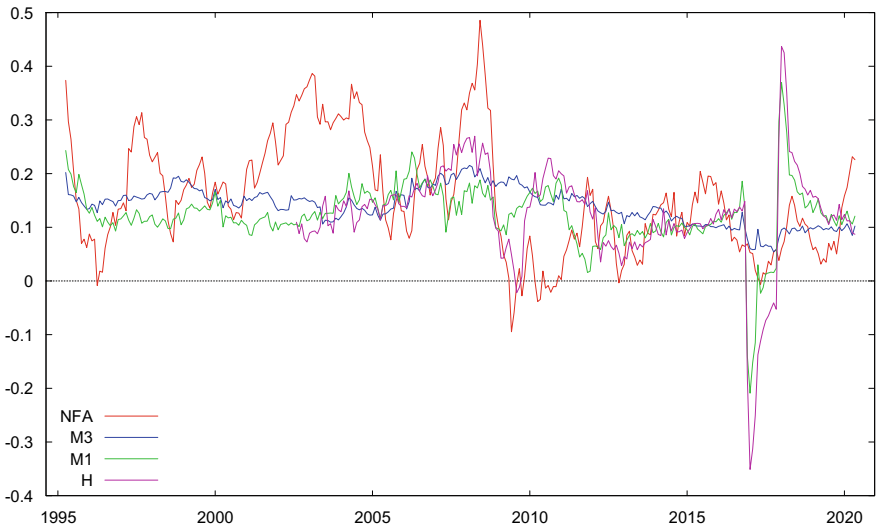

Fig. 5.2 Growth rates of certain monetary aggregates (YoY)

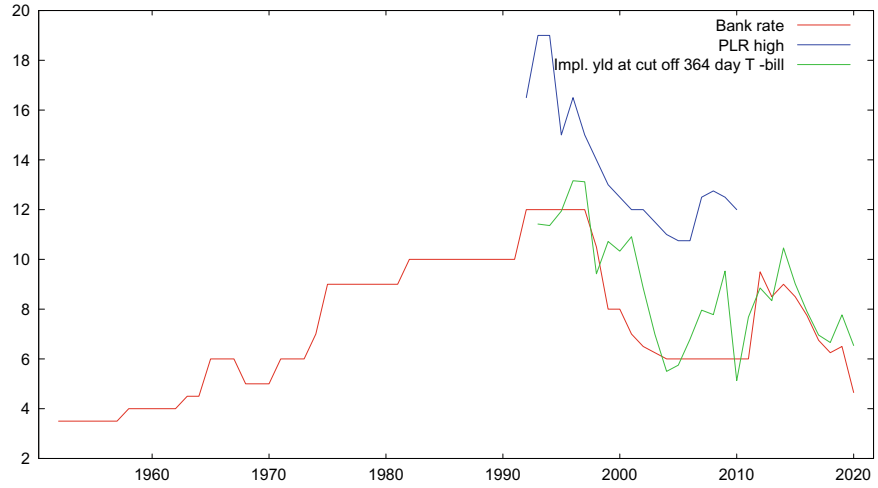

Fig. 5.3 Bank and other rates (% per annum)

We will refer to the T-bill and bond yields and the policy rates (repo and reverse repo a little later. Figure 5.3 graphs the T-bill yields and Fig. 5.7 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, growth from 2003 to 2004 was high. See Morris (2012) for a quick summary. 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 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 is 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.

5.2.1 The "Tiger" Period

The rise in the growth from 2003 to 2004 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 the end of 2006, it raised the CRR seven times in sequence with the CRR reaching 9.25% or so on the eve of the GFC. See Fig. 5.4. Now as the CRR increased, the money multiplier fell sharply as may be inferred from Fig. 5.4 and from Fig. 5.8 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 of the need to pull back before the inflation blew up. See Table 5.1 from Mohanty (2010)'s Table 4 reproduced entirely.

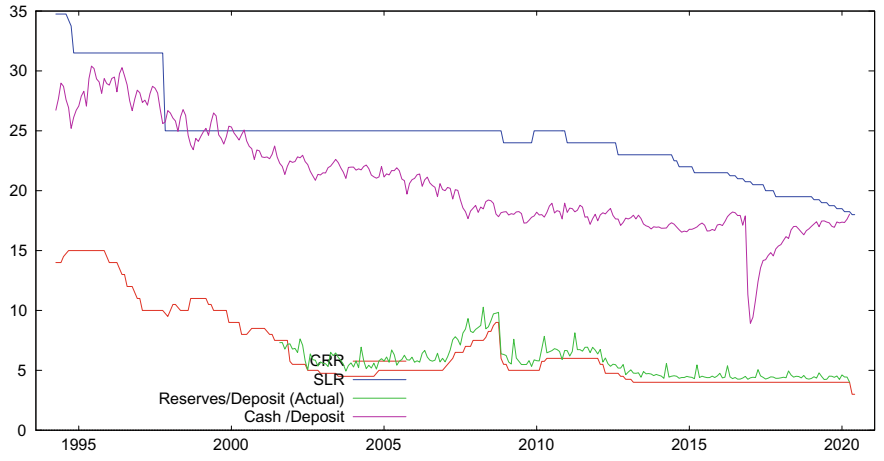

Fig. 5.4 Structural and policy rates (%)

Table 5.1 Multiple indicators approach: projections versus achievements (Mohanty, 2010)

Year	Projections (%)*			Actual (%)		
	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 upward bias	4.0–4.4 with a downward bias	Around 14.0	8.5	4.6#	16.7
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 1999–2000 prices; @ Advance estimates with based 2004–05
Note Inflation is based on wholesale price index (WPI)"
Source Table 4 of Mohanty (2010), verbatim

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

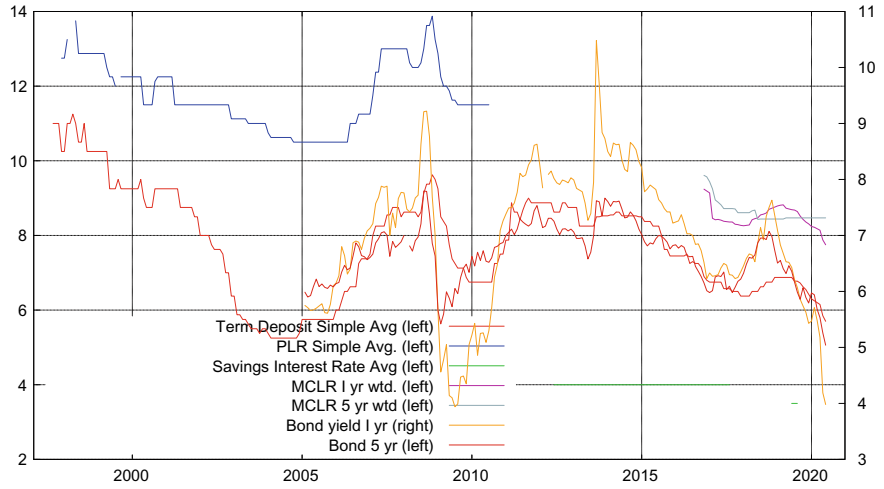

Fig. 5.5 Rates of interest and yields on government bonds

this period. Despite these measures growth was relentless, though it had begun to slowdown by early 2007. Towards the end, the RBI reduced or stopped accomodation, 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.

See Fig. 5.5 which brings out the rates of financial institutions along with bond yields—1 and 5 years. The institutional rates are reflective of the cost of capital for much of the productive sector that cannot go directly to the markets.

5.2.2 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. As Varma (2009) has brought out, the RBI converted a dollar liquidity crisis to a rupee liquidity crisis! These adverse forces on businesses and the economy, (by way of the tight liquidity in the market forcing many to borrow at rack rent rates), were entirely an avoidable pain.

We see in Fig. 5.2 (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$ of the reserves that it would have to use to do so. 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[1] 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 slowdown. 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 infrastructure spending, with significant growth in M1 and M3. The first 2 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 Fig. 5.6. Rates remained high at well over 8% even after the financial stimulus had been withdrawn. We return to the discussion on the counteraction of the GFC in the next chapter on Policy and Analyses.

5.2.3 "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. Interest rates rose in the US as markets scurried to respond to the fears of

[1] Globally, the inflation could have been moderated by demand-side cuts by the major economies US, Europe, and China. 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. China accounted for about 35–40% of the world demand for cement, steel, non-ferrous metals, and construction.

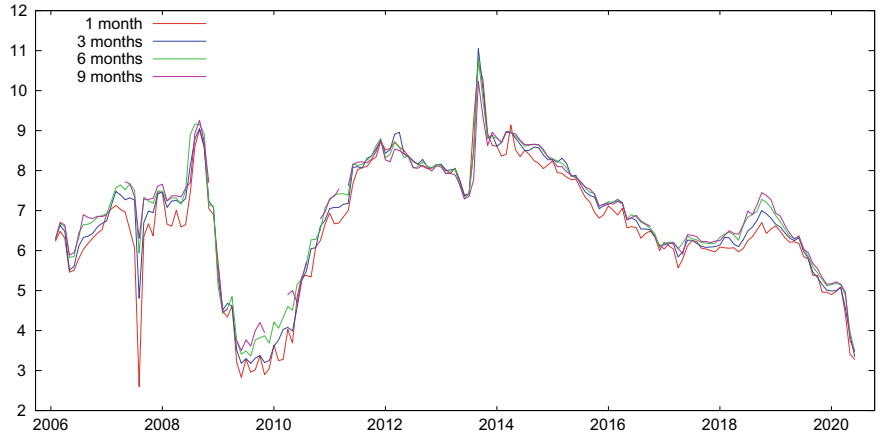

Fig. 5.6 Yields on T-Bills (% per annum)

a resulting liquidity squeeze if the quantitative easing was to be pulled back. Uncertainty went up and the resulting demand for liquidity drove interest rates up. 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 COVID-19 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.

5.2.4 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!

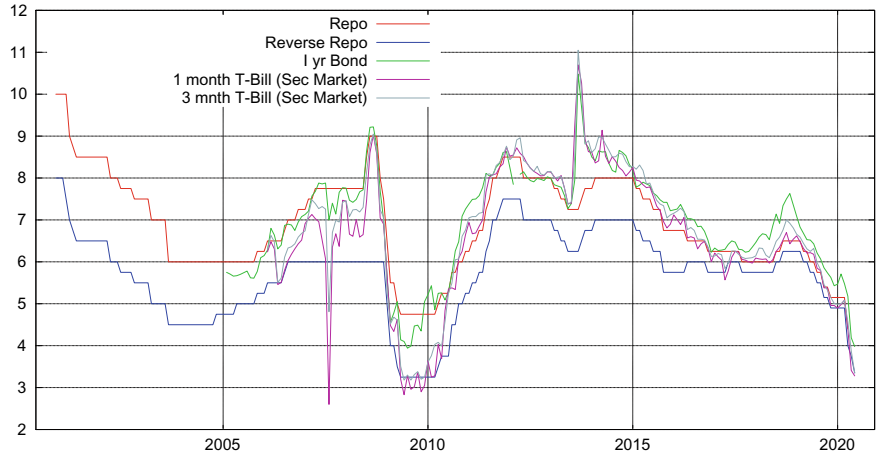

Fig. 5.7 Policy rates and bond yields

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-year 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 3-month 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 (see Fig. 5.7).[2]

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

[2] 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 Banking, Financial Services and Insurance (BFSI) (companies) 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.

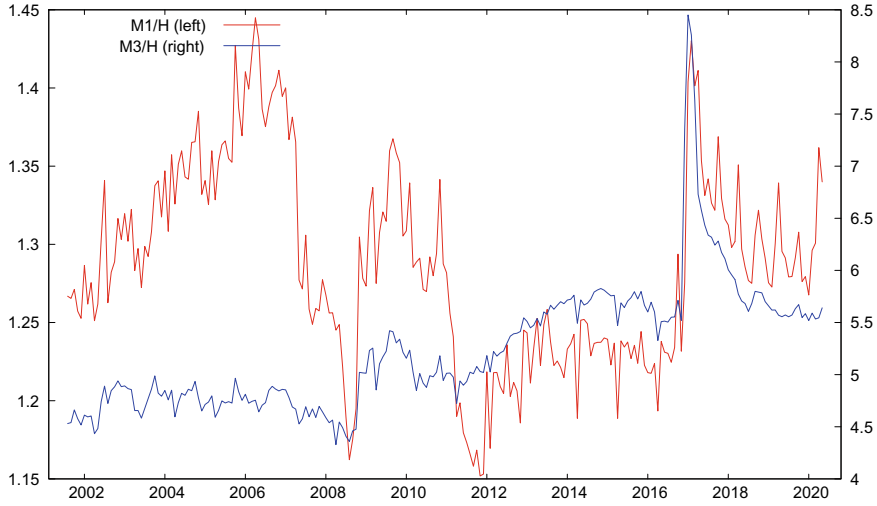

Fig. 5.8 Money multipliers

net interest margin. Moreover, we know that banks and FIs saw high risks in lending in part caused by the poor environment for investments and growth, almost without a break from 2011 to 2012.

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 Fig. 5.8 which brings out the narrow and broad money multipliers.

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 Fig. 5.3. 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-year deposit and the 1 /5-year yield rising is not of much solace to the borrowers because very little was disbursed during this period.

5.3 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 when 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 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 5.9 brings out the yields on government bonds of various maturities, since 2006.

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, for various values of n, are expected to be highly correlated. Figure 5.10 for plots of ψ_n from which the uncertainty is easier to infer.

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 Fig. 5.3 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

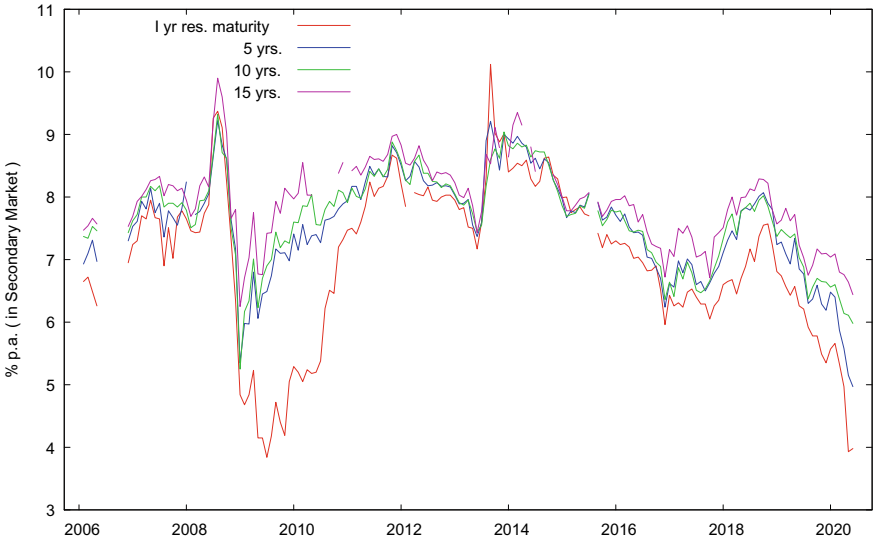

Fig. 5.9 Closing yield on government securities

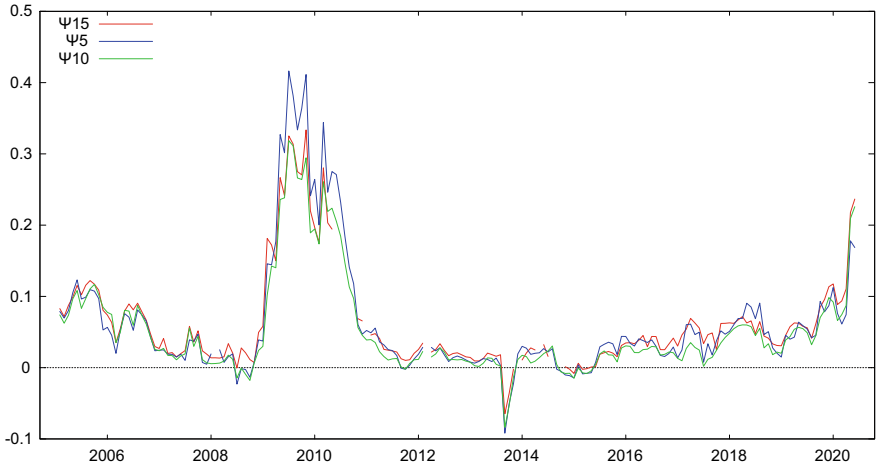

Fig. 5.10 Uncertainty in bond markets (sigh measure)

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 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 COVID-19 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 COVID-19 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-year AAA corporate bonds rose, which by now would have spread to bonds of higher maturity as well. See Figs. 5.11 and 5.12. 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.

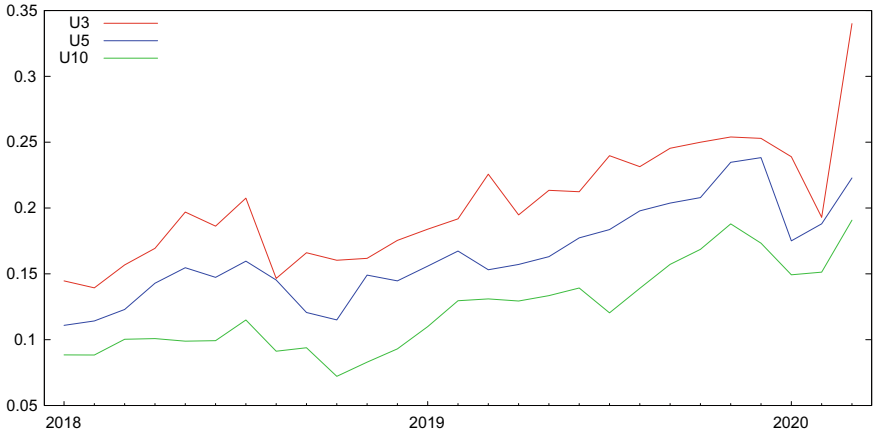

Fig. 5.11 Combined uncertainties facing corporate bond markets

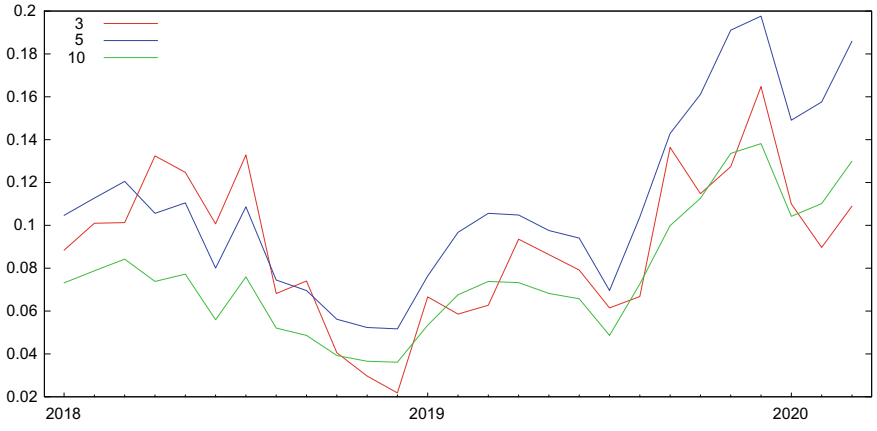

Fig. 5.12 Uncertainty in bond market in India in recent times

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Chapter 6
Policy and Analyses

6.1 High Growth Continues After GFC

Nagaraj (2013) notes that the growth before the GFC was credit-led. 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. We also know that in growth acceleration in emerging economies that have been sustained (to take the economies over to complete the economic transformation), has always been accompanied by credit expansion, especially in the ELG economies. It is difficult to see high-speed growth without credit expansion. What is pertinent though if the same was inflationary due to demand exceeding capacity output, then reigning in the same is necessary.

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 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 anyway.

6.2 Estimates of the Stimulus

The fiscal stimulus was quick off the ground, because a few months prior to the re-election of the government it had a plan in the form of enhanced MGNREGS allocations and rural infrastructure, to bring about greater inclusiveness. Once the crisis happened, and after re-election,the government added to the expenditures and also gave tax cuts on both service taxes and excise duties, reducing the same by between 20 and 40%.

S. Morris, *Macroeconomic Policy in India Since the Global Financial Crisis*, India Studies in Business and Economics,
https://doi.org/10.1007/978-981-19-1276-4_6

In an ex post realized sense, the part of the fiscal stimulus that provided the counteraction 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 Fig. 6.6 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.[1]

Similarly, the tax revenues of the Center fell from 8.8% to 7.1% in 2008–09 and to 7.5% in 2009–10 giving an average decline over the 2 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.

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 amounting to about US$ 80 b, which had followed MGNREGS 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 MGNREGS, Bharat Nirman and PMGSY, besides fertilizer and electricity subsidies. However, all helped to provide counteraction. 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 undated C. 2009).

Kumar et al. (2009) note 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 expenditure that maintained expenditure pressure even after the negative shock of the GFC. In addition, they note a counteraction amounting to 1.8% of GDP

[1] We believe 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%.

(through three stimulus packages) and an effect of the budgetary expansion of nearly 3% of GDP during 2008–09 and 2009–10.

Kapur and Mohan (2104) estimate that the fiscal stimulus was overdone and was responsible for the growth overshooting to result in inflation. While a marginal overshooting was possible, the inflation as we argue in the next chapter was largely supply side and partly spurious. The problem with the CPI had been pointed out by Dholakia (2018) as well. During the GFC, the growth had crossed 9.75% over at least two quarters. The very sharp rise in the investment rates with gross capital formation rising to over 37% in a matter of 4 years (with a large part of that being on account of the rise in private investments and the savings rate rising) meant that the capacity output could keep pace with the demand determined level of output. Inflation rose largely due to the supply side of rising oil and commodity prices. Post-GFC until 2014, before China slowed down the inflation in India was largely an imported inflation as oil continued to be high and a structural and necessary inflation in the rising food prices. As the supply side eased from 2012 to 2013, the inflation also came down. For a discussion on the specific nature of inflation, see the next chapter.

6.3 Policy Paralysis

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.

The so-called "policy paralysis" was certainly important in having contributed to the slowdown from 2011 to 2012 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 Court's indictment of the coal allocation process. The mess created by the shoddy way in which coal blocks were allocated, 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. The PMEAC highlighted the "policy paralysis" to be the

reason for the fall in the growth. However, the sharp tightening which happened just when the fiscal stimulus was being withdrawn was perhaps more important. Since the RBI was responding to a supply inflation, the negative effect on the demand was anticipated then.[2] When we realize that the rate hikes had started happening as early as April of 2010, the kickdown happened because of the RBI.

6.4 PMEAC's Analysis

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. I could anticipate given the ferociousness of the rate hike, to "fight" largely a supply side inflation, and that too in the wake of a stimulus that engendered largely investments in infrastructure which tend to be leveraged that the impact would be sudden and would be very resistant to recovery.[3]

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[2] Thus, over the past year and a quarter it had increased the repo rate by 325 basis points. "'This stiff dose will dampen corporate sentiment and affect the investment climate' says R Shankar Raman VP and CFO designate, L&T. 'Sectors, which are most leveraged like infrastructure, real estate and finance will be impacted.' 'The magnitude of the rate hike is complete surprise' says Seshagiri Rao, joint managing director and CFO of JSW Steel. It will put a burden on long-term financing of companies, pressure on margins and slow-down in the expansion plans, he adds. India Inc. has been cautious on expanding due to several rounds of rate hikes in the past one-and-a-half years. Data for the January-March quarter show that new project investments made by India Inc was the lowest in seven quarters, while the value of projects shelved was the highest in eight quarters." (ET Bureau, 2011).

[3] "'I would call the rate hike madness. It will kill industry and investments', [says Sebastian Morris]… 'Indian inflation is a product of higher crude and agri-product prices and fund flow from NREGA'…'Inflation in India is not driven by demand' (ET Bureau, 2011). Shetty (2013) writing a little later, called this sharp tightening as arising out of the "fever of independence".. [He writes]. In pursuit of the notion of central bank independence, the RBI has taken steps that have contributed to a decline in investment and a slowdown in growth. It is time the RBI accepts once again that one of its main roles is to maintain the flow of credit to the productive sectors". This is all the more important when so much of the productive sector being small, depend upon the banking sector for their funds.

6.5 Monetary Tightening

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 2010–11 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 rates. While the latter are relevant to corporates which have the 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, 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.

6.6 Market Rises and Fall

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 COVID-19 lockdown phase. In other words, the market has been ever ready to respond positively to the government.

6.7 Positive Vibes But Underspending

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 (first 9 months of Modi-1) was as much as 1.05%, i.e., Rs. 18,863 crore. But the underspending on Plan Expenditure was by as much as Rs. 112,356 crore which was close to 6.26% of the budget estimates. And on total expenditures, it was Rs. 131,219 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. 30,100 crore, i.e., 1.68% less than the budgeted figures! Capital expenditures are known to have large multiplier effects of well over 2.0 and Plan expenditures of around 1.5 (Bose & Bhanumurthy, 2015). 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 6.1. 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 Prime Minister's Office (PMO).

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.

Table 6.1 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		1,189,763	1,101,472	−88,291	−7.4	−0.70	−4.92
	2	Tax revenue (net to center)	977,258	903,615	−73,643	−7.5	−0.58	−4.10
	3	Non-tax revenue	212,505	197,857	−14,648	−6.9	−0.12	−0.82
4	Capital receipts (5 + 6 + 7)$		605,129	562,201	−42,928	−7.1	−0.34	−2.39
	5	Recoveries of loans	10,527	13,738	3211	30.5	0.03	0.18
	6	Other receipts	63,425	37,737	−25,688	−40.5	−0.20	−1.43
	7	Borrowings and other liabilities *	531,177	510,725	−20,452	−3.9	−0.16	−1.14
8	Total receipts (1 + 4)$		1,794,892	1,663,673	−131,219	−7.3	−1.04	−7.31
9	Non−plan expenditure		1,219,892	1,201,029	−18,863	−1.5	−0.15	−1.05
	10	On revenue account	1,114,609	1,109,394	−5215	−0.5	−0.04	−0.29
	Of which							
	11	Interest payments	427,011	402,444	−24,567	−5.8	−0.19	−1.37
	12	On capital account	105,283	91,635	−13,648	−13.0	−0.11	−0.76
13	Plan expenditure		575,000	462,644	−112,356	−19.5	−0.89	−6.26
	14	On revenue account	453,503	357,597	−95,906	−21.1	−0.76	−5.34
	15	On capital account	121,497	105,047	−16,450	−13.5	−0.13	−0.92
16	Total expenditure (9 + 13)		1,794,892	1,663,673	−131,219	−7.3	−1.04	−7.31
	17	Revenue expenditure (10 + 14)	1,568,111	1,466,992	−101,119	−6.4	−0.80	−5.63

(continued)

Table 6.1 (continued)

			BE	Actuals	Actuals over BE	Actuals over Budget (%)	Excess as a % of GDP	Excess as % of Budget
	18	Of which, grants for creation of capital assets	168,104	130,760	−37,344	−22.2	−0.30	−2.08
	19	Capital expenditure (12 + 15)	226,781	196,681	−30,100	−13.3	−0.24	−1.68
20	Revenue deficit (17 − 1)		378,348	365,519	−12,829	−3.4		
			−2.9	−2.9				
21	Effective revenue deficit (20–18)#		210,244	234,759				
			−1.6	−1.9				
22	Fiscal deficit {16 − (1 + 5 + 6)}		531,177	510,725				
			−4.1	−4.1				
23	Primary deficit (22 − 11)		104,166	108,281				
			−0.8	−0.9				
	GDP# (memo)		12,653,762	12,653,762				
	Budgeted expenditure total		1,794,892	1,663,673				

$Excluding receipts under the market stabilization 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; Ratios author's computation.

6.8 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 GVA 11–12 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 slowdown. 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 to 2017, 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.[4] 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.

One could not get away from the impression that the government was more interested in scoring points, like in a school debate. There was enough indication that the new series may not be capturing the reality even within the state system. Thus, "… the Economic Survey of 2014–15 cautioned the reader to the use of the new series in computing growth rates and hoped that with some years the issues would be ironed out. It noted that: 'The upward revision in manufacturing growth in the new series also owes to inclusion of trade carried out by manufacturing companies in the manufacturing sector itself, which was earlier part of the services sector. (p. 5. Economic Survey 2014–15, See Morris and Kumari (2018). The RBI (2015) too noted problems with the new series.

The approach of the government to its budget was dysfunction in being that of a householder to his home budget, where frugality, and tightening during adversity are recommended, and spending within "means" is nearly always 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 its own limited perception of what mattered to international rating agencies.[5]

6.9 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 program would have reduced overall spending to put downward pressure on demand. The usual assumption that 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, 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 2 years of he Modi-I it was as low as 0.23–0.26% 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).[6] See Table 6.2.

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

[4] This could also have been the result of conviction that the growth (as indicated by the new series) being high was in contradiction to the findings of the PES, to delay the release by a quarter or so at best. Continued non-release though put doubt on the intentions of the government.

[5] Much the same approach and attitude has continued into the COVID-19 Crisis to make the government's response so utterly at divergence to what is required.

[6] Now with the COVID-19 Crisis, the allocations under the NREGS are expected to double.

Table 6.2 Trends in the expenditure on the Mahatma Gandhi National Rural Employment Guarantee Scheme (MNREGS)

Fiscal year	Expenditure on MGNREGS Rs. crore	GDPMPCP Rs. crore	MGNREGS Expn./GDPMP at current prices (%)	Growth of MGNREGS Expn. (% per annum)	Source
06–07	8823	4,490,190	0.20		Ehmke (2015)
07–08	15,857	5,172,840	0.31	58.6	Ehmke (2015)
08–09	27,250	5,974,910	0.46	54.1	Ehmke (2015)
09–10	37,905	7,083,670	0.54	33.0	Ehmke (2015)
10–11	39,377	8,106,950	0.49	3.8	Ehmke (2015)
11–12	37,073	9,202,690	0.40	−6.0	Ehmke (2015)
12–13	39,657	10,363,200	0.38	6.7	Kulkarni (2018)
13–14	29,870	11,504,300	0.26	−28.3	Kulkarni (2018)
14–15	28,967	12,574,500	0.23	−3.1	Kulkarni (2018)
15–16	37,216	13,965,200	0.27	25.1	Kulkarni (2018)
16–17	58,063	15,513,100	0.37	44.5	Kulkarni (2018)
17–18	63,649	17,140,000	0.37	9.2	MGNREGA Site as on June 2020
18–19	69,619	18,493,700	0.38	9.0	MGNREGA Site as on June 2020
19–20	68,058	20,343,070	0.33	−2.3	MNREGA Site as on June 2020
20–21	24,010	22,173,946	0.11	−104.2	MNREGA Site as on June 2020

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 to 2017 onwards, the other expenditures, especially investment had been reduced to near stagnancy.

6.10 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. The note of 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 (Joshi & Mukherjee, 2017), 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 12–18 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.

6.11 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 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 Bharat VI 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%.[7]

Thus, the sharp decline in auto sales from April 2018 and which has continued to date is not difficult to account for. See Figs. 2.8 and 2.9 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.

6.12 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 COVID-19 Crisis. The Chinese economy had slowed down after the GFC still grew at 7.5–8.5% 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.

Neither could the IT and Services sectors be blamed. Service exports did grow from 2011–12 to 2018–19, at nearly 7% in dollar terms, but not at the very high rates seen during the "Tiger" period. See again Fig. 3.9. 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 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 to think that exchange rates are determined entirely in markets, and hence missed recognizing the instrumentality of the exchange rate.[8]

[7] Apparently with the COVID-19 Crisis, government has put a hold on this increase.

[8] 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.

6.13 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 Real Estate Regulatory Authority/Act (RERA) while well intentioned, 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 2011–2015, 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. (Morris, 2017). Yet the immediate slowdown, 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.[9]

6.14 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), attempts to micromanage by the government, and an overbearing regulation that

Prannay Roy of NDTV, at a time when world imports had picked up quite substantially. See NDTV (2018).

[9] 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".

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 favored by the government of the day, as a reason is however 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 countercyclical, 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 also 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 percent per annum of NPA in nominal terms. See Figs. 6.1 and 6.2. 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

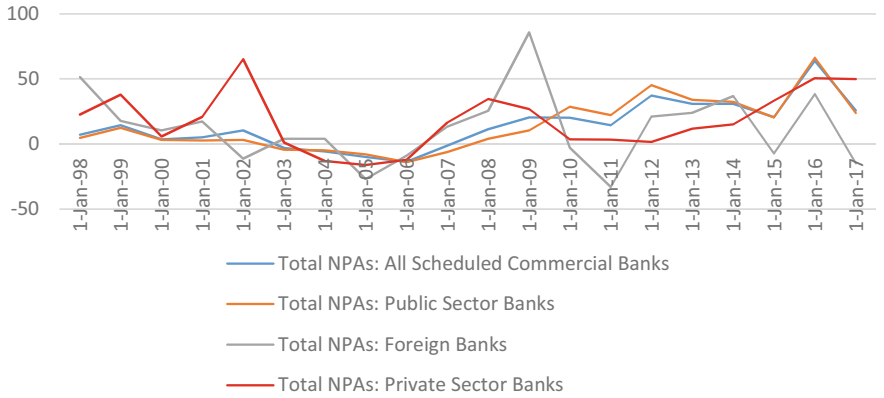

Fig. 6.1 Growth rate of NPAs (% per annum)

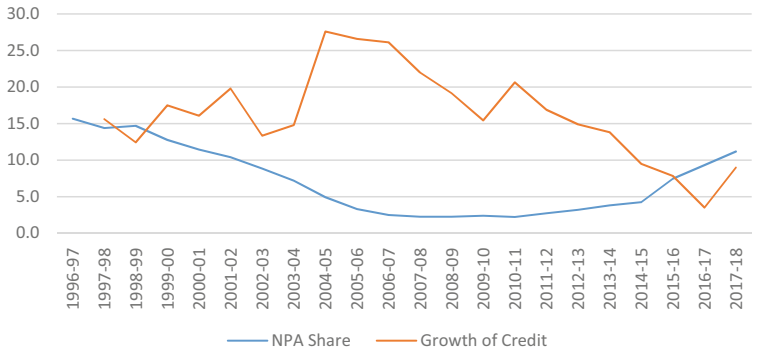

Fig. 6.2 NPA share of total advances of scheduled commercial banks and growth rate of advances (%, and % per annum resp.)

rates and slow growth having 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 slow growth of credit, seen earlier. Visit Figs. 3.1 and 3.2 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.

6.15 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 center, and across both goods and services is essentially complete.[10]

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, Tamil Nadu) 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.[11] There was commitment of the center to protect the revenues of losing states like Gujarat—essentially ensuring a revenue growth of 15% annually. The shortfalls below this trajectory were to be made good by the center over the first 5 years, had already been made. But it was clear that Gujarat

[10] 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 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.

[11] 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 two 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 Center. Perhaps as much as 40% of that collected by the Centercenter ought to be devolved on the capital formation aspect. See Chap. 11 in this book for a discussion and estimation of the RNR at the state level.

would lose after this period.[12] 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.[13]

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 1992–93 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 to 2004 after it had entered into a slow growth period from 1997 to 1998 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

[12] Morris et al. (2019) point 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 and Chakraborty (2013).

[13] Morris et al. (2018).

government whose senior officials are forever fire-fighting.[14] There is an opportunity for the government to actually lower taxes in some major goods like automobiles (especially two wheelers) 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 without regard to price elasticities. 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.[15] Today the only way would be for the center to reduce its rates, which would then destroy the neatness of half the collections being to the center, and also affect businesses since they will have to worry about two distinct rates.

6.16 Tax "Terrorism"

When the NDA/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 2011 to 2012 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,

[14] 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 and Morris (2017).

[15] In the response to the COVID-19 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.

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 not inconsiderable.[16] 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 impression 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% during the last year and half.

6.17 Taxes in the Growth Experience

From Fig. 6.3, 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 to 2004 to the eve of the GFC. Once growth was restored from 2009 to 2010, 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 2 years, shows a lower tax growth, since this growth was not

[16] 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 organizations 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).

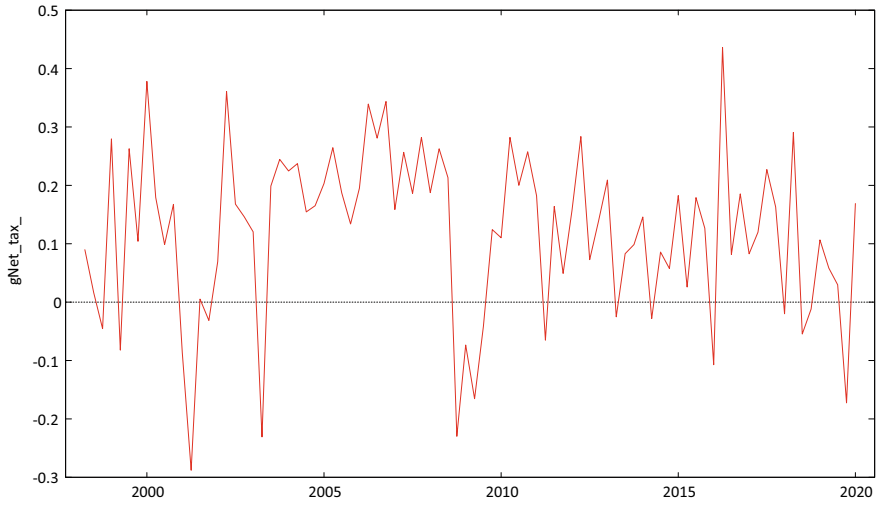

Fig. 6.3 Growth in net tax revenue (central government receipts) % per annum at current prices

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.

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 center, though we can get a consistent time series of the tax collected by the center on the same base/s. We have taken the moving average over four quarters of such figures and divided the same by the four quarter moving average of the GDPMP (spliced series at 2011–12 that chains with the 2004–05 series). This ratio is reported in Fig. 6.4.

Observe that as the massive fiscal stimulus of 3% (ex[17]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

[17] Ex ante, it would have been even higher, given the high multiplier effect of public investment spending in India (Bose and Bhanumurthy, 2015).

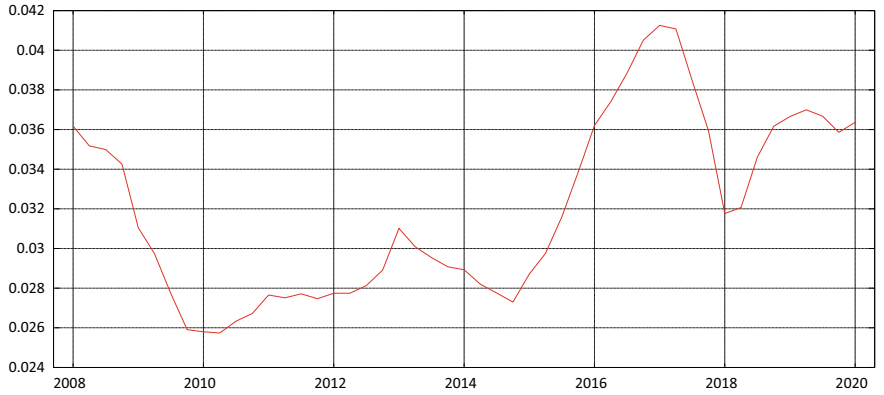

Fig. 6.4 Ratio of quarterly moving average of Excise + Service taxex or GST to GDPMP

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 6.5 computes the YoY on quarterly data of tax collected by the central government on the same items—excise, service, and GST (Fig. 6.6).

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

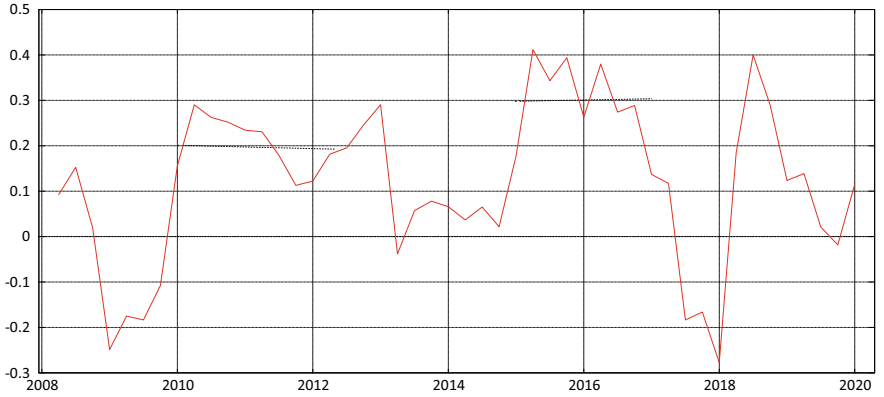

Fig. 6.5 Growth rate in production taxes (accruing to centre) Excise + Service + GST (since July 2016)

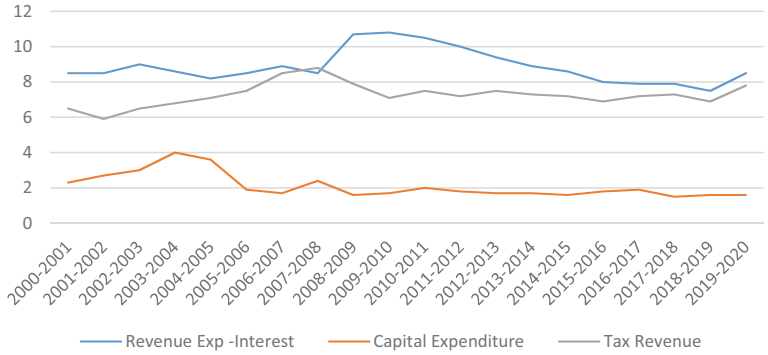

Fig. 6.6 Central government revenues and expenditures as % of GDPMP at current prices

price elasticity of demand) that would have had rates (and hence prices) well above their revenue maximization rates.

6.18 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 to 2012, 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 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.

From Table 6.3, 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 to 2016 onwards, government expenditure has been at higher levels, particularly in 2018–19 and 2019–20. The share of the government

Table 6.3 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
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

Source Authors Compilation based on data from CMIE, EOI.

in capital expenditure rose, because from 2015 to 2016 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 slowdown 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 counteraction in 2010–11 and 2011–12 was less due to capital expenditure. See Fig. 6.7.

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.

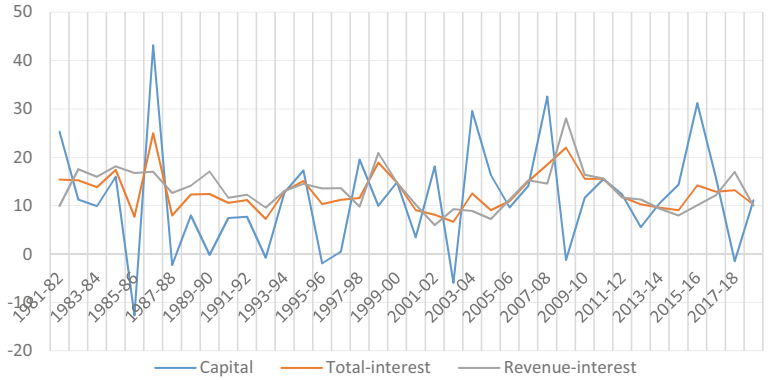

Fig. 6.7 Expenditure growth rates centre and states combined CAGR %

6.19 The Fiscal Deficit

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 to 2014 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 3 years since the GFC when the stimulus was given to the economy. The primary deficit closely following the same. See Fig. 6.8.

Since the GL, it is quite remarkable that the center 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

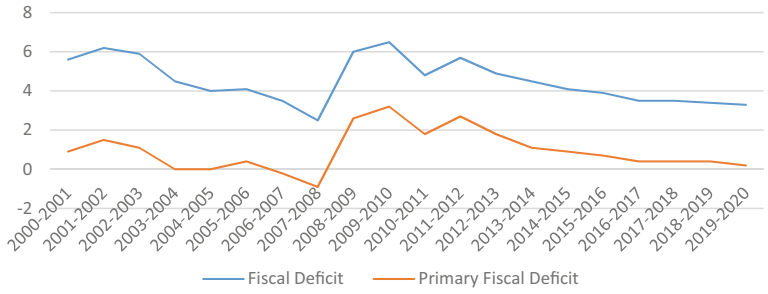

Fig. 6.8 Fiscal and primary deficits as % of GDPMP

exports) to overcome structural problems. There is little basis to the critique that the high growth was dysfunctional being credit-led and inflationary in this view.

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Chapter 7
Reflexive, Not Reflective Monetary Policy

7.1 Introduction

In this chapter, we re-examine the approach of monetary policy in India, including the stated objective of "fighting" inflation. We look at the actual experience of fighting inflation, the RBI's approach now of inflation targeting, and the nature of inflation in India. We argue the need to distinguish between supply- and demand-side inflation, more so in the case of India which at a crucial stage in its economic transformation. We bring out the point that much of the inflation is on account of fuel and food prices. The core has been affected by this non-core inflation in that there is (and ought) to be a pass-thru of both—being basic. Core has moved up and down with the non-core with a small lag and there is no evidence of an overall trend rise in expectations.

The RBI's forecasts have been way out of line with a systematic one-sided overestimate of more than 3% for many years at a stretch. Sudden rise in the core inflation in 2010–11, and again in 2018–19, can be attributed to the error in the measure, which when corrected presents a more modest picture of inflation. Can demand management really be effective in controlling an inflation almost entirely due to agricultural inflation rising (and falling)? And should demand management attack such an inflation when the economy is at a stage of development when the terms of trade has to shift in favor of agriculture? We also bring out the dysfunctionalities in the financial markets that arise as a consequence of the RBI targeting the CPI rather than the core.

7.2 Reflexive Approach to 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

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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 3 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 5.1. and Chap. 4, 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 to 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.

7.3 Inflation Targeting Experiences

While inflation targeting has become fashionable and has been accepted by governments and central banks as the "gold standard" (Bernanke et al., 2007), 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"[1] 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 counteraction 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

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

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 90s 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'.

7.4 Supply-Side Inflation

In the LDCs and other emerging economies (especially those that are not following export-led growth), inflation has a high probability of being caused by both demand-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.[2] 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

[2] 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.

need for tightening. Thus, Bernanke et al. (2007) advocate a first-round pass thru of supply side inflation, while addressing a sustained expectations rise.

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 to be the fast-growing Asian economies—Taiwan, Korea, China, Vietnam, Malaysia, and Thailand. Latin American countries have witnessed runaway 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 increases 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!

7.5 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 demand.[3] 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!

[3] Demand-side measures in a situation of rising supply price of capital goods could on the other hand be so handled by 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!

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 (labor) 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. This would trap the economy into a low level equilibrium.

7.6 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. Policymakers 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. See for instance R.A. (2011), Economist (2003, 2010). By the late 90s, inflation in China was down to low levels from where it has hardly moved up, rising a little during the financialization 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 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 bouts 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 pass thru 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 Oppers (1997) *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. Actually fixed investments would take time to result in capacity creation and over that period there would be some inflationary pressure. However, this would be for a short period not exceeding three years, since capital formation is capacity creation, there being ample availability of labor.

Fig. 7.1 China: all items and food inflation

That hump of 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 Fig. 7.1. The second half of the 80s and the 90s was 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. (Left Axis is food inflation and right overall inflation).

7.7 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 growth had 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. Since the COVID-19 crisis with a fracturing of agricultural markets the farm side prices have gone down while the consumer side retail prices have rapidly risen.[4]

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 past values. We have considered the core to be non-food, non-fuel component

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

Table 7.1 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

Source Trading Economies, graphed by author.

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 Fig. 5.1 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.[5] 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 7.1.

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, that

[5] 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.

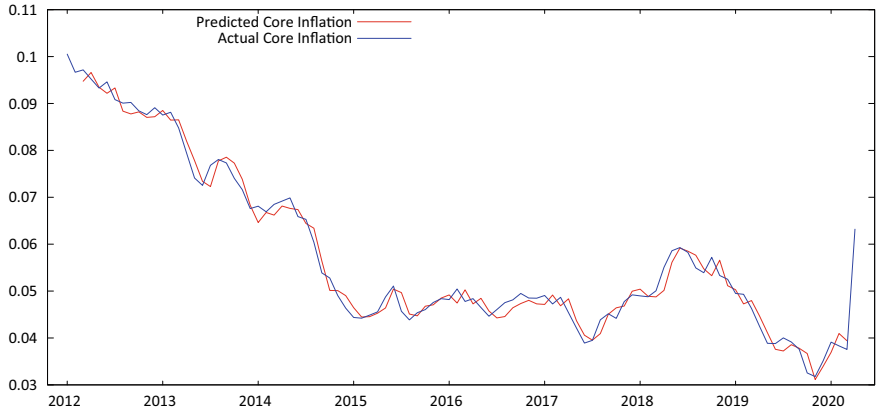

Fig. 7.2 Core inflation (actual and predicted by food and fuel inflation)

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 2 months since the COVID-19 crisis is removed from the data].[6] That the model predicts the core inflation rather well may be seen from both the Adjusted R-squared and the AIC. See Fig. 7.2 which brings out the trace of the actual core inflation and the model predicted one period ahead core inflation.

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.[7]

[6] 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 section "A broken compass (or is the CPI useless?)" later in the chapter.

[7] 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 actions amount to ad hoc 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. Alagh, M. (2011) has been calling attention

7.8 Addressing Demand-Side Inflation

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

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

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[8] 1- and 2-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 that the deviations have no bias (zero mean).

7.9 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 eight 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).*

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to not only the terms of trade of agriculture in its overall performance, but also of the relative prices of crops in explaining the shifting cropping patterns.

[8] This cannot be any regression model but a structural model which is capable of out sample (true) predictions.

But actual inflation averaged only 2.6% over the six months".[9] 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*".[10]

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

7.10 Expectations Survey

The RBI has put much weight in survey-based assessment of the inflationary expectations,[11] without as much as a check on whether these anticipate the future CPI or are actually mere projections of the past. Not only so, they also differ from the actual inflation by a wide margin. It is difficult to understand the RBI using these so called expectations since a good test of expectations is that they deviate from the realized values with a mean that is close to zero (See Fig 7.4). 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 monthss 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 four 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 7.2.

Here, we have estimated the equation below:

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

Thus, the 3-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 1-year forward expectation from the household survey, the relevant equation that checks the ex post veracity of the survey is

[9] Kundu (2019).

[10] Nayak (2019).

[11] 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.

Table 7.2 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	

Source Raw data from CMIE, EOI, Computations by author using GRETL.

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

The 1-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 7.3 The 1-year ahead forecast is better since the current inflation (agriculture driven acting through its weight) is passed thru over a 1-year period, and the households are able to project current inflation as the expected 1-yr ahead inflation.

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 sub-model 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 6 months ahead as said before.

Obvious inputs to the agricultural sub-model would be the Minimum Support Prices (MSPs), rainfall, sowing, stocks, etc. 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 besides the macroeconomic actions to influence demand has to be incorporated since there would be an income (production) elasticity in the demand for fuels Fig. 7.4.

In contrast, the Business Expectations Survey of the Indian Institute of Management, carried out regularly by Prof. Abhiman Das is better able to expect the actual inflation having a downward bias of about 1%. See Fig. 7.3 which is Chart 1 of Das (2021). It maps the core inflation if the effect of the Pay Commissions is taken out as may be seen by comparing with Fig. 7.9 below.

Table 7.3 Regression results of expectation of 1-yr forward inflation (Forwarded by four Quarters) on current and past inflation (CPI2001)

	Coefficient	SE of estimate	t-ratio	P-value	Sign
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	**
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	

Source Raw data from CMIE, EOI, Computations by author using GRETL.

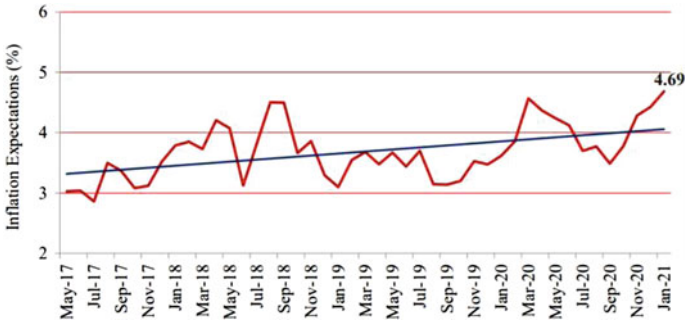

Fig. 7.3 Inflation expectations, IIMA survey. Source: Das (2021)

7.11 Inflation Pass Through

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. Only supply-side inflation change transmits by direct pass thru effects, independent of the output gap. The supply-side inflation causes its own gap in reverse 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

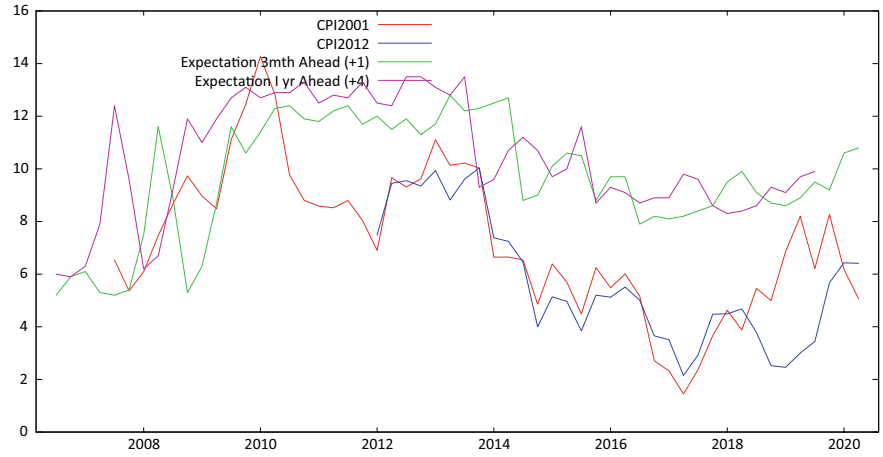

Fig. 7.4 Inflation expectation (mean of hhs) and realised CPI inflation

overall growth it was possible to reduce the consumption of oil and hence a least in part and for a while. In order to keep the march of inflation emanating from the supply side, to only a pass thru, and to prevent any feedback through expectations, a partial tightening made 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 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 favor 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.[12] 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[13] but also 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 that thereby the humongous growth potential of manufacturing in the country goes unrealised.

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

[13] 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 pulses.

7.12 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. The RBI on multiple occasions has mentioned that it has no control over food and fuel. However, it is mandated to worry about food and fuel because, in the pass-thru, it believes that there can be rise in 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. The constant term is a mere 0.2% per annum which goes away if the COVID-19 period is excluded.[14] 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 COVID-19 crisis.

To repeat, ifwe consider the 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

[14] 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 COVID-19 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.

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.[15]

7.13 Specificities Need Recognition

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 Fig. 7.6 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 Fig. 7.5.

To put in a somewhat different way, the rise (and fall in the core 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) 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 terms, besides money supply aggregates, such that the re-forecasted an inflation level at varying periods ahead (6, 12, and

[15] 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.

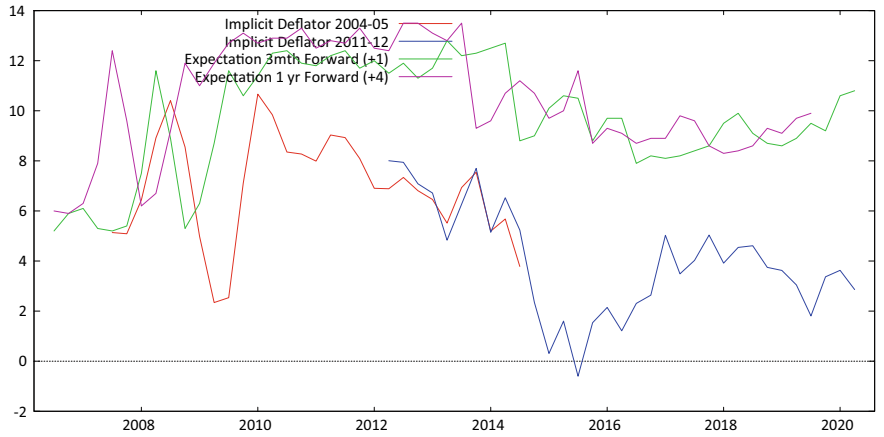

Fig. 7.5 Inflation expectation (mean all HHs) and implicit deflator

Fig. 7.6 Terms of trade of the agriculture sector with the rest of the economy

18 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 six 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 9 and 10. 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, inflation came down largely because of the supply side having improved with agriculture growing quite rapidly from 2013 to 2014 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 to 2014 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 program can directly affect the poor. who have small and declining income elasticity of food even today.

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 thereafter, 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.

7.14 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 Labor 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 Labor Bureau (2006). See Fig. 7.7 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 Fuel 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 came down before the COVID-19 is also puzzling. Clearly in this, it could not have been the effect of a pass thru of commodity inflation.

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 Fig. 7.8. 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 late 2009, 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

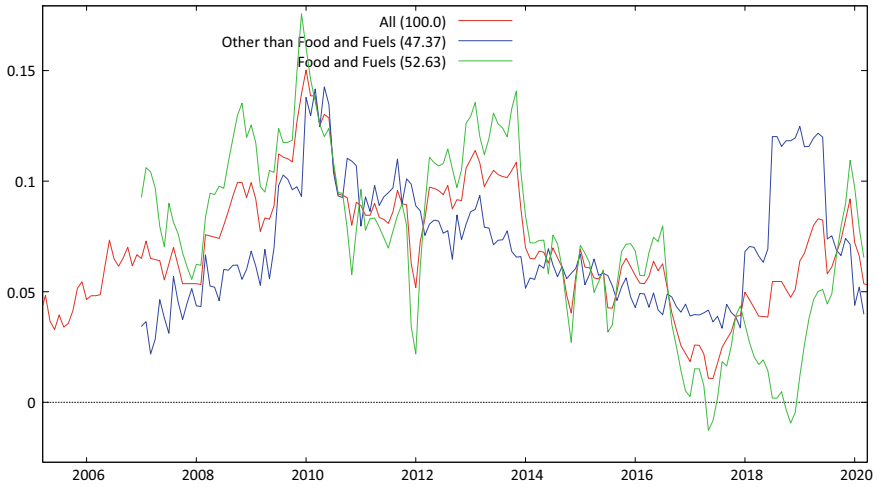

Fig. 7.7 Inflation CPI 2001: all items, food and fuels, other items

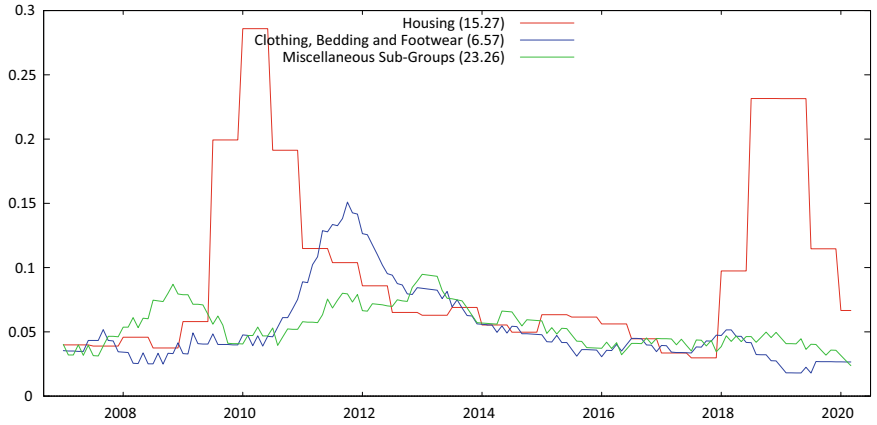

Fig. 7.8 Inflation CPI 2001: housing, clothing etc., and miscellaneous sub-groups

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?

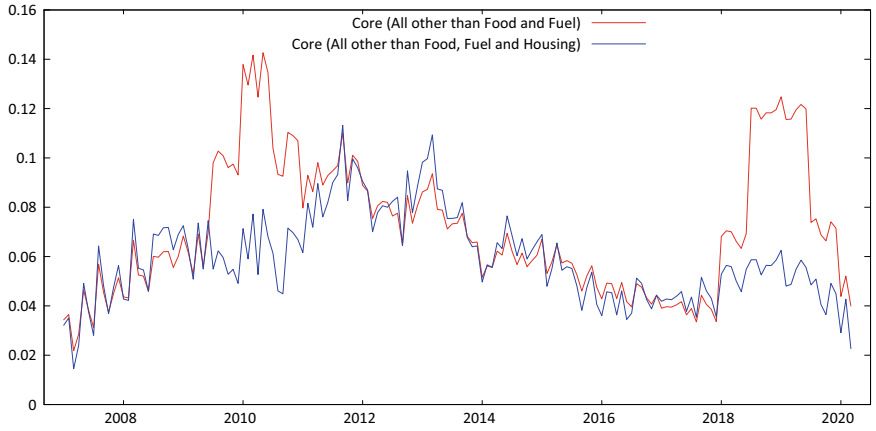

Fig. 7.9 Inflation in adjusted core (all items excl. food, fuels and housing) in CPI IW 2001

7.15 Pay Commission Implementation and Distortions in the Core Inflation

Apparently not if the "caution" flagged by the Ministry of Labor is to be understood. In estimating the "price" of housing the CSO/Ministry of Labor 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.

This anomaly 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 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.

Moreover, to use the same to impute, the "rates" to all rentals of the second and third types 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 August 29, 2008, and July 7, 2017[16]. 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 counterpart is the total income of the household.[17]

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 labor 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).

7.16 Adjusting for Rents

Once we adjust the core by removing housing, we see the see the core to be closer to the expected behavior. See Fig. 7.9. Even then, the very sharp rise in 2011 end

[16] Vide GOI (2009), GOI (2017)

[17] It also raises 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 neturalized. 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 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.

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 Fig. 5.1 again. However, the rise in inflation of clothing 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.[18] 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. Dholakia (2018) as early as 2018 pointed to the problems of the CPI as a measure of inflation. Thus: "*The current practice of measuring the inflation rate from fixed base weight index is outdated and likely to overstate inflation substantially compared to the chain weighted index used in developed countries. Similarly, the treatment of house rent allowance revisions to estimate the housing Consumer Price Index also significantly overstates the headline inflation. Economy-wide inflationary expectations also need proper measurement. Inflation-targeting framework without proper measurement of inflation rate can involve very high real costs and make the policy counterproductive*", which I had missed. Strangely though policymakers seem to have ignored the caution.

7.17 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 action 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 Fig. 5.7. 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 for short duration loans for the banks. The repo window was not open enough to allow the market to remove the gap by increased bond 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 banks

[18] 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 6-month gap to elicit rents in (rightly) justified by the CSO as "However, when the resulting rents of its housing index shows a jump".

had securities but could not use them for repos. 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. It thereby increased 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 give a 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.[19] 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 the lowering of low-end rates to the middle and higher ends.

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 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 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 Figs. 5.11 and 5.12. 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

[19] 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.

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 BFSIs and governments.[20]

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 are 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 design of regulation to a laundry list of items (with many of these being actually internal to a regulated business) to check, further displaces 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.[21] The potential ability of the mangers to work towards task performance, with the requisite changes in their interface with government and with the regulation actually quite good.[22]

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

[21] 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.

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

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Chapter 8
The COVID Crisis and Response

8.1 Before the Crisis

8.1.1 Growth Had Slowed Down

What was the situation just before the crisis? We have already brought out the situation in much detail in Chaps. 2–7, but it is nevertheless useful to recall the same.[1]

The IIP (Manufacturing) after growing at about 5% till 2018, had slowed down to about 3% till mid-2019 to fall to -8% in November/December 2019, rising to 5% just before the crisis. Worst performance was that of the capital goods sector, which reached a (de) growth of -18% over mid to late 2019 recovering to a level of -10% on the eve of the crisis. Only intermediate goods (at 20%) and primary goods (6%) showed a modest recovery. Consumer good never recovered from the delayed effects of the demonetization. See Table 8.1

The auto sector—a sector that through its linkages is very important for manufacturing—had seen a precipitous collapse to -30% all the way from the early 2018 (which had seen a bounce back from the demonetization) and bump up end 2019, but still negative (−19%). See Fig. 2.9.

Container movements had risen to 10% in early 2020 just before the COVID Crisis (to collapse to -20% in the first month of the crisis). See Fig. 2.10.

Exports had fallen from a high growth of 20% in 2018 (when world demand had been high) to 0% before the COVID Crisis and the early COVID Month brought it down to −35%. See Fig. 3.9.

Electricity consumption fell to 0% in March 2020 and then to a collapse. And capacity utilization was below 45% in the depths of the crisis. See Fig. 2.17.

[1] The very same analyses in this chapter had been presented in two seminars. See Morris, Sebastian (2020a, 2020b, and 2020c).

S. Morris, *Macroeconomic Policy in India Since the Global Financial Crisis*, India Studies in Business and Economics,
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Table 8.1 Growth of index of industrial production (IIP) (% per annum)

S. No	Groups	Weight (%)	Annual			Monthly	
			2016–17	2017–18	2018–19	Jan 2020	Feb 2020
1	Mining	14.373	5.3	2.3	2.9	4.3	10.0
2	Manufacturing	77.633	4.4	4.6	3.9	1.6	3.2
3	Electricity	7.994	5.8	5.4	5.2	3.1	8.1
4	General Index (all)	100.000	4.6	4.4	3.8	2.1	4.5
	Used based classification						
5	Primary goods	34.050	4.9	3.7	3.5	1.8	7.4
7	Capital goods	8.220	3.2	4.0	2.7	−4.3	−9.7
8	Intermediate goods	17.220	3.3	2.3	0.9	15.9	22.4
9	Infrastructure/ construction goods	12.340	3.9	5.6	7.3	−2.3	0.1
10	Consumer durables	12.840	2.9	0.8	5.5	−3.8	−6.4
11	Consumer non-durables	15.330	7.9	10.6	4.0	−0.3	−0.0

Source https://eaindustry.mic.in/iip/IIP_Hightlights.pdf

8.1.2 Inflation Was Low

CPI Inflation as has been the case for long co-moved with food and fuel inflation. See Fig. 5.1. Overall, core inflation had been falling since 2015 (5.5%) and before, to reach the lows of 4% in June 2017 and again in December 2019 (3.5%). Food inflation had been falling since 2015, but showed a sharp increase in 2019 in the run up to the elections, and thereafter as the spending incl. on MGNREGS was revived and Direct Benefit Transfers (DBT) introduced, in the face of weakened logistics. And then fell again as MGNREGS post-elections was reduced. But since the core is problematic as described in Chap. 7. See Fig. 7.9, which corrects for the error in the CPI the core may have only marginally gone up in 2019 to about 5.5% before falling to nearly 2.5% on the eve of the crisis. Real interest rate which have always been higher than 3% may have reached a high level of 4.5% end 2019, but had fallen since but remained at around 2% positive when measured with reference to the core.

8.1.3 On the Monetary Side:

(i) Yields in government bond markets rose during 2018 to reach as high as 8.25% (10 yr) and fell only from later 2018 to mid-2019 and again rose (!) to 7.25% end 2019 to fall thereafter to 6.775%. And the 1-year bond fell to 5.1%. But

these rates were very high in relation to the global markets, well above the depreciation of the currency, and even with reference to the core inflation in India.

(ii) Corporate bond (AAA) yields began to fall only since late 2018, but remained high with spreads from government bonds increasing. For AA bonds, the yields began to fall only from mid-2019.

(iii) With the COVID, the "policy rates" repo and reverse repo were brought down sharply by the RBI, however, the 1-year bond yields while they did decline continued to be above the repo rate with the yield curve steepening even as the 3 month and 1 month t-bills were being collared. Thus, the RBI's Targeted Long-Term Repo Operations (TLTRO) measures to buy long were to take effect. See Fig. 5.11.

(iv) Measures of uncertainty had been rising since mid-2019 as the NBFC and banking crisis had not been addressed correctly. After falling a bit in late 2019, just before the eve of the crisis they rose again sharply again. See Fig. 5.12. The impact on the corporate bond market was even larger as the yields between longer 10 yr. and shorter duration bonds widened.

8.1.4 Stimulus Withdrawal and Monetary Tightening

As we said and built up in Chaps. 2–7, the trends and features that were already there before the COVID Crisis need to be recalled. The slowing down of growth had been happening since 2012–13 with only a bump up to the growth in 2018, thanks to the recovery from the demonetization, a higher growth acting through exports of goods and services due to the higher growth of the World economy in 2017 and 2018. The period from 2011–12 may be characterized as the longest period of slow growth since the Great Liberalization in 1991–92 and 1992–93.

Withdrawal of the fiscal stimulus in the wake of the GFC in 2009–10, 2010–11, and from 2011 to 12 onwards, with the added whammy of monetary squeeze as well, were the immediate causes for the growth having come down from the high 9% or so from the period of the stimulus. Interest rates had risen to very high levels in this monetary squeeze. The RBI was no doubt chasing an "inflation" that had risen over 2011–12. But this was partly a "will-o-wisp" since it was based on the error in the measurement of the house rentals, which pushed up the measured core inflation, and partly an inflation than needed to be accommodated. The RBI had maintained a large positive real interest rate given its inflation targeting and the erroneous measures of both the core inflation and inflation expectations, as we argued, till almost the very end of the period. The RBI's approach to the taper tantrum in 2013—allowing the liquidity to dry up—further contributed, by raising bond yields. Since then for almost up to 2016–17, the low-end bond yields were not being collared by the repo, indicating that the repo window was not open enough to render the repo as the policy rate.

8.1.5 Conservative Government Spending

On the fiscal side, the overriding pursuit of the fiscal deficit targets by the central government was certainly an important factor putting downward pressure on demand. The government's spending may have been constrained by the high growth that the new national income GVA 11–12 series showed. This was as much as 1.5% above the reality, at least in the first 5 years of the series. Added to that was the delay in spending in the first 2 years of the Modi government that resulted in significant underspending to add to the recessionary pressure. MGNREGs expenditures remained constrained till just a wee bit before the 2019 elections, and after the elections was scaled down to be at a low Rs. 20,000 crore. The budget for 2020–21 on the eve of the COVID Crisis provided for a mere Rs. 20,000 crore. Only the new Direct Benefit Transfers, the continuing expenditures on the NHDP and the PMGSY kept the economy going at the modest growth rate. Private investment cycle did not revive and continued to be muted growing far slower than ever since the GL, from 2011 to 12 onwards. Demonetization further contributed to the recessionary pressure but not as much as was expected since the decline in consumption expenditures following the decline in the incomes of the unorganized/informal sectors was much delayed.

8.1.6 GST Raised Effective Tax Rates

GST raised the "effective" tax to GDP ratio quite significantly given the difficulty of avoidance of tax. This happened over a period of around 18 months since its introduction. The "effective indirect tax rate" had therefore increased, and this put the economy into a slowdown with the growth falling from mid-2018 onwards until the eve of the COVID Crisis to reach a low 4%. There was no recognition that the higher effective tax rates should have been accompanied with either lower rates or enhanced spending elsewhere. The government congratulated itself on the increase in the tax to GDP ratio, and placed demands on the tax authorities at a time when the nominal GDP was rising by a mere 9% or so, resulting in continuation and perhaps heightened high-handed behavior on the part of the tax department and to increasing uncertainties which made "animal spirts" lose it last breadth on the eve of the crisis.

8.1.7 Ineffective Corporate Tax Cut

Unfortunately, the government with a view to revive private investments, on September 20, 2019, announced a major reduction in the corporate tax rate from about 30% to 22% making the effective tax rates about 25% when the cess and other distortions are taken into account. For new companies the reduction was from 25

to 15% making the effective rate fall by 10% to about 17%![2] In an environment when demand was sluggish and uncertainties high to which the government too was contributing, this tax cut could not have done anything to private investment at least not in the immediate term. The corporate sector made windfall gains, the market capitalization went up. But obviously as was expected by nearly all commentators, there was no spur to investment. Around Rs. 1.45 lakh crore was the give away. The same had it been spent on actual expenditures, or laid out in the form of a (time barred) investment tax credit overriding MAT could have had a more positive impact on investment spending.

8.1.8 Rise in Uncertainties

Policy uncertainties especially on the more important auto sector with regard to the future with an early rumor that government would ban diesel soon sent shivers down the industry. Higher initial cost of purchase on account of tripling of insurance was also a dampener in the demand for cars. Government was also prone to knee-jerk responses. Tax authorities continued with tax terrorism despite the explicit promise that tax terrorism would be a thing of the past, made by the Finance Minister of Modi-I.

Uncertainties went up and the most important reason for the same was that the problems of the banking sector—especially their need to shore up their net worth—was addressed in part, and only with much delay. The RBI's attempt to work through the banks by increasing the liquidity available to them and the policy rates, would not immediately affect the longer duration (5 yr) government yield, not to speak of the corporate longer duration bond yields or the expectations. Sustained low policy rates with ample liquidity and belief that the same would continue for a while is important. As said before, the very interest rate targeting which makes the RBI respond to inflation (the short period variance here being entirely due to commodity prices) rather than the expected inflation in the core, is not conducive to formation of expectations of the long period rates especially on a movement to a lower level. Thus, the measure of the slope of the yield curve rose during the first 3 months of 2020 on the eve of the crisis, when the RBI had been on a path or rate reduction.

By March end, despite the 1-month TB rate falling, the long-run rates did not fall, not to speak of the corporate bond yields. Thus, it was clear that the RBI would have to act directly on the financial intermediaries if not on the non-financial corporations shoring up their liquidity and hence their solvency over the crisis. But the reaction of the RBI was to work through the standard routes of the repo and reverse repo. That the 1-month TB bill rate fell below the reverse repo meant that this was a real reduction rather than a reduction with credit rationing under the repo window as the RBI had been wont to do earlier. See Fig. 5.7.

[2] See Business Today (2019).

8.2 The COVID Crisis and the Response

8.2.1 Contagion Was Limited

This time around despite the crisis that should have led to massive capital flight from India (any developing country), two important differences from the GFC may have prevented any significant contagion. The COVID crisis was universal, with all including the developed countries facing it, a little earlier no doubt. The developed countries led by the US and the UK, where it hit early (other than Italy and Iran), responded quickly and without hesitation with ample liquidity and a lowering of the policy rates. They were able to bring out the change in expectations rather soon. This may have resulted in a pressure for inflows, and the RBI by buying up dollars was able to maintain M1 and M3 on trajectory. The NFA had been falling in the immediate pre-COVID months.

The only problem with the initial measures of the RBI was that the liquidity flow to the NBFCs and the productive sector was delayed somewhat, which it could have done by acting directly instead of through the banks. The measures to put a moratorium on loan repayments warded off a crisis that could have widened quickly. The large liquidity measures which resulted in the fall of low-end rates and the introduction of longer duration repos at lower rates, meant that the beginnings of the expectations that higher end yields would fall in sync was on, to shore up the economy.

8.2.2 Prime Minister's Initiative

The lockdowns were more knee-jerk and poorly implemented. It could not have been otherwise given the essential weakness of the police and territorial administration to strategize. The prime minister's initiative to have a complete switch off of all lights, on April 5, 2020, precisely at 9.00 pm, to use the occasion to build "unity" and consciousness among the people with regard to the crisis may have worked in the long run, but immediately the prospects of a near disaster was in the offing. It was avoided by the quick response in gearing up by the electricity system engineers after the PM had blissfully announced the "people's measure" a couple of days before. Engineers realized that the measure could bring down the load by as much as 15% over minutes, which no system could have handled on automatic controls. A shutdown in one area could have led to cascading effects.

Mercifully, the engineers were all on site at power plants, at key switchyards and load dispatch centers. With (redundant) communication arrangements and they were able to meet the situation—both the switching off and the (re)switching on of the lights. Actually as it turned out, the load fell by more than 20% to about 32% since many enthusiastically switched off not only fans and lights but also other devices (some fearing high-voltage and -frequency variations), and not only at homes but

also in commercial organizations as well. Within the IIT Bombay Power Group, this episode was widely discussed, with some expressing shock that a risk of such a nature was imposed for pure symbolic value. See also Gothwal (2020).

Earlier on March 22, the PM had asked people to "clap, blow conch or ring bell for 5 min to commend the efforts of those fighting the pandemic". Bhaskar (2020). These occasions allowed people to gather to only enhance the spread of the virus, which by then was known to be highly contagious. Mercifully though, except in Gujarat and Mumbai, the virus may not have been seeded this early in India.

The lockdown (the first of many) from March 25 all the way to April 14, and then extended in many parts was quixotic to say the least. Even chemical plants were hastily shut, without the usual precautions, so that in their reopening many months later, many lives were lost in explosions and leaks. Reports indicated that there were accidents reported from most chemical clusters with large plants, Gujarat and Andhra most notably. At least 75 people were killed and over a 100 injured according to the Global Workers Union due to the hazards faced in restarting these plants. Continuous process industries should never have been shut anyway. Cf. Thakur (2020) and Hindu Business Line (2020). In a country like India, the deaths would be significantly in excess of the reported deaths, since many of the chemical plants are in the small-scale sector, where safety is hardly a priority. The latter source also seemed to think that 75 was only a conservative estimate of the deaths.

8.2.3 Dysfunctional Lockdowns

The actual conduct of the lockdowns may have resulted in quicker spread of the virus. Lockdowns meant that entire habitats were shut, with local authorities vying with each other to shut everything including even basic transportation and even sale of essential items. When within a week these had to be allowed, shops could not be kept open for more than a few hours. This forced people to come out at the same time to crowd around shops to actively spread the disease! To the police, shutting down precisely at the end of the period was all that they were worried about. All over the country the crowding to buy essential goods was amplified by the fact that in most places shops and convenience stores were allowed to be open for a few hours—usually less than 4. It was not surprising that the Indian administration responded so inanely.

In larger markets in densely populated areas, people could not have spaced themselves to keep distance between them. The crowding due to the limited timings, was so complete, that even if one person had the virus it would have spread to many in the scores or hundreds. Therefore, wherever the seeding had been done (Gujarat, Maharashtra, Delhi—with much international movement in the months before March) the spread was accelerated over what it need have been.

It was also an opportune period for street and traffic police to enhance their haftas. They were hardly bothered about ensuring social distancing. But were keen to catch people in cars even a couple when without a mask/or a mask not exactly on the face.

All because they could extract heavy haftas, while crowding went around among poorer people whose small purses did not merit their attention.

Except in Kerala, there was little attempt to do contact tracing, Lockdowns could have been local and more specific had contract tracing been done. Instead from the very beginning, it was city and nation wide, and territorial rather than functional.

8.2.4 Fractured Markets

Given the territorial orientation of the administration, the extreme loss in production, and the wastage of perishable agricultural products was considerable. City prices for perishables and soon even for non-perishables, rose while the rural prices were depressed leading to a fracture in the markets.

The RBI though understood the same correctly and did not respond to this "inflation", but the markets basing itself on the past behavior of the RBI to respond to every movement in commodity prices, for a while thought otherwise. The COVID Crisis was both a supply-side and a demand-side crises. But in India, the production shortfalls were enhanced due to the totality and territoriality of the shutdowns. For quite a while, the "essentiality" of the service or the consumption was the only criteria for allowing their supply or movement. Soon enough as stocks got over, movement of goods had to be allowed, and later inputs to essential services and goods with much reluctance on the part of the authorities.

8.2.5 Middle-Class Delight

A section of the middle classes (those with government jobs and on permanent contracts) had a gala time in having 3-month-long 'near holidays' some 'working' from home. Others on daily contracts suffered hugely. Senior government officers worked without a break. Gated communities, behaved as if in a dystopian world to put those dependent on daily work to tremendous hardship. The tragedy was that the administration and the police being influenced in their actions and rules by this kind of immediate knee-jerk reactions of the salaried middle class, did large damage to the economy but particularly to those dependent upon daily work.

8.2.6 Migrant Labor

Vast hordes of migrant workers began to move back to their homes, often trekking, hitchhiking, and cycling over large distances—even the most basic of transport had been shut—in the millions. And reports of these endless stream of workers on the march and on cycles on empty roads and along railway tracks with no trains began

to come in. Only then did the administration became aware of the extent of the migrant labor in India's production. It was to the yeoman efforts of a large number of NGOs and groups of do-gooders which emerged spontaneously to feed the migrant workers, and give them rations, that a human tragedy was averted. Even their meagre savings were of little help since the lockdowns meant that the usual cheap eateries and restaurants from where these mostly male workers ate were shut. The government did not even have a sense of the order of the numbers involved.

There had been many studies and reports on migrant workers, both official and secondary. However, the government being entirely territorial in its thinking, could not have contended with the aspect of migration, being unable to conceive anything beyond the "model" of a worker domiciled in a particular place, with a firm address, and living with his family. For a comprehensive study of migration in India, see Tumbe (2018). One of the ways of reducing union activity was by resorting to migrant workers. The combination of the schism in the labor market (an elite organized work force with long-term contracts or permanency and an "unorganized" labor market with no formal contracting, and where wages were paid by the day) and the great regional disparity in industrial development and economic development had in the era of rapid growth since the GL, resulted in vast migration and growth of informal arrangements by both government and PSUs not to speak of the private sector. (Unni 2018). The construction industry was almost entirely based on unorganized workers on daily wages, and predominantly of migrant labor from the poorer parts of the country. All these facts had been widely known, but not for the government—not even the labor departments.[3]

The potential of the workers to carry the disease back to the villages and the interior with very inferior medical facilities was very high but mercifully for the country the seeding of the disease among the workers even in the locales in states like Maharashtra Gujarat, Delhi, and Haryana was low.

8.2.7 Territoriality of Restrictions

The ludicrousness of the territoriality was on display when in the vast agglomeration of Delhi, the borders between Delhi proper, NDMC, UP, and Haryana were all closed, and even doctors and nurses had great difficulty in crossing! And it took many months for a resolution! People one side of a road seeking to access or provide services just across these "borders", in another state were put to much hardship.

Once the universal lockdowns were lifted, lockdowns on the diktat of local authorities began. Movement was also restricted given the territoriality. Areas open, with input–output relations with each others, could not restart production. Many of the

[3] It did not shock me when a certain industry leader from Jharkhand called me to say that it was now that he and the labor department of Jharkhand became aware that there were more than half a million migrants from Jharkhand who had been working in Gujarat alone. Gujarat itself may have housed nearly 2.0 million migrants from outside the state on the eve of the pandemic.

industrial clusters including the auto clusters hoping to start had to shut again even if their vendors were in open areas, since the material would have to pass through areas under lockdown which essentially meant no movement. In some instances, employers waited for the migrants to return but they could not have given the restrictions on movement, and the free or all erection of barriers.

8.2.8 Knee-Jerk and Emergent Response

Since the seeding of the virus had just about started, preparations could have been made, and the approach coordinated for efficacy, before rushing into a thoughtless universal lockdown, whose dimensions emerged only as the chaos unfolded. The opportunity to strategize the response was missed. The migrant labor movements were entirely chaotic. So was the organization of the medical system. Here though, the valiant personal response of doctors and nurses, but also ward boys and drivers, helped to mask the disorganization and lack of control of the medical system as such. Indeed, the person dependency of the Indian 'system' in contrast to the system dependency in many of the advanced countries may have been an advantage in these initial days, when the learning had yet to happen. Doctors and nurses were overworked, but continued to serve with few breaks. Many who had been shabbily treated by the government and were in dispute with the government, when they were bought back, worked without salaries for months on end, on the promise of a notoriously fickle governments to keep to their promises. Would the "system" be able to cope up in the face of continued rise of the infections and fatalities?

8.2.9 Employment Scheme for Workers?

The issue of migrant labor and their movement could have been addressed. Much of the movement of the labor to their villages and home towns in East and Northern India from NW India centered around Delhi) and South India (especially Kerala, Karnataka and Tamil Nadu) and West (Maharashtra and Gujarat) happened when the main transport systems—railway and buses were shut. The government had no clue of the extent of migrant labor.

Many including the author argued very early for a quickly putting together an employment/hold out scheme on the lines of MGNREGS with somewhat higher wages in the urban and industrial areas in the destination states. At least in the more important industrial clusters, and for construction sites, this could have been instituted. Indeed, construction particularly could have been kept open, and the associated services and industry—cement, movement by trucks also.

Migrant labor are typically on daily contract even if they are work on the same site for many months and even for years on the same project or in the same company. Many are hired through labor contractors, and the hiring is on requirements that

can change by the day! So much for the lamented lack of labor market flexibility in India. So, a lockdown of the total kind which happened threw all workers on to the streets. Many, whose employers/contractors were willing to pay them subsistence wages over the lockdown, nevertheless had to move. These workers were dependent on canteens and messing arrangements run by informal businesses on site, which were all closed by "order" of the state, forcing even these workers to begin the long hike back home.

Of course most could not have afforded the maintenance of two households, now that they had no incomes, and could only think of going back home to save on expenses. That the workers could not hold on for even a month without income speaks of the precarious nature of their income, and points to the small differences in wages rates that attract blue collar and informal sector migration.

It was only much later that the government could even think of allowing rations to be drawn by migrant workers, or even of food packets for them. NGOs and do-gooders, some restaurant owners, in a large measure took care of the migrant workers food needs along their arduous hike routes, often when under attack of insensitive policemen. In the decision-maker's mind-space, there is no place to understand the life of a migrant workers. Actually, hawking by people who come from far and stay in hovels, or return back to cheaper locations is very large, especially in the larger cities.

8.2.10 Simultaneous Demand and Supply Shock

The COVID Crisis even early on was realized to be different from the GFC. It was there everywhere in a matter of months, and lockdowns or restrictions of some kind were in place almost universally except in China. That significant production would be lost was obvious. In India, given the severity and the total aspect of the lockdowns, production was expected to suffer even more. Production restrictions in the rest of the world can clearly be expected to manifest itself in in falling demand operating through the exports of goods and services, and this is true for all countries, so that the demand effects were to be a minimum of 15%[4]and most likely at double this level, given the feedback effects. However, unlike the GFC, the uncertainty was not quite fundamental, since the impact of the virus on human lives was miniscule and not enough to affect production had it been spread uniformly over a couple of years (that the pandemic was expected to last). But pandemics are never uniform and their bunching with a Verhulst expansion (exponential growth and decline as immunity builds up) results in overcrowding of facilities, and many deaths happening together. The lockdowns and restrictions, are necessitated by a society that lives in the media, because otherwise governments would be seen to be doing nothing or to be "killers". Thus, emotive and hasty reactions are inevitable anywhere, as well as panic reactions too in the face of uncertainty. In India, it was imperative for the government to be

[4] On account of 2 months production losses, and with a multiplier of 2, around 30%.

seen to be doing something, and the severe lockdowns pacified the middle classes whose weight in public opinion is all too often out of proportion to their numbers. Hence, the output over much more than a quarter was expected to be nearly lost.

8.2.11 Summer Harvest Escapes

It is to the credit of the government that the summer harvest went almost as usual with no interruptions so that storable products—grains, potatoes, and such commodities were unaffected. The movement from the farms to the granaries was smooth and without interruptions. Meats, and vegetables suffered, but in emergencies most Indians can make the quick transition to living off staples with very little vegetables, and meats to go by. Milk production too was unaffected with the dairies, led by Amul showing the way. There was not even one day when milk was not available in most Indian towns and habitats. So it was only to be expected that the fracture in supply chains on vegetables would drive a local (urban) inflation and that too only temporarily. The shut down on of travel, hotels and tourism was nearly total all over the world. In India the share of these sectors is significantly lower. So had the lockdowns not been severe and of the nearly total type the impact due to the supply disruptions in a more scientific and coordinated approach to the COVID Crisis could have been expected to be lower.

8.2.12 Infection Patterns

The rise in infections follows the standard Verhulst pattern of growth and then decline. However, mutant variations could create secondary waves. In India, the original seeding was in Delhi, Mumbai, and Kerala, and possibly in Ahmedabad and Pune, from where the spread would have taken place. The Indian population is sharply divided into class groups that cross interact only in a limited way, and social greetings involve minimal touch, and the use of public transport except in Delhi and Mumbai is minimal by people coming in from abroad. Contact tracing in the initial days rather than complete lockdowns, with personal and para-transport being kept open would have worked to slow down the growth to a rate that was manageable by the medical system. The data on Indian infections even as late as October of 2020 did not show the pattern of a decline in the rate of growth of the cases, suggesting that the period of seeding of different weakly interacting populations would go on in a phased out manner than all together as smaller countries and those with interactive population would show.

First would be the urban populations centered around the early infection areas, next the second-order towns, and much later would the rural hinterland come to be affected. With the ban on public transport, this would surely have been the case. But the permission to hold political meetings and religious gatherings possibly negated

all the possible gains in terms of slowing the spread that was won at great cost to the economy, with seeding taking place in the deep hinterland. The fear that the migrating workers would seed rural India very quickly was real then, but with the benefit of hindsight this was not to be, since the movement had happened well before there was a significant prevalence of the virus in the main urban and industrial areas which had attracted the migrants, in the west, northwest, and southern parts of India.

From the standpoint of the impact on the overall economy, the crisis and the lockdowns was expected to result in vast cutback of production, fall in exports, and demand constraints forcing closure of many industries involving the gathering of many people in one place—restaurants, travel services, hotels, public entertainment, sporting, etc., with the spending multiplier effects. Since the initial impact was both on the supply and on demand, the overall impact using standard multiplier models would be problematic. Nevertheless, broad estimates of the overall magnitude of the impact, without any government or central bank response (other than that to shore up the payments mechanism) is necessary to assess the measures, including the stimulus undertaken by the government in conjunction with the central bank. We had earlier brought out that it was the fiscal stimulus of the governments in China and India that allowed these economies to come back on track with almost the same growth rates as before the GFC, and not due to any special nature of these economies.

8.3 Anticipating the Effect Through a Model

Very early, we had used an extended expenditure multiplier approach to assess the likely impact starting from a 15% decline in the exogenous components of demand, including net exports, and with the government spending remaining the same as what was budgeted. This is the base case. Then we considered various possible modifications to the same, such as a fall in autonomous consumption, and various responses of the government. The multipliers were estimated. And the impact of the COVID was estimated as also the fiscal stimulus required to moderate the fall in the GDP. Here, we report the results of the analysis.

We start with the standard market clearing equation of income from production being cleared through equality with expenditure.

Thus, $y = c + z + g + exp - imp$, where y is the GDP and c, z, g, exp, imp are consumption, investment, government expenditure, exports, and imports respectively (including of non-factor services), and CrT the current transfers from abroad.

Now we may write.

$exp = X_o$, $z = Z_0$, and $g = G_0$ as on the eve of the crisis, obtained from the data.

Similarly, $= M_0 + m \cdot y$, the standard import demand function, where M_0 is the exogenous term in the estimate for the import function in the year before the COVID (2019–20, assuming that March is normal). M_0 and m are estimated from the data for the previous 5 years, such that the overall imports are the same as that given by the estimated function for the year 2019–20.

y_d, the disposable income of consumers. And $c = A_0 + b \cdot y_d$, with the estimates of A_0 and b being determined by considering the last 5 years data with the overall consumption expenditure being as on the year before the COVID Crisis.

Now,

$y_d = y + NFI + CrT - depr - ibt - ct - pt - re$, where $NFI, CrT, ibt, ct, pt, re$ are the net factor earnings from abroad, the current transfers from the rest of the world, the indirect business taxes, corporate taxes, personal taxes, and retained earnings of corporates. Furthermore, we may write

$$\begin{aligned} ibt &= b_0 \cdot y \\ ct &= b_1 \cdot (y - depr - ibt) \\ depr &= d \cdot y \end{aligned}$$

$pt = b_2 \cdot (y - ibt - ct - re)$ the assumption being that NFI is not taxed.

$$re = s \cdot (y - depr - ibt)$$

Putting the values above into equation for disposable income, we get

$$y_d = y \cdot (1 - b_0 - (1 - d - b_o) \cdot (b_1 - b_2 \cdot (b_1 + s) + s) - b_2 \cdot (1 - b_0) + NFI + CrT)$$

Renaming $1 - b_0 - (1 - d - b_o) \cdot (b_1 - b_2 \cdot (b_1 + s) + s) - b_2 \cdot (1 - b_0) = \theta$.

$c = A_0 + b \cdot \theta \cdot y + b \cdot NFI + b \cdot CrT$ so that

$y = \left(\frac{1}{1 - b \cdot \theta + m}\right) \cdot [A_0 + b \cdot NFI + bCrT + G_o + Z_o + X_o]$, where the first term is the multiplier.

Since government investment spending is a policy variable, while private investments are "exogenous", we separate $Z_o = Z_{op} + Z_{og}$, where Z_{op} and Z_{og} are respectively private and public sector capital formation.

The above can be estimated under various assumptions for A_0, NFI, CrT, G_o, Z_{og}, Z_{op} *and* X_o, through which the expected shocks would acts on the real sector. The values of b, b_0, b_1, b_2, s *and* d, being estimated using the past 5 years data as an average or regression value. Then the exogenous or autonomous variables can be changed under the growth as usual, COVID-1, COVID-2, and stimulus cases to arrive at rough estimates of the expected GDP under various scenarios. The fiscal deficit and other such values can then be calculated for each of the scenarios. Table 8.2 below reports the value of the parameters used, derived from a variety of approaches that included regression, average values for the previous 3 years, a previous available value, or value for 2019–20.

Various simulations and scenarios were considered and the results are reported in the Table 8.4.

Item 1 of the table refers to the simulation that calibrated the model to determine the autonomous consumption to fit the actual GDP data of 2019–20 (the very quick estimates that was available then from the CMIE). Had there been no COVID and

Table 8.2 Values of parameters used in a model of demand determination of the short period GDP

Parameter	Formula/Regression equation	Symbol	Value
Indirect business tax to GDP ratio [average of previous 2 years]	ibt/y	b_0	0.0946
Corporate taxes/(GDP-Depreciation—Indirect Business Taxes) [latest available value 2018–19]	$ct/(y - depr - ibt)$	b_1	0.0481
Personal income taxes net/Disposable income of Households before net personal taxes [latest available value 2016–17]	$pt/(y - ibt - ct - re)$	b_2	0.0343
Retained earnings of corporates/(GDP-Depreciation—Indirect Business taxes) [latest available value 2016–17]	$re/(y - depr - ibt)$	s	0.1147
Marginal propensity to import [Regression estimate based on last 10 years data]	$Imports = M_0 - m \cdot y; m$	m	0.1700
Autonomous imports [Regression estimate based on last 10 years data for marginal propensity]	$Imports = M_0 - m \cdot y;$ $M_0 such\ that$ $Imports = value\ for\ 2019 - 20$	M_0	3.804 trillion Rs
Depreciation rate = Consumption of fixed capital/GDP at market prices [average of last three years]	$depr/y$	d	0.10
Marginal propensity to consumer [Regression value of last 10 years data]	$\Delta\ pfce = b \cdot \Delta y_d$ $y_d = y - depr - ibt - ct - pt + NFI + CrT$	b	0.7621
Modifier of consumption propensity	$1 - b_0 - (1 - d - b_o) \cdot (b_1 - b_2 \cdot (b_1 + s) + s) - b_2 \cdot (1 - b_0)$	θ	0.7689
Govt (consumption) expenditure [Value for 2019–20]]		G_o	23.988 trillion Rs
Autonomous consumption base	Estimated such that estimated GDP is the same as GDP 19–20	A_o	0.001 trillion Rs

(continued)

Table 8.2 (continued)

Parameter	Formula/Regression equation	Symbol	Value
Investment spending [2019–20]	Gross capital formation for 2019–20 (both public and private) of which …Public capital expenditure …Private capital expenditure	Z_o Z_{og} Z_{op}	61.590 trillion Rs 38.287 trillion Rs 15.956 trillion Rs
Exports	Exports of goods and services for 2019–20	X_o	39.011 trillion Rs
Net foreign incomes from abroad	Value for 2019–20	NFI	−2.215 trillion Rs
Current transfers from abroad	Value for 2019–20	CrT	5.120 trillion Rs

Source Author's computations. Raw data from the CMIE, EOI.

the exogenous variables including private investment government capital formation and government consumption expenditure grown at 5% (a reasonable expectation that was close to the budget estimates for 2020–21) the growth would have been 5% and the fiscal deficit within 3.5%—item (2).

Shocks to the system arise from changes in the values of the exogenous variables X_o, Z_{op}, M_o, NFI, $and\, CrT$ from their expected values had there been no COVID.

Although autonomous consumption is not treated as an exogenous variable, in this case, there could be consumption shocks coming from a fall in the consumption function (not induced consumption) as for instance when lockdowns impose wage losses. Autonomous consumption estimate for the base that gave consistent estimates with the data for 2019–20 is given in Table 8.2.

Once the income is determined under various scenarios, the fiscal deficit was estimated as the difference between government expenditure (consumption + capital) + interest payments—taxes collected which could also be estimated. This would be the fiscal deficit of the center and states put together, and is close to the budget estimates of 2019–20 though not to the revised estimates as they became available much later. The interest payments had to be estimated for 2019–20 based on the data estimated from Public Finance Statistics 2018–19, which was available in the public domain. This was done as a step up in nominal growth, though better estimates could have been done by working with government debt.

8.4 The Stimulus Package

Following the US which announced a stimulus package of about 10% of GDP, government of India too announced measures to address the situation. The US in its announcement had added the credit, direct expenditure, and transfer measures together. The government of India claimed a Rs. 20 lakh crore effort to support the economy over the crisis. This would have been some 9.85% of the GDP of 2019–20. The figure of 20 lakh crore is difficult to verify through adding up the individual announcements. We put together all the measures announced over nearly five presentations by Ms. Nirmala Sitharaman, the Finance Minister and the RBI. These are reported in this chapter Annex Table 1. We classified the measures into purely policy changes with no immediate effect on either demand, credit, or liquidity. These measures could have effects on the potential output raising the same, but since the COVID reduced demand they are not material to the stimulus as such, unless they could spur private investment. Their inclusion in the Annex table is to ensure that we have referred to nearly all the measures announced, including some which had been announced in the budget a wee bit before the COVID Crisis happened. The remarks column provides the details of its nature, and possible impact, with quantitative estimates wherever possible. Each measure has been categorized as being either liquidity, credit, or funded fiscal and guarantee. Illegitimately adding up all these (as the government did following the US and other countries), since these are

very different in their nature and impact, we could account for a "total" measure of Rs. 22.442 lakh crore or Rs. 22.442 trillion, which is 11% of GDP. The fiscal funded measures were again sub-classified into "direct expenditure" and "transfers or subsidies" to people and productive units. The direct fiscal expenditure which we may consider as an expansion in spending due to government expenditure (both investment and consumption of government) amounted to Rs. 1.435 trillion or 0.70% of the economy. The transfer measures were estimated to be Rs. 2.397 or about 1.18% of the economy since the transfer measure would be equivalent to a direct initiating expenditure of the same into the marginal propensity to consume (0.762), the two together constitutes a stimulus of Rs. 3.26 trillion. Distinguishing between capital spending and revenue direct spending for the immediate impact is not necessary since the known larger impact of capital spending would be over a longer period. The dates mentioned in the table are a day following the announcement typically.

We plug the value of the fiscal stimulus into the model for three possible scenarios with respect to COVID. These are negative shocks of 10% (0.90), 15% (0.85), and 20% (0.80) to the exogenous variables, both export and import related, net factor incomes, and current transfers from abroad and private investment. Government investment and government final consumption expenditure even without the COVID stimulus is assumed to continue at 1.05 times the level for 2019–20 for 2020–21 the COVID year. With the COVID-related stimulus as estimated in the Annex table, the government expenditures rise and so also does the expenditure on account of transfers through a positive policy that raises the consumption function. The results—GDP levels at 2019–20 prices, growth rates, fiscal deficit as % of GDP, and overall government expenditure excluding interest payments as a proportion of GDP we give in Table 8.2. See Table 8.3 for a summary of the measures announced by the government.

8.5 Impact

We also report the simulations for a 1, 2, 3, and 4% fiscal stimulus in terms of direct expenditures or its equivalent. See Table 8.4.

Without fiscal stimulus, the economy would most probably have declined by over 10% most probably by 12% or so since the effect of the COVID on the economy was most severe in India, due to the near totality of the lockdowns, the migration of workers which was expected to delay restarting, etc. Elsewhere, the simulation based on a negative shock of 15% on the exogenous variables would have been the most expected impact. The stimulus as it unfolded amounted to 1.6% of GDP much lower than the immediate requirement of 2% that I had estimated with the first impact being expected to be no more than a negative 10% shock (assuming the loss of a month of output). But as it soon became apparent that the economy had to face a more protracted and dysfunctional lockdown making it reasonable to assume a COVID negative shock of between 15 and 20%, closer to the latter. Thus, then without the fiscal measures the economy would have declined by 12.3% and with the measures

Table 8.3 Summary of measures announced by the government and the RBI with their immediate expected impact (Rs in billion)

Date/Authority	Liquidity measures	Credit measure	Fiscal total cost	Subsidies and transfers)	Direct expenditure	Guarantees	Total of measures
	A	B	C	C(i)	C(ii)	D	A + B + C + D
c. March 24–27 (RBI)	5200						5200
Measures by Government							
c. March 26 2020		40	1797	1797			1837
c. May 13		7400	577	542	35	890	8867
c. May 15		1000	500		500		1500
c. May 16			558	58	500		558
c. May 17		4080	400		400		4480
Grand Total	5200	12,520	3832	2397	1435	890	22,442
Total as % to GDP	2.55%	6.14%	1.88%	1.18%	0.70%	0.44%	11.00%

NB: Pure policy measures and others like moratorium on loans (while they would have credit/income implications) are not covered here. See this chapter Annex Table 1 for details

it was expected to decline by between 6.21 and 9.68%, and closer to the latter say 9%.[5]

The government's measures over the first round in March were modest but addressed the poor, women, senior citizens, farmers, etc. with largely transfers of around Rs. 1,79,700. In the subsequent three rounds, amount of around Rs. 50,000 were announced and it was only in the last round (two months after the crisis) that the MGNREGS enhancement of Rs. 40,000 crore announced. It had in the budget of 2020–21 reduced the MGNREGS allocations by nearly Rs. 9500–61,500 crore. The MGNREGS which had been put in place over the previous decade or more was a set program helping to mitigate rural distress, and had performed very well during the global financial crisis.

Measures of direct cash transfer would be equally effective as the MGNREGS. However, those announced on May 13 which were essentially in the nature of support to capital formation would have been constrained by demand and/or delayed in the realization of expenditures. (See items 56, 58–63, and 66). However, we have included the same in the fiscal stimulus. The government announced various credit measures to help smaller businesses items 37–39, which while very important in

[5] As it happened and as the data became available, the economy was estimated to have shrunk by 8%. But these are the early estimates, and revision in either direction is possible. Our own simulations are based on considering the month of March of 2019–20 as a normal month, and since the growth reported in 2020–21 is over a year that had March as a weak month, some discrepancy with the reported growth being somewhat better is likely.

Table 8.4 A simulation of the economy under various level of shocks and fiscal stimuli

Item	Shock level on exogenous variables	Fiscal stimulus (% of GDP 2019–20)	Fiscal factor (Ratio in 20–21 to 19–20)	GDP at 2019–20 prices (Rs. trillion)	Nominal GDP rate over 2019–20 (% pa)	Real GDP growth rate over 2019–20% pa	Fiscal deficit (% to GDP)	Government expenditure excl. interest (% to GDP)
	2019–20 Base Year (Pre-COVID in Simulation and calibration)							
1		.	1	203.847	7.45	4.00	3.50	18.50
	2020–21 without COVID assuming							
2		0.00	1.050	214.040	9.50	5.00	3.88	18.50
	2020–21 with COVID Shocks at various levels							
3	0.90	0.0	1.050	192.846	−0.90	−5.40	6.51	20.54
4	0.85	0.0	1.050	185.781	−4.36	−8.86	7.52	21.32
5	0.80	0.0	1.050	178.716	−7.83	−12.33	8.61	22.16
	2020–21 with COVID shocks at various levels and various levels of fiscal stimulus							
6	0.90	1.0	1.104	196.226	0.76	−3.74	7.40	21.22
7	0.85	1.0	1.104	189.161	−2.70	−7.20	8.42	22.02
8	0.80	1.0	1.104	182.097	−6.17	−10.67	9.53	22.87
9	0.90	2.0	1.158	199.606	2.42	−2.08	8.25	21.88
10	0.85	2.0	1.158	192.542	−1.05	−5.55	9.29	22.69
11	0.80	2.0	1.158	185.477	−4.51	−9.01	10.41	23.55
12	0.90	3.0	1.212	202.987	4.08	−0.42	9.08	22.52
13	0.85	3.0	1.212	195.922	0.61	−3.89	10.13	23.34
14	0.80	3.0	1.212	188.857	−2.85	−7.35	11.26	24.21
15	0.90	4.0	1.266	206.367	5.74	1.24	9.88	23.14
16	0.85	4.0	1.266	199.303	2.27	−2.23	10.94	23.96
17	0.80	4.0	1.266	192.238	−1.20	−5.70	12.08	24.84
	2020–21 with COVID shocks at various levels and the actual response of the government in 5 "tranches" considered together							
18	0.90	1.6	1.136	198.251	1.75	−2.75	7.91	21.62
19	0.85	1.6	1.136	191.187	−1.71	−6.21	8.95	22.42
20	0.80	1.6	1.136	184.122	−5.18	−9.68	10.06	23.28

Source Author's computations.

allowing the units to survive the crisis, should not be considered as part of the stimulus (spending) acting to enhance demand.

Clearly, much larger fiscal stimulus would have been necessary to keep the decline to under 6%. A stimulus of 4% of GDP given early was amply justified. It would have raised the fiscal deficit to a manageable 12% of GDP, which would have fallen

sharply as well once the economy bounded back with a growth next year 2021–22 so as to rise at 5%–10% over the pre-COVID level.

8.6 RBI's Response

The measures by the RBI were quick and served to hold the financial sector in place and prevent illiquidity and temporary shortage of demand (stoppage of revenue flow) due to the lock downs and the demand for certain services—such as hotels and restaurants, travel services, theatres, malls, etc., from having a cascading effect. It boldly cut the repo rate by 75 basis points to a low 4.4% which was "real" since repos were available on tap. It reduced the reverse repo by 90 basis points to 4%, to disincentivize the banks from taking recourse to the reverse repo instead of deploying the same to support businesses. Along with that, the MSF rate was reduced to 4.65%. The repo windows were also opened wide, unlike in the past, so that now the low-end bond yields were below the repo and close to the reverse repo as the system was awash with liquidity.

Instead of merely dealing at the short end of the market, the RBI used Targeted Long-Term Repo Operations (TLTRO) of nearly Rs. 1 trillion, for up to three years to bring down the yields in the mid-maturity bonds including that of the corporate triple A rated bonds. A measure similar to this should have come during the NBFC Crisis! The reduction in the CRR by a good 1% (from 4 to 3%) had the potential to greatly increase the money multiplier, one the credit flow and purchase of securities and bonds of business began. The minimum required CRR reduced from 90 to 80% for three months to reduce the matching of reserves to deposits/loans. Actually this measure that creates the control over money rather cumbersome, could have been avoided and replaced with much larger TLTRO and larger repo operations and lower rates, and open market operations. Deferments of the order of 3 months in case of loans, and other payments due to banks were allowed and these measures were very significant in helping especially worthy businesses to tide over the crisis. The quantum of TLTRO was Rs. 1.00 lakh crore. The reduction in the CRR was from 4 to 3%, though the money creation would have been less than the implied by 3% rate since the money multiplier would have fallen in the circumstance of high-risk perception by banks and FIs. The borrowing limit for the MSF itself was raised from the usual 2% of SLR securities held to 3%.

Most of the other measures amounted to moratorium-related. In quantitative terms, the total implied liquidity creation (actually potential) was Rs. 3.94 lakh crore, and the credit potential was Rs. 5.458 lakh crore. Guarantees of various types mostly initiated by the government amounted to another 1.790 lakh crore. See this chapter Annex Table 1 for the details of the measures and the comments on each of the measures.

Annex Table 1.

Annex Table: A listing of Measures Announced by the Government and the RBI between March 26 and May 17 (Amounts Unless Otherwise Stated are in Rs.. Million)

S.No	Tranche/ Date	Authority	Details of Measure [Remarks, if any]	Liquidity implied	Credit Potential	Fiscal Cost	Subsidies#	Direct Expenditure	Guarantees/ provision	% to GDP 2019–20
				(A)	(B)	(C) = (D) + (E)	(D)	(E)	(F)	(G)
1	c. March 26, 2020	Govt. (0th)	PM Garib Kalyan Yojyana: Transfer of e-gratia payment of Rs. 500/pm for three months for 204 million women account holders under PM Jan Dhan Yojyana			31,000	31,000			0.0152%
2	c. March 26, 2020	Govt. (0th)	Distribution of free gas cylinders to 80 m poor families over next 3 months			13,000	13,000			0.0064%
3	c. March 26, 2020	Govt. (0th)	Govt. to bear PF contribution (24%) of both employee and the organization for 3 months of employees earning less than Rs. 15,000 pm in small businesses with less than 100 employees			5000	5000			0.0025%
4	c. March 26, 2020	Govt. (0th)	Senior citizens and disabled people to receive Rs. 500 twice and around 30 m eligible people			3000	3000			0.0015%
5	c. March 26, 2020	Govt. (0th)	The wage rates under MNREGS increased from Rs. 182 per day (current) to Rs. 202 from April 1, 2020, to benefit an estimated 136.2 m families			5600	5600			0.0027%

(continued)

(continued)

Annex Table: A listing of Measures Announced by the Government and the RBI between March 26 and May 17 (Amounts Unless Otherwise Stated are in Rs.. Million)

S.No	Tranche/ Date	Authority	Details of Measure [Remarks, if any]	Liquidity implied	Credit Potential	Fiscal Cost	Subsidies#	Direct Expenditure	Guarantees/ provision	% to GDP 2019–20
				(A)	(B)	(C) = (D) + (E)	(D)	(E)	(F)	(G)
6	c. March 26 2020	Govt. (0th)	Insurance scheme for health workers, doctors, nurses, etc., for those fighting COVID-19, to cover about 2.2 m health workers, with compensation to go up to Rs. 5 lakhs [Scheme to cover all health workers engaged in COVID-related activities for death over 90 days. Rs. 50 lakh is the claim. Includes all. Essentially, the number of deaths among COVID warriors would determine the expenditure. See https://www.mohfw.gov.in/pdf/PMInsuranceSchemePosterC.pdf. Newspaper reports available later indicate that around 921 people were paid the claim of Rs. 50 lakh each (https://www.business-standard.com/article/economy-policy/921-healthcare-workers-paid-rs-50l-each-insurance-claim-under-pmgkp-scheme-121072001661_1.html)]			4605	4605			0.0023%
7	c. March 26, 2020	Govt. (0th)	Under PM Kisan Yojyana government to disburse the first instalment of Rs. 2000 per kisan of the total cash transfer of Rs. 6000 per year for 87 m farmers [Essentially front loading the transfer that was already budgeted for]			16,000	16,000			0.0078%
8	c. March 26, 2020	Govt. (0th)	Additional 5 kg of rice/wheat per poor person and 1 kg of pulses per family to cover for 800 m poor families [Issues from overflowing buffer stocks. The cost per three basket per family (we assume that a total of 800 m baskets would be given) covering 800/3 families, at Rs. 562 per basket]			45,000	45,000			0.0221%

(continued)

(continued)

Annex Table: A listing of Measures Announced by the Government and the RBI between March 26 and May 17 (Amounts Unless Otherwise Stated are in Rs.. Million)

S.No	Tranche/ Date	Authority	Details of Measure [Remarks, if any]	Liquidity implied	Credit Potential	Fiscal Cost	Subsidies#	Direct Expenditure	Guarantees/ provision	% to GDP 2019–20
				(A)	(B)	(C) = (D) + (E)	(D)	(E)	(F)	(G)
9	c. March 26, 2020	Govt. (0th)	Women in SHGs to get up to Rs. 2 lakh (earlier limit was Rs. 1 lakh) collateral free loan, to cover 68.5 m households [Depends upon how many of the women take loans. Assuming that out of roughly Rs. 80,000 crore of outstanding loans to women the increase is 10% and some 10% of these double their size the additional expected credit flow is Rs. 8000 million. See NABARD (c.2020) "Status of Microfinance in India" Table 4.1. p.43. (https://www.nabard.org/contentsearch.aspx?AID=225&Key=shg+bank+linkage+programme)]		8000					0.0039%
10	c. March 26, 2020	Govt. (0th)	Funds accumulated under the District Mineral Fund to be used for COVID-related activities by state governments—testing, etc [Would mean less spending later]			25,000	25,000			0.0123%
11	c. March 26, 2020	Govt. (0th)	Funds accumulated under the Building Construction Workers Fund to support workers [Would mean less spending later]			31,000	31,000			0.0152%
12	c. March 26, 2020	Govt. (0th)	Deadline for filing tax returns for 2018–19 FY extended by 3 months [Convenience and allows for the disruption to not attract penalties]							
13	c. March 26, 2020	Govt. (0th)	Interest rate reduced from 12 to 9% on delayed tax payment made for 2018–19 FY [Since the income taxes collected amounted to Rs. 11.5 lakh crore, and assuming that 1% of tax payments in delayed a 3% interest reduction over 3 months, i.e., up to June 2020 would amount to Rs. 862.5 million)]			862	862			0.0004%

(continued)

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Annex Table: A listing of Measures Announced by the Government and the RBI between March 26 and May 17 (Amounts Unless Otherwise Stated are in Rs.. Million)

S.No	Tranche/ Date	Authority	Details of Measure [Remarks, if any]	Liquidity implied	Credit Potential	Fiscal Cost	Subsidies#	Direct Expenditure	Guarantees/ provision	% to GDP 2019–20
				(A)	(B)	(C) = (D) + (E)	(D)	(E)	(F)	(G)
14	c. March 26, 2020	Govt. (0th)	Similarly, interest rate reduced from 12 to 9% on delayed TDS deposits made [This is likely to be negligible]							
15	c. March 26, 2020	Govt. (0th)	Extension in the deadline for Aadhaar to Pan linking, till June 30 [Convenience and allows for the disruption to not attract penalties]							
16	c. March 26, 2020	Govt. (0th)	Similarly extension of dates for filing claims, extension related to tax extended to June 30 [Convenience and allows for the disruption to not attract penalties]							
17	c. March 26, 2020	Govt. (0th)	GST-related filings extended to June 30—returns for March, April, May; date for opting out of the compensation scheme for small tax payers [Convenience and allows for the disruption to not attract penalties]							
18	c. March 26 2020	Govt. (0th)	Late fees waived for small firms (50 m turnover or less), and those above late fees payment delayed [Convenience and allows for the disruption to not attract penalties]							
19	c. March 26, 2020	Govt. (0th)	Customs and Central Excise Department extended dates for dispute settlement, extension of 24X7 customs clearance to international trade [Convenience and allows for the disruption to not attract penalties]							

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Annex Table: A listing of Measures Announced by the Government and the RBI between March 26 and May 17 (Amounts Unless Otherwise Stated are in Rs.. Million)

S.No	Tranche/ Date	Authority	Details of Measure [Remarks, if any]	Liquidity implied	Credit Potential	Fiscal Cost	Subsidies#	Direct Expenditure	Guarantees/ provision	% to GDP 2019–20
				(A)	(B)	(C) = (D) + (E)	(D)	(E)	(F)	(G)
20	c. March 26, 2020	Govt. (0th)	No interest for those delaying payments of indirect taxes in period March–April, up to June 30 [These months were also very low production months thanks to the lockdown. So the impact of those producing and delaying would be small. Since the collections were Rs. 19.6, 44.6, and 74.5 in 000 crore during the months of April, May, and June, an assuming a delay of 10 days in the payments for all months except those in June, and assuming a delay of 5 days for payments in June on account of the concession, and penal interest that would otherwise apply of 14% this would amount to approx. Rs. 3945 m]			3945	3945			0.0019%
21	c. March 26, 2020	Govt. (0th)	Ministry of Corporate affairs extended dates of various filings to Sept 2020, i.e., by 60 days and several regulatory relaxations relating to independent directors, mandatory holding of meetings, deadline for business commencement for new companies, minimum residency requirements, deadline for maintaining reserves for payments of deposits with companies, time relaxation in the use of the new Caro 2020 audit format, waiver of additional fees for late filing of documents over the extended period. Deadline for investing 15% of the debentures maturing during the year in specified instruments extended to June 30 [Convenience and allows for the disruption to not attract penalties]							

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Annex Table: A listing of Measures Announced by the Government and the RBI between March 26 and May 17 (Amounts Unless Otherwise Stated are in Rs.. Million)

S.No	Tranche/ Date	Authority	Details of Measure [Remarks, if any]	Liquidity implied	Credit Potential	Fiscal Cost	Subsidies#	Direct Expenditure	Guarantees/ provision	% to GDP 2019–20
				(A)	(B)	(C) = (D) + (E)	(D)	(E)	(F)	(G)
22	c. March 26, 2020	Govt. (0th)	Banking: Charges for ATM cash withdrawal waived for 3 months; minimum account balance fee waived for 3 months, bank charges for digital transactions related to credit reduced [Convenience. Some very small benefit at the cost of banks]							
23	c. March 26, 2020	Govt. (0th)	Banking code-related: Threshold for bankruptcy proceedings raised from Rs. 10 lakhs to Rs. 100 lakhs [Would restrain banks from pursuing bankruptcy over the COVID period for tiny typically household enterprises]							
24	c. March 26, 2020	Govt. (0th)	Imports-related: Import permits for shrimp and fish seed which may have expired extended by another 3 months. Delay of 1 month in trade allowed [Convenience. Given the disruption these and similar measures should have been automatic without going all the way to the Finance Ministry]							
25	c. March 24–27	RBI	Repo reduced by 75 basis points to 4.4% [Makes the marginal cost of liquidity for banks lower if the repos are available on tap]							
26	c. March 24–27	RBI	MSF rate reduced to 4.65% [The "MSF" rate for accessing liquidity for banks using their SLR securities is not important. It creates an unnecessary third rate over the repo and the reverse repo. The amount of their SLR securities that they can use is tiny, so it has no influence in determining the yields on government bonds and bills (the rate in the market)]							

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Annex Table: A listing of Measures Announced by the Government and the RBI between March 26 and May 17 (Amounts Unless Otherwise Stated are in Rs.. Million)

S.No	Tranche/ Date	Authority	Details of Measure [Remarks, if any]	Liquidity implied	Credit Potential	Fiscal Cost	Subsidies#	Direct Expenditure	Guarantees/ provision	% to GDP 2019–20
				(A)	(B)	(C) = (D) + (E)	(D)	(E)	(F)	(G)
27	c. March 24–27	RBI	Reverse repo reduced by 90 basis point to 4%. This is just 0.75% higher than the lowest achieved after the GFC [With the repo window now open wide, this would mean off take by the banks, and a slightly lower incentive to park money back in the RBI through the reverse repo]							
28	c. March 24–27	RBI	Targeted Long-term Repo Operations (TLTRO) for up to 3 years cumulating up to Rs. 1 trillion, at a floating rate linked to the repo [(Allows banks to buy investment grade corporate bonds, CPs, and non-convertible debentures in both the primary and the secondary markets. It actually amounts to the RBI acting outside the lower end govt bond yield and also bring the yield on corporate bonds AAA closer to gilt for duration up to 3 years. A very significant measure which should have been initiated during the NBFC Crisis. Would greatly help in the transmission of lower policy rates to the productive sector]	1,000,000						0.4906%
29	c. March 24–27	RBI	CRR reduced from 4 to 3% of net demand and time liabilities, for a year equal to a potential liquidity increase (M1 increase) of nearly Rs.. 1.4 trillion [Major measure to enhance liquidity. However could in itself not work in situation of lending uncertainty since excess CRR is possible, till the risks as perceived by banks decline]	1,400,000						0.6868%

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S.No	Tranche/ Date	Authority	Details of Measure [Remarks, if any]	Liquidity implied	Credit Potential	Fiscal Cost	Subsidies#	Direct Expenditure	Guarantees/ provision	% to GDP 2019–20
				(A)	(B)	(C) = (D) + (E)	(D)	(E)	(F)	(G)
30	c. March 24–27	RBI	Minimum required CRR reduced from 90 to 80% for three months in an attempt to reduce the matching of reserves to deposits/loans [Could spur lending if and when the uncertainties come down and the demand for credit improves]	140,000						0.0687%
31	c. March 24–27	RBI	MSF borrowing limit raised from 2% of SLR to 3% which has a potential liquidity impact of Rs. 1.4 trillion approximately [Would help those banks constrained by little holdings of securities above SLR to access funds from the RBI. Few are so constrained]	1,400,000						0.6868%
32	c. March 24–27	RBI	3 month moratorium on term loans with payments outstanding on March 1, 2020, without asset classification downgrade [Convenience. And also prevents cascading defaults. Necessary measure]							
33	c. March 24–27	RBI	3 months deferment on interest payment on working capital loans/Cash credit/overdraft, without an asset reclassification on that account [Convenience. And also prevents cascading defaults. Necessary measure]							
34	c. March 24–27	RBI	6 months deferment of implementation of Net Stable Funding Rate (NSFR) under the Basle norms [Convenience. And also prevents cascading defaults. Necessary measure]							
35	c. March 24–27	RBI	Similar deferment of the last tranche of Capital Conservation Buffer, by 6 months [Convenience. And also prevents cascading defaults. Necessary measure]							

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S.No	Tranche/ Date	Authority	Details of Measure [Remarks, if any]	Liquidity implied	Credit Potential	Fiscal Cost	Subsidies#	Direct Expenditure	Guarantees/ provision	% to GDP 2019–20
				(A)	(B)	(C) = (D) + (E)	(D)	(E)	(F)	(G)
36	c. March 24–27	RBI	Banks with units in International Financial centers permitted to participate in the offshore rupee derivative market (NDF market) [Improves the depth of the forex market and has the potential to lower volatility by brining longer duration funds into the currency markets]							
37	c. May 13	Govt. (1st)	Credit line of Rs. 3.0 trillion from Banks and NBFCs to MSMEs for standard borrowers with credit limit up to Rs. 25 crore and a turnover of Rs. 100 crore. Tenor of loans up to 4 yrs. with a 12-month moratorium on repayment of principal. MSMEs could avail of this credit line up to end October. It is expected to benefit 4.5 million units [When the demand materializes, this would help to quickly move credit to the MSMEs. Right away it helps banks to rollover their credit]		300,000					0.1472%
38	c. May 13	Govt. (1st)	Stressed MSMEs: Government would support the banks by providing partial credit guarantee through Credit Guarantee Trust Fund for Micro and Small Enterprise, the support by the government being Rs. 4000 crore. This is expected to benefit 2 lakh units [Reduces the risks for banks, and supports solvent but liquidity constrained entities]		200,000				40,000	0.1177%
39	c. May 13	Govt. (1st)	Setting up of a fund of funds with an initial equity injection of Rs. 10,000 crore, which is expected to provide credit of Rs. 50,000 crore to MSMEs [Credit enhancement to MSMEs]		500,000				100,000	0.2943%

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S.No	Tranche/ Date	Authority	Details of Measure [Remarks, if any]	Liquidity implied	Credit Potential	Fiscal Cost	Subsidies#	Direct Expenditure	Guarantees/ provision	% to GDP 2019–20
				(A)	(B)	(C) = (D) + (E)	(D)	(E)	(F)	(G)
40	c. May 13	Govt. (1st)	Not allowing global tenders in government procurement up to Rs. 200 crore [Khan, M.H. (2017) estimates government procurement to be the order of Rs. 3 1akh crore annually. Assuming that some 10% of the same would be below Rs. 200 crore. Khan, M. H, Public Procurement Issues with Government of India (March 1, 2017). Available at SSRN: https://ssrn.com/abstract=2925865 or http://dx.doi.org/10.2139/ssrn.2925865]							0.0000%
41	c. May 13	Govt. (1st)	Release of government dues to MSMEs in 45 days [Better financial management by government. Indeed this should have been the norm in all government procurement]							0.0000%
42	c. May 13	Govt. (1st)	Setting up an e-market place for MSMEs for better marketing							0.0000%
43	c. May 13	Govt. (1st)	Government guarantees for liquidity support to ailing NBFCs and Housing Finance Companies, and Micro Finance Institutions for both AAA-rated entities and below that rating. Up to Rs. 75,000 crore would be so guaranteed		750,000				750,000	0.7358%
44	c. May 13	Govt. (1st)	Credit support for DISCOMs through PFC and REC against receivables, and against state government guarantee of Rs. 90,000 crore		900,000				900,000	0.8830%
45	c. May 13	Govt. (1st)	Credit support by way of reduction in the rates of TDS and TCS. Reduced to 25% for the existing rate for the remaining financial year. Estimated at Rs. 50,000 of credit		500,000					0.2453%

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S.No	Tranche/ Date	Authority	Details of Measure [Remarks, if any]	Liquidity implied	Credit Potential	Fiscal Cost	Subsidies#	Direct Expenditure	Guarantees/ provision	% to GDP 2019–20
				(A)	(B)	(C) = (D) + (E)	(D)	(E)	(F)	(G)
46	c. May 13	Govt. (1st)	Extension of up to 6 months for contractors working on Central government projects with firm schedules							0.0000%
47	c. May 13	Govt. (1st)	Immediate release of pending refunds to charitable organizations and non-corporate businesses [Governments in India are known to delay payments, due to very inefficient process. The quick release would effectively mean a credit enhancement]							
48	c. May 13	Govt. (1st)	Extension of due dates for direct tax filing by a month to 3 months [Convenience]							
49	c. May 13	Govt. (1st)	Free food grain distribution extended to migrant workers. 200 (?) million packets, 5 kg of rice and 1 kg of dhal per family for 2 months, at cost of Rs. 3500 crore			35,000		35,000		0.0172%
50	c. May 13	Govt. (1st)	Under PM Kisan Yojyana government to disburse the first instalment of Rs. 2000 per kisan of the total cash transfer of Rs. 6000 per year for 87 m farmers [Already budgeted for, so not additional measure]							
51	c. May 13	Govt. (1st)	2% interest subvention on Mudra Shishu loans (loans going up to a maximum of Rs. 50,000), for a period of 12 months [The loan outstanding is Rs. 160,000 this amounts to a support of Rs. 3200 crore]			32,000	32,000			0.0157%

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S.No	Tranche/ Date	Authority	Details of Measure [Remarks, if any]	Liquidity implied	Credit Potential	Fiscal Cost	Subsidies#	Direct Expenditure	Guarantees/ provision	% to GDP 2019–20
				(A)	(B)	(C) = (D) + (E)	(D)	(E)	(F)	(G)
52	c. May 13	Govt. (1st)	Under Compensatory Afforestation Management and Planning Authority (CAMPA) funds worth Rs. 6000 crore would be released for immediate use by the State Government, to carry out maintenance and capex related works in forest areas [This amount and more was anyway due to the state governments. The central government had after much delay released Rs. 47,000 crore to the states in August 2019. (https://www.financialexpress.com/lifestyle/science/modi-govt-goes-big-on-environment-releases-rs-47436-crore-fund-for-afforestation/1690397/) This announcement was a reiteration of the same, since despite the decision to release actual release had been slow]			60,000	60,000			0.0294%
53	c. May 13	Govt. (1st)	Credit support of 30 million small and marginal farmers. NABARD to extend additional working capital support of Rs. 30,000 crore to Rural Cooperative Bank in addition to the usual credit support, for the next 2 months		300,000					0.1472%
54	c. May 13	Govt. (1st)	Concessional credit of Rs. 200,000 crore to farmers through Kisan Credit Cards		2,000,000					0.9811%
55	c. May 13	Govt. (1st)	To launch a program under the Pradhan Mantri Aawas Yojna to provide rental accommodation to migrant workers in PPP mode and to incentivize manufacturing industries to build quarters for workers [Policy/Reform]							

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				(A)	(B)	(C) = (D) + (E)	(D)	(E)	(F)	(G)
56	c. May 13	Govt. (1st)	Extension of Credit Linked Subsidy Scheme (CLSS) by a year, which would benefit roughly 0.25 million middle income households. Government estimates that will give an investment boost in construction by front loading o f Rs. 70,000 crore [Much less may happen, since middle classes under pressure may not go for house purchase at this juncture even with the subsidy. At an interest subsidy of roughly 3.5% (average of the two MIG categories on loans of around 11 lakhs this would amount to Rs.. 962 crore, assuming all 0.25 million households avail of the same during the year. If we adjust that half of this would flow, then the cost to government is about Rs. 450 crore. (Data from https://pmay-urban.gov.in/credit-linked-subsidy-scheme)]			4500	4500			0.0022%
57	c. May 15	Govt. (2nd)	Agriculture Infrastructure Development Fund for storage, cold chains, and related logistics would be set up. No details on time frame. (Amount is Rs. 100,000 crore) [Only the concessional part of the fund (perhaps some interest subsidy would be an 'expenditure'). It only improves the availability. But since infrastructural investments in these areas are hardly constrained by lack of funds, there is really no effect here]							

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				(A)	(B)	(C) = (D) + (E)	(D)	(E)	(F)	(G)
58	c. May 15	Govt. (2nd)	Launch a scheme to support to MSMEs and micro enterprises in their marketing efforts, especially in promoting local brands and in meeting FSSAI standards, etc. Would benefit some 200,000 such units, and the expected expenditure is Rs. 10,000 crore [Firstly that so many units operate without meeting national standards is a matter of concern. While the time frame is not known, it is presumed to be within the year. It is not known if the same is to be explicitly provided for in the budget]			10,000		10,000		0.0049%
59	c. May 15	Govt. (2nd)	Pradhan Mantri Matsya Sampada Yojyana (PMMSY) with an outlay of Rs. 20,000 crore for supporting fishing-related activities, of which Rs. 11,000 crore would be for various support activities for marine and inland water fishing, and Rs. 9000 crore for infrastructure development. The value chain would therefore be enhanced [This was already part of the budget of 2019–20 and is being reiterated. So ostensibly the spending is proposed to take place now]			200,000		200,000		0.0981%
60	c. May 15	Govt. (2nd)	Setting up of an animal husbandry infrastructure development fund of Rs. 15,000 crore with the object of supporting private investment in dairy processing and cattle feed-related infrastructure, to inter alia expand exports [No time for this expenditure/support measure, nor clarity on the credit component for the same. Assuming all this is expenditure support, and much of it would happen in the next 12 months]			150,000		150,000		0.0736%

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				(A)	(B)	(C) = (D) + (E)	(D)	(E)	(F)	(G)
61	c. May 15	Govt. (2nd)	New scheme for infrastructural development supporting beekeeping with an outlay of Rs. 5000 crore [No time for this expenditure/support measure, nor clarity on the credit component for the same. Assuming all this is expenditure support, and much of it would happen in the next 12 months]			50,000		50,000		0.0245%
62	c. May 15	Govt. (2nd)	Plans to cover 1 mn hectares over the next 2 years with medicinal plants and herbs, with an outlay of Rs. 4000 crore			40,000		40,000		0.0196%
63	c. May 15	Govt. (2nd)	Support for logistics related to agricultural perishables amounting to Rs.. 500 crore. Operation Green Scheme had been announced in the budget of 2018–19 covering potatoes, tomatoes, and onions. Now though this outlays, it was being extended to all fruits and vegetables. Scheme involves a subsidy of 50% on storage and 50% on transportation and was to be launched as a pilot over the next 6 months. Objective was to reduce harvest losses, and enhance the ex-farm realization			5000		5000		0.0025%

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				(A)	(B)	(C) = (D) + (E)	(D)	(E)	(F)	(G)
64	c. May 15	Govt. (2nd)	Amendment of Essential Commodities Act to allow for many more market players, and no constraint on the upside of prices. Law to modify/amend the APMC Act by which the "monopoly" of the APMCs would go. Creation of a legal framework for risk mitigation and price and quality assurance for farmers [Mostly administrative "reform" measures the impact of which would lie in the details and on the capacity of the government to see the large number of announcements and measures holistically, and remove contradictions]							
65	c. May 16	Govt. (3rd)	Coal mining: Introduction of commercial mining of coal on a revenue sharing basis with liberalized entry norms, and no end-use restrictions. 50 blocks to be offered immediately, and production before the scheduled dates would receive rebates from the revenue share. Extension of the revenue share to gasification/liquefaction of coal to "reduce" the environmental impact [Policy/Reform]							
66	c. May 16	Govt. (3rd)	Coal: Infrastructure -conveyor belts- to evacuate coal with an outlay of Rs. 50,000 crore [The impact of this measure would depend upon how quickly the amount would be spent]			500,000		500,000		0.2453%
67	c. May 16	Govt. (3rd)	Auction of coal bed methane (CBM) extraction rights through/from Coal India [Policy/Reform]							

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				(A)	(B)	(C) = (D) + (E)	(D)	(E)	(F)	(G)
68	c. May 16	Govt. (3rd)	Procedural simplification for coal mining licenses, etc.; Composite exploration and mining licenses enabled; open and transparent auction of 500 mining blocks; joint auction of bauxite and coal mining; faster clearances for approval of mining plans from 90 to 30 days! Distinction between captive and non-captive mines to be removed; Mineral Index to be developed; stamp duties in the award of mining leases to be rationalized [Administrative Reform]							
69	c. May 16	Govt. (3rd)	Concessions amounting to Rs. 5000 crore to customers of Coal India			50,000	50,000			0.0245%
70	c. May 16	Govt. (3rd)	Defense equipment manufacture: Increase in FDI limit from 49 to 74% [Policy/Reform]							
71	c. May 16	Govt. (3rd)	Procurement of defense items to be time bound, through setting up of a dedicated contract management unit, and more realistic specifications. Overhauling of testing procedures. Corporatization of the Ordnance Factory Board [Policy/Reform]							
72	c. May 16	Govt. (3rd)	Aviation sector: "Optimal" utilization of airspace, to reduce costs by Rs. 1000 crore every year [Policy/Reform]							
73	c. May 16	Govt. (3rd)	Airports: Auction of 6 airports via MOT PPPs in another round (3rd) [Policy/Reform]							

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				(A)	(B)	(C) = (D) + (E)	(D)	(E)	(F)	(G)
74	c. May 16	Govt. (3rd)	MRO operations to have lower tax rates. The current rates were an absurd 18% and they were being reduced to 5% [Lower GST rate on aircraft MRO to boost local business, say service operators See PTI (March 14, 2020). "Lower GST rate on aircraft MRO to boost local business, say service operators". (https://www.financialexpress.com/economy/lower-gst-rate-on-aircraft-mro-to-boost-local-business-say-service-operators/1898156/) India's MRO Market was estimated to be about USD 1.7b in 2020–21 by Fernandes, Vincent (2021). Assuming the business during the COVID year to be about half this level, and inelastic demand, the cost to government would be Rs.. 773.5 crore]			774	774			0.0004%
75	c. May 16	Govt. (3rd)	Privatization of power DISCOMs in Union Territories. Tariff policy to protect consumers against DISCOM inefficiencies [Policy/Reform]							
76	c. May 16	Govt. (3rd)	Measures to increase private investments in social infrastructure: VGF up to 30% to be enabled in these sectors. Space exploration and atomic energy also included [Policy/Reform]							
77	c. May 17	Govt.(4th)	Increased allocation to MGNREGS by Rs. 40,000 crore which would make the total allocation this year to Rs. 120,000 crore [Major way of supporting rural population with work]			400,000		400,000		0.1962%

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				(A)	(B)	(C) = (D) + (E)	(D)	(E)	(F)	(G)
78	c. May 17	Govt.(4th)	Enhancing the borrowing limit of states to 5% of GDP for FY21 from 3% earlier. This would give an enhanced borrowing potential of approximately Rs.. 300,000 crore [The increase is not automatic but is linked to reforms in power sector, management and financing of ULBs, and the ubiquitous "Ease of Doing Business". The actual borrowing increase is likely to be significantly lower than what is implied by the enhancement, not only because of the linkage with reforms but also the reluctance of states to borrow heavily is known. Many of the large states ran fiscal deficits much lower than 3% of their GSDP, and had underspent in the immediate pre-COVID period]		3,000,000					1.4717%
79	c. May 17	Govt.(4th)	Bankruptcy rules: Increase in the threshold (minimum) to initiate insolvency proceedings from Rs. 10 lakhs to Rs.. 10 crore, over the period of the crisis. No fresh initiation of proceedings over the next months. And COVID-related loans not to be considered in default debt over the period [This would give some breathing space for defaulting/ill-liquid MSMEs and tiny units]							
80	c. May 17	Govt.(4th)	CSR Reporting: Decriminalizing violations under the Companies Act, for technical and procedural defaults related to CSR and board reporting, and delays in statutory procedures such as AGMs [Relaxation in reporting]							

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					(A)	(B)	(C) = (D) + (E)	(D)	(E)	(F)	(G)
81	c. May 17	Govt.(4th)	Listing of companies: NCDs could be listed by private limited companies without being considered as de facto public. NCD listing abroad, more benches under the NCLAT, reduction in default penalties for small and "one-person" companies [Relaxation in reporting]								
82	c. May 17	Govt.(4th)	Opening all sectors, including strategic sectors, to private enterprise, through a Public Sector Enterprise Policy. Many PSUs to be notified for privatization [Relaxation in reporting]								
83	c. May 17	Govt.(4th)	Health Care and Education: Will increase spending especially in communication at the grass roots level [No estimate has been given, and this may merely be a commitment to speed up expenditures already budgeted for]								
		(I)	**TOTAL (COLUMN) (Rs. crore)**	**15,909,286**	**3,940,000**	**8,458,000**	**1,721,286**	**331,286**	**1,390,000**	**1,790,000**	**7.8045%**
			.. Above in Rs. lakh crore	**159.09286**							
			.. Above as % to GDP	**0.7804523**							
		(II)	**TOTAL (COLUMN) (Rs. Million) (excluding the borrowing limit enhancement for the states)**		**3,940,000**	**5,458,000**	**1,721,286**	**331,286**	**1,390,000**	**1,790,000**	**6.3328%**
			Above in Rs.. Lakh crore		**3.940**	**5.458**	**1.721**	**0.331**	**1.390**	**1.790**	
			Above (Total of rows) (A) + (B) + (C) + (F) (Rs Lakh crore)	**12.909**							
			Of the above that which can be considered as fiscal stimulus (C) (Rs. Million)	**1,721,286**							

(continued)

(continued)

Annex Table: A listing of Measures Announced by the Government and the RBI between March 26 and May 17 (Amounts Unless Otherwise Stated are in Rs.. Million)

S.No	Tranche/ Date	Authority	Details of Measure [Remarks, if any]		Liquidity implied	Credit Potential	Fiscal Cost	Subsidies#	Direct Expenditure	Guarantees/ provision	% to GDP 2019–20
					(A)	(B)	(C) = (D) + (E)	(D)	(E)	(F)	(G)
			… in Rs. lakh crore	**1.721**							
			… as % of GDP of 2019–20	**0.84%**							
			MEMO GDP 2019–20		**203,847,000**						
			… (in Rs. lakh crore)		**203.847**						

Subsidies to people/transfers to people/Transfers to state and lower levels of government/tax reduction

Source: Compiled from the speeches of the Finance Minister, and various newspaper reports.

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Chapter 9
The Recovery

9.1 Stock Market Performance

9.1.1 Discount Rates

One of the important issues raised in the media and of concern to policymakers as well is the performance of the stock market. Stock markets all over the world zoomed after end March having fallen to their lowest level c. March 23 in nearly all emerging markets. Almost immediately thereafter and almost with a week of the fall most stocks began to recover with rapidity and with few breaks reached very high levels even surpassing the pre-COVID levels by a wide margin. The Indian market even more than other emerging country markets seemed overvalued in the analysis of many.

However, the rise of the market can to a large extent be accounted for the sharp fall in the discount rates. In the Indian case since the economy from mid-2018 onwards until the start of the COVID, may have been depressed due to high discount rates and to low earnings growth in the face of rather tight monetary policy that we saw with hardly a break from almost 2011–12 which had killed the capital cycle as we had argued in Chaps. 6 and 7. Since 2019 after Mr. Shaktikanta Das became the new RBI governor, the implicit liquidity rationing (in the low end bond yields being above the repo) was no longer there, and the effective rates began to come down. With the COVID Crisis the RBI came out to expand liquidity and lower rates decisively. It also uses TLTROs to lower the divergence between yields of corporate and government bonds. These brought the discounting rates down.

Globally, in the US the injection of liquidity was stupendous and the yields on longer term government bonds could be halved. These are relevant since lower yields in the US ceteris paribus would drive capital flows outwards to other countries including into India. As India also lowered playing its role as an important moderately sized economy, both the domestic yields and the US yields would affect the

S. Morris, *Macroeconomic Policy in India Since the Global Financial Crisis*, India Studies in Business and Economics,
https://doi.org/10.1007/978-981-19-1276-4_9

valuation of stocks. Approximately 40% of the stock of the NSE listed companies that were in float was held by foreign investors as of 30th June 2019.[1] Hence it would be more appropriate to consider the effect of interest rate (yield changes) in the US markets not only through the impact such changes would have on capital flows but also in itself.

9.1.2 Model to Explain Stock Valuation

We considered a model in which the 1 year, 5 year, and 10 year bond yields in both the US and India, and the corporate AAA yields in India (9 rates) were used together in a factor analysis to extract the three top components (PC1, PC2, and PC3). Similarly the growth in the Indian economy was proxied by one factor (PC1_G) extracted from growth rate of exports, imports, and index of industrial production. Since a valuation of stock takes place over a time horizon of the discounted earnings at these discount and growth factors, a direct regression of the market capitalization on these variables is appropriate. The exchange rate would be important for the foreign investors. We have used the same as it is rather than work out the depreciation, since it is the level that would influence the valuation for foreign investors. We have also used the square of the discount rate factors, since in a model of finite horizon valuation the exponential of the (growth-discount)* horizon can be replaced by its Taylor approximation to three terms and the result would include square terms in the discount rate. Interaction factors have not been considered, since the object is not to make a forecast of the market capitalization as much as to argue that the fall in the discount rates and the current growth of the economy accounts for much of the market capitalization.[2]

Monthly data covering the period from around 1999 was used with some data points missing. The data was sourced from the FRED and from the CMIE. The results are reported in Table 9.1.

Observe that the fit is good and all factors are as expected with the model being able to explain as much as 89% of the variation in the market capitalization. We may also infer the same from the graphs of the fitted value of the market capitalization considered alongside the actual values. See Fig. 9.1.

[1] On this day the Foreign Portfolio Investment (FPI) holdings amounted to 19.80% of the market cap and 39.18% of the free float. (p. 40 of NSE Infobase (2019)). This amounted to Rs. 29.36 lakh crore, well above 10% of India's GDP.

[2] Besides these, other factors that anticipate the better environment for investment and growth in manufacturing in India due to the China plus factor and improvement in the investment climate would also have been expected by the market. This aspect we pick up later in section…….

Table 9.1 Regression results—Market Capitalization of the NSE (CMIE) on certain variables reflecting discount rates, exchange rate and growth of the economy

	Coefficient	Std. error	t-ratio	P-value	Sign.
Constant	−1.29E + 07	1.51E + 07	−0.86	0.3939	
PC1	−6.28E + 06	8.16E + 05	−7.69	3.84E-12	***
PC2	1.13E + 07	1.51E + 06	7.45	1.42E-11	***
PC3	8.08E + 05	2.11E + 06	−3.83	0.0002	***
Exchange rate	1.95E + 06	2.40E + 05	8.11	4.07E-13	***
PC1_G	4.83E + 06	7.26E + 05	6.66	7.88E-10	***
$PC1^2$	1.06E + 06	2.27E + 05	4.69	7.11E-06	***
$PC2^2$	−5.20E + 05	7.05E + 05	−0.74	0.4625	
$PC3^2$	−2.47E + 06	1.30E + 06	−1.90	0.0601	*
$PC1\_G^2$	2.34E + 04	7.70E + 04	0.30	0.7618	
Mean dependent variable	1.09E + 08	S.D. dependent var		41,869,524	
Sum squared residues	2.28E + 16	S.E. of regression		13,568,480	
R-squared	0.902088	Adjusted R-squared		0.894981	
F(9, 124)	126.938	P-value(F)		3.46E-58	
Log-likelihood	−2385.658	Akaike criterion		4791.316	
Schwarz criterion	4820.295	Hannan-Quinn		4803.092	

Source Author's computations. Raw data from CMIE, EOI.

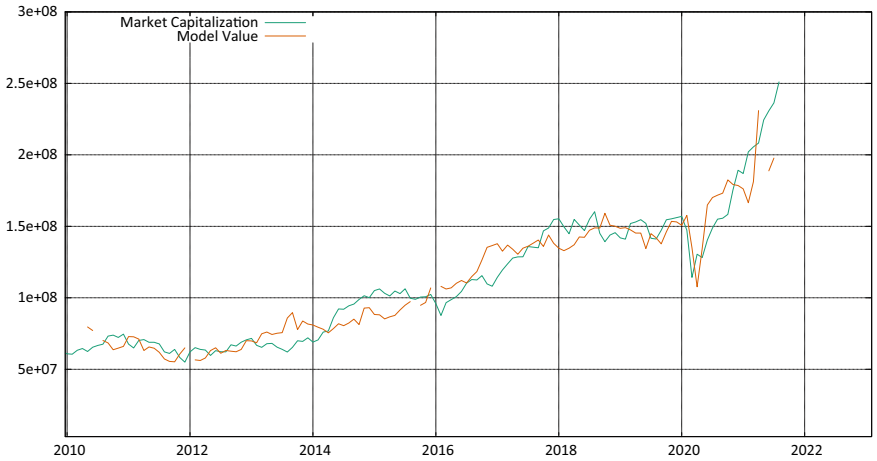

Fig. 9.1 Market capitalisation (NSE Rs million) actual and fitted using relevant discount rates

9.1.3 Cost and Return Structure of Corporates

Besides change in valuation of the same earnings driving the price of stock, reductions in the tax and the interest share of earnings could also increase the price of stocks, and hence of the market capitalization. Observe first that while the growth (over 8 quarters before COVID) in profit before depreciation, interest, and tax had grown in a wavering manner, and had declined to negative rates in the immediate pre-COVID quarters. Similarly post-COVID the profit after tax (4-quarter average) grew much more rapidly than before. The share of interest has gone down in PBDIT due to the lowering of rates which would have brought down the cost of borrowing. The share of taxes in PBT has also gone down post-COVID. During the COVID quarters the profit being small, the share of taxes would balloon given the Minimum Alternate Tax (MAT) and because the Indian tax regime is not strictly a fixed proportion of the PBT, there being exemptions as well. See Table 9.2.

9.2 GDP and GVA Over the Crisis and Recovery

The pandemic's impact was extended over two quarters in a severe way due to the nature of the lockdowns as mentioned before. Observe from Table 9.3 that the real GDP over the first two quarters of FY 2020–21 fell to Rs. 26.95 and 32.97 trillion in 2011–12 prices from 35+ levels in the same quarter previously giving a YoY growth rates of −28.01 and −7.73. In the second quarter the COVID continued to rage but the lockdowns were less severe and so output fell only by 7.73%. The remaining two quarters of FY 2020–21 were muted with growth of 0.46 and 1.63% over the same quarters in the previous year. The sharp rise of 18.34% in the first quarter of 2021–22 is misleading since the YoY growth is over the first quarter of FY2020-21 which was the worst COVID quarter as we saw before. The recovery in GDP by the first quarter of FY2021-22 still is nevertheless less than for the same quarter in FY2019-20. Indeed at 32.68 versus 35.67 it is almost 9% below! Thus the recovery as revealed by the GDP is modest and to date had not taken the GDP to levels reached before the COVID.

The third wave of the COVID which saw heighted numbers of deaths in the first and second quarters of 2021, (see) and hence the recovery could have been muted due to both lacks of demand and the impact of the lockdowns which were so far less dysfunctional with most productive facilities being open though the options for sale were limited. Agriculture output was not expected to be affected, and as such it makes sense to look at the non-agricultural GVA. It fell sharper by 30.71% in the first COVID quarter And as is to be expected the bounce back was also sharper, but the absolute values till 2021:2 were still lower than values of the corresponding quarters pre-COVID, even two years earlier (Fig. 9.2).

Observe also that the decline in manufacturing GDP is the sharpest, and its recovery also quicker as is to be expected. The figures for the rolling one-year growth

Table 9.2 Interest, depreciation, tax, and profit of the non-financial corporate sector (CMIE)

	Interest share in PBDIT	Depreciation share in PBDIT	Other provisions share	Share of PBT in PBDIT	Share of Tax provision in PBT	Share of PAT in PBT	Share of PAT (net of provisions and extraordinary items) in PBT	Growth rate of PBDIT	Growth rate of PBT	Growth rate of 4-quarter movg. Avg. o PAT
2018:1	24.2	29.0	2.0	46.7	48.7	49.9	106.4	4.0	2.7	−10.5
2018:2	17.9	21.7	0.4	60.4	33.0	66.8	64.6	30.3	48.4	15.0
2018:3	20.3	24.0	0.5	55.6	36.0	64.1	71.1	20.7	33.5	18.8
2018:4	19.4	24.7	0.5	56.0	32.3	67.4	67.8	4.7	1.4	25.2
2019:1	22.0	28.2	5.0	49.8	26.9	73.5	82.7	14.8	21.3	20.9
2019:2	19.8	26.9	0.1	53.3	31.7	68.2	70.2	−1.1	−13.6	8.1
2019:3	32.2	43.9	3.8	23.9	103.7	−4.0	200.8	−38.6	−123.1	−20.7
2019:4	21.8	30.8	0.5	47.5	31.5	68.4	75.0	−2.4	−18.9	−37.0
2020:1	41.0	53.8	5.8	5.2	305.3	−204.0	575.7	−48.3	−274.5	−82.9
2020:2	38.2	52.0	1.3	9.9	133.7	−37.4	312.6	−61.4	−230.1	−155.7
2020:3	17.8	26.4	0.7	55.8	23.0	75.2	68.9	52.8	137.6	−37.0
2020:4	16.6	25.5	1.1	57.8	27.5	72.5	78.7	20.9	40.6	35.4
2021:1	13.7	22.0	0.4	64.3	24.2	75.8	70.1	92.3	343.9	197.6
2021:2	11.7	22.3	0.1	66.0	25.0	75.0	73.3	28.7	218.7	105.9
Average (2018:1 to 2019:4)	22.2	28.6	1.6	49.2	43.0	56.8	92.3	4.1	−6.0	2.4
Average (2020:1 to 2020:2)	39.6	52.9	3.5	7.5	219.5	−120.7	444.2	−54.8	−252.3	−119.3

(continued)

Table 9.2 (continued)

	Interest share in PBDIT	Depreciation share in PBDIT	Other provisions share	Share of PBT in PBDIT	Share of Tax provision in PBT	Share of PAT in PBT	Share of PAT (net of provisions and extraordinary items) in PBT	Growth rate of PBDIT	Growth rate of PBT	Growth rate of 4-quarter movg. Avg. o PAT
Average (2020:3 to 2021:2)	15.0	24.1	0.6	61.0	24.9	74.6	72.8	48.7	185.2	75.5

Source Author's computations. Raw data from CMIE, EOI.

Table 9.3 Trajectory of GDP11-12 (at constant 11–12 prices, Rs. trillion) and its main components over COVID 19 and recovery

Year	GDP	GVA	GVA agriculture	GVA industry	GVA services	GVA non-agriculture	GVA non-agri (rolling 4 quarters)	YoY growth rates (% per annum)							
								GDP	GVA	GVA agriculture	GVA industry	GVA services	GVA non-agriculture	GVA non-agri (rolling 4 quarters)	GVA non-agri growth rates FY over previous FY
2017:01	32.28	29.02	4.60	9.39	15.02	24.42	96.02	6.10	6.61	7.89	5.77	6.74	6.37	7.87	
2017:02	31.46	29.38	4.13	9.01	16.24	25.25	97.18	5.93	4.86	5.91	−0.21	7.51	4.69	6.61	
2017:03	31.97	29.47	3.49	9.19	16.79	25.98	98.50	5.18	5.39	6.57	6.46	4.57	5.23	5.85	
2017:04	32.85	30.33	5.81	9.28	15.24	24.52	100.16	6.46	6.72	5.67	7.15	6.87	6.97	5.79	
2018:01	35.16	31.17	4.97	10.29	15.91	26.20	101.94	8.56	7.14	7.55	9.09	5.77	7.06	5.98	**6.06**
2018:02	33.84	31.49	4.35	9.74	17.40	27.14	103.84	7.29	6.94	5.08	7.81	6.92	7.24	6.63	
2018:03	34.05	31.29	3.66	9.66	17.98	27.63	105.49	6.29	6.00	4.70	4.93	6.85	6.17	6.85	
2018:04	34.93	31.96	5.92	9.77	16.28	26.04	107.02	6.14	5.25	1.86	5.14	6.59	6.04	6.63	
2019:01	37.21	32.70	4.94	10.61	17.15	27.76	108.57	5.68	4.80	−0.42	3.07	7.47	5.76	6.30	**6.60**
2019:02	35.67	33.05	4.49	9.90	18.66	28.56	109.99	5.25	4.84	3.29	1.67	6.95	5.09	5.75	
2019:03	35.62	32.71	3.79	9.48	19.45	28.93	111.28	4.50	4.46	3.46	−1.80	7.86	4.59	5.35	
2019:04	36.08	33.05	6.12	9.52	17.41	26.92	112.17	3.23	3.34	3.38	−2.60	6.73	3.33	4.70	
2020:01	38.33	33.90	5.28	10.38	18.24	28.62	113.03	2.96	3.60	6.59	−2.20	6.18	3.06	4.02	**4.95**
2020:02	26.95	25.66	4.65	6.35	14.65	21.01	105.48	−28.01	−25.32	3.47	−44.37	−24.16	−30.71	−4.19	
2020:03	32.97	30.32	3.90	9.20	17.22	26.42	102.97	−7.73	−7.59	2.99	−3.04	−12.14	−9.06	−7.77	
2020:04	36.24	33.39	6.40	9.79	17.20	26.99	103.04	0.46	1.03	4.43	2.87	−1.21	0.25	−8.49	
2021:01	38.96	35.16	5.45	11.20	18.52	29.71	104.13	1.63	3.65	3.06	7.63	1.49	3.76	−8.20	**−7.16**
2021:02	32.38	30.48	4.86	9.29	16.33	25.61	108.74	18.34	17.20	4.42	37.94	10.82	19.82	3.05	−10.89*

*YoY in relation to two years' before

Source Author's computations. Raw data from CMIE, EOI.

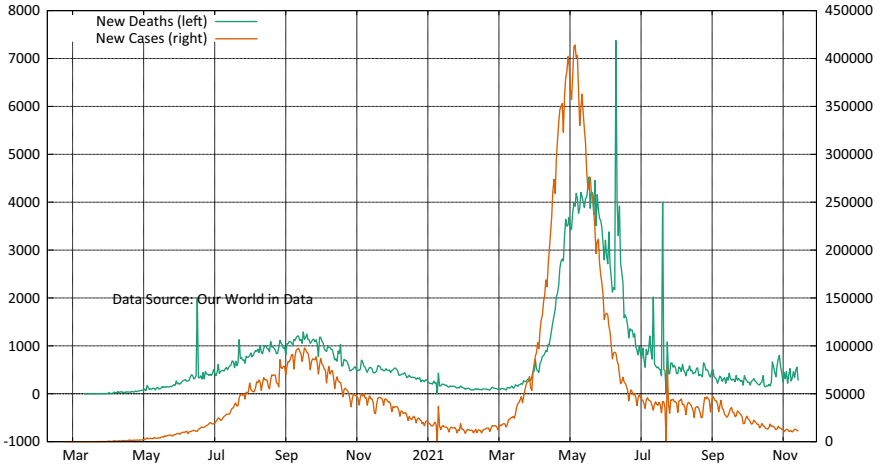

Fig. 9.2 COVID: new cases and new deaths in India

(YoY) show that by 2021:2 the economy other than agriculture had made a modest turn to a positive growth. The YoY for the year as a whole −7.16 and quarter of 2021:2 is still more than 10% points below its level in 2019. It would take a quarter more, i.e., only by 2021:3 would GDP on a rolling year basis have caught up with its previous highest level which was in the immediate pre-COVID quarter. See Table 9.3.

9.3 IIP Over the Months of the Crisis and Recovery

We now use monthly data to build a picture of the COVID and its recovery in the industrial sector. Instead of computing growth rates which are confusing given the (low) base effect of the bounce back, we consider the rolling (moving average value) of many variables or the log of the same. The seasonality is removed over a 12-period average, and the absolute values on a log scale would work. In some cases the absolute values are not given on a log scale, when the same reduces the visual range of movement. When the rolling value crosses the previous high then we are sure the recovery has been full. The slope of the line can be sensed to give an idea of the speed of recovery that is not so deeply subject to the base effect. When the rolling value on a log scale shows a slope that is about the same as before the COVID, or the trend is inferred to be higher after crossing the pre-COVID value, then we know that the series in question has actually improved its growth over the pre-COVID period. Had we waited till the bounce back period was over we could have used the usual YoY growth rates, and seen them after the bounce back over a few months move on to their new trend growth rates.

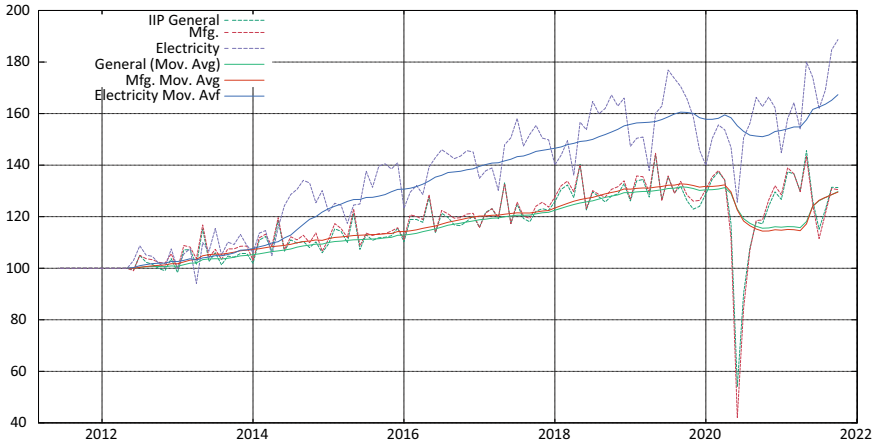

Fig. 9.3 IIP CAGR monthly since 2012

Observe from Fig. 9.3 that electricity production has almost fully recovered and is on the path of its original trend of growth (it had seen a stagnation over the period from 2019 onwards). However IIP General and Manufacturing which had stagnated from 2019 is a wee bit short of its pre-COVID level and would take some more months before it reaches its trend level of about 135. The second wave of the COVID which began in mid-June 2021 has clearly affected the speed of recovery and from September onwards the recovery should be very fast to make up for the loss during the second wave. The second wave did not see the dysfunctional lockdowns that the early first wave saw, hence we do not see a deep decline on average, even though there was a decline during the second wave.

9.4 Sectoral Patterns

Observe from Fig. 9.4 that the capital goods sector declined most and the recovery too has taken it to levels much short of the pre-COVID level not to speak of the trend level had there been no COVID. It is only in the case of infrastructure and intermediate goods that the pre-COVID level had been crossed, with only infrastructure having reached its trend level. Primary goods have just reached the pre-COVID level.

In this figure we have re-indexed the moving average values to 2020:03 = 100. Capital goods were 5% below the immediate pre-COVID level 18 months after the start of the COVID. Thus the beginning of the long delayed investment cycle was not as yet evident from the data till October 2021.

Observe from Fig. 9.5 that Consumer Durables unlike Non-Durables had dipped steeply during the COVID Crisis (discretionary spending being put off during a crisis) but has not bounced back till October 2021. There is still a distance of around

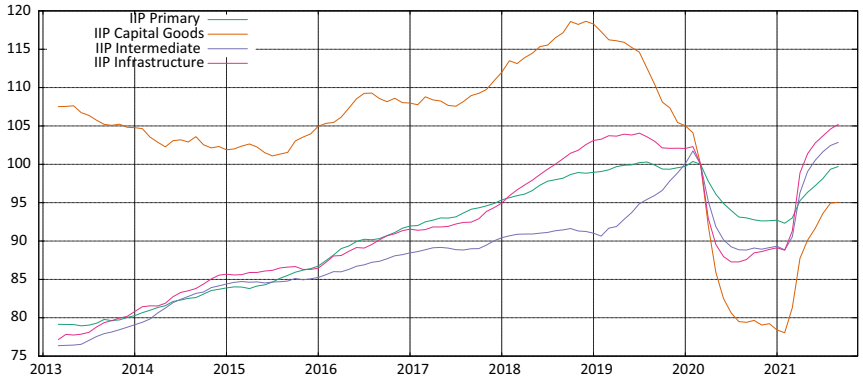

Fig. 9.4 Index of 12 month moving avg (2020:03=100)

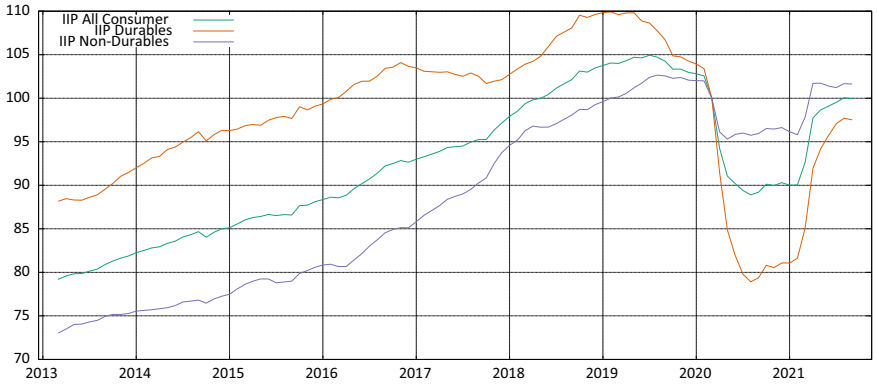

Fig. 9.5 Index of 12 Month moving avg (2020:03=100); cont.

2.5% with reference to the rolling annual average as end March 2020, and at least an additional gap of 5% to reach the trend level implied by the average growth over the period from 2012:04 onwards. However it is also useful to remember that as brought out in the previous chapter, Consumer Durables had fallen sharply over the immediate pre-COVID period for a variety of reasons, including the vast uncertainties let loose on the automobile markets. Non-Durables have almost reached their pre-COVID values but there is still some distance to get back to the trend.

9.5 Industry Wise Recovery

A more detailed segment wise consideration of the recovery trajectory is given in this chapter, Annex Table A.1. The most relevant rows are the last two which bring out the recovery rate and the original trend growth rate over the period 20,112:04–2020:03 which is the pre-COVID period. The recovery is over the period 2020:10–2021:09, i.e., for the latest available year. These have been compared to the previous non-COVID full year that one could legitimately consider which is 2019:04–2019:09 and 2019:10–2020:03, so that seasonal factors are not intrusive. We may think of the same as a rolling year to rolling the previous year. The growth measure is a log of (average values over the recovery/average values over the previous non-COVID year). The trend growth rate is estimated by regressions of the log of the de-seasonalized monthly values of IIPs, with the estimated coefficient multiplied by 12 to be the trend growth rate in the pre-COVID period from 2012:04 to 2020:03. The table also reports various quarterly average values over the COVID and the recovery. The months of 2020:04, 05, and 06 are taken together as the COVID quarter. Nearly all pre-COVID trend growth were significant.

For convenience we have reported the trend growth rate (2012:04–2020:03), growth rate YoY of the Crisis quarters (2020:04–2020:06), the recovery over the latest quarter (fifthquarter since the COVID, i.e., from 2021:07 to 2021:09) and the latest full year of recovery (2020:10–2021:09) over the same months considered as an average of the previous non-COVID Months (2019:04–2020:03) which is not YoY but growth over 1.5 years of rolling years. We could have divided the same by 1.5 years but since the discussion is primarily on getting back to the pre-COVID levels, rather on getting back to the trend level we have reported the same as it is. The annualized values of the same after adjusting for the gap of 18 months between the two periods considered are also reported in Table 9.4. The table brings out-trend growth rates prior to COVID, the decline over the COVID quarter (YoY) the fifth Quarter (2021:07–2021:09) recovery YoY (both annualized and not annualized) and the full rolling year (2020:10–2021:09), over previous non-COVID full year (2019:04–2020:03).

The observations are quite revealing. The manufacturing IIP showed a decline of nearly 26% over the COVID quarters, and in the latest rolling year it shows a recovery 0.2% (non-annualized) over the pre-COVID quarter. The General IIP is slightly better on both counts. The recovery has been positive and over 2% or more (non-annualized) in the case of Food, Chemicals, Pharmaceuticals, Rubber products, Products of basic metal industries, Electrical Equipment, and Other Manufacturing. Of these Pharmaceuticals, Basic Metal Industries had been growing over the period from 2012:04 to the eve of the COVID Crisis. Thus perhaps there is a new found dynamism to the Chemical sector that has happened since the COVID, since the COVID recovery has been quite significant and is now above the trend growth rates. Not all sectors that had grown rapidly over the pre-COVID period from 2012:04 onwards. Wearing Apparel, Computers, and related Electronic Products, Other Transport Equipment,

Table 9.4 The IIP sectors over the crisis and recovery periods

	Pre-COVID trend growth rates (1) (%)	Crisis quarter YoY (2) (%)	5th quarter recovery (3) (%)	5th quarter recovery YoY (4) (%)	Recovery of rolling year ending 2021:09 (5) (%)	Recovery of rolling year ending 2021:09 (annualized) (6) (%)	Average of Pre-COVID rolling year ending 2020:03 (7)	Average of Year ended 2021:09 (8)
Food	2.2	−16.2	0.8	0.4	2.0	1.3	123.7	126.2
Beverages	0.0	−32.4	−13.8	−6.9	−19.5	−13.0	106.4	87.6
Tobacco	−3.6	−18.0	−11.3	−5.6	−9.0	−6.0	95.4	87.2
Textiles	0.8	−18.2	3.6	1.8	−1.2	−0.8	115.7	114.2
Wearing apparel	6.1	−51.6	−27.8	−13.9	−27.6	−18.4	154.6	117.3
Leather etc	1.4	−28.0	−10.6	−5.3	−11.9	−7.9	122.7	108.9
Wood etc	1.6	−35.9	−12.1	−6.0	−5.6	−3.8	113.8	107.6
Paper	−2.0	−36.4	−14.9	−7.5	−13.0	−8.7	90.8	79.8
Printing and recorded media	−1.2	−36.9	−23.1	−11.5	−26.0	−17.4	90.7	69.9
Coke and petroleum	2.9	−1.7	−10.2	−5.1	−7.2	−4.8	126.7	117.8
Chemicals	1.8	−24.3	3.4	1.7	3.9	2.6	118.5	123.2
Pharma	11.8	−30.0	5.0	2.5	4.7	3.1	215.2	225.5
Rubber	−0.6	−33.7	5.5	2.8	6.9	4.6	100.0	107.1
Non-metallic	2.5	−27.1	5.6	2.8	0.8	0.6	121.3	122.3
Basic metals	5.1	−21.4	8.4	4.2	7.1	4.8	159.1	170.9
Fabricated	−0.4	−43.0	0.1	0.1	−2.9	−1.9	90.6	88.0
Computers etc	6.3	−57.1	−14.0	−7.0	−5.6	−3.7	151.0	142.8

(continued)

Table 9.4 (continued)

	Pre-COVID trend growth rates (1) (%)	Crisis quarter YoY (2) (%)	5th quarter recovery (3) (%)	5th quarter recovery YoY (4) (%)	Recovery of rolling year ending 2021:09 (5) (%)	Recovery of rolling year ending 2021:09 (annualized) (6) (%)	Average of Pre-COVID rolling year ending 2020:03 (7)	Average of Year ended 2021:09 (8)
Electrical	−1.6	−41.8	18.5	9.2	5.0	3.3	105.2	110.6
Machinery n.e.c	2.0	−47.2	5.2	2.6	−0.4	−0.3	107.7	107.2
Motor	1.4	−67.1	−5.1	−2.6	−2.2	−1.5	100.2	97.9
Other transport	5.3	−12.5	−12.5	−6.2	−9.2	−6.2	136.6	124.5
Furniture	9.7	−28.1	−21.6	−10.8	−22.0	−14.7	197.3	158.4
Other	−3.8	−61.2	8.7	4.4	4.0	2.6	81.2	84.5
Mfg	3.2	−25.9	0.8	0.4	0.2	0.1	129.6	129.8
IIP General	3.4	−20.7	2.5	1.3	0.8	0.5	129.0	130.0

NB

1. Trend growth rates 2012:04–2020:03 of the de-seasonalized series using ARIMA
2. Crisis quarter YoY (%) (2020:03–2020:06)
3. 5th quarter recovery YoY 2 (not annualized)
4. 5th quarter recovery YoY 2 (annualized)
5. Average of Year 2020:10 to 2021:09 recovery YoY (1.5), i.e., over average of (2019:10–2020:03 and 2019:04–2019:09)
6. Average of Year 2020:10 to 2021:09 recovery YoY (1.5), i.e., over average of (2019:10–2020:03 and 2019:04) adjusted for the period difference, i.e., annualized
7. Pre-COVID average of 12 months (Apri1 2019–March 2020)
8. Average over the latest rolling year of recovery since the crisis (2020:10–2021:09)

Source Author's computations. Raw data from CMIE, EOI.

Furniture, have not recovered well. They continue to lag and have not gone anywhere close to their original growth trajectories.

Food had declined by only 16% and has recovered to levels marginally above the pre-COVID levels, but not beverages and tobacco. These are entirely accountable by the nature of demand and the lockdown, with beverages (but not tobacco) being hurt by the fact that it is only recently that restaurants have been open.

Petroleum products and Coke, which reflect the movement in the economy, show a delayed fall as the refineries began to exceed the stocking capacity, and production today has yet to fully recover.

Besides Beverages and Tobacco the recovery has been weak in Wearing Apparel, Leather Products (essentially shoes, etc.), Printing and Recorded Media, Paper, and Furniture. These are consumer products generally and the fact that they have lagged (the recovery levels are below the pre-COVID year by more than 10% non-annualized) implies that either demand has not come back fully or that there continues to be difficulties in sale and purchase. That schools have opened only recently would have affected the recovery of printed materials.

Among the industries with high pre-COVID growth rates—Wearing Apparel, Pharma, Basic Metal, Other transport equipment, and Furniture—only Pharma and Basic Metals have recovered fully. Furniture and Wearing Apparel being closely related to discretionary consumption has not shown any improvement even to the pre-COVID rates, which were all below 1%.

Among those industries which had low or negative growth in the pre-COVID period—Tobacco, Beverages, Paper, Printing, Rubber based, Electrical and Other Mfg.- Electrical and Other manufacturing shows an improvement.

Thus we can make the conclusion that much of the industrial sector is yet to recover from the COVID Crisis. Rubber, Chemicals, Electrical, and Other manufacturing shows a new dynamism, while Pharma which was dynamic even before continues to be dynamic having more than fully recovered.

The newly dynamic segments warrant further discussion. We believe that there is scattered evidence that in these industries the post-COVID scenario of China+, China-E would have helped.

9.6 Unemployment

The COVID brought about a very sharp rise in the unemployment rates. Female unemployment climbed to almost 29% and male unemployment to 23% before falling off to levels a little higher than their levels prior to the COVID. See Fig. 9.6. both unemployment rates had been rising since the demonetization to reach levels that were high in the immediate pre-COVID period, and this is particularly true of female unemployment. After the COVID Crisis during the recovery female unemployment fell back to levels lower than just before the COVID. And male unemployment during the recovery reached a level that was a tad higher than before the crisis. However the unemployment figures are deceptive because in times of severe recessionary stress

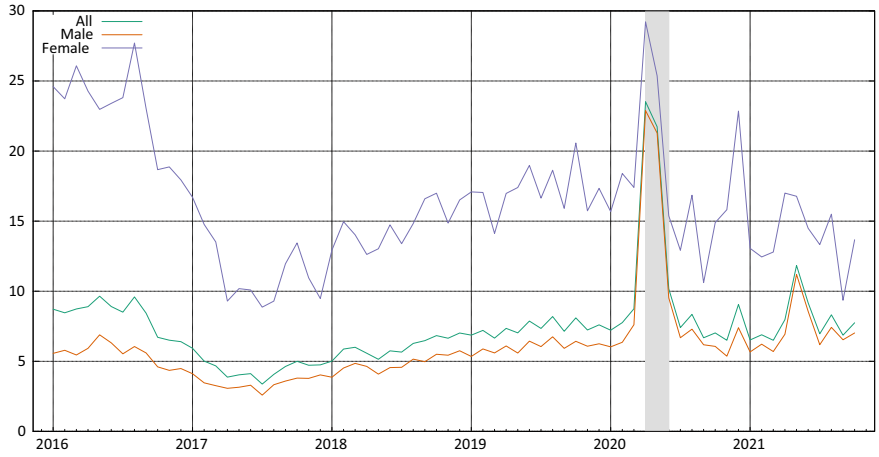

Fig. 9.6 CMIE monthly unemployment rate

people especially women drop off the labor force. This is because of the vast disguised unemployment (and disguised employment) that exists. When the probability of finding a job reduces significantly and is expected to remain low, rationality implies that people stop searching for jobs and conserve their resources.

9.6.1 Labor Force Participation

Consider the labor force participation rates (LFPR) brought out in Fig. 9.7. Over the period of stress, from 2017 onwards, both male and female LFPR had fallen, particularly the latter. This could not have happened because of a "higher reservation wage"; especially from 2015 July when the last minimum wage revision took place (from Rs. 137 per day to Rs. 160). Earlier there had been a revision in July 2013 which was quite steep from Rs. 115 to 137. See ET (2015).

The minimum wages earlier in the 90 s had little impact on overall wages, but since the introduction of the MNREGS they should have had a significant impact if the employment under the MGNREGS was available on tap, by placing a floor on the rural wages. Observe from Fig. 9.8 that the real wages had remained nearly constant from early 2014 onwards. Earlier after the steep rise in the minimum wage announced in July 2013 and implemented a little later, the rural wage both agricultural and non-agricultural had risen, but there was no significant rise due to the increase in minimum wages announced in July 2015. The rural wages both male and female and the MGNREGS rates also remained stagnant right from 2014 onwards which coincides with the Modi years.

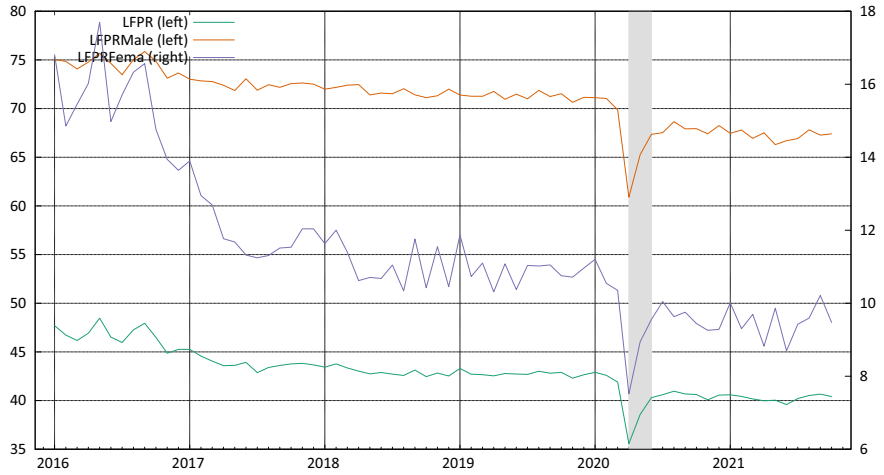

Fig. 9.7 Labour force participation rates (%)

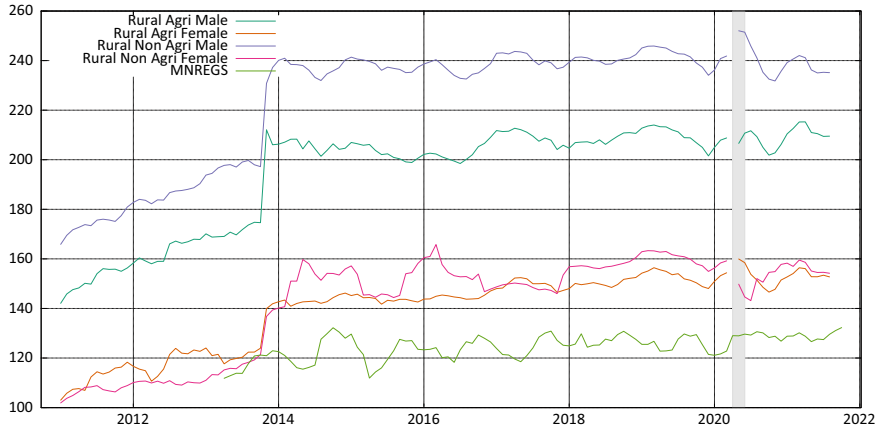

Fig. 9.8 Real rural wages (2011-12 Rs /day)

Hence the fall in the LFPR is real due to declining opportunities rather than due to any rise in the reservation wage. The male LFPR fell from 75 c. 2016 to 70% on the eve of the COVID crisis and the recovery has taken it back to only about 67% after it had fallen to a low 61% during the crisis.

9.6.2 Reservation Wages

The idea of a reservation wage in India with vast disguised unemployment (and disguised employment) is problematic and needs to be treated with caution. It would be very close to the "socially necessary subsistence" levels and would secularly move up only with the cost of living going up, or what is socially acceptable slowly rises. In the short run though since vast numbers of the working age population are not on the look for jobs, the wages could rise with a tendency to fall back over the short run. Urban non-manual wages could have a reservation wage. Given the "schism" in the labor market, this is unlikely to be the case since the unorganized labor market in urban areas would only have wages that are a little above (to compensate for housing and commuting) the quit rate in rural India, a la Arthur Lewis. (NSE Infobase 2001).

The female LFPR which is known to be abysmal from a level of about 15.5% in 2016 had fallen to a low 11% on the eve of the crisis, and rose to 7.5% after more than a year of recovery!

There has been much discussion on the female work participation rate, which many believe falls with rural "prosperity" as women are drawn back to the home. While this is no doubt true, it is only suggestive of very few "meaningful" job opportunities in rural India for women. At starting levels of income which are unsustainable for rural household in calorific sense, which was the case in the 70s, and 80s (in BIMARU India), as wages rose to give calorific "sufficiency" and a little more, women back at home had greater useful value for the family as a whole by withdrawing from the workforce, only with the natural desire to come back when wages were above a certain level. That India in large parts of the rural hinterland may not have reached these levels of wages, when women can come back, is quite evident because rural agricultural wages for women remained some 40% lower than that for men and at about Rs. 250 per day in 2020:08, in current prices! MGNREGS wages were Rs. 220.

9.6.3 Employment

Thus to get a better picture of the employment situation, rather than consider the unemployment rate alone, it is necessary to look at the actual employment levels and the growth rates in the same. The recovery growth rates in employment YoY would be severely affected by the low base during the COVID months hence we work out the employment over a rolling year for each month.

Figure 9.9 gives the rolling employment (12-month moving average) indexed to 2020:03 (the last month before the COVID Crisis). Observe that over the pre-COVID period female employment had fallen steadily from 2017 with a stagnancy over 2019, while male employment was almost stagnant, having grown by a mere 2.5% or so over the entire period from 2017 to the eve of the COVID. During the COVID period the employment plummeted sharply and the recovery has still not taken it back to the

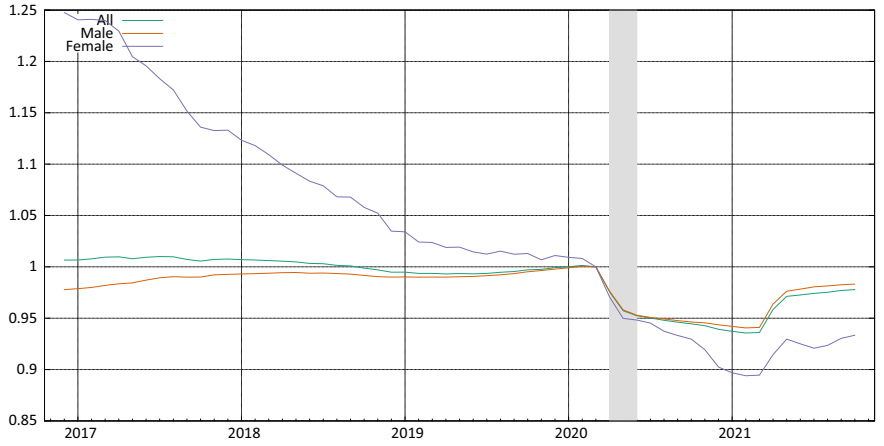

Fig. 9.9 Index of 12 month rolling employment (2020:03=1)

pre-COVID levels, being short from that level by almost 2–2.5%. Thus the recovery of employment has been significantly delayed but is in keeping with the recovery as indicated by the index of industrial production.

When we consider the actual numbers of employment (average) over various periods, we find that the employment from Modi I to Modi II shows a fall in the overall employment largely due to the sharp fall in the female employment by as much as 5.2 million, and with a rise in male employment by 3.3 million. The COVID quarters saw sharp fall employment both male and female. If we compare the average of the year ending Nov 2021 which was the recovery period, with a period of a full year before the COVID then the loss in employment is of the order of 8.2 million, with the loss in male employment being as high as 5.4 million. October 2021 compared to October 2019 the loss is significantly lower so that there is hope that the employment recovery would take place in the coming months as shown in Table 9.5.

9.6.4 Sectoral Patterns

The sectoral pattern of employment is more revealing. From Fig. 9.10 we observe that the fall in manufacturing employment has continued even well after the firstquarter of the COVID crisis and is still way short of the level before the crisis. Construction too had fallen sharply but has recovered. Agriculture which did not show a fall during the crisis had actually greatly increased over the recovery period.

The non-recovery of employment in the manufacturing sector is most disconcerting. Thus even though the index of manufacturing shows a recovery that is within the striking value of the pre-COVID level by October 2021, the employment had barely grown from the low levels to which it had fallen. In other words there seems

Table 9.5 Employment (millions) over various periods

		All	Male	Female
"Modi I"	2016:01–2019:05	404.4	356.0	48.4
"Modi II" before COVID	2019:06–2020:03	403.9	360.7	43.2
COVID quarter	2020:04–2020:06	324.3	291.5	32.8
Recovery period	2020:07–2021:10	394.6	352.2	40.4
Recovery over latest year	2020:09–2021:10	394.9	354.6	40.3
Full non-COVID year before COVID	2019:02–2020:03	403.1	360.0	43.2
Employment latest month, i.e., Oct. 2021	2021:10:00	400.8	359.8	41.0
Employment October 2019	2019:10:00	404.1	362.9	41.3
Lost employment c. average year ending early November 2021		8.2	5.4	2.9
Lost employment October 2021 compared to October 2019		3.3	3.1	0.3

Source Author's computations. Raw data from CMIE, EOI.

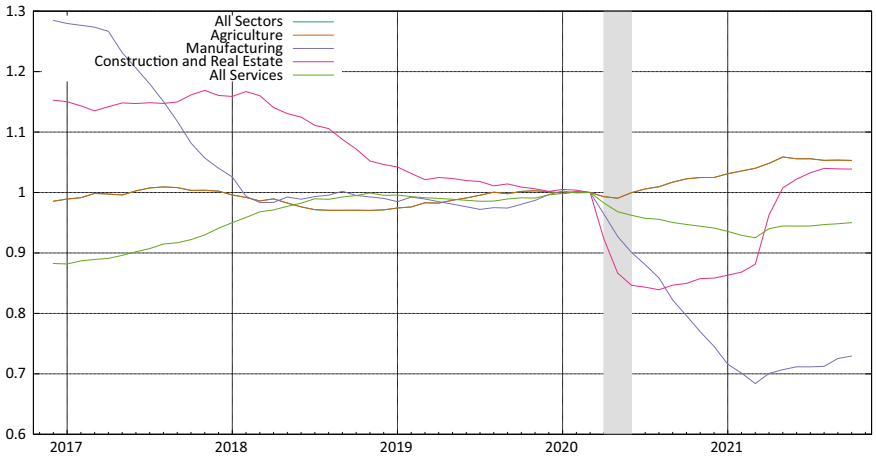

Fig. 9.10 Index of rolling 12 month avg employment (2020:03=1)

to be a structural transformation of the manufacturing sector in the offing –shifting to less labor intensive mode of production. This is in keeping with the widely held belief that the formalization of the industry may have been rapid during the COVID.

The introduction of GST may also have been a contributory factor. Although introduced in 2017, its effects on the (size and organizational) structure of industry would have taken time which may have accelerated owning to the crisis with its shutdowns and migrations. The lack of continuity over long period imposed by the shutdown would have allowed the larger more solvent units to eat into the market share of the smaller more labor intensive units, so that the employment had fallen much short of the output recovery. **The fall in manufacturing employment by almost 30% and its non-recovery lends a "depression like character" to the manufacturing**

labor force. In 2021:09 and 2021:10 the manufacturing employment was 30.8 and 30.3 million vis-à-vis 40.8 and 40.5 million a full 10 million less! Clearly therefore the COVID has been a period of major structural change in the manufacturing sector which has adversely affected the labor intensity of manufacturing.

The services sector too shows a recovery that is still significantly short of the level of employment prior to the COVID, though here the gap is much less than in the case of manufacturing. We do not have data on further breakup of the services sector. Much of the services sector and the agricultural sector is a residual sector with vast disguised unemployment and employment, to which workers in hard times retreat to. Many of the farms and service "businesses" here really are "peasant enterprises" which are value added (actually wage+rent+implicit profit) maximizing enterprises rather than capitalist profit maximizing. The formal services like storage, transport, and communication would have shown a sharp fall in employment and poor recovery since these sectors are known to have high correlation with the manufacturing sector. The employment in the services sector in 2019:09 and 2019:10 was 156.6 and 157.0 million, while it was only 149.3 and 154.6 in the same months of 2021, showing that there was a gap of still around 2.4 million.

9.6.5 Type of Work

The "type of work" wise employment as brought out by the CMIE—shown in Fig. 9.11 also shows that "salaried employees" show the poorest recovery followed by the mixed class of "Small traders and workers". Those who reported as "farmers" show a steep increase confirming the agricultural sector to be the main repository those who suffer from joblessness. Their accommodation is a case of disguised "employment".

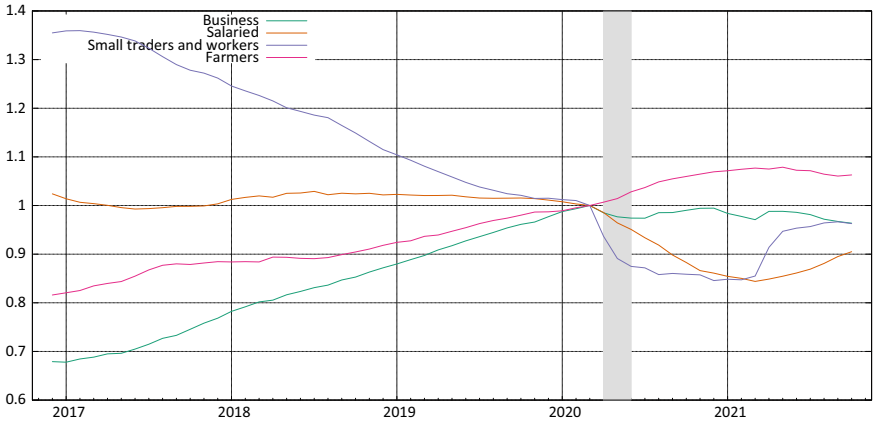

Fig. 9.11 Index of 12 month rolling moving average of type of employment (2020:03=1)

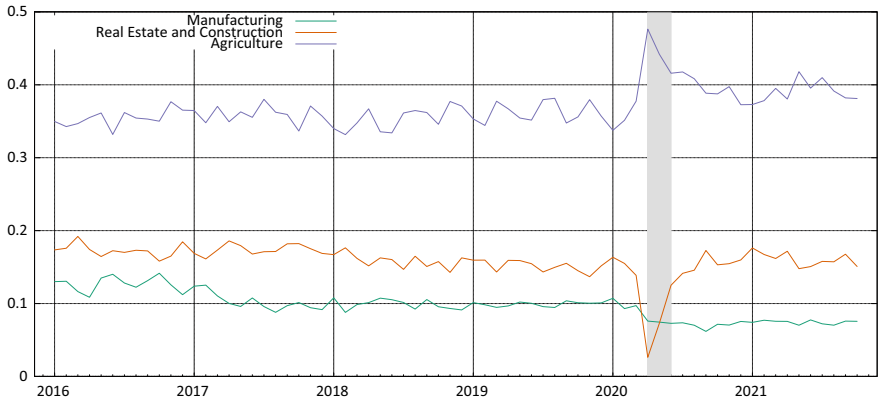

Fig. 9.12 Share of employment (to all employment) in certain sectors

This is a major structural retrogression of the economy since a reversal of falling share of employment in the non-agricultural sector and especially in manufacturing would imply that much of the dynamism for transformation has been arrested. Fig. 9.12 shows that the share of manufacturing has declined from a low 10% to now after the COVID crisis to a shocking 7–7.5% without much variation, now over a period that is more than 18 months. Clearly, the structural and (strategic policy biases) against manufacturing have deepened over the Modi years and since the COVID Crisis. The rise in the employment share in the agricultural sector is entirely due to the residual receptacle character of agriculture, given the vast disguised unemployment and disguised employment in India, which has been most certainly enhanced. That the demand counter-action has been weak is beyond doubt.

9.7 Export and Imports

Export growth as we had brought out earlier had barely grown from 2012 to 2013 onwards, with the period up to 2017 being one of decline with a modest recovery since then. This may be seen from the plots of the 12 months moving average of exports and imports as well, as shown in Fig. 9.13. The sharp decline in overall exports and imports over the COVID was followed by a recovery in which both exports and imports have recovered fully. Ignoring POL products and considering only non-POL products the recovery has been complete. However there were sharp sectoral differences in export performance.

Export of drugs, pharmaceuticals, and biologicals which had grown significantly over the immediate pre-COVID period continued to do so without a break even during the COVID months as shown in Fig. 9.14. Motor vehicle exports which had growth slowly before, declined sharply and has yet to recover. The "chip shortage" has apparently played havoc with exports and with recovery here. Jewelry, precious stones

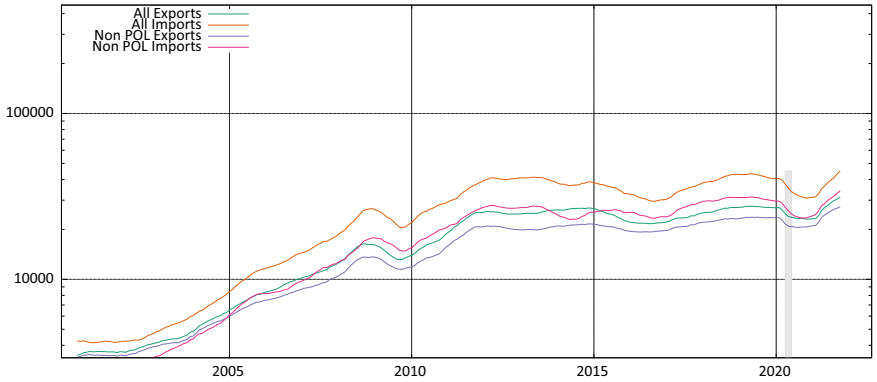

Fig. 9.13 12 Month moving average of exports and imports (USD million)

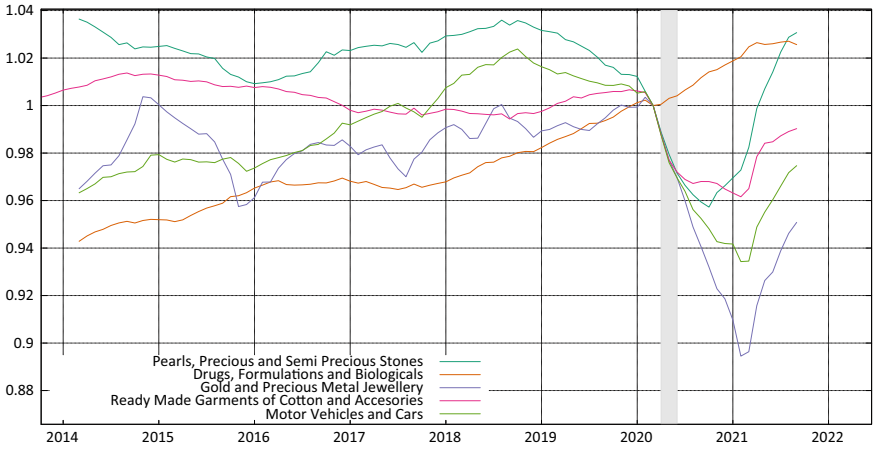

Fig. 9.14 Index of log of 12 month mov. avg. of exports of items (USD million original)

related have recovered, but not gold related jewelry exports. Readymade garments too have yet to recover though here the gap is much lower than in the case of motor vehicles and cars.

The domestic demand drivers on the trade balance (the trade balance on Non-POL items) is evident. The balance had declined over the period of the fiscal stimulus, only to rise over Modi I which was a period of negative demand shock as we have already seen and fell over late 2018 and 2019 given the rise in spending due to the elections. Here we observe that over the crisis the trade balance (algebraic value) rose sharply in response to demand in India being curtailed much more than elsewhere (since the stimulus in India has also been proportionately much lower in India than in the major economies), but as demand picked up and the recovery began this has reduced as shown in Fig. 9.15.

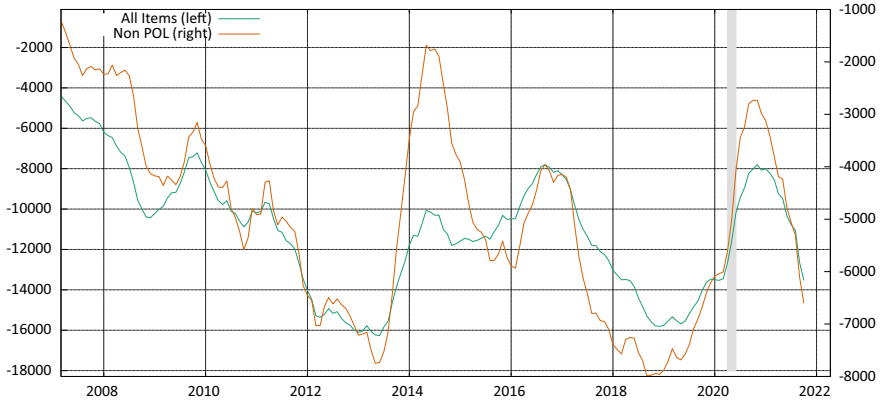

Fig. 9.15 12 month mov. avg. of trade balance (all items and NonPOL) USD million

Gold and silver imports declined over the COVID but has recovered since then. Telecom instruments (mostly mobile phones and related items) which had declined from 2018 onwards recovered to the pre-COVID levels but not to the peak levels that had been reached c.2018. Vegetable oil imports which had shown a slowdown from 2014 end did not show any dip during the crisis but has shown a rise over the recovery period having exceeded the pre-COVD levels. Since the consumption remained stagnant the increased import is most likely due to lower production or in keeping with stock adjustment/changes in import duties as shown in Fig. 9.16.

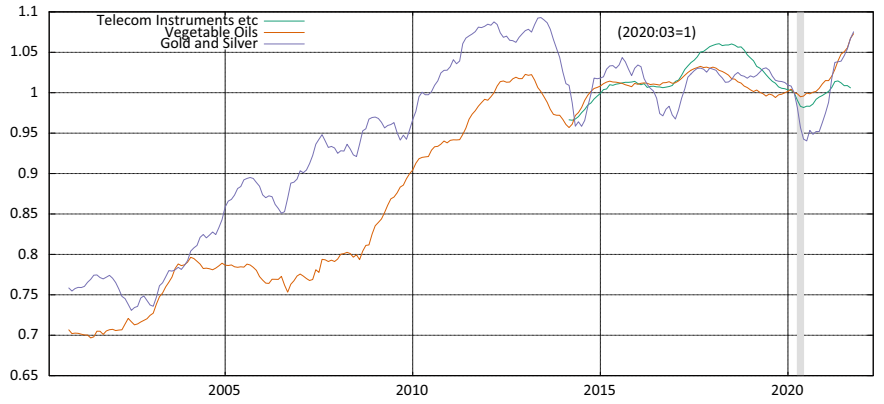

Fig. 9.16 Index of log of 12 month moving average of imports of certain items

9.8 Monetary Developments

We had already seen for much of the period since 2011–12 to around middle of 2018 the monetary side was restrictive. The fight against the perceived high inflation which had started just two years into the fiscal stimulus had made the monetary side highly restrictive. Interest rates rose to record high levels and a brief retreat from these high levels of 8.5% or so (9-month t-bill yields, got pushed to over 10% due to the inaction of the RBI over the taper tantrum and only slowly came down to about 6% by 2017, after which it again rose to reach over 7% by early 2019 as shown in Figs. 5.6 and 5.7.

But what is perhaps equally pertinent is that during much of this period the low end bond yields were not being collared by the repo and reverse repo indicating that the windows were not open fully, so that rather than the repo, these yields should be considered as the policy rates, given the implicit liquidity rationing is often keeping the repo window shut. It was only with the coming of the new Governor Dr. Shaktikanta Das that this business of the repo window not being open began to get addressed. Also rates fell, as the deepness of the recession was manifest since 2018.

From Fig. 9.17 we observe that the M3 growth measure was kept very close to 10% despite the demonetization, and from late 2019 when accommodated foreign inflows resumed (NFA growth), the M1 and H measures were kept under check at about 12%. However the 10-year bond yields rose again from 2017 reflecting the sensed uncertainty in the financial markets. From 2017 onwards the divergence between the 10 and the 1-yr bond yields has only increased and even into the COVID Crisis as shown in Fig. 9.18.

Of all the principal instruments used, bringing the CRR down from 4 to 3% during the crisis may have been quite important. This also increased the narrow money multiplier M1/H as may be seen from Fig. 9.19, while increasing the growth of M1

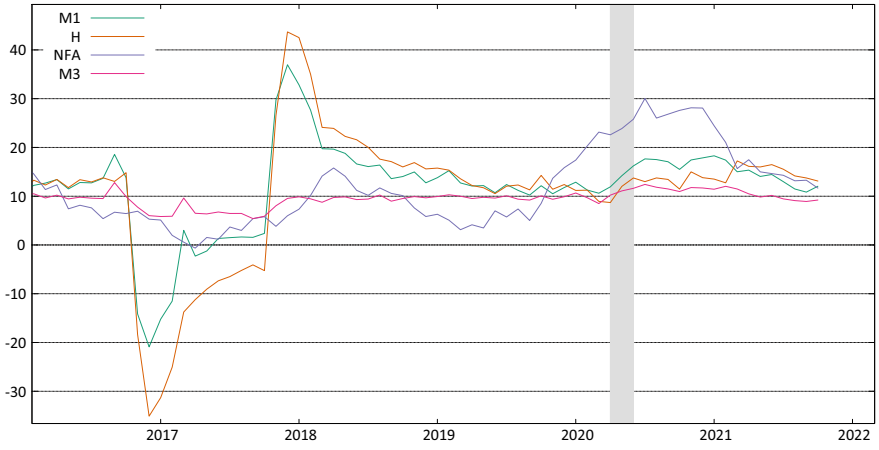

Fig. 9.17 Growth rate of NFA, H, M1 and M3 (% YoY)

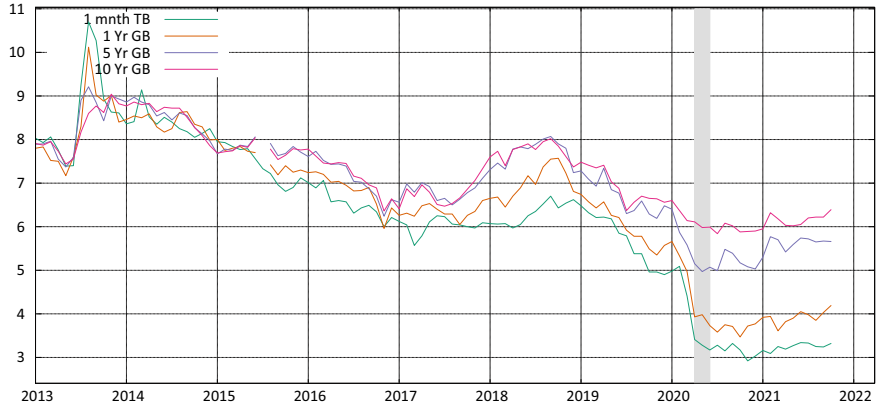

Fig. 9.18 Yields: TB 1mnth, Bonds 1 yr, 5 yr and 10 yr

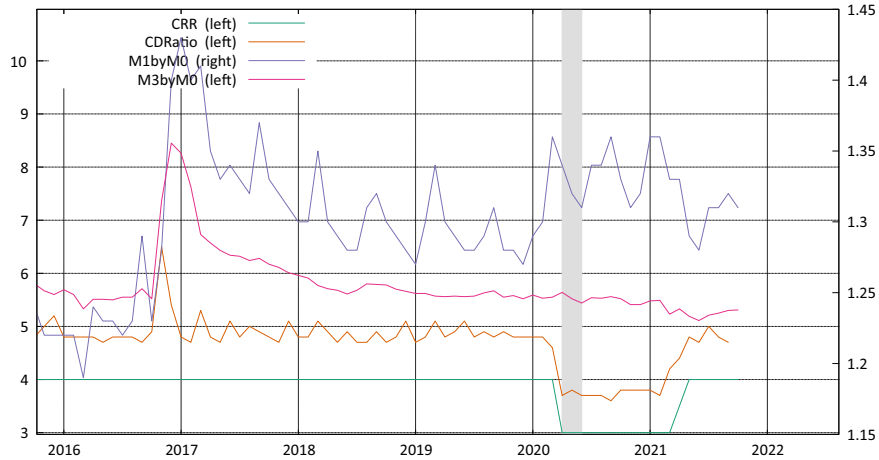

Fig. 9.19 Money multipliers, CRR and CD ratio

to between 15 and 17% per annum (Fig. 9.17). However the broad money multiplier could not be raised given both the low demand situation and the weak transmission mechanism through the banks. The Cash/Deposit ratio fell as the deposits grew along with M1. Once the CRR was raised back the narrow money multiplier went back to the pre-COVID Levels.

The 1 month TB fell from around 5% pre-COVID to about 3.25% during the COVID recovery period (to date), i.e., by around 1.75%. Similarly the 1-yr GB yield fell from 5.5 to 3.5, i.e., by about 1.5% as shown in Fig. 9.18. However the RBI could barely move the 10-year bond yield which continued to be around 6% from the pre-COVID level of about 6.5%. The 5-year yield fell from around 6.4% pre-COVID to about 5% before it moved up to about 5.6%, i.e., resulting in a fall of barely 0.8% as

on date. Thus despite all the measures that the RBI has done, the longer duration rates have not fallen much. This is not surprising at all. As argued before, given inflation targeting as the stated policy and mandate of the RBI, with the actual CPI, rather than the core as the target, the market would anticipate that the short term rates are not going to be steady since they would move with commodity (food and fuel), so that the market would discount low short term rates even when sustained, as a path to longer term rate. This would be especially true when rates are low.[3] At 1 month yields closer to 5.5–6% there is a belief that the rates are "normal". The conservatism of the central bank too after it had punished the economy over long years with TB rates being above the repo rate have also been responsible for such expectations.

The RBI's reduction in the CRR dramatically increased the money multiplier though with much volatility over the recovery period. Thus not all the increase in M0 was taking the form of excess reserves, the liquidity in the system was being enhanced, and the CRR reduction was working. The broad multiplier though remained steady with a small fall thereby indicating that the broader multiplier could not be enhanced significantly by the fall in the CRR as shown in Fig. 9.19.

9.9 Lending Rates

The lending rates of banks show a mixed picture in response to the COVID crisis and the initiatives of the central bank to lower the repo rate and make the same the policy rate. Thus the base rate of ICICI Bank and did not change at all, that of Punjab National Bank, Axis Bank, and Union Bank fell by about a 1% still remaining high at around 9+%. Only the HDFC Bank and SBI reduced the base rates by about 2+% from the pre-COVID levels c. end 2019. SBI and HDFC had lowered their base rates substantially even before. Thus broadly the base rates have fallen in sync with the reduction of the repo rates and the fall in the 1 year yields and perhaps more than was the case with the 5 yr yields as shown in Fig. 9.20.

The MCLR of the scheduled banks shows that these were falling even before the COVID crisis due to the repo rates becoming true policy rates from middle of 2019 onwards, when the RBI had also lowered the repo rates. However in response to the COVID the fall has been under 2%, with the MCLR for private banks despite the fall in the repo rate being quite high—above 8% which was the case for the median MCLR rates as shown in Fig. 9.21.

[3] In the US the only factor is the expectation of the market on the continuance of the low rates, so that measures like forward guidance over the GFC and the few years that followed the GFC, could bring down the longer rates.

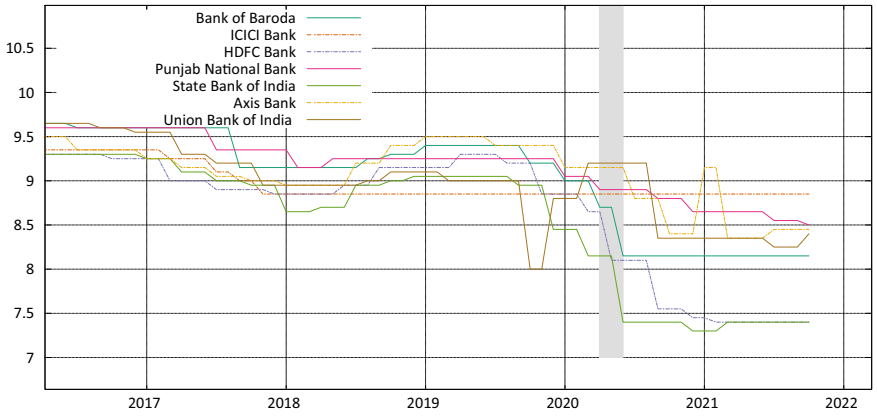

Fig. 9.20 Base rate (polled by CMIE) of certain bonds (%)

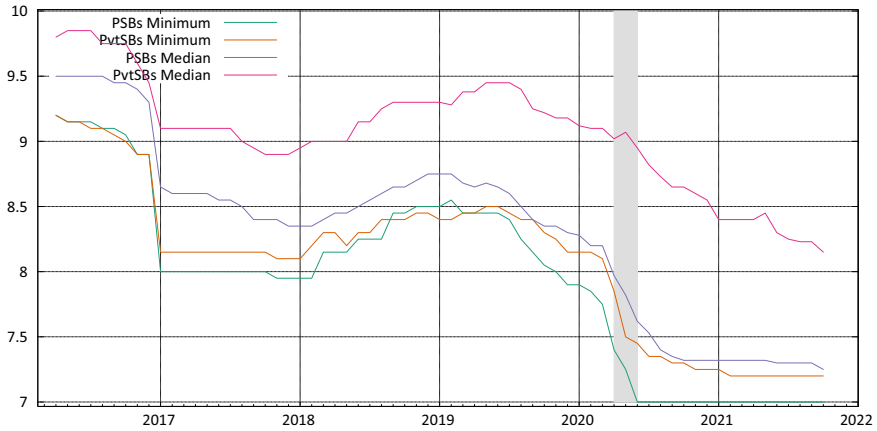

Fig. 9.21 1 yr MCLR of scheduled commercial banks

9.10 Yields and Credit Flows

Despite the lowering of rates the transmission to long duration bond yields remaining problematic so that the yields on corporate bonds and the lending by banks for capital formation would be problematic. The measure of $\psi = \left(\left(\frac{y_n}{y_1}\right) - 1\right)/\ln(n)$ which is a measure of uncertainty over time that financial markets sense shows that even before the COVID Crisis from 2017 onwards, it had risen and due to the crisis it rose sharply quite like during the GFC but has yet to fall in India. In other words the RBI has despite all efforts of increasing liquidity has not been able to convince the financial markets that rates over the longer period would not go up, so that the longer bond

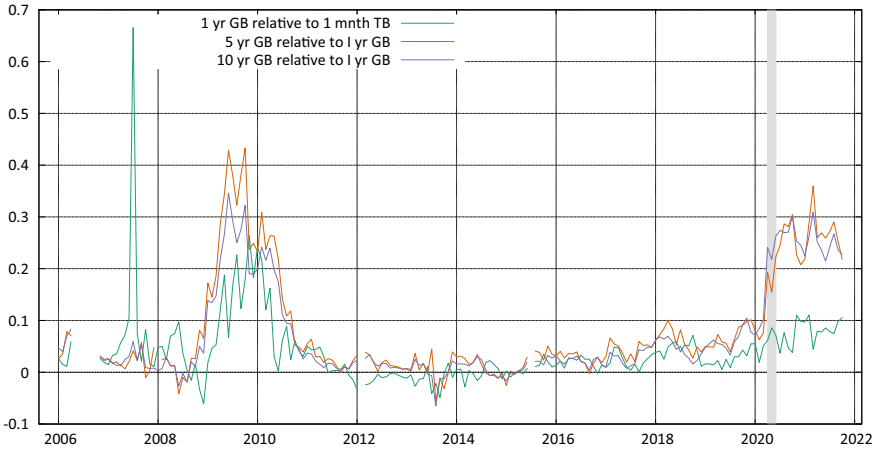

Fig. 9.22 Sigh measure of term premium in Govt. bonds

yields remain high and the yield curve continues to be steep. This is not surprising given the nature of inflation targeting practiced by the RBI, as mentioned earlier as shown in Fig. 9.22.

Before we consider the credit flows to industry, the corporate bond yields are revealing. Relative to gilt the yields for AA rated bonds had been high from 2016 onwards by over a 1.2%. This is because the fiasco with the NBFCs and the large delay in the recapitalization of banks. The infusion of capital into PSBs began only in Oct 2017 and by December 2018 some Rs. 1.28 lakh crore had been infused (PIB, 2018). This helped the purchase of bonds of AA rated companies which brought down the premiums. However the problem of IL&FS whose inane ways of working in the infrastructure space were known, had to declare itself unable to honor its vast debts, put the financial sector into a deep panic (ET, 2018), and the premiums for AA bonds rose sharply to their highest in a very long period with the five-year premium rising to as much as 1.8%, while the 10 year too rose to over 1.4%. Just before the COVID Crisis these began to fall since the RBI had loosened its stance from 2019 onwards as shown in Fig. 9.23.

The initiatives of the central bank resulted in lowering the premiums for the longer duration bonds but not for the 5 yr bonds, which had reached their highest during the Crisis, and continued to be at levels exceeding 1.5% even over the recovery period. For AAA bonds the premiums despite a rise from 2018 to the crisis moderated thereafter. This is because the yield curve itself had steepened with yields on longer term government bonds itself having diverged sharply.

When we consider these developments along with the marginal fall in the lending rates, it is obvious that the leading AAA firms faced no issues in raising capital either before or after the crisis though the rates they face are far too high in relation to the rates for short term funds. However for other firms lower in the rating, it would have

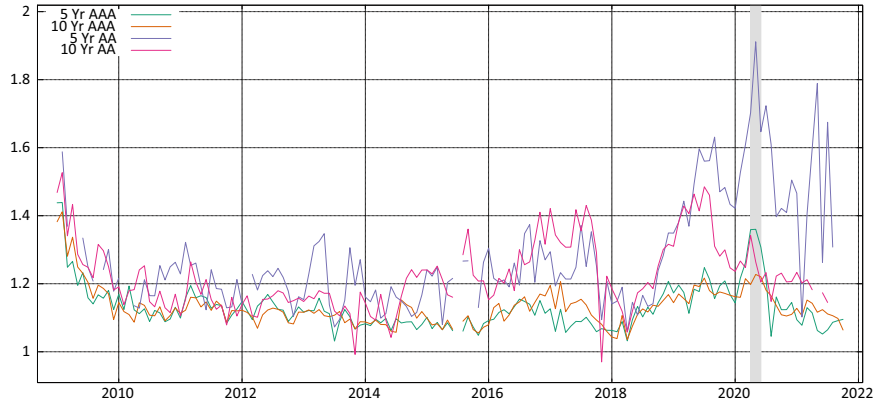

Fig. 9.23 Corporate bond risk premiums % per annum

been another story. Even for firms one level below the AAA, i.e., for AA firms the risk premiums continue to be high especially for market borrowings.

The actual credit flow from banks to industry despite the significant fall in the MCLR and the base rates have been muted. Total Nonfood credit has grown at less 7% in the recovery period, and credit to industry has been barely positive as shown in Fig. 9.24. Ever since 2011–12 when the major tightening happened credit growth had declined, and the bump up in 2018 did not hold, so that in the immediate pre-COVID year, the credit growth to industry sharply fell from about 5% to nearly zero. So despite all the efforts of the RBI the credit flow to the industrial sector has not been anywhere near what it should have been for an economy that many believe is just on the beginning of a long delayed investment cycle.

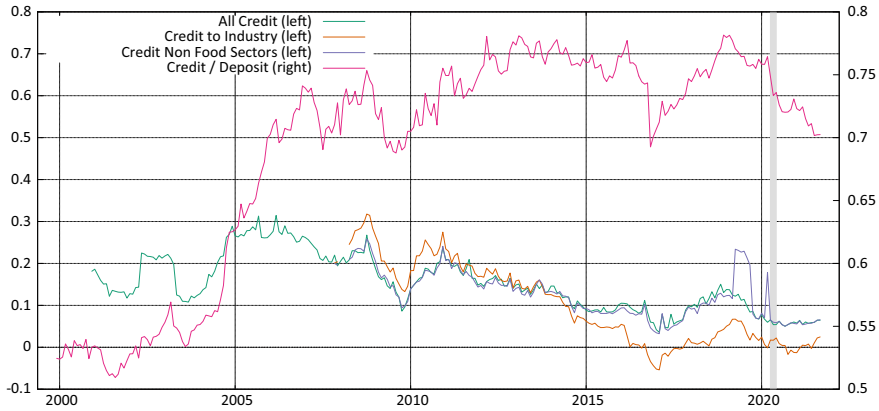

Fig. 9.24 Growth rates of credit flow (YoY) and ratio of credit to deposits

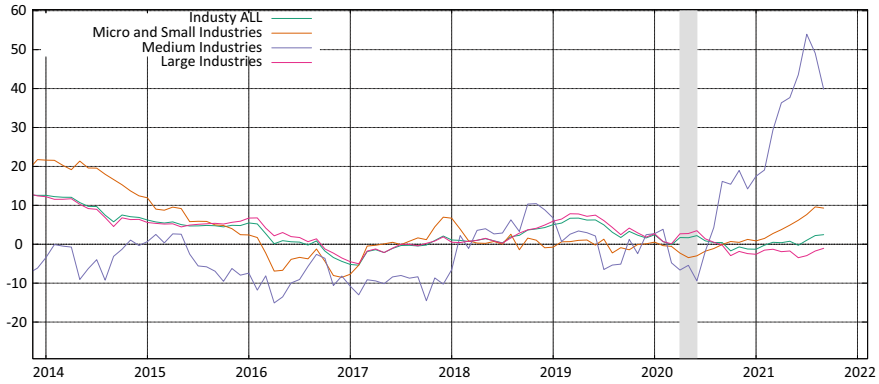

Fig. 9.25 Credit growth SCB (YoY % per annum) micro, medium and large units

When the credit flow from SCBs is considered in terms of RBIs classification: to micro and small units, to medium sized units, and to large units, we see that the credit to large units has not grown at all, and to micro and small units at well below 10%. For medium industries there is apparently a very large increase over the COVID recovery period. But if we remember that the "Medium" industries for the RBI are a residual category, with less than 10% of the credit, then the change is most likely to be due to classification, though it is certain that there is revival from a very low base as well. Overall credit flow to industry as a whole was hovering around 0% growth in the recovery period. For medium industries right from 2014 credit growth was negative or zero, and from 2015 it has been muted to industry and its size wise segments as shown in Fig. 9.25.

The growth rate of credit to the priority sector (till November 2020) was well under 10% which was a continuation of the trend before the COVID crisis almost from 2016. Thus for the priority sector there has been little growth in credit for a long time. For commercial real estate and housing after a recovery in the immediate pre-COVID period when the government shored up the capital base in two tranches, there was recovery, which fell off to under 10% after the first three months of the COVID crisis. The credit to NBFCs shot up from a very low level in mid-2017 all through 2018, 2019, and 2020, as the government shored up the capital base of the PSBs, and from 2018 onwards as the interest rates fell. But from mid-2020 onwards the credit growth to NBFCs declined to under 10% and over the last quarter has been practically nil as shown in Fig. 9.26.

Thus the picture of credit growth to industry is consistent or below the recovery (still behind 2019 values) that we saw by considering the index of industrial production and the CMIE series on employment. Credit to deposit ratio had been stagnant since 2011–12 (See Fig. 9.24), so that the credit growth would only have kept pace with the deposit growth, i.e., with M3 growth which as we saw was much muted all the way from 2017 (See Fig. 9.17 again). During the COVID crisis the credit /deposit ratio fell sharply and has continued to do so since then (See Fig. 9.23)

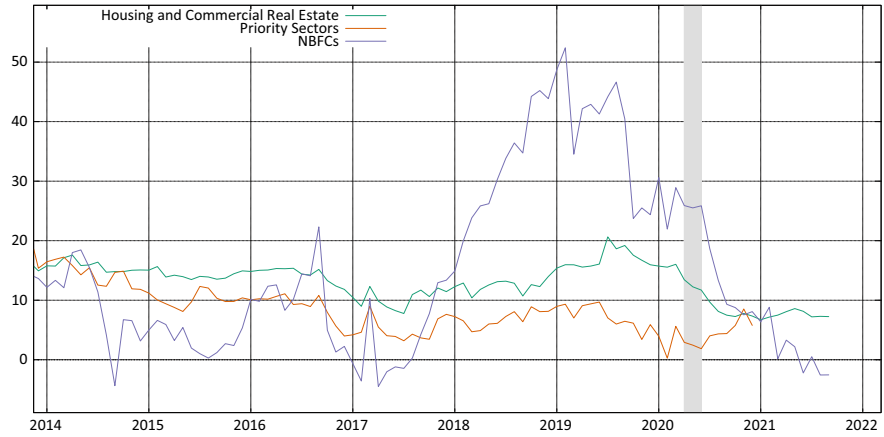

Fig. 9.26 Growth rate of credit (YoY % per annum) f SCBs: housing, priority sectors, NBFCs

Monetary measures have gone a distance to reduce the low end interest rates, but less so to reduce the longer duration interest rates. And very little to raise the credit to productive industry. It is a moot point if the latter is possible through monetary measures without a very dynamic demand situation that brings back the investment cycle.

9.11 Government Expenditure

Using monthly data on expenditure and tax collections is problematic because of the volatility here which has a systematic seasonal pattern so that even a YoY measure would not reveal the underlying trend. Yet the month to month variations are too high for the trend to reveal. We have used a rolling 12 monthss moving average of expenditure and tax revenue to consider the trends in over the COVID and the recovery periods. This confirms that government expenditure has been dynamic and has gone over the levels in the pre-COVID year. The fiscal stimulus of nearly 1.81% of GDP which we had estimated in the previous chapter was no doubt responsible. However the actual expenditures may have begun well after the COVID quarter in the last quarter of 2020 and the bulk of it happening in the first quarter of 2021 as shown in Fig. 9.27. Revenue expenditure excluding interest payments and capital expenditure is what drives demand, and these rose from the middle of 2021. But since then revenue expenditures may have slowed down a little.

On a quarterly basis (aggregation of monthly figures) we see from Table 8.6 that revenue expenditure has gone beyond its highest level reached in the same quarter in a pre-COVID period. Capital expenditure has been very steady and significantly more than before in the COVID period. Tax collections too when similarly considered have risen from well over their pre-COVID levels. The peak in overall expenditure was

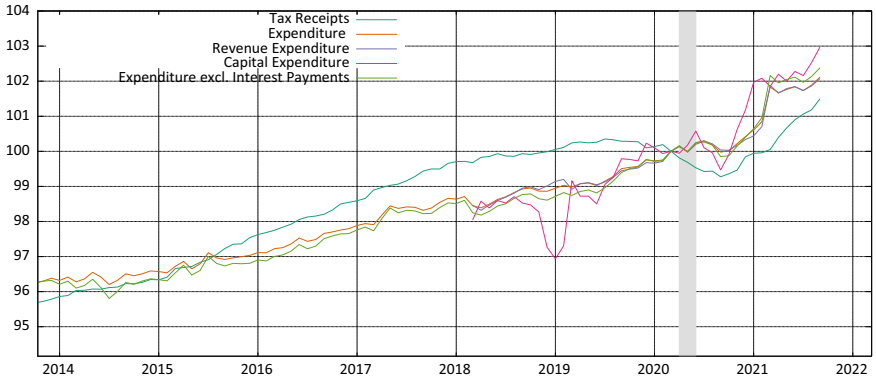

Fig. 9.27 Index of log of moving average of central government budget items (2020:03=100)

reached in the first quarter of 2021 after which it has climbed down to levels that are a little higher than before. Thus the fiscal stimulus has weakened since Q1 of 2021. The gross fiscal and revenue deficits are already on a trajectory of coming down from the high levels reached over stimulus period. This may be premature since the economy has to recover the lost ground and the demand needs to be strong enough to start the investment cycle. Investment had been sputtering all the way from 2012 to 2013 (Table 9.6).

9.12 Inflation

The COVID crisis is both a massive supply-side shock and a demand-side shock. Therefore inflation outcomes are difficult to predict. . However both shocks being negative, the only way the economy can adjust is by a large reduction in output. Thus over a quarter when the lockdowns happened the output was at 30% below its normal level, or worse.

There would be an inflation in items like vegetables, and items of mass consumption that arise owing to the fracture in the supply chain. As these are restored the supply chains in items that involve more roundabout ways of production could get affected forcing a specific inflation in these items. The inflation in these items if sustained over periods of more than 6 quarters could build inflationary expectations that could give a push to the overall core inflation. However since the situation is also a negative demand shock, addressing such push up cannot be without the cost of a slowdown in the revival. Certain ubiquitous items like oil and gas, and other materials prices, and now “semiconductor” chips pose problems which are not easy to address.

Table 9.6 Central government expenditure and tax collections (Rs. trillion)

	Tax receipts	All expenditure	Interest payments	Revenue expenditure	Capital expenditure	Revenue deficit	Gross fiscal deficit	Expenditure excl. interest
2019:Q2	4.00	7.22	1.42	6.59	0.63	3.74	4.32	5.80
2019:Q3	5.19	7.67	1.29	6.42	1.25	1.11	2.19	6.38
2019:Q4	4.64	6.21	1.54	5.53	0.68	2.23	2.80	4.67
2020:Q1	6.27	5.77	1.88	4.95	0.81	−0.40	0.02	3.89
2020:Q2	2.70	8.16	1.60	7.28	0.88	5.78	6.62	6.55
2020:Q3	4.51	6.63	1.45	5.86	0.78	1.85	2.52	5.18
2020:Q4	6.17	8.01	1.67	6.58	1.43	1.20	2.44	6.34
2021:Q1	6.87	12.31	2.10	11.15	1.16	5.72	6.63	10.21
2021:Q2	5.32	8.22	1.84	7.10	1.11	1.70	2.74	6.37
2021:Q3	6.52	8.04	1.79	6.87	1.18	1.45	2.53	6.25

Source Author's computations. Raw data from CMIE, EOI.

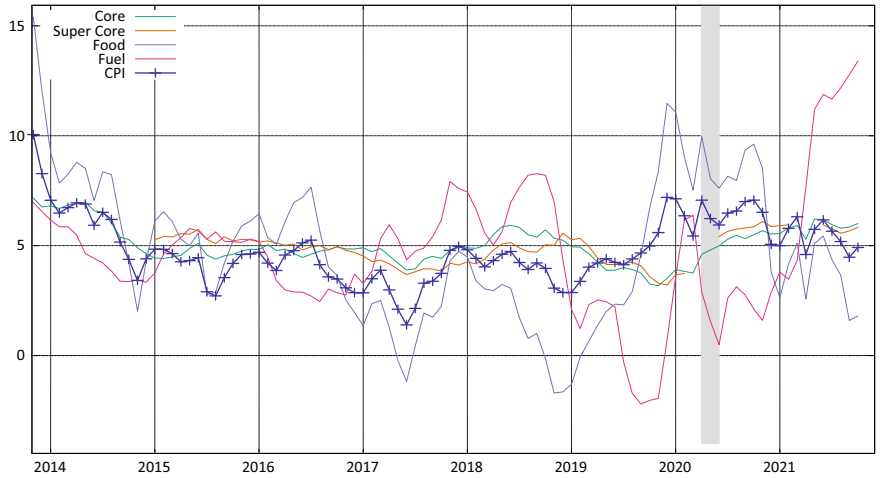

Fig. 9.28 Inflation (YoY % per annum) core and related components

Inflation as measured by the CPI had been below 5% from mid-2014 onwards dipping as low as 2% in mid-2017, largely because food inflation had remained low, and with the CPI having as much as 45% (now 37%) weight for food, the dependence is not difficult to understand. It rose in 2020 with food inflation reaching levels close to 6.5% before stabilizing at this level through the COVID crisis and the recovery period. From 2021 it fell back to a range between 4.8 and 6.2% or so, as shown in Fig. 9.28. However the core which is the measure of addressable inflation was far more steady operating within a range from about 4 to 6% rising and falling with the pass through effects of food and fuel prices, with no trend to take it away from this level, till 2019.

The core and the "super-core" (which excludes housing as well), from 2019 fell to a low 3.75% (approximately) owing to a bout of low food inflation followed by very low fuel inflation, again with a pass thru with fuel inflation being more quickly passed through while food inflation involved a year or so. Thus our earlier explanation, in Chap. 7, of the determinants of inflation remain intact. The core and the super-core are expected to be close in this period, since housing inflation is one of the steadiest items with significantly much lower volatility. It is only in India given the absurd way in which housing prices (rentals) are determined that the housing CPI shoot up as happened in 201011, which we have dealt with in Chap. 7. In this period since 2019, there was no "Pay Commission" etc., so the core and the "super-core" go together. The core has fallen as the food inflation came down from late 2020. It would most certainly have fallen to lower than 5% had the fuel inflation been not pushed to record high levels of over 10%. Fuel prices are entirely external to monetary management, being largely administrative (government and oil companies deciding the taxes) and global with no feedback from India's demand curtailment to global oil prices. Being pass through both ways as the experience now over 2 decades would tell us, there is

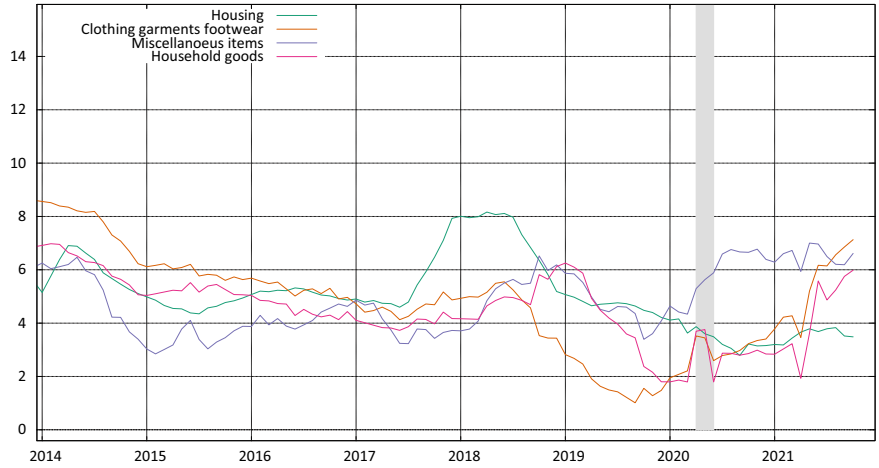

Fig. 9.29 Inflation in some of the core items (YoY, % per annum) (CPI 2011–12)

no rationale to respond to this rise in the core in the COVID recovery period through any kind of tightening from the current levels.

Further examination of the item/sector wise inflation reveals the supply-side dominance in the pattern of inflation over the COVID period. From Fig. 9.29 we see that clothing, garments, and foot wear the inflation in which had been a low 3% or so since mid-2019, moved up from the second quarter of 2021 to about 5.5–6%. This is likely to be temporary. Miscellaneous goods which include much of the rest of the items of the CPI (Household goods and services, Health, Transport and Communication, Education, and Personal Care and Effects), rose to drive the core due to the pull of the high food and fuel prices as said before. But within that household goods being more produced in character have been last to respond quite like clothing, garments, and footwear. Housing has remained muted and below 4% since there was no shock over the period.

Education too has shown a similar pattern as is only to be expected remaining at levels between 2 and 4% as shown in Fig. 9.30. Health and recreation remained confined to their old levels of between 4 and 6% with both rising above 6% during 2021, health first and then recreation for just two months. The rise in recreation is related to the rush for the services once the travel restriction was off and the opening taking place and due to the bunching of pent up demand. Health services are of course related to the very large spurt in demand and to a temporary lag in the supply response, since the supply response can be expected to be high, there being few barriers to entry. It may also be due to the large outlays in publicly supported health insurance, in a situation where there is little supply.

Transport though shows a very large spurt in inflation over the COVID periods and well into the recovery period. This is due to the straight pass through effect of fuel prices on truck, bus, and taxi service prices which had risen over the same period,

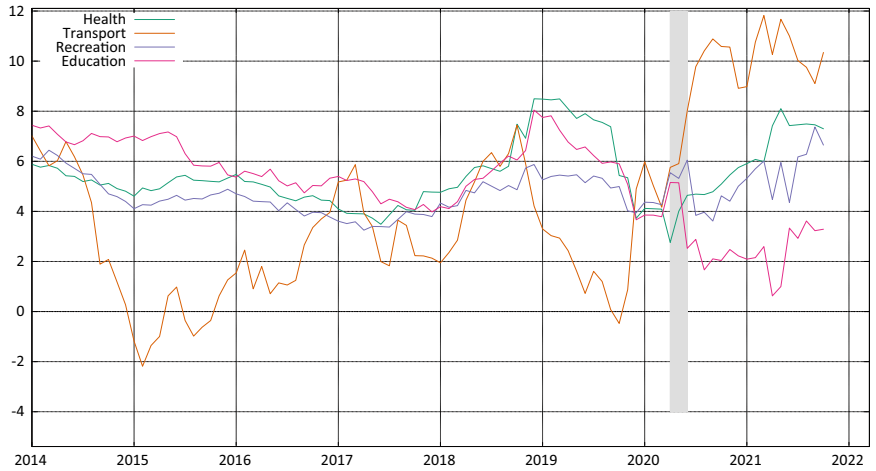

Fig. 9.30 Inflation in some of the core items (YoY, % per annum) (CPI 2011–12), cont.

and also due to the increased demand on road transport as the rail and air services remained shut or operational at low levels till almost the third quarter of 2021.

Thus there is a simple supply-side explanation for the inflation, and there being little or no expectations that these would be maintained, even core inflation targeting would not require any tightening measures over the situation in November of 2021. That there are no expectations of a secular rise in the inflation may also be confirmed from the behavior of real wages. As we have seen before from Fig. 9.8 earlier rural real wage rates (agricultural, non-agricultural, and for both males and females) have remained flat from 2014 onwards with only small movements. Ditto with the MNREGS wages which puts a floor and a reference for rural wages. Thus wages in the competitive rural markets and in agriculture—the residual sector—are entirely dependent upon the CPI and have seen movements only in keeping with the cost of living and no more, thus again showing that on rural wages there is only a pass thru effect and no sustained rise based on expectations.

We don't have equivalent monthly data for urban wage rates. But the rural being typically the lower of the two is better indicative of any basic wage pressure other than that due to basic goods inflation pass thru. Using the quarterly corporate sector estimates of the CMIE, the share of wages for all companies in the Non-financial sector, and in the Manufacturing segment of the former, both show steady levels if not a small fall as shown in Fig. 9.31. The sharp rise over the COVID months is only to be expected since many industries remained closed while still paying for their employees on annual or "permanent" contracts, while they did not have production or had much reduced production. Wage rate data from the Annual Survey of Industries (ASI) is available only on annual basis and with much delay.

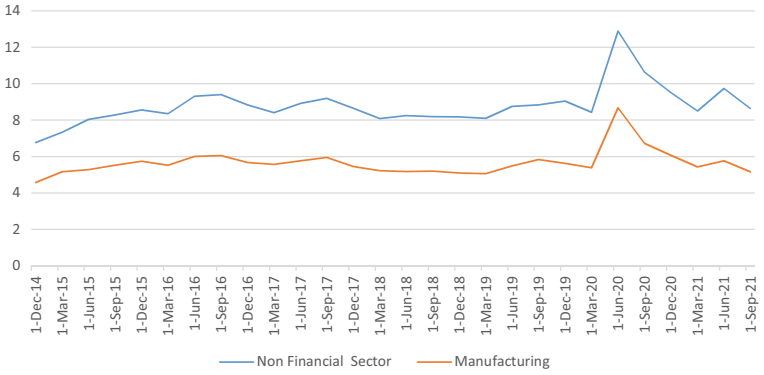

Fig. 9.31 Share of wages and salaries in total expenses (%)

9.13 FDI, FII, and the "Fisher-Open"

FDI inflow growth had slowed down over the period from 2013. Although it had picked up the growth rates never really reached the levels achieved during the "Tiger" period, nor what was achieved during the period of the fiscal stimulus. During the COVID it has dipped, but revived to reach growth rates of around 15–20% per annum. Since FDI flows are volatile we have taken the YoY growth rate of the 12 monthss moving average to indicate the trends as shown in Fig. 9.32.

FII flows are even more volatile. In Fig. 9.33 we have the 12 monthss moving average of the portfolio investment flows in US$ millions. After the GFC as the massive liquidity expansion took place we see a heightened levels of flows, though with much volatility from 2010 all the way to the present. In the pre-COVID period

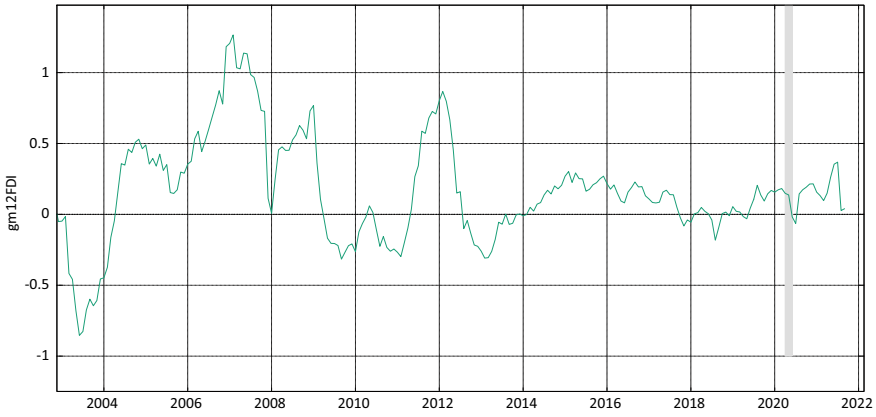

Fig. 9.32 Growth rate in the 12 month moving average of FDI (YoY)

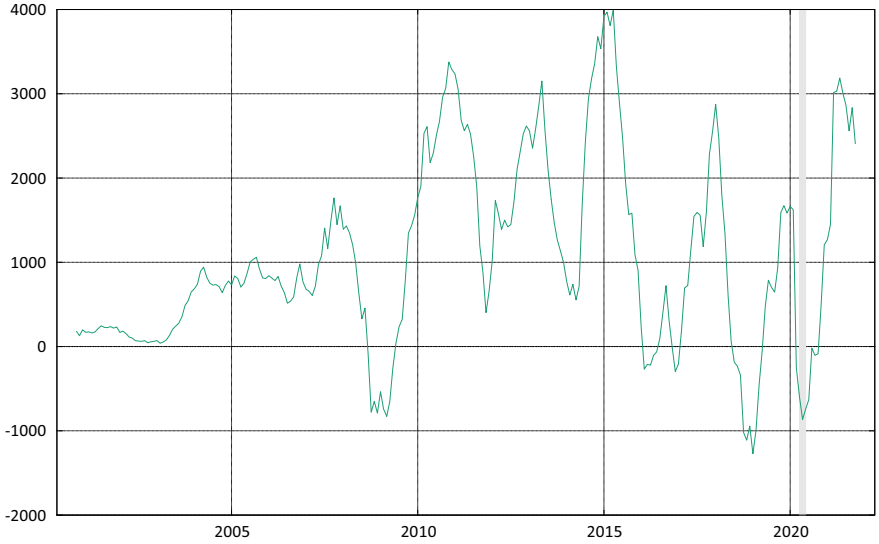

Fig. 9.33 12 Month moving average of portfolio investment (USD million)

the flows remained overall positive but sometimes were even negative. We had earlier considered the gross purchases and sales to show that flows had slowed down in the immediate pre-COVID period. The tight liquidity condition in India over much of the period from 2011 to 2012 almost until mid-2018 is an added factor in the high flows overall over the period. In the recovery period, large FII flows have been instrumental in the rise of the capital market till almost end October. Long period interest rates in India compared to the other dynamic east Asian economies have been high which would have helped to attract far more FDI and FII flows into India relative to the potential than in these other countries, or relative to the potential in the "Tiger" period, in the short to medium term. This would have allowed FII to finesse the market through high volatility to realize gains from the Indian market.

Observe from Fig. 9.34 that the deviation from uncovered parity (the so-called "fisher open") in India has been large, and had risen from the GFC to the taper tantrum quite steeply to reach a 10% level. This meant that with reference to the US the interest rates were so high for the forward premium (expectation of the currency depreciation) was systematically overestimating the actual (ex-post or realized depreciation) by as much as 10%!. Right through the period this has been in excess of 4%. During the COVID as it came down (it had been falling from 2013 when the beginnings of monetary easing from the very tight levels began, and fell to below 4% from 2019, with the new RBI governor. The liquidity expansion over the COVID recovery helped to lower it to about 2.5–3%. The longer duration values would have followed these trends closely. Observe also that for China the "fisher open" has been general under 2% for much of the period when it was pursuing export led growth policies. Since the GFC, it has gone up but it was still lower than for India by around 200 basis

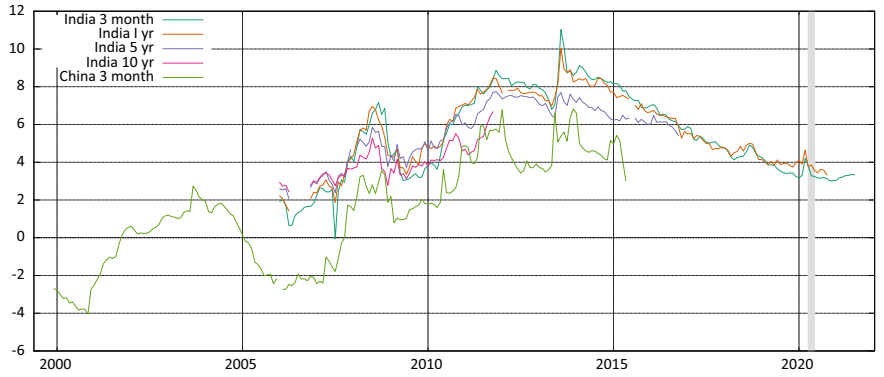

Fig. 9.34 Deviation from uncovered parity India and China at various durations

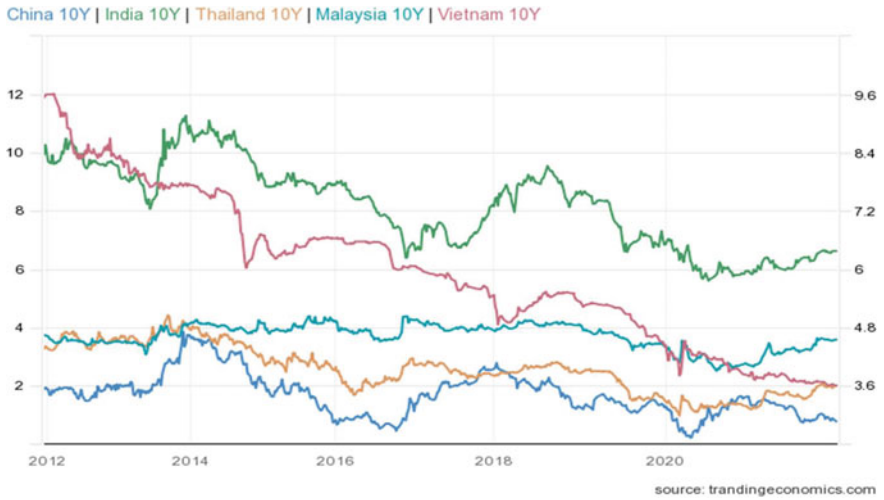

Fig. 9.35 10 Yr. Bond Yields—India, China, Thailand, Malaysia, and Vietnam. (Source: Trading Economies)

points. Thus Indian policymakers relative to China have been very conservative on their monetary policy stances, keeping the interest rate well above the rate required to bring about uncovered parity with a small 2–3% country risk which may be granted to non-reserve emerging market economies.

The 10-year government bond yields are important in setting the reference rate for risk free earnings in investment decisions. Observe that among the emerging Asian countries and China, covered in Fig. 9.35[4] India has had the highest rates. From around 10–11% it fell to around 7% and then rose again to cross 9% in mid-2018 and

[4] Kindly ignore the right side scale. All series use the left side scale.

has fallen since then to reach a little above 6% on the eve of the Crisis. Over the crisis it fell briefly to under 6% to remain a little above that level over much of the recovery period to date. It is highly unlikely that it would go down from here on, if we go by the market expectations. In contrast, in the cases of China, Malaysia, and Thailand it has been under 4.25% through the period. For China it has been generally lower than 3% from 2018 onwards. In none of these countries do we observe a very significant fall from the pre-COVID levels, except in the case of China, from its low (lowest among the set of countries) pre-COVID levels. What is interesting is that Vietnam the newest entrant into the ranks of the ELG economies has witnessed a steady fall in the rate from high levels in 2012 to reach very low levels of 3.6% or so. Clearly Vietnam has been strategizing its ELG by now ensuring that interest rates stay low to spur investments. Thus the problem of higher interest rates in India is a result of the orientation of its macroeconomic policy towards the normal "stabilization" and inflation targeting. In ELG countries it is "strategic" where growth using global markets and spurring investment is the core objective of macroeconomic policy with core inflation bounds as a constraint.

The higher FDI flows, which has been happening since 2013, based increasingly on brown-field investments and on takeover of Indian businesses, despite low growth, is not difficult to fathom, as also the high FII flows with high volatility. IT and software businesses and startups have seen a continued flow of FDI despite the pandemic.

Annex

See Table A.1.

Table A.1 Trajectory of indices of industrial production (2011–12 before and after the COVID, decline and recovery (absolute index or % CAGR unless otherwise stated)

	Food	Beverages	Tobacco	Textiles	Wearing apparel	Leather etc	Wood etc	Paper	Printing and recorded media	Coke and petroleum	Chemicals	Pharma	Rubber
Index pre crisis													
Average 12 months before 31st March 2020 (2019:04–2020:03)	123.7	106.4	95.4	115.7	154.6	122.7	113.8	90.8	90.7	126.7	118.5	215.2	100.0
Average 1 quarter before 31st March 2020 (2020:01–2020:03)	135.7	99.8	95.3	113.1	147.5	121.0	102.4	83.3	87.5	129.2	115.9	207.3	94.5
Index crisis													
Average over 1st quarter of crisis (2020:04–2020:06)	98.3	48.7	44.2	38.1	59.4	51.3	39.4	51.6	48.6	96.0	88.7	188.3	63.5
Index recovery													
Average over 1st quarter of recovery (2020:07–2020:09)	109.7	80.1	91.5	98.6	115.9	113.3	95.1	70.1	67.4	104.4	122.2	233.7	102.4
Average of 2nd quarter of recovery (2020:10–2020:12)	116.2	90.2	79.5	117.5	117.1	114.5	102.2	85.1	68.4	117.9	128.0	229.9	108.3
Average of 3rd quarter of recovery (2021:01–2021:03)	141.3	100.3	99.0	116.1	137.7	123.3	115.6	83.1	71.1	124.6	126.2	217.6	109.7

(continued)

Table A.1 (continued)

	Food	Beverages	Tobacco	Textiles	Wearing apparel	Leather etc	Wood etc	Paper	Printing and recorded media	Coke and petroleum	Chemicals	Pharma	Rubber
Average of 4th quarter of recovery (2021:04–2021:06)	116.8	76.1	72.1	110.4	92.4	87.5	91.1	81.0	65.1	114.1	114.5	215.4	100.9
Average of 5th quarter of recovery (2021:07–2021:09)	114.3	87.6	85.1	118.9	118.6	110.5	108.0	81.1	69.1	112.9	125.5	233.8	108.0
Average over the latest rolling year of recovery since the crisis (2020:10–2021:09)	126.2	87.6	87.2	114.2	117.3	108.9	107.6	79.8	69.9	117.8	123.2	225.5	107.1
Average over corresponding months before the crisis (2019:10–2020:03 and 2019:04–2019:09)	123.7	106.4	95.4	115.7	154.6	122.7	113.8	90.8	90.7	126.7	118.5	215.2	100.0
Change in index													
Crisis YoY (%)	−16.2	−32.4	−18.0	−18.2	−51.6	−28.0	−35.9	−36.4	−36.9	−1.7	−24.3	−30.0	−33.7
Crisis over last quarter before crisis (%)	−16.8	−96.7	−74.2	−110.6	−102.3	−92.1	−107.1	−59.1	−70.5	−25.2	−27.7	−10.5	−49.4

(continued)

Table A.1 (continued)

	Food	Beverages	Tobacco	Textiles	Wearing apparel	Leather etc	Wood etc	Paper	Printing and recorded media	Coke and petroleum	Chemicals	Pharma	Rubber
1st quarter recovery YoY (%)	−3.3	−22.8	−4.0	−15.1	−30.1	−8.1	−24.8	−29.6	−25.6	−18.0	0.8	4.9	0.2
2nd quarter recovery YoY (%)	−10.8	−7.6	−21.0	−1.9	−24.1	−3.2	−12.6	−8.4	−27.1	−9.0	6.6	3.6	9.0
3rd quarter recovery YoY (%)	4.1	0.5	3.8	2.7	−6.9	1.9	12.1	−0.3	−20.7	−3.6	8.5	4.8	14.8
4th quarter recovery YoY (#) (%)	0.4	−51.9	−25.3	−4.2	−58.2	−38.7	−23.4	−14.0	−41.3	−7.9	−2.2	3.0	−3.1
5th quarter recovery YoY (#) (%)	0.8	−13.8	−11.3	3.6	−27.8	−10.6	−12.1	−14.9	−23.1	−10.2	3.4	5.0	5.5
4th quarter recovery YoY ($) (%)	0.2	−26.0	−12.6	−2.1	−29.1	−19.3	−11.7	−7.0	−20.7	−3.9	−1.1	1.5	−1.6
5th quarter recovery YoY ($) (%)	0.4	−6.9	−5.6	1.8	−13.9	−5.3	−6.0	−7.5	−11.5	−5.1	1.7	2.5	2.8

(continued)

Table A.1 (continued)

	Food	Beverages	Tobacco	Textiles	Wearing apparel	Leather etc	Wood etc	Paper	Printing and recorded media	Coke and petroleum	Chemicals	Pharma	Rubber
Average of year 2020:10–2021:09 recovery YoY (1.5) i.e., over average of (2019:10–2020:03 and 2019:04–2019:09) (%)	2.0	−19.5	−9.0	−1.2	−27.6	−11.9	−5.6	−13.0	−26.0	−7.2	3.9	4.7	6.9
Trend growth rates 2012:04–2020:03 of the deseasonalized series using ARIMA (%)	2.15	0.04	−3.58	0.80	6.10	1.37	1.63	−1.99	−1.22	2.90	1.83	11.79	−0.62
Average of year 2020:10–2021:09 recovery YoY (1.5) i.e., over average of (2019:10–2020:03 and 2019:04) adjusted for the period difference. i.e., annualized (%)	1.33	−12.98	−5.98	−0.83	−18.39	−7.95	−3.75	−8.66	−17.36	−4.83	2.61	3.13	4.57

Over the two years; $ Over the two years/2 (i.e., CAGR)

(continued)

Table A.1 (continued)

	Non−metallic	Basic metals	Fabricated items	Computers etc	Electrical	Machinery nec	Motor	Other transport	Furniture	Other	Mfg	IIP general
Index pre crisis												
Average 12 months before 31st March 2020 (2019:04–2020:03)	121.3	159.1	90.6	151.0	105.2	107.7	100.2	136.6	197.3	81.2	129.6	129.0
Average 1 quarter before 31st March 2020 (2020:01–2020:03)	125.4	160.4	87.4	132.2	95.7	106.3	90.9	122.5	191.0	77.6	127.9	129.6
Index crisis												
Average over 1st quarter of crisis (2020:04–2020:06)	72.8	91.7	38.4	64.0	33.0	44.6	25.0	31.8	68.9	30.3	77.9	84.0
Index recovery												
Average over 1st quarter of recovery (2020:07–2020:09)	101.8	158.8	86.0	152.8	101.2	95.7	86.0	134.8	168.8	57.9	121.2	119.7

(continued)

Table A.1 (continued)

	Non−metallic	Basic metals	Fabricated items	Computers etc	Electrical	Machinery nec	Motor	Other transport	Furniture	Other	Mfg	IIP general
Average of 2nd quarter of recovery (2020:10–020:12)	126.8	170.0	89.9	138.1	118.4	109.1	101.4	129.3	161.7	84.5	130.9	131.4
Average of 3rd quarter of recovery (2021:01–2021:03)	130.6	176.0	96.0	176.1	108.7	117.4	109.4	138.7	165.7	88.2	136.5	137.4
Average of 4th quarter of recovery (2021:04–2021:06)	119.1	163.9	74.1	113.3	76.8	89.0	83.1	88.1	134.8	79.3	119.1	121.3
Average of 5th quarter of recovery (2021:07–2021:09)	121.8	171.1	89.7	146.9	130.5	110.2	95.2	128.8	167.5	95.3	130.4	130.2
Average over the latest rolling year of recovery since the crisis (2020:10–2021:09)	122.3	170.9	88.0	142.8	110.6	107.2	97.9	124.5	158.4	84.5	129.8	130.0
Average over corresponding months before the crisis (2019:10–2020:03 and 2019:04–2019:09)	121.3	159.1	90.6	151.0	105.2	107.7	100.2	136.6	197.3	81.2	129.6	129.0

(continued)

Table A.1 (continued)

	Non−metallic	Basic metals	Fabricated items	Computers etc	Electrical	Machinery nec	Motor	Other transport	Furniture	Other	Mfg	IIP general
Change in index												
Crisis YoY (%)	−27.1	−21.4	−43.0	−57.1	−41.8	−47.2	−67.1	−12.5	−28.1	−61.2	−25.9	−20.7
Crisis over last quarter before crisis (%)	−53.9	−53.3	−91.5	−100.3	−112.5	−92.5	−151.1	−150.6	−103.3	−105.0	−51.5	−43.9
1st quarter recovery YoY (%)	−12.3	0.9	−4.1	−10.0	−7.0	−8.9	−15.2	−7.9	−20.8	−41.2	−6.5	−5.9
2nd quarter recovery YoY (%)	5.8	4.5	0.7	7.1	3.0	1.7	5.4	−4.1	−19.6	14.2	0.1	1.8
3rd quarter recovery YoY (%)	4.1	9.3	9.4	28.7	12.7	9.9	18.6	12.4	−14.2	12.9	6.5	5.8
4th quarter recovery YoY (#) (%)	−4.6	4.8	−25.8	−43.1	−27.9	−23.5	−31.2	−48.6	−36.2	−8.9	−9.0	−7.2
5th quarter recovery YoY (#) (%)	5.6	8.4	0.1	−14.0	18.5	5.2	−5.1	−12.5	−21.6	8.7	0.8	2.5
4th quarter recovery YoY ($) (%)	−2.3	2.4	−12.9	−21.5	−14.0	−11.8	−15.6	−24.3	−18.1	−4.5	−4.5	−3.6

(continued)

Table A.1 (continued)

	Non−metallic	Basic metals	Fabricated items	Computers etc	Electrical	Machinery nec	Motor	Other transport	Furniture	Other	Mfg	IIP general
5th quarter recovery YoY ($) (%)	2.8	4.2	0.1	−7.0	9.2	2.6	−2.6	−6.2	−10.8	4.4	0.4	1.3
Average of year 2020:10–2021:09 recovery YoY (1.5) i.e., over average of (2019:10–2020:03 and 2019:04–2019:09) (%)	0.8	7.1	−2.9	−5.6	5.0	−0.4	−2.2	−9.2	−22.0	4.0	0.2	0.8
Trend growth rates 2012:04 to 2020:03 of the de-seasonalized series using ARIMA ()	2.5	5.1	−0.4	6.3	−1.6	2.0	1.4	5.3	9.7	−3.8	3.2	3.4
Average of year 2020:10–2021:09 recovery YoY (1.5) i.e., over average of (2019:10–2020:03 and 2019:04) adjusted for the period difference. i.e., annualized (%)	0.6	4.8	−1.9	−3.7	3.3	−0.3	−1.5	−6.2	−14.7	2.6	0.1	0.5
# Over the 2 years; $ Over the two years/2 (i.e., CAGR)												

Source Author's computations. Raw data from CMIE, EOI.

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Chapter 10
The Challenge of Manufacturing

10.1 Manufacturing and Demand

Scholars (e.g., Nagaraj, 2003; Muneesh and Mohan, 2014), delving into India's economic performance have noted that manufacturing did not grow as fast as did services in the post-liberalization period at least until 2003–04 when the "Tiger period" had begun. Thereafter the "Tiger" period was characterized by rapid growth of manufacturing in excess of 10% on an average. See again Fig. 2.3. And during the "Stimulus" period it picked up again to grow at around 8% (but lower than the overall growth rate of the economy) over the two years. Since 2011–12 manufacturing growth has been at its slowest since the Great Liberalization. Indeed, one would like to note that the periods of high and low growth have generally corresponded with periods of high and low growth of the manufacturing sector. This is not merely a statistical effect of the share of manufacturing in GDP, but of the fact that the manufacturing sector is most responsive to both shocks and to macroeconomic demand-side policies such as spending in other sectors (consumption, investment and government, and exports), as well as being responsive (the capacity or the full employment level of manufacturing output) to structural policy measures that make for greater efficiency. Thus demand management policies are primarily reflected in the performance of manufacturing in the short run and "reforms" and structural measures that improve the capacity of the manufacturing sector in the longer run. The dynamic tradable services sector is more intimately related to world demands.

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10.2 Sectoral Differences

At a more structural level Chaudhuri (2013) brings out the role of history and structural policies (trade and investment) in the better performance of the pharmaceuticals sector. Essentially that the infant industry tariffs worked, and the Indian Patents Act of 1977 was positive in having supported Indian firms to learn reverse engineering and do their own R&D (initially centered on process and delivery mechanisms) to emerge as capable players when India entered the WTO. He considers many sectors to conclude that the withdrawal of the state—the move to laissez-faire—has been the most important reason for the increased manufacturing deficit on trade. Only those sectors on a more capable footing—pharma, automobiles and cycles, and scooters showed positive trade balance. The more traditional industries driven by factor costs, local endowment of minerals, or which had seen significant protection—leather products, rubber products, textiles, non-metallic mineral products, iron and steel, clothing and travel goods, footwear, and miscellaneous industries showed surpluses on the trade account in 2008 of a significant level were another set where there were no deficits. A much larger set of industries that included chemicals (other than pharma), paper, power generating equipment, industrial machinery, metal working machinery, computer equipment of a wide variety, telecom equipment and parts (including mobile phones), electromechanical and radiological equipment, aircraft, medical instruments, measuring equipment, photographic equipment and goods, and optical goods the trade balances were significantly negative. Clearly the weaker capability of Indian firms in areas like aircraft, measuring equipment is no doubt true.

The overall trade balance on goods has been some −8% of GDP or more for some 20 years now since 1997–98. It is very important to probe the structural and macroeconomic reasons for this very large deficit. This would be complementary to Chaudhuri's analyses. This approach has the merit of being able to explain the overall trends and features so that only the good performance of the non-traditional sectors largely automobiles, and pharmaceuticals becomes exceptional, and would hence need to be considered at the industrial policy level.

10.3 Growth Trends

The 80 s were a period of relatively better performance of the manufacturing sector. In relation to the overall growth of 5½ % average, the manufacturing growth was a little higher closer to 6 ½%. Over the two periods of high growth—1992–93–1997–98, and then from 2003–04 to 2010–11 with being break during the GFC, manufacturing growth was reasonable and nearly equaled the overall growth rate.[1] During periods

[1] Besides favorable demand situation in these periods, the manufacturing sector's growth and maturity during these periods may have been helped by the reform of the services sectors, especially services connected with banking and finance, ports, shipping and transportation and logistics. This has been argued by Arnold et al (2016).

of slowdown 1997–98–2002–03 and from 2011 to 2012 onwards, the rates on an average were far lower than the overall growth in GDP. In hardly any period has the trade deficit been under 1% except for a year or so. It is only during the COVID Crisis as we have seen when the trade deficit reduced as the pickup in growth was much delayed in India. During periods of sudden deceleration too we notice the fall in the trade deficit as shown Fig. 9.15.

The current account as a percentage of GDP shows similar trends rising over the deceleration in growth 2012–13 and being rather low thereafter as shown in Fig. 3.8 High growth in India has typically involved the trade deficit widening, and the current account following in sync. This would suggest an overvaluation of the currency from the standpoint of the trade in goods. The focus in this chapter is on the macroeconomic (especially policy), and the trade policy influences on the manufacturing sector and its performance.

10.4 Competitiveness in the Eighties

In the eighties the World Bank had been arguing for the liberalization of the economy, especially of the need to reduce the high tariffs in imports of capital goods. The argument was that the high cost due to the high tariffs of capital goods was a deterrent in the performance of the light engineering and other export goods. The fact that the tariffs were high, and administrative controls very large lent credence to this argument. Also it was believed that the reforms had to sequence the tariff reductions, first to bring down capital goods prices, so that the investment incentive was heightened in the sectors where the country had the comparative advantage at the movement in the near term (Joshi & Little, 1996).

However there was a quagmire of tariff rates with the rates being all over the place so that it was difficult (despite the high overall tariffs) to judge the penalty paid by the economy, or the "benefit" to a particular sector. The excise duties which were not vattable were very high and also variable with far too many rates. It was therefore very difficult to make any meaningful assessment with only nominal tariffs on the sectoral protection.

The World Bank in 1984 or thereabouts studied the "Non-Electrical Machinery Sector" adopting the methods of both computing the effective protection rates and the domestic resource cost of each of the principal sectors taken, and for the sector as a whole. The main sectors considered were boilers used in the power sector (Bharat Heavy Electricals Ltd (BHE)L was the firm taken up), turbines (BHEL), and industrial boilers (Thermax), besides industrial machinery related to textile, paper, tea, and one or two other industries. The World Bank expected to find deep protection. However almost without exception for both the firms considered the study found that the EPRs were all negative sometimes by a very wide margin as in the case of textile machinery and boilers both industrial and power (World Bank, 1984).

After proscribing the report and a complete check the conclusions were reiterated. This surprised the WB, but the implied deep inversion in the tariffs, where sectors like steel, materials, and energy were deeply protected / or priced high was brought out

in the study. And their conclusion that the huge and haphazard excise duties (which were non-vattable), duty drawback could never compensate for the import duties on inputs, the large absurdly high cost of non-tradables and the logistic difficulties in exporting from India had all contributed to limiting exports from India despite firm level competitiveness. They also noted that BHEL and Thermax with the low cost of transformation as brought out by the study could been major players in the international market, if the domestic retardants could have been overcome.[2]

10.5 Large Tax Distortions

The study of course cast major doubt on the simplistic view that much of Indian industry was dependent upon protection. That many of the light engineering industries were hurt even more was beyond doubt. That indeed high excise duties was an important factor in keeping exports low is easy to understand since there was no vatting and hence there was no way to ensure that all duties paid on a value chain were compensated—i.e., to have zero vatting.

In those days there was no service tax and much of the tax collections came from excise collections. Taxes were about 15% of GDP and so was the share of manufacturing in GDP. If we keep aside the sin taxes (on alcohol and tobacco) the average tax rate on manufacturing would easily have been around 80–90% on manufacturing value added! The fact that the manufacturing paid nearly all the taxes (and which was non-vattable) meant that not only exports were affected but demands especially in areas where the elasticities were high were depressed. In the case of cosmetics, cars, scooters, upholstery the duties may have been even above the revenue maximizing rates to kill demand and to actually restrict government revenue. Similarly the administered prices of many infrastructure goods electricity, other energy, logistic services, and governance services were either very high priced or poorly provided.

10.6 Auto Sector in the Eighties

Other somewhat less detailed studies, such as the Association of Indian Engineering Industries (AIEI) (now the Confederation of Indian Industry (CII)) study on automobile ancillaries showed that the sector too had low transformation costs with little or no exports. Even then there were other indicators that the auto sector especially the commercial vehicle sector may have been far more competitive than what was believed. As a case consider Tata Engineering and Locomotive Company (TELCO)

[2] There has been much discussion on technological development and competitiveness. Governments can do much to support technological change. Such actions typically take the form of special support programs and incentives for R&D. For the Indian case see Mani, S. (2004). This is an aspect that we do not cover in this chapter. Macroeconomic and industrial policies can be more general than technology policies, and the efficacy of technology policies depends on the growth impetus that overarching policies can create. These have not attracted the attention they deserve.

now Tata Motors. It had developed a significant market in South East Asia especially Malaysia where it had achieved a share of more than 20% in a highly fragmented largely import sourced market with some assembly. Its 1210SE trucks were preferred to even Daimler-Benz trucks gave their phenomenal loading capacity, and the ability to withstand bad roads.

Under the import substitution policy of the Malaysian government in the late seventies Tata set up an affiliate Tatab Industries Sdn. Bhd. which did well for a while despite all the debilities of exporting CKDs from India (vast uncompensated duties paid in India, no credit support from any Bank in India, and inconvenient logistics). In the early eighties Malaysia changed its policy to allow fully assembled trucks at low duty. The Japanese who had hitherto ignored the market—it being small-entered with a gusto, supporting their sales with very low cost credit and repayments which kicked in only after 18 months, provided by the Japanese Exim Bank. The Japanese gained at the cost of all other suppliers to the Malaysian market. Most withdrew leaving it to Tata to fight for the market.[3] Unfortunately they could not persuade the government of India to either support them with export credit, nor to draw back some of the very high duties on the CKDs and the taxes incurred downstream. The margin notings of the DGTD, to the fervent submissions by the Indian High Commissioner in Malaysia, and TELCO show no understanding whatever of simple economic logic! Tatab attempted to source CKDs from Romania since these were available at low (administered) prices from what was then a non-market economy. However the very poor quality of the CKDs resulted in amplified losses, and the Tatas supported Tatab for a long time till the reforms in India which brought some rationality—especially after the implementation of MODVAT allowed the Tatab to survive and be absorbed into Tata Motors operations much later (Morris, 1988).

Similar stories in many other sectors metal furniture, woolen mills, textiles, paper, engines, and pump sets could be made. Indeed in a study of the so-called JVs from India in this period, it was clear that the very large debilities in exporting from India, forced many Indian capable manufacturing operations to (prematurely) set up manufacturing operations in other smaller LDCs and minimize the sourcing from India. Even then the drugs and pharmaceuticals sector given their very high competitive advantage could nevertheless (except in the most distant markets like Nigeria) source their bulk drugs from India. Based on Morris (1988).

10.7 Relative Profitability of Exports

Further evidence that in the eighties the combination of trade, exchange rate, tax, and administered price policies may have hugely disincentivized firms from pursuing export markets is seen in the very low export trade profitability of many Indian

[3] At that time the Korean automobile industry was in its infancy and China had just opened up, the American commercial vehicles were quite unsuitable for Malaysian roads, and the European assemblies were expensive generally.

industries in relation to domestic trade. See Tables 10.1 and 10.2 both from Aksoy (1992) using data from the ICICI data.

Table 10.1 Domestic and export profitability (gross profit on domestic and export sales %)

	1978/79	1979/80	1980/81	1985/86	1986/87
	On total costs				
Domestic profitability	12.0	12.4	13.9	16.1	13.2
Export profitability (without incentives)	−15.4	−12.7	−11.2	−27.3	−17.0
Export profitability (with incentives)	4.0	5.4	4.9	−8.8	−0.2
	On variable costs				
Domestic profitability	–	–	–	27.9	25.1
Export profitability (without incentives)	−5.2	−2.8	−1.6	−11.5	−2.2
Export profitability (with incentives)	14.2	15.2	13.9	4.6	12.4

Sources ICICI. "The data for 1978–81 comes from a study by ICICI comparing the profitability of domestic and export sales for *exporting* firms. The sample is identical for the three years. The data for 1985–87 is for a different sample of firms, and the definitions of profitability are not identical. Furthermore, this data is for firms that are already exporting. These firms are likely to have a higher efficiency and export profitability than most of the Indian firms which do not export at all"
Table 13 of Aksoy (1992)

Table 10.2 Export and domestic profitability by industry groups (1986/87) (gross profit rate in domestic and export sales)

Industry group	Domestic profitability	Export profitability		Export profitability with incentives on variable cost
		Without incentives	With incentives	
Automobile and ancillaries	14.8	−0.6	20.5	29.0
Chemicals and petrochemicals	18.0	−52.7	−33.0	−19.3
Electrical equipment	20.2	−20.3	1.9	19.9
Food products	10.0	−9.3	0.6	6.8
Glass and pottery	19.3	−8.2	5.7	21.5
Machinery	8.6	−22.0	−2.3	14.2
Ferrous metal products	16.3	−22.1	2.4	19.4
Rubber products	4.4	−30.7	−16.1	−9.8
Textiles	19.7	10.4	17.4	25.5
Miscellaneous	37.7	36.4	39.4	39.4

Sources ICICI
Table 14. Aksoy (1992)

10.8 Pre-plan Competitiveness

The developments in the eighties are not really surprising, if the past particularly during the 50s is considered. India's ratio of export to import of manufactures was greater than 1 during the 50s. The War years being one of high demand with little ability of British industries being able to supply India or countries in its neighborhood, India had emerged as a manufacturing power house with significant exports in the region and in Africa. Its textile industry was perhaps the largest in loomage, reaching a share of nearly 14% of the world exports. But all of that in a mere six years after the Second Plan was launched came crashing to nearly half that level (Keesing & Wolf, 1981), and by the close of the Third Plan to very little (Singh, 1964) thanks to the overvaluation of the currency that the import substitution entailed and the capacity freeze on the modern textile industry in India imposed by the plan to keep weaving reserved for the informal sector, to improve the efficacy of employment and keep the overall capital output ratio from rising too high given the push to heavy industries. The closed economy framework meant that the textile industry had to suffer for the diversification push. The import substitution policy hurt industries which were already competitive, while it promoted new industries. The contrast is really with Japan from 1948, and Korea and Taiwan from 1962 or so which pursued economic diversification through import substitution without hurting their export industries through the policy of export led growth. See Morris (1997) for a characterization of export led growth as not the return to laissez-faire as the neoclassical economists (Cf. John Page 1994) would characterize the same. See Lall (1994) who gathered together the evidence of deep intervention in the industrial and trade policy, by the East Asian Tigers.

10.9 Declining Tariffs and Currency "Overvaluation"

Purcell brings out that the gradual reforms in the 80s and rapid reforms of the 1990s brought down the levels of protection quite considerably so that by 2007 they were only above East Asian levels by less than 10% usually 5% or so. Using various measures of protection including duties collected to overall trade, the low and high estimates had fallen to below 1 (zero protection) and about 1.05 to 1.10 by the early 2000s from their high levels of between 1.5 and 2.00 in early eighties. See Fig. 2 in Purcell et al. (2007).

Another feature of the economy ever since India adopted the policy of import substitution was the overvaluation of the currency. IS required overvalued currency to make the capital costs of the new IS industries low. So right through the post-independence period the rupee was hugely over valued till it was corrected in a substantial way with the Great Liberalization of 1991–92 and 1992–93. The over valuation was maintained by deep administrative controls over current account transactions. Purcell also brings out the depreciation in the real effective exchange rate

over the reform period, while the tariffs generally fell, (Purcell et al., 2007), after which the REER may well have appreciated.

10.10 Auto Industry

The relative performance of the auto and electronic goods sectors can be contrasted to bring out roles of industrial, trade, and macroeconomic policies. Both have had to face the same debilities arising out of the non-strategic macroeconomic policymaking in India that have resulted in exchange rates that are not aggressive and interest rates that are high both in relation to the east Asian tigers and China and now Vietnam. The auto sector has been net positive on exports from the nineties if not earlier, once the economy began to grow out of the Hindu period from 1979 onwards. The key to the difference is the tariff policy on motor vehicles. The policy was cast systematically under the aegis of Dr. D.V. Kapur the perceptive heavy industries secretary, who was tasked with the vexed problem of reviving Sanjay Gandhi's "small car project" after his tragic death. See Kapur and Mohan (2014). Suzuki rather than the big players were approached to "take over the project" and the Maruti Suzuki, as an affiliate of Suzuki was set up. It grew from strength to strength to dominate the Indian car market. The small Indian market with the restrictions on owner (the firm had to be a joint venture) was not interesting to the leading firms and Suzuki's interest was studied. But protection of assembly was necessary to allow the small plant that was envisaged to be viable. So the policy was formalized to low duties on CKDs and high (150%) on fully assembled cars. Suzuki's superior technology in contrast to the outmoded frozen in time product offers of the domestic incumbents gave It run away success. In a mere five years, given the low cost of highly skilled and semi-skilled labor in India and a well-designed plant, the Maruti 800 a small car was the cheapest anywhere in the world if the transformation cost was considered. Quite akin to the case of boiler manufacture by BHEL and Thermax mentioned earlier.

However exports were not of any significance. Substantial exports had to wait for the correction over the overvalued exchange rates that the reforms brought about. The rationalization of taxes with the vatting of taxes allowed the demand to grow, the industry, and the ancillaries to greatly increase their manufacturing capability. As incomes grew the demand grew with the expected elasticity of 2, usual for an emerging economy to emerge to produce over 3.5 million cars and about 18 million two wheelers, all of world class standards, by 2015. Today cars are made in India, at a transformation cost that is one of the lowest in the world. The usual arguments that tariffs would raise the domestic prices were not true in this case being a complex product and not a commodity and also because of the very low labor costs. Tariffs when intelligently used can serve to embed industries which can soon become independent of the same, if exchange rates are aggressive enough.

10.11 Electronics Manufacture

In contrast the electronics industry before the COVID crisis presented a grim picture of extreme import dependence. Out of some US$ 90 billion of electronics goods the net imports were close to 85% of the domestic market. In fact the electronics industry had, despite the promise of an early start, steadily lost its global share. When we recognize that in the early seventies it is was an Indian company Bharat Electronics Ltd (BEL) that provided the first technology transfer to manufacture discrete devices (thyristors and transistors) to South Korea, the fall back is hard to believe.

India in 1977 the Janata Government asked IBM to either sell its computers (it only wet leased equipment in India) or quit. That single act of courage allowed Indian firms especially ECIL to produce miniframes in India then. It also led to IIT Bombay with its EC1030 Computer (a copy of the IBM 370) working hard to indigenize design and develop software capability by doubling memory modules. It wrote compilers to start with. The learning over this period without IBM made India steal a march over so many countries in capability in design and software.

Manufacturing though underwent a revolution first with the emergence of microprocessors quickly followed by the PC. In the intervening period before the PC emerged, not only was ECIL making a mini frame in India, but HCL made the "Action Station" a pre-PC personal computer that sold well not only in India but also in Singapore. There was a period when ICs were prohibitively expensive in the mid-70s due to tariffs being very high when NELCO had made a programmable calculator with discrete devices that occupied a whole desk while palm sized calculators could be smuggled! In the eighties due to chips being unavailable almost all consumer electronics manufacturers fell behind with much of the demand being met by smuggling.

The "Action Station" of HCL as much as many other pre-IBM PC machines[4] which all had substantial markets were all washed to the wayside, as the IBM PC bus was declared public, which made it the machine of the highest interest among software producers, and then consumer side scale and scope economies that got unleashed once the penetration of the IBM PC went beyond a certain number.

10.12 The PC Revolution

Microsoft had earlier developed the operating system for IBM on contract but also retained the right to sell directly to third parties. The declaration of the PC's bus to be open, the emergence of third-party makers of motherboards and components, assemblers, and the availability of the core operating software from Microsoft, along with

[4] Among them beside Apple (which was able to survive, thanks to its technological lead over the IBM machine), were Apollo, the series of Amiga machines of Commodore Corp, Trash 80 a game focused computer, Osborne and possibly some others in US, and Europe with significant sales.

a horde of application software developers on the declared handles of the operating system meant an explosion in the PC (8088) machines. This created a revolution in the world of computers that continues to this day. Even the emergence of mobile smartphones pales in comparison. The "winner takes all", with Microsoft holding the one component in the value chain as proprietary allowed it to dominate the chain, and create the IT ecosystem. Along with Microsoft Intel as the chip designer and manufacturer emerged owing to the large cost of investing in fab plant which gave it the advantage of manufacturing on scale at low prices. See Morris (2003) for a discussion of the nature of the IT industries based on their large consumer side scale and scope economies.

Japan was the only other country that had the capacity and the capability then. Most European fab manufacturers had shut shop or were on the decline, because unlike in Japan and the US which both saw large state support to the computer industry—in Japan through the so-called "Fifth Generation" Project, and in the US through Semantech (a cooperative R&D effort to catch up with Japan in thin film technology). However since the downstream was driven by US consumption with vast consumer side scale and scope along with the need to be close to the consumer, the emergence of Microsoft and Intel removed the scope for Japanese producers of microprocessors despite notable innovations like NEC's V20 processor which was in many ways superior to Intel's 8066 that followed the 8088.

10.13 Policies Designed to Lose

But from then on India lost the game, because it continued to restrict and place high tariffs on the import of semiconductors (microprocessors, and DRAM memories) besides other components, despite having firms like HCL and ECIL which all could have overnight produced PCs in India quite akin to the explosion of independent PC producers as happened in Taiwan from the early nineties. Indian policy during this period was one of high tariffs on chips and components which killed the assembly and PC design industry despite the valiant struggles of HCL and WIPRO. The tariffs were clearly inverted. Repeated attempts by the industry to get the same corrected fell on deaf ears of the high priests[5] of Indian policy, who thought of assembly as "screw-driver" business. They were enamored by chip making and by component manufacturing. There was a little realization that one cannot put the cart before the horse. It is amazing that the tariff inversion lasted well into the nineties and is significant even today!

[5] The author had an opportunity to discuss this matter with one of the policy makers—a special technocrat—who ruled the department, having the personal ear of the PM, and who to all accounts was responsible for the destruction of electronics manufacturing in India, in having kept the tariff inversion for more a couple of decades. In his mind there was no scope for any economic logic of sequencing and he saw the Indian industry as consisting of traders. He put value only on chip making and complex equipment, deriding assembly as "screw-driver" and unworthy of promotion.

10.14 Relative Revealed Comparative Advantage

When we wind forward to 2010 we find that relative revealed comparative advantage of India to that of Asia was very low, and this was the principle problem. It was not too bad in comparison to Latin America, or Europe and only modestly poor in comparison to the US. We define the relative revealed comparative advantage (RRCA) as.

$RRCA_{ij}^{k} = \dfrac{E_i^k / M_i^k}{E_j^k / M_j^k}$ of the *i*th country or region (in our case India) in product *k* relative to the *j*th country or region where E is the export and M the imports. It is a rough measure that is easy to compute since it does not involve normalization but serves the purpose, if the objective is only to measure the relative aspect of "comparative" advantage. For the first and original such measure see Balassa (1965).

Table 10.3 brings out the RRCA measures of India for certain country groups and economies, for the electronics and some of its key subsectors. When the measure is larger than 1 (i.e., India's competitiveness is better, we have shaded yellow and when it is 0.1 or lower, i.e., when India's competitiveness is poor we have highlighted in ochre. Observe that India's competitiveness is low vis-à-vis Asia (since they house the Asian Tigers), and very low vis-à-vis China, Korea, and Japan. With, China India scored only in "Memories" a small item, and vis-à-vis Japan in "Parts and micro assemblies" reflecting India's better production of components and parts required professionally and in small lots—controllers, industrial machinery parts, etc. It is vis-à-vis China and Korea that its poor trade performance is revealed. Electronics manufacture is strongly embedded in the Asian Tigers, and in 2010–12 China was emerging very strongly taking shares away from Taiwan, Korea, and Japan. Brazil and most other Latin American countries were worse than India, and Europe presented a mixed bag. Since then as the manufacturing got hollowed in India, the RRCA of India relative to China and the Asian Tigers would have only worsened.

10.15 Electronics Manufacture in ELG Economies

Export Led Growth (ELG) and performance in electronics manufacture go together and the reasons for the same are not far to seek. Few technologies in the sector, other than chip making are monopolized and electronics manufacture is a runaway industry siting where the locational factors especially skilled and semi-skilled labor is relatively cheap, and the macroeconomic environment conducive. The limited capability of local industry in the early stages does not matter too much if the economy is export oriented, since today competing multinational firms can set up local production to use cheap labor to serve global markets. When the capability of local firms is very high, licensing arrangements further contribute to the growth of the industry. A further

Table 10.3 Relative RCA of India with respect to countries and country groupings in certain items of manufacture

Country	Period	85	8523	8528	8529	8541	8542	85,286,900	85,340,000	85,423,100	85,423,200	85,429,000
		Electrical and electronic equipment	Storage dev	Monitors and TVs	Parts	Semi conductors	I Cs	Flat screen panels	Printed circuits	IC s digital	Memories	Parts, micro assemb
World	2010/11	0.597	0.516	0.328	0.183	1.092	0.076	0.083	7.860	0.057	0.207	0.493
	2012/13	0.604	0.968	0.253	0.239	0.210	0.048	0.311	0.636	0.034	0.191	0.217
America	2010/11	0.986	0.629	15.396	0.333	0.369	0.192	0.294	15.032	0.167	0.538	1.344
	2012/13	0.956	2.865	6.163	0.246	0.114	0.110	0.295	5.231	0.116	0.031	1.415
Asia	2010/11	0.321	0.500	0.066	0.119	0.233	0.070	0.017	0.127	0.051	0.217	0.538
	2012/13	0.348	0.443	0.051	0.142	0.141	0.053	0.038	0.116	0.039	0.217	0.366
Brazil	2010/11	4.184	34.432	0.206	2.702	0.413	0.127		0.216	0.127		
	2012/13	5.112	47.441	0.083	1.250	0.861	0.368					
China	2010/11	0.079	0.024	0.001	0.057	0.257	0.196	0.001	0.147	0.109	2.313	0.129
	2012/13	0.072	0.081	0.000	0.094	0.051	0.057	0.001	0.090	0.080	0.517	0.044
Europe	2010/11	0.930	0.528	0.115	0.593	5.913	0.079	0.567	114.282	0.063	1.168	0.448
	2012/13	0.918	1.064	0.228	0.692	0.802	0.026	2.648	9.178	0.013	1.256	0.031
Japan	2010/11	0.132	0.597	0.006	0.148	0.162	0.061	0.001	0.174	0.048	0.000	4.427
	2012/13	0.165	1.211	0.019	0.019	0.202	0.046	0.031	0.194	0.015	0.000	1.385
Korea	2010/11	0.080	0.767	0.006	0.068	0.054	0.015	0.000	0.071	0.010	0.000	0.779
	2012/13	0.139	1.270	0.002	0.072	0.160	0.004	0.000	0.172	0.002	0.023	0.000

Source Author's calculations based on data from the CMIE, Indian Trade Service.

stage is when large ecosystems of production emerge with firms in a myriad of activities getting linked together in interfirm linkages, to give such clusters an advantage so that the country with such clusters (China, US, Korea, Taiwan most notably) retain their advantage for long. During this phase low cost non-tradable inputs, low interest rates, and the capability of domestic firms become important. Today the advantage of East Asia is so large, that even when the design and consumer use parameters evolve in the developed countries the production base can be in such clusters located in East Asia.

India is discriminating against assembly (derided as "screw-driver") given the pursuit of inverted tariffs by the Department of Electronics, could never have the "screw-driver" operations to create a base for component manufacturing evolving into a manufacturing ecosystem.

As China grew rapidly its demand for electronic goods grew rapidly and it became import dependent by mid-nineties. It was only a policy of differential tariffs between assemblies and components that first attracted assembling in China, and then component manufacturing. Once component manufacturing was embedded the tariffs could be greatly lowered. Only last came the phase of investing in fab plants by which time the ecosystem had matured and grown in size around a vast array of consumer electronic products, which had the ready demand to use the output of fab plants.

10.16 Fab Before Assembly

When Japan developed its fab plants the scale was far less humongous. India's approach has been entirely impractical in putting fab first. For more than 30 years the tariffs on ICs and microprocessors were high, falling to lower levels only with the Great Liberalization.

Since then there have been attempts to support semiconductor manufacture by laying out subsidies. In 2011 there was again an initiative with government laying out plans for two fab plants one in UP and the other in Gujarat each with an outlay that would be upwards of Rs. 25,000 crore. This was approved in 2013 with the details. The subsidy component in these investments was to be very substantial. Since modern plants were expected to cost much closer to double this, it was believed that the subsidy itself would be in the range of Rs. 20,000 core for each of the plants. One was being pursued by the Jaypee Group in UP and another by an NRI Group. Cf. Sengupta (2011), NDTV (2013), and Mint (2013). Both after being actively considered by these private groups were given up because there was no demand for the same in India, the country lacking any kind of mass consumer electronics component and assembly industry not to speak of an ecosystem.[6] Much of the market would have been in China! The technology was not the challenge since both parties

[6] The potential promoters of the NRI group has met the author, and in the discussions that followed, it was clear that the demand for even a tiny percentage of the output of these plants mass producing chips, would not be in India. The bulk of the sales would have to be to China.

could mobilize the interest of American chip makers at least to start with, and foreign direct investment was actively encouraged.

10.17 Low Bound Tariffs

The tragedy of Indian consumer electronics was deep rooted. When India became a member of the WTO it bound the tariffs on flat screen displays and TVs, mobile phones, solar panels of the modern type, and tablet PCs at zero or very low levels and that of components at high levels. Not only so, the bound tariffs on picture tube TVs, push button telephones were high and on desktop computers low. The demand had collapsed for the products that were protected while it grew for products that exploded in their growth. Clearly the negotiators of the WTO Tariff reduction were looking into the rear view mirror—the immediate demand—and driving! In a decade since then the entire consumer goods electronics supply went to China and East Asia with India doing only the box assembly of mobile phones and unpacking of solar panels and manual writing for flat screen TVs. By 2015 the imports had risen to well above US$60 billion, for electronics to become the largest item after petroleum in India's imports.

By 2015 much of Indian manufacturing had been hollowed out—even slippers and undergarments were being imported from Thailand and Bangladesh, and the government was keen to attract some pioneering investments in the electronics industry after Nokia's plant that was assembling simple mobile phones had to close owing to major shift in demands to smartphones. The government's approach was to chase multinationals like Samsung and Apple through the promise of land, and red-carpet treatment without any significant attempt to coordinate across ministries to find a workable pitch. It was believed that industrial development was industrial promotion and was little more than improvement in the "ease of doing business" and repeated "investor meets" followed by meetings with global players, without setting right the trade and other policy distortions. Thus Samsung which was attempting to set up a third plant in 2015 to assemble low end mobile phones in India for exports gave up when it found Vietnam to have free access to the large Indian market but with the advantage of very low costs given its highly undervalued exchange rate, and no debilities on other counts.

10.18 DIPP and "Thru Put Support"

C. 2015 the Department of Industrial Policy and Promotion (DIPP) was attempting "Make in India" through a policy of "thruput support" for the electronic sectors. The low bound tariffs on the principal electronic products of mass consumption in India meant that the most obvious way to kick start consumer electronics industry was ruled out since the DIPP went about "Make in India" alone. Working together

with other departments is not a hall mark of the Indian bureaucracy when ideally the DIPP should have convinced Commerce to renegotiate the bound tariffs.[7] A policy of high tariffs on assemblies with low to zero tariffs on components would have embedded a "screw-driver" assembly industry which could have become the base for the development of upstream industries—first subassemblies and then components and parts. DIPPs "thruput" support did not have much impact. Today as a new avatar—as the Production Linked Incentive (PLI) scheme—the idea of directly supporting manufacturing may have brighter prospects given the more systematic approach, and the changed circumstances principally the aspect of "China plus" in the thinking of global firms.

10.19 WTO and the Solar Panels Fiasco

The story of manufacture of solar panels in India is similar and makes interesting reading. India has been keen on solar energy and reducing greenhouse emissions, often unilaterally committing to over ambitious targets in global fora that would imply restricting the emissions to very low levels—as much as to a fifth or less that of China would in 2025/2030—on a per capita basis.[8] In the first flush of the push into solar some 4000 MW of solar capacity was added largely in Gujarat and MP based on proven (read outdated) solar panel technologies, and significant portion of the supply of panels came at high cost from domestic panel makers. Since the power was procured on a fixed feed-in tariff which at around Rs. 15, inefficient and outdated panels could be used to make the supply and there were issues arising out of the allocation process since it was administrative, resulting in rents. Subsequently the policy changed from feed-in tariffs to bid out tariffs, with no hard specification of the technology, and this brought down the prices. Most of the capacity planned was based on imports of panels from Malaysia and the US. Soon capacity exceeding 20,000 MW was added and India became a largish market for the global solar industry. Meanwhile China had its own large solar policy which was holistic and exploited the backward linkages to create the largest solar manufacturing capacity in the world.

[7] This was one of the main arguments made by the author in a presentations before the DIPP officials and the DEITY titled "Explosive Growth of Electronics Manufacture in India: Problems and Prospects", at the Seminar.

"Electronics Manufacturing: Can it Drive "Make in India?" at Silver Oak, India Habitat Center, New Delhi, 30th November and 1st December 2015, organized by the IITCOE of the IIMA. Much of the discussion on the electronics industry in India was made at this presentation.

[8] The easy political acceptance or 'management' of non-inclusive development, in a democracy, brought about by appealing to identities, religion and engagement with the frivolous and emotive, has allowed Indian leaders to play 'statesmanship' in global fora at the cost of the people that would limit India's emissions on a per capita basis. It has also meant that over much of the post-independence period, international relations were unduly influenced by "ideology and principles". Often the positioning was against the interests of the country. Thus India's arguments against the Dunkel Draft in the run up to the WTO agreement, fronting for all the LDCs against the US, and was not in its own interest.

China emerged as the unassailable panel producer for the world with some share being taken by producers elsewhere including in the US, and Malaysia (who were largely US-based companies). India went large solar but with the bound tariffs on modern panels being zero imports became the sole source of supply.

The Government meanwhile laid out the Solar Mission which envisaged movement away from imports in the later stages but is did not initiate the process to renegotiate the bond tariff. Waking up too late to the possibility of backward linkages, Government restricted imports, but the US went to the WTO, and was soon joined in by China. India argued that since it had not any agreement on government procurement, and since it was the government that was procuring electricity, it could limit purchases from parties who used Indian made panels.

The WTO obviously did not agree and the WTO panel ruled that it was power that was being procured and not panels where the bindings would hold. Government did not give up but went again to argue that there is a possibility of supply disruptions, which also was rejected since the WTO panel could show that the prices had fallen, global supply had increased and become more competitive and stocking was always as option, and held India to its zero bound tariffs. The government of India went back to the WTO and now argued that it had a large solar commitment which was to the benefit of the whole world and to make that possible it would need to have domestic sources. The WTO again rejected the line of argument as being valid, appreciated the government for its green commitment but politely ruled that the green commitment can easily be met by imports, and that restricting imports would not have a positive effect on the green target and anyway every country is bound by its bindings. After than the government agreed to restore the imports pipeline. See Karunnen and Moore (2018) for details of the case. See also the WTO Case. WTO (2016).[9] Had the government worked to raise the bound tariffs before the announcement of big solar, there would have been no case, with hardly any international party being interested. But then coordination across Ministries in India can only be exceptional!

[9] The author had an opportunity to organize a leadership program for senior civil servants of the Indian Trade Services (ITS), where part of the delivery was at the World Trade Institute (WTI) in Berne. The scholars at WTI who were deeply involved in the case and in other cases of India with the WTO in agriculture, found it difficult to fathom how the Indian side could take positions that could never have resulted in a favorable ruling, when there were other options it could have pursued. Of course, this was not surprising to the ITS officers since the matter was being handled by IAS officers, who in their view being generalists would not be aware of the nuances! IAS officers had over a period been able to successfully push the officers of the ITS (a very tiny cadre) to rather junior and administrative positions such as managing SEZs or serving as economic "advisers" in foreign offices. Not being able to bring the best information and arguments in international trade and other economic negotiations such as in long term procurement contracts is a telling weakness of the government of India. This is a tragedy when India is known to have much talent in these areas, if the disproportionately large number of Indian CEOs in western originating global companies is any indication, as also the academics and consultants of Indian origin globally.

Table 10.4 Debilities in some items of manufacture

Value addition	ITA1 /Non ITA1	Examples of products	Disability as a % of selling price
High value addition	ITA1	Telecom networking equipment etc	26% (1)
Medium value additions	ITA1	PoS printers etc	19%
	Non ITA1	Set top boxes (STB) etc	14% (2)
Low value additions	ITA1	Notebook computer	13%
	Non ITA1	Energy meter (3)	7%
Component		Printed circuit board	19%

(1) Disability represented here is for generic ITA1—high value added products from telecom segment. However disability rise to 29% for specific telecom networking products, where buyer's credit is available on imports for long periods of time
(2) Disability represented here is generic for non-ITA1 medium value added products in the consumer electronics segments. However manufacturing of set-top boxes has certain specific debilities which when included increase the overall disability of domestic STB design and manufacturing to 22.1%
(3) Energy meters with AMR [automatic meter reading functionality]"

Source Table on page 4 of E&Y (2014)

10.20 Debilities Faced by the Electronics Industry

An estimate of the debilities against segments of the electronic industry was made by the Indian Electronics and Semiconductor Association of India (IESA). A Study by Ernst and Young for the DEITY (EY), into various issues including taxation, higher logistic costs, higher financing costs, etc., but not considering tariff inversion in a detailed way, estimated between 7 and 26% for a variety of equipment as shown in Table 10.4.

10.21 ITA and Decline of Electronics Manufacturing

India early in 1997 signed the ITA(1) Information Technology Agreement, along with many developed countries, which imposed upon India the need to reduce tariffs considerably from the high levels (with inversion) to low levels in most electronic products. From 1997 when the average levels were 37.8% the tariffs fell to 19.9% in 2001 and thereafter to nearly 0% in 2005 and over the same period India's imports of electronics goods accelerated growing at 18% from 1997 to 2000 and then at 38% from 2000 to 2005 taking 165 ITA1 items into account (Kallummal 2012).

While the correlation could have been spurious, it is highly unlikely, since the downward trajectory of tariffs without a strategy to stage value added in India, when there were well-established players in the US and East Asia and China would have left

Indian firms naked with all the debilities of operating from India, in a highly competitive world. China had used tariff sequencing to engender assembly and then component manufacturing and much later semiconductor manufacturing. It also joined the ITA later in 2003, using the time to create an ecosystem. Moreover, China as well as other major players in electronics have been using standards and other technical barriers to trade (TBTs) to create local value additions both by local firms and by MNCs (Kallummal, Murali op.cit.) India showed little or no movement to any of these strategies as the tariffs were came down and for all practical purposes it lost entirely the vast consumer electronics sectors, while in some of the professional and industrial electronics sectors with low scale it was able to retain a modicum of local value addition. The point of critique is not the bringing down of overall tariffs, but of the sequencing and strategy as also not recognizing (in the design of the strategy) the role of exchange rates.

Since then a god sends opportunity arose in the US-China Trade wars which inter alia resulted in the US unilaterally raising tariffs bypassing the WTO. India raised the actual tariffs above the bound rates to 12.5% on many electronic goods including solar panels. Since now it was more China than other countries that were affected and the US (along with the so-called "Quad") saw China as an adversary, the actions of the government could slip by. Domestic producers have responded now by increasing their share of production. Hopefully they will be able to keep up with the rapid pace of technology in this area.

10.22 Tariffs and Domestic Prices

The dominant view today that tariffs inevitably raise domestic prices is not quite borne out. Of course in the case of commodities with low transport costs this is quite true. However, for manufactured products with high fixed costs, and where there are significant entry barriers, the matter may not be so simple. Unlike commodities which tend to be flex price meaning that it is the price that adjusts majorly[10] to demand and supply shocks, in the case of most manufactured products and services it is the quantity of output that adjusts to demand shocks. These are therefore more flex price in the short run behavior and in their investments there is much bunching and sudden shifts. Thus, consider the global auto industries. As comparative advantage shits (in favor of the emerging economies) the global capacity is very reluctant to shift since operations continue to the driven by the variable cost principle. Strategic considerations and home country biases and emotions of managers of multinationals (including potential MNCs) too come in. So, from the point of view of the emerging economies, it makes sense to exercise counter-strategy to create capacity which in the normal course could have happened only much later and protection (for a while) under such circumstances helps to speed up the process of realizing the impending comparative advantage.

[10] Actually prices along with storage when storage costs and logistics are not very large.

10.23 EPR's not Easy to Estimate

One of the interesting findings valid for the period just before the liberalization and into the first five of the Great Liberalization was that the effective protection rates when based on price-based calculation was significantly lower for a large set of industries, in comparison to the usual (and more easily done) tariff-based estimation. Price-based calculations actually require one to measure the local prices, and net out the local taxes (Cf. Nambiar, 1983). However, the same study has been critiqued (Ray, 1983) based on the level of disaggregation, and the contradiction with Bhagwati and Srinivasan (1975), and also appreciated by Chandra (1986). The point is in a regime where the tariffs had drifted over a long period of politicking, the Effective Protection Rates (EPRs) would make sense only when done at the very detailed level and after adjusting for a whole host of domestic distortions—high administered prices of non-tradables, and basic input goods which may have had quantitative restrictions, besides a non-transparent and cascading excise duty regime(with duty drawbacks that were driven more by perceptions and last stage taxes) that was India's in the 70s and 90s. Additionally, when distortions amounting to discriminations remain for long, there would be enhanced differentiation of the domestic goods and foreign equivalents, preventing both exports, and import competition.

Thus, exports could not happen in the auto and auto components industry, or in the Non-Electrical Machinery Sector, and yet no imports of significance could take place, the domestic prices before excise and related duties being lower than international prices. In the case of more commodity like products, this differentiation is not possible. Our contention is that in a world of lobbying, industries and sectors with a greater threat of losing out to efficient producers would have a higher incentive to do lobbying, and thereby queer the pitch for others with a better dynamic comparative advantage.

10.24 IS in India

The problem with Indian IS, from 1964 onwards, was that the import restrictions were hard and there was no systematic periodic examination of the hurt /undue benefit to industries with both comparative (static and dynamic) advantage.[11] And domestic taxes of a very high order that was also irrational (many of them above the revenue maximizing rates) made for an impossibility of estimating the impacts of tariff regimes. Some were so large that they constricted the market to result in

[11] While the Bureau of Industrial Costs and Prices (BICP) and the Tariff Commission (which has absorbed the BICP) are charged with the function of carrying out studies on industries including examination of tariff regimes and inversion, the reports are not available in the public domain. Nor does one see evidence of the same being considered in tariff reforms. Relative independence, high reputation, and high quality of the studies would be necessary for these to be inputs into policy making.

under-scaled technologies being used. A generalized liberalization was therefore necessary to be able to address the problem of tariff inversion, as it manifested sector by sector with the generalized liberalization. So the problem was not so much the liberalization of the trade regime (reduction in tariffs and the tariffization of so many quotas) as much as the lack of a feedback to an expert body. Even today the government lacks any expert body to hear complaints of unfair competition from foreign suppliers or those resulting out of policy distortions. Direct presentation by industries and industry bodies to ministries is not a good process. A more distanced body would allow expertise, rather than lobbying, to have a better chance in the determination of tariff and tax policies. Another feature of the liberalization was that the domestic liberalization was much delayed so that the possibility of efficient producers expanding or entering to occupy the spaces left by the inefficient producers did not happen as much as it should have. Thus the de-reservation of sectors reserved for small industry did not happen until more than 15 years after the GL, when during that period many of these products began to be increasing served by imports and box-assembly locally. This is despite the Abid Hussain committee recommendations (Hussain, 1997) and a study done by IIMA that also recommended de-reservation, while correcting the credit, infrastructural and tariff inversions, perverse government procurement that encouraged poor quality MSMEs, that hurt the sector. See the book version of the study—Morris et al. (2001).

Other dysfunctionalities of IS in India have also been brought out very well. One of the key measures used—quotas which were not auctioned- invited rent seeking and directly unproductive activities and the state may have ended up choosing the losers and rent seekers (Bhagwati, Jagdish, 1982) and (Bhagwati and Srinivasan (1975).

IS alone, especially when the tariff process is influenced by incumbent beneficiaries, and when the government views the process as distribution of largesse rather than as an expensive measure of building capability and scale, would not lead to strategy, and the rates get pushed around, results in "laid back approach" by managers and to tariff dependency (to falling back technologically) to failure of IS. This was the case in India c. end 80s, barring many exceptions, which were hidden away given the quagmire of tariff rates and non-tariff barriers, and other domestic tax distortions.

10.25 Role of Exchange Rates

Even today it is surprising that there is little discussion on exchange rates or studies that seek to measure the valuation of its currency relative to that of its competitors. Aggressive exchange rates have been another aspect of the success of ELG. Economists believe that purposeful undervalued currencies have only a temporary effect in raising exports. This is so since in most models (that assume full use of resources) rising exports would be inflationary (because they only build on diverting from domestic sales to exports), leading to appreciation in real effective exchange rates, and hence attenuation of the rise in exports. The long term is only inflation. But this thesis may not be true for countries with potential under utilized resources

available nearly on tap. With idle or underutilized manpower, it is capital stock alone that is the constraint to increasing the capacity (full employment) level of output. The increase in exports can then can come not from diversion but from production by engaging idle labor. To do so, emerging economies can strategically undervalue the currency to push exports, while raising the investment level which can pull up the capacity output while pushing up demand, so that demand need never outstrip the full capacity output, thereby sustaining the exports growth at higher rates for many decades till the surplus labor is all used up.

10.26 Pure Trade Theory Model is Limiting

Once the capacity happens and the learning curves are allowed to unfold with volume production, the low labor costs help to keep the industry competitive without it requiring protection. If the country is also following ELG, then the local (and then typically following global) firms invest in plant which are large sized and exploit scale and scope so that their competitiveness emerges much quicker. This is the story of the ELG Countries of Asia. With this insight as industries turn competitive and become successful in exporting, there is an opportunity to create newer industries that follow, so that ELG becomes both import substitution and export promotion at the same time! Pure trade theory in a 2X2X2 model that rules out this possibility is in error. In a less abstract three-sector model with one of the sectors being non-tradable, the simultaneous pursuit of IS and EP is possible. For this and other conceptual aspects of ELG (Morris, 1997, 2005).

10.27 ELG is Mis-Understood in India

While India's exchange rate shows a purchasing power parity (PPP) factor (PPP GDP to exchange rate (Atlas method) GDP)) to be of the order of 3, we consider it as being "undervalued". Actually it would be so only if the PPP factor is above that given by structural factors. Populous poor countries, given the large role of non-tradables in these economies, do have such high factors, "naturally" given the cheapness of their labor and the large role for non-tradables in a large economy. China's PPP factor, until recently used to be in excess of 3. It has now according to the World Bank come down to about 1.6, though there are other indications that it may be closer to 2.5. More pertinently, a cross country model of the PPP factor can be explained in terms of per capita income (Altas method over the longer period) and size measures (log population and more). A PPP factor higher than this structural value arises out of a purposeful undervaluation.

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 labor and with reasonable diversification actually have a "free-ride" to rapid growth based on utilizing unemployed and underemployed labor. And undervalued exchange rates have the functionality of allowing them to use inter alia the export markets to grow and employ otherwise under/unemployed labor, without a feedback by way of rising inflation. See Morris (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 and closely followed Korea in both its macroeconomics and structural policies. Vietnam is the latest unheralded entrant to this set of countries, if its macroeconomic and trade performance over the last couple of decades is indicative.

10.28 India Moved Towards Laissez Faire not ELG

The point is, India post the GL moved closer to laissez faire than to the ELG position. Its policymakers believe reforms to be a dichotomous movement from controls and restrictions to freer trade, when actually there is a third pole which is ELG, the simultaneous pursuit of import substitution (IS) and export orientation, with the IS of today creating the export industries of tomorrow that has not been recognized. ELG would typically result in the price ratio of exportables to importables to be closer to the situation in laissez-faire in the aggregate, while the price ratio of tradables (both importables and exportables) is higher than that of non-tradables in comparison to countries following laissez-faire. While in the case of vanilla IS the price ratio of importables to exportables is distorted in kept high. While IS has a sustainability issue, ELG would not have since in favoring both importables and exportables a sequencing of capability building and export industries arise, to put the economy on a roller coaster ride to almost within striking distance of being an advanced country. The third pole of ELG was recognized by China early in 1979 and built upon. Since the standard understanding is dichotomous, it is not surprising that in the 90s and 2000s when China grew at a searing pace, the economist practically every year predicted that China would overheat when its inflation only fell and was entirely of a supply-side character limited to food and fuel.

10.29 The Fisher Open and the Nature of FDI

We already brought out that for India (like for many other developing countries) the deviation from the uncovered parity condition has been positive for very long periods. In other words this reflects the excess premium demanded by world capital markets to be exposed to the rupee, which can be measured by the excess of the forward

premium over the actual realized depreciation. Calling the whole of it "country risk" amount to tautology. We may see a large part of this divergence as the "bias" of global capital markets against the country. Interestingly most ELGs, notably China, by having low interest rates has maintained its fisher open at about 200 basis points lower than that of India.

This not only spurs the investment rate to rise[12] but also lessens the financial advantage that MNCs have over local firms. Large fisher open means that foreign firms are able to value investment projects at a higher rate tipping the odds in their favor (Aliber, 1970). As a result FDI displaces more of domestic capital and is also large relative to the size of the economy and its growth. Moreover, FDI too in that case tends to be less export oriented than in the case of ELG economies given their strategically low interest rates. FDI into India ever since it opened up has been more in India as compared to China when the relative sizes are taken into account, as also the fact that some 80% of inward investment in China is mere round tripping as compared to about 20% in the case of India (Morris, 1994). With investment levels lower in India as compared to the ELG economies, the manufacturing sector remains muted and less export oriented than what it could have been.

The implications of a large fisher open are many. Besides the bias in favor of foreign capital which comes at the cost of a lower overall propensity to invest, the very nature of MNC investments in the country is different as compared to the situation when the fisher open is small. MNCs are more host country market oriented, more in favor of take-overs and brown-field investments, and are less export oriented. Moreover domestic investment is suppressed, so that the gross inflows of FDI do not raise the rate of gross capital formation as much as it does when the fisher open is small or zero. ELG economies all have low fisher open. FDI that results when the fisher open is low is largely because the MNC has real advantage over local firms which encompasses advantages such as technological (both because of patents and tacit knowledge) scale and scope, and then the spill-overs onto the domestic firms are potentially large, and capability develops. The country and its competitive industries have a much higher probability of becoming parts of global value chains. When FDI is driven by the fisher open, then it is more the ephemeral "cost of capital advantage" that is the basis and that does not make much sense to a savings exuberant economy like India.

10.30 Equilibrium Stances and Dutch Disease

India's advantage in IT and related services (ITES) as the tradability of services began to improve is closer to being an absolute rather than comparative. Thus performance on ITES is less dependent upon macroeconomic policy or even trade policy. There is very large advantage stemming from the common use of English language, the very

[12] In a non-inflationary manner given the existence of surplus labor which makes the societal marginal productivity of labor close to zero.

low costs of highly skilled manpower, the willingness of young educated Indians to spend long hours writing code and such other painful work.Parents supporting their adult children to allow ITES personnel to work odd hours. Even an erasure of a part of this advantage due to wastage of hours in nightmarish traffic in Bangalore, or in overvalued (relative to ELG) countries, still leaves enough to have allowed ITES to grow very rapidly. This happened once the pioneers of the ITES industry like Mr. Narayana Murthy were able to show the way to realize this advantage by creating truly excellent organizations. Similarly, the advantage of diamonds, precious stones, granite, and such other activities is that due to labor costs being low and workers willingness to do painstaking work, often under conditions which would not be accepted elsewhere. Remittances are clearly due to dynamism entirely on the factor side. ITES exports although not technically on the factor side really has elements of being "factor like". As mentioned, Indian software professionals are willing to do coding longer more than others. Remittances and ITES put together give India a net positive on the current account of nearly 7–8% of GDP, which covers up in a large part the large deficits of the order of 10% on the goods side. If on the goods side we take out the labor pain intensive activities, then the competitive advantage industries (other than the ones mentioned earlier—notably automobiles, textiles, and pharma) are hugely negative on the current account, even if one were to exclude petroleum from the trade account.

Lynne and Daway-Ducanes (2019) bring out the empirical evidence that remittances acting through the "Dutch Disease" route has hurt manufacturing in the developing countries. The hurt of minerals and oil exports on manufacturing in particular and on local production is well known and much studied. However the deleterious effects can be countered by underpricing the currency in relation to "equilibrium pricing" and/ or active encouragement via other means—credit support, subsidy—of manufacturing. While Nigeria is an example of all but collapse of local industry after oil exports kicked in, Malaysia, and earlier Australia and New Zealand were able to manage their natural resource advantage from hurting manufacturing. Ditto the US in the early days of its birth when Hamilton's tariffs allowed for manufacturing industries to take root, and the Civil War that laid the political basis for tariffs against Europe that continued till the end of WW II, that inter alia helped the US to make the industrial transition.

The very success of ITES and remittances, given the pricing of the rupee to leave a deficit of around 1.5–2.5% on the current account necessarily implies that the Dutch disease stems from the success of ITES and remittances. The obvious cure as in the case of more conventional Dutch disease arising out of fortuitous availability of raw materials is to price the currency at levels that it would have been had the inflow of exchange due to the export of natural resource (in the case of India) not been there. Clearly then, the REER would have had to be lower (depreciated). That would be a more purposive management of the exchange rate, which is what ELG countries have done over the period when they had vast surplus labor and high (labor) productivity difference from the advanced economies. The view sometimes expressed that India's hardware sector and other electronics had to suffer to give the ITES, computers, and equipment cheaply and hence low or zero tariffs are not particularly meaningful

beyond a small effect roughly in keeping with the tiny share of depreciation of computer equipment.[13] However the Dutch Disease effect of ITES is considerable and beyond doubt. Ditto with that of remittances. Earlier in the 90s and early 2000s the remittances effect was the larger, but now it is the ITES.

10.31 Would "Make in India" Finally Takeoff?

We have already mentioned that the "thruput support scheme of the DIPP c". 2015 has had little effect then. The scheme had been put together by Dr. Amitabh Kant the architect of "Make in India". "Make in India" then could not go very far since the core biases against manufacturing in the policies—industrial (with some exceptions), trade and tariff, and macroeconomic were not addressed. The lack of coordination between Commerce and Industry Ministries resulted in India becoming a part of the ITA without a strategy of raising its global share in electronic products, and fiascos like the solar panel case mentioned earlier happened. Once Dr. Kant became the Chairman of the Planning Commission the PLI scheme could be put in place and the involvement of all ministries was possible. The scheme was also detailed out and developed over long discussions with industry. Essentially it identified key products that could be manufactured in India or the capabilities required to improve India's technical prowess and to support these selected activities. Since bound tariffs could not be moved around much and government recognized the many debilities against manufacturing in India, it boldly under Kant's leadership created a scheme to subsidize pioneering manufacturing and capability development. The scheme as on date lays out over Rs. 2 lakh crore as support to be provided over the next 5 years for additional value added and /or new investments to create the new products and capabilities. The subsidy as a proportion of turnover differs and has been laid out after much discussion with industry. Many ministries are involved and even Commerce gets to house the PLI Scheme for white goods! This is an interesting exercise in bringing about concurrence across Ministries and Departments. While the macroeconomic, administered pricing and tariff discriminations remain, the PLI by laying out rather significant sums credibly and limiting the same to a few firms selected for the purpose can create winners. Already the stock market is being driven very significantly by the PLI Scheme. Firms that have been included have got a boost in their valuations and the narrow sectors too have witnessed appreciation as shown in Table 10.5.

[13] The depreciation provision on account of computers and related equipment, for the year ended 31st March 2021 for Infosys (Standalone) was a mere Rs. 804 crore on a profit after tax of Rs. 18,048 and revenue from operations of nearly Rs. 85,000 crore (https://www.infosys.com/investors/reports-filings/annual-report/annual/documents/infosys-ar-21.pdf).

Table 10.5 Collated list of PLI schemes announced c. 1st December 2020

S. no.	Area	Ministry	Products	Rs. crore	Description
1	Autos	Ministry of heavy industries and public enterprises	Automobiles, auto components	57,042	It is estimated that over a period of five years, the PLI Scheme for Automobile and Auto Components Industry will lead to fresh investments of over Rs. 42,500 crore, incremental production of over Rs. 2.3 lakh crore and will create additional employment opportunities of over 7.5 lakh jobs
2	Aviation	Ministry of civil aviation	Drones, drone components	120	Over a period of three years, estimated investment worth ₹5,000 Crore for manufacturing sector drones will be done which in turn will bring a turnover of Rs. 900 crore, and 10,000 job opportunities will be created. The incentive for a manufacturer of drones and drone components shall be as high as 20% of the value addition made by her

(continued)

Table 10.5 (continued)

S. no.	Area	Ministry	Products	Rs. crore	Description
3	Chemicals	Department of heavy industry/ministry of heavy industry and public enterprises	Advance chemistry cell batteries	18,100	Through this Scheme, the Government of India intends to optimally incentivize potential investors, both domestic and overseas, to set- up Giga-scale ACC manufacturing facilities with emphasis on maximum value addition and quality output and achieving pre-committed capacity level within a pre-defined time period
4	Electronic systems	Ministry of electronics and information technology	Mobile phones, specified electronic components	40,000	Incentive of 3% to 5% on incremental sales (over base year) of goods manufactured in India
			Laptops, tablets, all-in-one PCs, servers	7325	
5	Food processing	Ministry of food processing industries	Ready to eat, ready to cook (RTE, RTC), marine products, fruits and vegetables, honey, desi ghee, mozzarella cheese, organic eggs, and poultry meat	10,900	Generate processed food output of INR 33,494 crore and create employment of nearly 2.5 lakh persons by the year 2026–27
6	Medical devices	Department of pharmaceuticals/ministry of chemicals and fertilizers	Capital equipment, implants, consumables	18,420	Incentive of 5% on incremental sales (over Base Year: FY 2019–20) of goods manufactured in India. Tenure: FY 2020–21 to FY 2027–28

(continued)

Table 10.5 (continued)

S. no.	Area	Ministry	Products	Rs. crore	Description
7	Metals and mining	Ministry of steel	Coated steel, high strength steel, steels rails, alloy steel bars and rods	6322	PLI scheme extends an incentive of 4 per cent to 6 per cent on incremental sales (over base year) of goods under target segments that are manufactured in India to eligible companies, for a period of five years subsequent the base year (FY2019-20)
8	Pharmaceuticals	Department of pharmaceuticals/ministry of chemicals and fertilizers	Biopharmaceuticals, complex generic drugs, patented drugs or drugs nearing patent expiry, cell based or gene therapy products, orphan drugs, special empty capsules, phyto-pharmaceuticals, active pharma ingredients, key starting materials (KSMs), drug intermediates, repurposed drugs, auto-immune drugs, anti-cancer drugs, anti-diabetic drugs, anti infective drugs, cardiovascular drugs, psychotropic drugs, anti-retroviral drugs, fermentation based 4 KSMs	21,940	Fermentation products: FY 2022–26: 20%/FY 2026–27: 15%/FY 2027–28: 5%. Chemically synthesized products: FY 2021–27: 10%

(continued)

Table 10.5 (continued)

S. no.	Area	Ministry	Products	Rs. crore	Description
9	Renewable energy	Ministry of new and renewable energy	Solar PVs	4500	PLI will be disbursed for 5 years post commissioning of solar PV manufacturing plants, on sales of high efficiency solar PV modules. Manufacturers will be rewarded for higher efficiencies of solar PV modules and also for sourcing their material from the domestic market. Thus, the PLI amount will increase with increased module efficiency and increased local value addition
10	Telecom	Department of telecommunications/ministry of communications	Core transmission equipment, 4G or 5G, next generation radio access network and wireless equipment, access and CPE, IoT access devices and other wireless equipment, enterprise equipment: switches, router	12,195	Incentive of 7% to 4% on incremental sales (over base year) of goods manufactured in India
11	Textiles and apparel	Ministry of textiles	Man-made fiber segment, technical textiles	10,683	Incentives under the scheme will be available for 5 years period i.e., during FY 2025–26 to FY 2029–30 on incremental turnover achieved during FY 2024–25 to FY 2028–29

(continued)

Table 10.5 (continued)

S. no.	Area	Ministry	Products	Rs. crore	Description
12	White goods	Department for promotion of industry and internal trade/ministry of commerce and industry	Air conditioners, LED lights	6238	The scheme will extend an incentive of 4–6% on incremental turnover over base year (2019–20) of goods sold in India and exported to global markets, to eligible companies for a period of 5 years
Total				213,785	

Sources Invest India; PIB various releases; Ministry of Heavy Industries & Public Enterprises; Ministry of Food Processing Industries

Most of the sectors and the products/capabilities that would be supported are meaningful from the standpoint of creating technical competencies or import substitution. Some seek to embed new industries that are expected to be large in the near future, such as advanced chemistry batteries.

In electronics one of the issues that we notice is that the bulk of the outlay is in creating fab plants. This may again amount to putting the cart before the horse, but perhaps this time around by the time the fab plants come on India could have a significantly larger consumer electronics industry, given the PLI for electronic components, and the likelihood that assembly could embed despite the debilities against the same. But one can't be too sure.

Here we must consider the China factors. The PLI Scheme in conjunction with the China factors may just turn the tide to bring about the rapid expansion of the manufacturing sector. We identify the China factors below:

1. China is no longer perceived to be benign power by the advanced Western World. And this makes MNCs housed in the West, Korea, Japan, and possibly Taiwan to seek at least an alternative production base outside China. While Taiwan would have been the usual alternative, today many perceive the risk that China may not refrain from force extension into Taiwan, in a situation of conflict. This is China plus.
2. Since the Trump-Xi trade wars, the protectionism that has resulted in the US was not reversed in its entirety by the Biden administration. This has resulted in an increasing local embedding of manufacturing in the US, as well as imports from sources other than China. Linked to the same is the expected faster growth of the US, with the proposed spending by the government of nearly a trillion dollars on infrastructure and support to industry. Even if much of that is wasteful, it is likely that the demand created would benefit countries other than China, including India, spurring their exports if the antagonism against China continues.
3. China's recent aggressive behavior vis-à-vis many of its neighbors have tended to bring together many countries, and groupings including the so-called "quad" countries, i.e., US, Australia, Japan, and India militarily that would place risks on global firms that commit all their production bases to China. The emergence of the "quad" would make India as a destination more likely for firms in "high tech" that nevertheless need access to low cost skilled labor.
4. Perhaps even more importantly China is pursuing a top down approach to create a cleaner economy. Unlike almost any other country, it is willing to take (temporarily one hopes) shutdowns including power cuts, to push industries towards meeting the laid out emission targets. If pursued further, and there are indications that this would be the case, there would be a slowing down of the Chinese economy on account of supply restrictions arising out of meeting the emission targets.

In China the role of the state is crucial in its industrialization. While China has built its humongously large industrial economy through appropriate policies rather than administrative / control measures, in this case of emission reduction, the state has showed that it would be willing to use direct control measures as well, besides policy.

Even small movements in the direction away from "polluting" industries would give India a tremendous advantage since there are few other places where such industries could take root. Important would be steel, metallurgical, and chemical.

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Chapter 11
GST and the Discrimination Against Production Oriented States

11.1 Antecedents

Goods and Services Tax (GST) had been many years in the offing, before becoming a reality on July 1, 2017. GST was delayed not so much due to the inherent nature of the opposition parties to oppose measures by the government as much, as by a politics that reflects the underlying reality that the gains (and losses) would be very different across states. The merger of service and manufacturing taxes that the GST entailed was never the problem. However, the apprehension that GST would shift net revenues away from producing states was not misplaced.[1] This was notably the case with Gujarat and Tamil Nadu. Both states had stood against implementation of GST, without substantial safeguards. Gujarat's opposition was no longer there in 2014 when its chief minister Mr. Modi went on to become the prime minister of the country, who now saw the issue from the perspective of the nation. Once the agreement of the states was obtained under the present Government, the producing states argued for higher GST rates to protect their revenue even after the five-year period of compensation. The GST Council, considered various rates, including a rate of 23% as the Revenue Neutral Rate (RNR) for Gujarat, which raised the prospect of

[1] A hard growth rate of taxes at 14% was clearly unsound. A growth linked to the nominal GDP would have been more appropriate. It became an issue when growth and inflation slowed down to give a nominal GDP growth of just 10% during Modi-II. The central government was somehow able to keep its side of the agreement though with much delay. It look recourse to highly enhanced petroleum taxes. Not only did the wrangle with the states added to the uncertainty but core inflation would have got a pep up through the transmission of high petroleum prices in Modi II. That also would have made the RBI keep liquidity on a tight leash.

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significant inflationary impact. The RNR for a state with little production, but with larger consumption shares especially of goods under excise, was however, estimated to be as low as 16% for the sum of central and state GST. The enthusiastic support of states like Delhi, Kerala, Bihar, and West Bengal, with little to lose and much to gain under GST was understandable.

11.2 Issues in a Destination-Based Tax

Economists and policymakers did not anticipate adequately the differential effect of GST on states. While the aspect of destination in a developing country context was taken up by few studies on RNR at the regional level, many matters of detail, distortion, buoyancy, compliance were all flagged in the discussions leading to the GST. See for example Ahmad et al. (2009).

Consumption drives net tax collection and policymakers need to recognize the fiscal (incentive) effects of the same in quasi-federal systems. India at the current stage of its economic transformation would have major differences between regions in terms of per capita output and per capita consumption. These differences result in geographical specialization of the economy, which is functional to the process. A destination-based tax has an inherent bias against producing states, especially those that have large concentration of manufacturing. Such a bias can be hurtful, because production requires the states (local or regional governments) to support manufacturing in a variety of ways, including providing public infrastructure, public goods that are inputs to production, e.g., environment control, regulation, governance, and coordination, besides security.

When migration of workers, especially without their families to producing states is common, then even the local consumption due to incomes accruing to local workers, which could have generated taxes for the local Government supporting the production, is muted since the workers send a significant part of their incomes to their families in other states. Although there are no comprehensive estimates, the little data available does show that inward domestic (inter-state remittances) contribute as significantly to NSDP—Bihar (3.9%), Rajasthan (2.3%), and UP, Odisha, and Jharkhand 1.5–2.2%). See Tumbe (2011), for interesting tabulations.

Housing migrant workers reduces the tax base to the extent of remittances made. In many industrial clusters, outward remittances can amount to as much a 50–70% of wage payments made to workers. The states with metros, which house much spending power, are at an advantage in relation to States without concentrated spending but with much industrial production.[2]

[2] The division of the state of Andhra Pradesh (AP) was on the ground that Telangana was less developed than the rest of the state especially coastal Andhra, and hence state-hood for the region would help it focus on development. However, to the vexation of Andhra, Telangana after the division had the same income per capita as Andhra and the tax collections of Telangana proved very large given the location of Hyderabad the capital of erstwhile AP and a near metro city in Telangana.

The location of the consumer determines the spatial embedding of consumption, even in the case of services like E-commerce, where large logistics of procurement, dispatch, monitoring, and accounting are involved, the tax collected would go to the state where the buyer is located. Since final buyers are largely consumers (besides Governments, but not firms[3]), even such services would not result in taxes for the local government where the e-commerce companies carry out their activities.

Savings of areas (and hence states) that are production oriented could be large relative to their State Domestic Product. This would tend to raise the savings rate in a pure accounting sense in the state of production while simultaneously resulting in a outward flow of savings (capital), without the ability of the local Government to tap into these savings in any direct way.

The actual implementation of GST and some of the design elements could have been better. Reddy (2019) points to three structural aspects of GST. (1) It takes away a large part of the fiscal autonomy of states. (2) The share of states could have been better than the 50% that it is. And, (3) the share of center in the voting rights is as high as 1/3 allowing the center to rough ride states with another 1/3 from states that acquiesce. Equally importantly, the center in introducing cesses makes that much revenue non-shareable. In this chapter, we are much more concerned with the asymmetry between states rather than that between the center and the states. However, the latter aspect could enhance the hurt to producing states.

In a transition phase, economic activity gathers in the areas with locational advantage away from a more ubiquitous distribution. This is necessary for efficiency through agglomeration and realization of scale and scope. This was especially so for large continental economies—US, China, Canada, Australia, Brazil, Russia, etc., and would have to unfold in India as well. Hence, there is a need for states to not shy away from spending to support embedding of manufacturing and tradable services from which they get no tax benefit. Clearly then the devolution should consider this need.

It is worth contrasting Indian GST with that of China. China's GST is partially covering only manufacturing and associated labor services, allowing states to tax and retain many services irrespective of the location of the consumer of the service. More importantly as much as 25% of the central collections of GST (in manufacturing) go to the provinces based on their public goods production (Shen et al., 2012; Wang & Herd, 2013).

11.3 Need for State-Level Estimates of Revenue Neutrality (RNR)

The above issues necessitate computation of the revenue neutral rate (RNR at the state level). It can help to assess the upfront reassignment of central revenues to

[3] This is so when input credit on depreciation is taken into account over a longer period of the life of the final good (machinery and capital goods) purchased by productive firms.

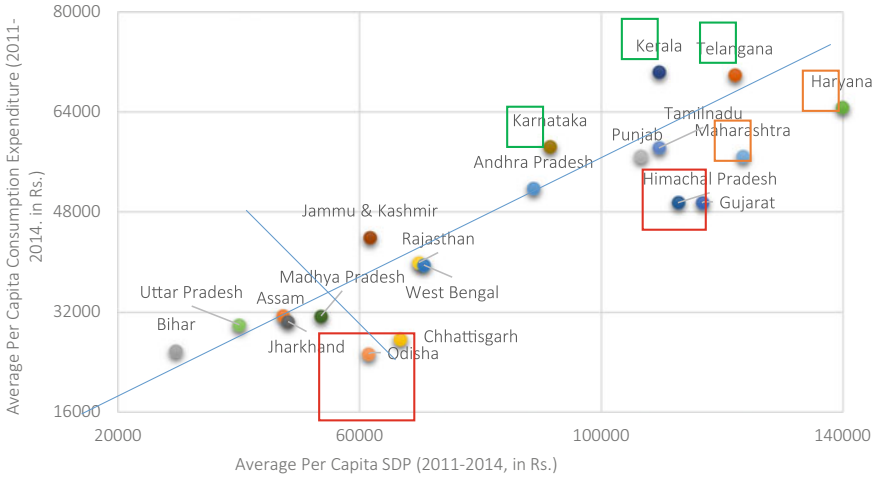

Fig. 11.1 Per capita final consumption expenditure in relation to per capita SDP of states

supporting value added tradable activities, since at this stage states need to play a large role in attracting and nurturing investments. Estimating the divergence between consumption and production is one way to work out the required central flows.

In the following analysis, we explore first the issue of divergence between consumption and production. Figure 11.1 graphically presents average per capita private final consumption expenditure (PFCE) in relation to gross state domestic product (GSDP) per capita. Those below the line are more production oriented and those significantly above, consumption oriented. Low output states with low consumption are Bihar, Assam, Madhya Pradesh, Uttar Pradesh, Jharkhand, and Odisha. States with high per capita consumption and per capita output are Haryana, Kerala, Maharashtra, Punjab, Tamil Nadu, and Telangana. This preliminary analysis helps to focus attention on the problem.

Observe that the rank difference between per capita SDP and per capita consumption is very high for Gujarat, Himachal Pradesh, Maharashtra, and Haryana. It is the lowest (and negative) for Uttar Pradesh, Bihar, Assam, and Madhya Pradesh. Any RNR estimation that uses the currently effective taxation structure for estimating the tax base would surely overestimate the producing states' base, resulting in a lower RNR. This leads us to the discussion on the limitations of the presently available estimates of RNR.

11.4 Current Estimates of RNR at the State Level

The only state level RNR estimates available in India are from Rao and Chakraborty (2013). These estimates are still based on SDP with many heroic adjustments and assumptions for which the authors should be credited. The report admits that for a destination type GST, the most reliable measure of taxable base would be consumption expenditure. However, the study estimates "taxable turnover" as the base, because of limitations with the available regional consumption expenditure estimates.

Measuring taxable turnover regionally in the Indian case is difficult. This is because the assumptions as regards cross-state trade are too gross for the approach to give a fair estimate, when such inter-state transactions (which we can expect to grow more rapidly than GDP) are large. Moreover, some services, that take place close to the residence of the consumer, would substantially shift to other more logistically consistent locations in the post-GST period. At the state level, the effective tax rate had been used to measure the base. Since the actual taxes collected in producing states is likely to be far lower than what would be under the net in an era of GST, there is underestimation of the tax, and hence of the RNRS using the taxable turnover approach. Further, for the states for which the tax collection data is not available, three standard tax rates had been assumed in Rao and Chakraborty (2013)

Additionally, the study excluded important services such as IT and real estate from the list of services. Subramaniam (2015) lists out technical and conceptual limitations of the study. IT services while not taxed do provide a base for immediate consumption. It employment does not result in remittances away from the IT employee's residence. The spending by IT employees results in auto and house purchase, hence the states with concentrated ITES activities would much on that account–Hyderabad, Bangalore, Delhi (Noida and Guru Gram), and Pune would benefit. The omission of vast amount of consumption where the poor's consumption is concentrated—raw food—is also an issue. In the longer term, food could have positive rates, as the incomes rise, and the proportion of food that is processed is expected to rise, so that a consumption-based approach that has the potential to accommodate changes with regard to the items omitted is necessary.

11.5 The Consumption-Based Approach

There are three widely agreed upon approaches to measure the base for any comprehensive indirect tax, namely, GDP adjusted for exports and imports, consumption expenditure, and taxable turnover of goods and services. Since GST, by design, is going to be a destination based, consumption type tax with input credit system, accurately measuring the final consumption expenditure is the most desirable approach.

The consumption expenditure-based approach has been rejected thus far (Rao & Chakraborty, 2013) on account of the fact that the National Sample Survey Organization (NSSO) misses out a very large part of private consumption expenditure, and since this NSSO estimate is all that is available on the expenditure side at the state level. Consumption expenditure data is available for all the states from the National Sample Organizations' (NSSO) household consumption expenditure surveys, conducted at regular intervals. However, NSSO surveys are person weighted; the sampling design assigns equal weight to each individual. Therefore, by design the survey misses the rich classes' consumption, since they are fewer in number, but account for a large proportion of total consumption.

Rao and Chakraborty (2013) list out the four main difficulties in using the consumption expenditure approach, simultaneously agreeing that theoretically it is the most suitable. Our approach is able to address all these concerns largely. One, the report suggests that consumption data for exempted commodities is not available. Further, data for traders with turnover below the threshold, exempted from the tax is not available. Third, the listing of commodities and services in the NSSO and the National Accounts Statistics (NAS) are quite different. Fourth, the most grievous limitation cited by the study is underestimation of consumption expenditure by NSSO, as compared to NAS estimates. Our approach attempts to reconcile NSSO and NAS estimates, thereby directly taking care of the last objection, which is the most serious area, to use the consumption method.

11.6 Adjusting NSSO Estimates with NAS PFCE

We analyzed the difference between NSSO and NAS estimates over a period of 11 years, covering five NSSO surveys. We found that although there is a gross underestimation of consumption expenditure by NSSO, as compared to NAS, the difference is systematic. The difference arises naturally given the nature of sampling and the estimation of average in the NSSO, the two can be reconciled.

Table 11.1 gives the all-India consumption expenditure figures as per various NSSO surveys, with the items aggregated to confirm to the PFCE groups. Table 11.2 the PFCE as per NAS. The underestimation in the NSS is apparent. Since the underestimation by NSSO is consistent at the state and national levels, we assume that the share of a state in national consumption for an item should remain constant in both NSSO and NAS. We used the following relation: $\widehat{NAS}_i^s = \left(\frac{NAS_{i'}^{I}}{NSS_{i'}^{I}}\right) \cdot NSS_i^s$. NSS_i^s is the NSSO per capita consumption expenditure of the item i for the state s multiplied by the population estimate of the state. Since the NSS categories are finer than those for the NAS, we have used the same ratios $\left(\frac{NAS_{i'}^{I}}{NSS_{i'}^{I}}\right)$ where i' is over all items of the NAS categories.

Table 11.1 All India average consumption expenditure (Rs. crore)

Item	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Cereals	133,729	143,718	157,870	174,377	188,184	203,085	219,165	236,518	255,246	275,456	297,266
Pulses	23,850	28,996	33,850	35,911	41,518	48,001	55,496	64,162	74,180	85,763	99,154
Sugar	16,466	20,891	20,410	18,051	21,568	25,770	30,791	36,789	43,957	52,520	62,753
Edible oil	37,973	37,861	41,222	51,527	57,221	63,544	70,565	78,363	87,022	96,638	107,316
Fruits and vegetables	64,700	76,556	87,468	99,754	110,738	122,930	136,465	151,490	168,170	186,686	207,241
Milk & milk products	74,893	81,614	93,251	102,606	121,868	144,746	171,919	204,192	242,525	288,053	342,128
Egg, fish & meat	27,555	35,694	37,104	41,879	48,810	56,889	66,304	77,278	90,067	104,974	122,348
Spices	16,894	18,511	21,925	24,288	28,541	33,539	39,412	46,314	54,424	63,955	75,155
Other food	3055	3756	4404	4701	5496	6425	7511	8781	10,265	12,001	14,029
Beverages, etc	46,736	51,592	59,471	80,445	94,697	111,475	131,224	154,473	181,840	214,057	251,980
Pan, tobacco, and intoxicants	19,206	21,770	24,447	26,529	30,452	34,954	40,122	46,053	52,862	60,678	69,649
Clothing	60,315	62,223	69,013	80,750	92,747	106,526	122,353	140,530	161,409	185,389	212,932
Footwear	9370	10,568	11,538	13,161	16,245	20,052	24,752	30,553	37,714	46,554	57,465

(continued)

Table 11.1 (continued)

Item	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Rent	22,714	29,074	30,000	38,945	47,201	57,208	69,337	84,037	101,853	123,447	149,619
Fuel and light	85,654	100,263	110,740	124,927	141,311	159,843	180,806	204,518	231,340	261,680	295,998
Misc. consumer goods	55,820	62,130	71,551	82,373	95,973	111,817	130,277	151,785	176,844	206,040	240,055
Durable goods	31,844	39,199	49,016	52,733	68,458	88,872	115,374	149,778	194,442	252,424	327,697
Consumer services	86,608	108,434	125,456	149,662	174,484	203,422	237,160	276,494	322,350	375,812	438,141
Medical (Institutional + Non institutional)	54,033	69,069	83,443	78,827	92,592	108,761	127,753	150,061	176,265	207,045	243,199
Education	40,674	44,760	58,299	71,058	78,050	85,731	94,167	103,433	113,611	124,791	137,070
Total	912,089	1,046,678	1,190,480	1,352,506	1,556,154	1,793,590	2,070,952	2,395,603	2,776,387	3,223,961	3,223,961

NB: Monthly Per Capita Consumption Expenditure X Projected Population X 12
Figures for 2004, 2005, 2006, 2007, and 2011 pertain to NSSO 60th, 62nd, 63rd, 64th, and 68th rounds respectively. Figures for rest of the years are estimations. Average expenditure figures as per Uniform Recall period for all NSSO rounds
Source Authors' estimations, based on CMIE, EOI and NSSO of the CSO Consumer Expenditure Surveys (various rounds), National Sample Survey Organisation of the Central Statistical Organisation.

Table 11.2 All India private final consumption expenditure as per national accounts statistics (Rs. crore)

Item	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Cereal	165,490	180,320	202,452	229,799	249,839	250,651	289,526	323,334	326,425	355,353	386,845
Pulses	15,873	19,015	23,713	26,453	29,050	33,115	38,949	41,921	53,877	62,769	73,129
Sugar	33,339	36,852	38,589	37,627	45,834	65,062	65,217	67,763	73,325	80,917	89,295
Edible oil	37,778	34,306	33,593	41,570	45,257	44,177	55,821	63,694	76,519	83,577	91,286
Fruits and vegetables	167,901	192,118	211,033	246,775	260,828	319,751	372,173	427,332	476,763	543,199	618,892
Milk and milk products	134,069	143,542	156,950	177,822	208,124	246,909	294,902	341,816	381,220	434,417	495,037
Egg, meat, and fish	62,424	70,150	79,645	88,963	101,087	119,646	143,742	163,336	191,346	220,104	253,184
Spices	18,213	19,968	21,887	23,985	26,280	28,789	31,531	34,529	37,773	41,379	45,330
Other food	15,277	17,965	20,857	21,531	24,212	31,276	35,565	39,261	45,574	52,246	59,894
Beverages	27,049	32,271	42,562	56,176	61,457	62,093	71,456	102,791	112,894	134,970	161,362
Pan, tobacco and other intoxicants	54,489	60,389	65,119	66,208	82,904	89,993	103,677	116,379	120,381	132,920	146,764
Clothing	108,477	127,098	162,343	166,799	181,402	218,257	312,359	325,507	354,558	411,132	476,732
Footwear	19,352	24,045	27,250	37,840	39,259	48,325	49,812	57,840	64,325	74,746	86,855

(continued)

Table 11.2 (continued)

Item	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Rent	181,949	198,190	225,418	265,150	317,904	359,988	424,535	482,270	538,629	616,889	706,520
Fuel and light	84,485	92,648	103,635	114,887	126,215	141,507	161,325	190,501	223,335	252,191	284,774
Misc. consumer goods	283,919	332,116	388,721	433,683	502,106	561,646	671,785	820,940	934,221	1,084,193	1,258,240
Durable goods	35,995	33,075	38,915	42,151	46,189	60,871	77,982	95,400	95,607	108,024	122,054
Consumer services	351,398	403,463	489,308	600,788	720,779	831,438	955,452	1,217,438	1,421,306	1,692,578	2,015,625
Medical	95,560	105,244	115,900	127,648	140,595	154,872	170,624	187,954	207,014	228,016	251,149
Education	32,555	36,762	40,798	44,539	48,624	53,088	57,963	67,440	73,641	81,552	90,312
Total	1,925,592	2,159,537	2,488,688	2,850,394	3,257,945	3,721,454	4,384,396	5,167,446	5,808,733	6,668,391	7,655,273

Source Authors' estimations, based on CMIE, EOI and NSSO of the CSO Consumer Expenditure Surveys (various rounds), National Sample Survey Organisation of the Central Statistical Organisation.

We first calculate the blow up or adjustment ratio $\left(\frac{NAS_{i'}^{I}}{NSS_{i'}^{I}}\right)$ for the nation as a whole and use these as a multiplying factor to adjust NSS_i^s for each of the i categories for every state. We have also reported the coefficient of variation for the average across the years. It is evident from the table that the coefficient of variation is small, indicating stability in the adjustment factor over time. The movement over time is also smooth and gradual indicating that these changes arise out of the increase in inequality as incomes rise. Across commodities there are differences, the ratio is greater than one for items consumed largely by high-income classes, and typically closer to one or even lower than 1 for commodities of use by lower income groups. Since the underestimation by NSSO is consistent for each broad commodity group, we assume that the share of a state in national consumption should remain constant in both NSSO and NAS for each item.

Using the adjustment factor, also implicitly takes into account non-household, non-Government consumption, e.g., by NGOs and free kitchens, etc., besides the difference in underestimation (weighting) already considered. The Committee reviewing the difference between NSSO and the NAS estimates similarly finds near constancy in the ratios. See CSO (2015). That these factors are also in sync with the nature of the goods and services—being higher for goods and services consumed at higher levels of income—would lend credence to the ratios as arising out of the person weighting in the NSSO, rather than consumption weighting which would be the case in the NAS.[4] Similarly, we adjust the tax-exempt sectors based on the sector-wise blow up of NSSO state level estimates by sector-wise ratio. This is necessary, since the base as of now and for the conceivable future would have these exempt categories, largely food and necessities. See the blow up factors in Table 11.3.

Ultimately, though the consumption expenditure would drive GST collection. Figure 11.2 presents state-wise estimates of "Base-intensity". This is a relative measure of consumption and production, which we define as the ratio of PFCE to GSDP of the state. The base includes food and other exempt and sin categories as well. We do this to keep in sight the ultimate difference between the tax base under GST (PFCE) and the economic activity that regional governments support, viz., GSDP. The wide variation from as low as 0.3 (Chhattisgarh and Odisha) to as high as 0.64 (Bihar) may be noted. In general, base intensity is higher for states with low production and high (relatively) consumption, such as Bihar, Kerala, and Uttar Pradesh. This measure of base intensity is forward looking and most relevant for longer term consideration of the need for devolution to compensate production states—since in the long run exemptions are likely to reduce and government consumption become more proportional to consumption as government spending itself orients more on people with rise in incomes and providing incentives away from production.

Estimation of taxable base of goods and services (RNRS) under GST requires several adjustments in the NSSO expenditure estimates, after obtaining state-wise final consumption expenditure estimates with the help of the blow up ratio. For the

[4] We do plan to bring out the reasons for the divergence between NSSO and NAS estimates of items in the near future.

Table 11.3 Adjustment or "blow up" ratio [PFCE(NAS)/consumption expenditure (NSSO)]

Item	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Coefficient of variation
Cereals	1.24	1.25	1.28	1.32	1.33	1.23	1.32	1.37	1.28	1.29	1.30	0.03
Pulses	0.67	0.66	0.70	0.74	0.70	0.69	0.70	0.65	0.73	0.73	0.74	0.04
Sugar	2.02	1.76	1.89	2.08	2.13	2.52	2.12	1.84	1.67	1.54	1.42	0.16
Edible oil	0.99	0.91	0.81	0.81	0.79	0.70	0.79	0.81	0.88	0.86	0.85	0.09
Fruits and vegetables	2.60	2.51	2.41	2.47	2.36	2.60	2.73	2.82	2.84	2.91	2.99	0.08
Milk and milk products	1.79	1.76	1.68	1.73	1.71	1.71	1.72	1.67	1.57	1.51	1.45	0.06
Meat, egg, and fish	2.27	1.97	2.15	2.12	2.07	2.10	2.17	2.11	2.12	2.10	2.07	0.03
Spices	1.08	1.08	1.00	0.99	0.92	0.86	0.80	0.75	0.69	0.65	0.60	0.20
Other food	5.00	4.78	4.74	4.58	4.41	4.87	4.74	4.47	4.44	4.35	4.27	0.05
Beverages	0.58	0.63	0.72	0.70	0.65	0.56	0.54	0.67	0.62	0.63	0.64	0.09
Pan, tobacco and other intoxicants	2.84	2.77	2.66	2.50	2.72	2.57	2.58	2.53	2.28	2.19	2.11	0.09
Clothing	1.80	2.04	2.35	2.07	1.96	2.05	2.55	2.32	2.20	2.22	2.24	0.10
Footwear	2.07	2.28	2.36	2.88	2.42	2.41	2.01	1.89	1.71	1.61	1.51	0.20

(continued)

Table 11.3 (continued)

Item	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Coefficient of variation
Rent	8.01	6.82	7.51	6.81	6.74	6.29	6.12	5.74	5.29	5.00	4.72	0.16
Fuel and light	0.99	0.92	0.94	0.92	0.89	0.89	0.89	0.93	0.97	0.96	0.96	0.04
Misc. consumer goods	5.09	5.35	5.43	5.26	5.23	5.02	5.16	5.41	5.28	5.26	5.24	0.02
Durable goods	1.13	0.84	0.79	0.80	0.67	0.68	0.68	0.64	0.49	0.43	0.37	0.31
Consumer services	4.06	3.72	3.90	4.01	4.13	4.09	4.03	4.40	4.41	4.50	4.60	0.07
Medical (Institutional and Non-Institutional)	1.77	1.52	1.39	1.62	1.52	1.42	1.34	1.25	1.17	1.10	1.03	0.16
Education	0.80	0.82	0.70	0.63	0.62	0.62	0.62	0.65	0.65	0.65	0.66	0.11
Total	2.11	2.06	2.09	2.11	2.09	2.07	2.12	2.16	2.09	2.07	2.37	0.04

Figures for 2004, 2005, 2006, 2007, and 2011 pertain to NSSO 60th, 62nd, 63rd, 64th, and 68th rounds respectively. Figures for rest of the years are estimations. Average expenditure figures as per Uniform Recall period for all NSSO rounds. See NSSO (2004, 2006, 2007, 2008, 2012)

Source Authors' estimations, based on CMIE, EOI and NSSO of the CSO Consumer Expenditure Surveys (various rounds), National Sample Survey Organisation of the Central Statistical Organisation.

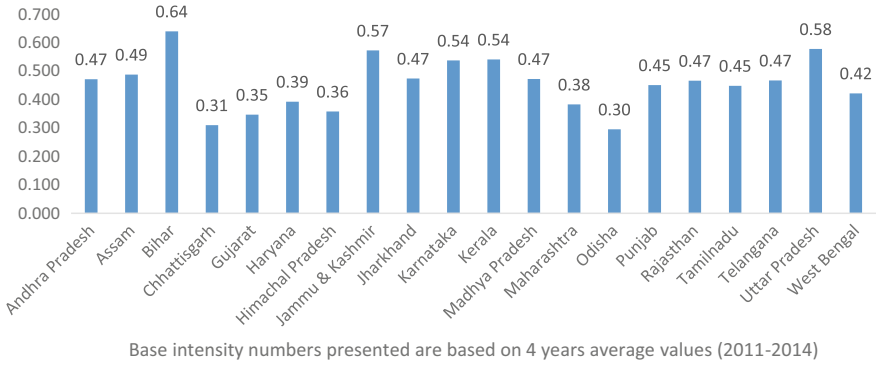

Fig. 11.2 Base intensity (PFCE /GSDP)

first level estimate—RNRS (AA), we begin by eliminating the final consumption expenditure on exempted sectors from the total final consumption. We measure Base A as the excess of per capita final consumption expenditure minus the expenditure over exempted and not covered commodities and services.

11.7 RNRS (A)

$BaseA = \sum_{i=1}^{n} PFCE_{state,i} - \sum_{j=1}^{m} PFCE_{state,j}$, where n includes all categories, and m the exempted goods and services, and also sin goods. Base A is therefore the "Base due to consumption" of all non-exempt and non-sin goods and services. From the item categories of NSSO, Cereals, Pulses, Fruits, and Vegetables and Education we consider as exempt. PFCE on "Sin goods" we deduct from the base. The relevant item category representing sin goods is Pan, Tobacco, and Intoxicants.

Table 11.4 brings out the estimates of Base A. Tax A are state taxes comprising of State Sales Tax or VAT, CST, surcharge on sales tax, receipts of turnover tax, and other receipts. We obtain data pertaining to state taxes from the RBI's periodic "Study of State Budgets", pertaining to various years (RBI).

11.8 RNRS (AA)

Hence, RNRS (AA) measures the impact of base shifting. If each state has to retain its current taxes (CENVAT and other state taxes but excluding "sin taxes") then the rate would have to be a low 9% for Assam, 5% for Bihar on the new base (consumption expenditure), and as high as 15.3% and 14.7% for Chhattisgarh and Gujarat respectively. Since these are based on state taxes, the overall GST rate would have to be as high as 30.6% for Chhattisgarh and 29.4% for Gujarat, at a 50–50 split

Table 11.4 Estimates of tax base (A) (Rs. crore)

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Andhra Pradesh	64,996	71,882	85,532	88,126	101,635	117,854	141,813	170,895	196,796	224,347	255,200
Assam	26,038	26,043	28,049	35,914	43,474	47,860	54,597	61,763	67,412	77,670	89,524
Bihar	65,132	70,589	80,537	85,956	94,756	110,602	134,774	161,023	185,772	217,437	254,527
Chhattisgarh	17,510	23,954	32,308	38,901	33,529	36,524	41,282	46,733	50,637	56,764	64,256
Gujarat	86,396	86,658	93,206	120,256	139,267	155,584	178,443	207,245	228,678	265,867	308,059
Haryana	41,714	39,257	39,155	51,051	58,703	71,367	88,970	112,248	135,959	154,905	173,383
Himachal Pradesh	10,869	11,293	12,481	15,488	15,615	17,613	20,350	23,677	26,218	29,374	33,686
Jammu & Kashmir	16,311	17,043	18,766	21,666	23,234	26,969	32,266	38,617	44,191	50,312	50,514
Jharkhand	26,879	28,051	31,509	35,005	42,616	47,829	55,751	64,560	71,733	81,722	93,425
Karnataka	75,551	84,504	101,674	102,188	150,653	172,368	204,434	245,026	280,665	330,031	377,030
Kerala	73,951	75,403	84,154	99,328	109,939	124,242	143,993	169,055	188,236	214,450	245,059
Madhya Pradesh	61,636	66,506	75,698	77,767	96,745	111,452	132,211	157,320	178,545	194,010	220,896
Maharashtra	193,711	201,899	228,156	269,615	290,844	328,711	382,014	450,188	505,333	577,150	644,629

(continued)

Table 11.4 (continued)

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Odisha	28,010	29,094	32,419	34,616	43,851	49,164	57,261	66,253	73,778	80,168	91,278
Punjab	51,907	56,336	64,392	73,305	77,255	86,942	99,811	116,014	128,386	142,992	157,523
Rajasthan	77,126	80,894	89,301	102,377	106,507	126,658	154,207	188,826	220,764	243,037	269,769
Tamil Nadu	130,113	131,254	146,815	148,781	178,057	204,784	243,877	293,315	336,319	385,706	441,001
Telangana(i)	N.A	N.A	N.A	N.A	N.A	N.A	N.A	170,593	184,586	203,462	260,289
Uttar Pradesh	183,534	185,945	200,505	229,684	248,590	285,618	337,061	397,942	450,104	497,599	563,091
West Bengal	105,465	107,073	117,513	131,774	139,140	159,204	188,775	223,543	254,439	297,984	337,756

The Monthly per capita consumption data for Districts under Telangana is obtained from the Pooled Report on Household Consumption Expenditure and Employment and Unemployment in Telangana; NSS 68th Round (2011–12) (Central and State Sample Data). The figures pertain to Central sample estimates for Uniform Recall Period. The figures for 2012–14 are projected. The data for Andhra Pradesh and Telangana are problematic and we could not verify them independently; See Government of Telangana (2013)

Source Authors' estimations, based on CMIE, EOI and NSSO of the CSO Consumer Expenditure Surveys (various rounds), National Sample Survey Organisation of the Central Statistical Organisation.

of overall GST (other than GST on inputs) collection, ignoring service tax collection as shown in Table 11.5.

Clearly, such rates would all but kill the market for many goods and services. The solution is therefore not high rates, but lies in a major shift in the way the Finance Commission ought to determine the shares for each state. Indeed, the overall rate (not computed here) for non-services is likely to be closer to 18%–20% as was computed for the nation as a whole in the literature (Rao and Chakraborty, 2013). And, the RNR for GST should be guided only by the national average RNR that is based on a pooling of all state and central taxes that are replaced by GST, including service

Table 11.5 RNRS(AA)

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Andhra Pradesh	0.088	0.090	0.093	0.111	0.111	0.104	0.106	0.105	0.107	0.112	0.113
Assam	0.081	0.099	0.099	0.075	0.072	0.074	0.079	0.092	0.092	0.088	0.091
Bihar	0.029	0.025	0.026	0.029	0.032	0.035	0.034	0.046	0.047	0.039	0.050
Chhattisgarh	0.096	0.087	0.088	0.078	0.108	0.102	0.117	0.129	0.137	0.140	0.153
Gujarat	0.096	0.122	0.138	0.126	0.121	0.117	0.140	0.151	0.173	0.154	0.147
Haryana	0.114	0.143	0.175	0.151	0.139	0.127	0.125	0.119	0.113	0.108	0.115
Himachal Pradesh	0.050	0.064	0.073	0.071	0.080	0.084	0.103	0.105	0.104	0.107	0.103
Jammu & Kashmir	0.048	0.064	0.065	0.068	0.080	0.079	0.075	0.088	0.094	0.091	0.090
Jharkhand	0.066	0.077	0.078	0.080	0.087	0.088	0.081	0.086	0.090	0.089	0.099
Karnataka	0.115	0.117	0.116	0.136	0.097	0.092	0.099	0.102	0.101	0.102	0.098
Kerala	0.091	0.093	0.102	0.094	0.103	0.103	0.110	0.112	0.120	0.116	0.119
Madhya Pradesh	0.063	0.068	0.070	0.078	0.071	0.069	0.078	0.080	0.083	0.086	0.088
Maharashtra	0.097	0.097	0.106	0.099	0.105	0.099	0.111	0.112	0.119	0.108	0.107
Odisha	0.088	0.103	0.116	0.119	0.110	0.110	0.119	0.124	0.131	0.134	0.136
Punjab	0.074	0.082	0.075	0.073	0.083	0.087	0.100	0.096	0.103	0.104	0.113
Rajasthan	0.062	0.069	0.075	0.076	0.084	0.080	0.082	0.083	0.084	0.087	0.095
Tamil Nadu	0.100	0.119	0.121	0.122	0.116	0.111	0.117	0.124	0.131	0.139	0.140
Telangana(i)								0.099	0.107	0.116	0.104
Uttar Pradesh	0.048	0.061	0.066	0.065	0.070	0.073	0.074	0.083	0.077	0.080	0.080
West Bengal	0.054	0.057	0.060	0.061	0.064	0.066	0.070	0.071	0.073	0.074	0.074

RNR (AA) = Tax (A)/Base (A)

NB: The figures for Telangana are based on backward projections for state tax collections.

Source Authors' estimations, based on CMIE, EOI and NSSO of the CSO Consumer Expenditure Surveys (various rounds), National Sample Survey Organisation of the Central Statistical Organisation.

tax. Yet the state RNRS (on manufacturing) being so divergent—from 5 to 15 or 10–30% as between Bihar and Chhattisgarh, i.e., with a clear 20% of the base points to the enormous inequity in GST for producing states with a focus on manufacturing, which are also poor and/or have low consumption bases.

11.9 Further Estimates Including Service Taxes

We now take forward the analysis of the RNRS, which is more realistic in including service taxes and the service tax base as well. This should be the working figure for the RNRS for the state. We here assume that half the current collection of service taxes that take place would be by the state, so that we have the estimate of the required RNRS for the state after accounting for the service taxes that the states would collect.[5] Taxes for this estimate RNFR (BB) are the taxes calculated to estimate RNR (AA) plus half the service taxes collected in the state. The base is the same as before except that we have added (back) the consumption of tobacco and related items as in the estimated PFCE of Table 11.2. The ratio gives the RNFS (BB) reported in Table 11.6.

States with low consumption and high production such as Gujarat, Chhattisgarh, and Tamil Nadu have a high RNRS. The lowest RNRS is for Bihar, followed by West Bengal and Uttar Pradesh. These are states with low per capita consumption and low production. Again, the variation is quite large from 6.2% (Bihar) to 16.2% (Chhattisgarh), i.e., a gap of 10% on the base, which on the sum of states and central taxes would give a gap of 20%! This table should constitute the main basis in understanding the differences across states in the RNRS.

11.10 Including Government Purchase

We assume that all purchases by state and local government are of local goods and services. We allocate the central purchases of goods and services on the share of GSDP of a state in total GSDP in all states. These estimates are conservative for the producing states, since the purpose is to bring out the large divergence across states. Due to non-availability of local Government (Urban Local Bodies and Panchayats) purchases data, we multiply by a factor of 1.5, the state Governments' purchases of goods and services.

$$\begin{aligned} BaseC = & BaseB + (StateGovt.PurchaseofGoodsandServices * 1.5) \\ & + CentralGovt.purchasesofgoodsandservicesfromthestate \end{aligned}$$

[5] For the figures over the years, state wise see Morris et al (2018), Table 9.

Table 11.6 RNRS(BB)

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Andhra Pradesh	0.089	0.093	0.100	0.120	0.120	0.111	0.113	0.115	0.118	0.124	0.124
Assam	0.079	0.098	0.101	0.081	0.078	0.079	0.085	0.099	0.102	0.098	0.101
Bihar	0.032	0.030	0.034	0.039	0.042	0.043	0.042	0.056	0.058	0.051	0.062
Chhattisgarh	0.096	0.091	0.095	0.089	0.117	0.109	0.124	0.137	0.147	0.150	0.162
Gujarat	0.098	0.126	0.144	0.137	0.133	0.127	0.149	0.161	0.185	0.167	0.159
Haryana	0.116	0.146	0.181	0.162	0.149	0.135	0.134	0.131	0.128	0.123	0.129
Himachal Pradesh	0.053	0.070	0.083	0.083	0.091	0.093	0.112	0.115	0.117	0.120	0.116
Jammu & Kashmir*	0.051	0.069	0.074	0.080	0.092	0.089	0.086	0.101	0.110	0.107	0.105
Jharkhand	0.068	0.080	0.083	0.088	0.096	0.095	0.088	0.095	0.101	0.101	0.110
Karnataka	0.116	0.120	0.122	0.144	0.107	0.100	0.108	0.113	0.115	0.116	0.111
Kerala	0.094	0.100	0.113	0.108	0.118	0.114	0.122	0.126	0.136	0.133	0.135
Madhya Pradesh	0.065	0.072	0.078	0.088	0.082	0.078	0.086	0.090	0.096	0.099	0.100
Maharashtra	0.101	0.104	0.116	0.113	0.119	0.110	0.122	0.125	0.135	0.125	0.123
Odisha	0.088	0.105	0.121	0.124	0.117	0.116	0.125	0.132	0.141	0.144	0.146
Punjab	0.078	0.089	0.087	0.086	0.097	0.098	0.112	0.110	0.119	0.120	0.129
Rajasthan	0.065	0.074	0.083	0.086	0.094	0.089	0.091	0.094	0.098	0.101	0.108
Tamil Nadu	0.103	0.124	0.129	0.132	0.126	0.119	0.126	0.135	0.145	0.153	0.153
Telangana	N.A	N.A	N.A	N.A	N.A	N.A	N.A	0.108	0.118	0.128	0.115
Uttar Pradesh	0.052	0.066	0.075	0.077	0.082	0.082	0.084	0.095	0.092	0.094	0.094
West Bengal	0.057	0.063	0.070	0.072	0.076	0.075	0.080	0.082	0.087	0.087	0.087

RNR (BB) = Tax (B)/Base (B)

NB: Figures for Telangana for the years 2011–13 are backward projections. See notes to Table 11.4 as well.

Source Authors' estimations, based on CMIE, EOI and NSSO of the CSO Consumer Expenditure Surveys (various rounds), National Sample Survey Organisation of the Central Statistical Organisation.

$$CentralGovt.purchasesofgoodsandservicesfromthestate = Centralgovt.purchasesofgoodsandservices * (\frac{GSDP_{state}}{\sum_{i=1}^{n} GSDP_{state,i}})$$

$$RNRS(BC) = TaxB/BaseC$$

We present Base C data for only four states, due to non-availability of functional classification of state govt. budget data in public domain. In Table 11.7 we present

Table 11.7 Base C (i.e., including Governments' purchase of goods and services into Base B) (Rs. crore)

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Chhattisgarh	21,267	28,436	37,687	45,220	42,051	46,635	54,479	64,896	73,026	86,205	103,731
Gujarat	102,672	105,257	112,943	141,914	164,896	185,133	214,210	248,238	277,053	323,344	377,380
Haryana	50,050	48,963	49,632	62,884	73,429	88,614	109,315	135,781	163,641	187,570	212,218
Kerala	91,426	93,544	102,269	118,287	131,176	146,400	167,766	194,410	217,526	243,554	276,998

Estimates of government purchase of good and services are taken from the Economic and Functional Classification of the Budgets brought out by the Governments of Chhattisgarh, Gujarat, Haryana, and Kerala.

Source Authors' estimations, based on CMIE, EOI and NSSO of the CSO Consumer Expenditure Surveys (various rounds), National Sample Survey Organisation of the Central Statistical Organisation.

Table 11.8 RNRS(BC) i.e., tax B/base C

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Chhattisgarh	0.082	0.079	0.084	0.078	0.096	0.088	0.097	0.101	0.105	0.102	0.103
Gujarat	0.085	0.106	0.122	0.118	0.114	0.108	0.127	0.137	0.156	0.141	0.133
Haryana	0.099	0.120	0.147	0.134	0.122	0.111	0.111	0.110	0.107	0.103	0.107
Kerala	0.078	0.083	0.095	0.093	0.101	0.099	0.107	0.112	0.120	0.119	0.122

Estimates of government purchase of good and services are taken from the Economic and Functional Classification of the Budgets brought out by the Governments of Chhattisgarh, Gujarat, Haryana, and Kerala.

Source Authors' estimations, based on CMIE, EOI and NSSO of the CSO Consumer Expenditure Surveys (various rounds), National Sample Survey Organisation of the Central Statistical Organisation.

the estimates of the Base C. In Table 11.8 estimates of RNRS BC. These estimates are more important than the asking rates for these states. Thus for Gujarat it is as high as 26.6%. In relation the asking rate for states like Bihar is likely to be much lower, which we could not estimate.

It is much better to use the estimates of Table 11.6 for the divergence across states. This is so, because not only are they available across many states, but also because Government purchase, which is a function of the level of state action (which is endogenous to the tax collected) is itself subject to incentive effects. Thus, Kerala has large state expenditure in re-distribution subsidies and social sectors. Gujarat encourages production in an intense way. The latter has positive effects on other states and encourages production expansion for the nation as a whole. And GST, in itself, disincentivizes this activity.

11.11 Institutional Mechanism

The GST Council is the institutional mechanism for policy, rates, and oversight of implementation of GST. The GST IT Network (GSTIN) is a sophisticated network, one of the largest of its kind in the world, which over the last couple of years has stabilized. One of the reasons for the increased compliance is the care with which the GSTIN was developed. The idea is that every entity making payments and getting rebates, has a unique id, so that invoices which are made, even if the buyer is at the moment not registered can be identified to make checks. Much has been said about the success of the network, and given the GST Council and the GSTIN, the system is rapidly evolving towards increased ease of use. The complaints against the system have died down as the learning about the system has improved, and the system itself has improved and been debugged. Many have argued that the hurry to introduce the system was responsible for the many bugs. While this is true, an important reform that involved the concurrence of states would not have had a continuing window of agreement.

However, there is an issue with the institutional mechanism that has not been under discussion and may have missed the policy itself. There ought to be the flexibility to raise and lower GST rates for macroeconomic fiscal policy to be effective. Since tax cuts have a quick effect—the outside lag is very small, being of the order of a quarter, tax cuts (and increases) become very important in macroeconomic policy particularly in deeper recessions. While the individual rates may take longer time, across the board cuts /increases ought to be available to the central finance ministry without having to consult the state governments. The Council's decisions on details of specific rates, on disputes, improving the system, on harmonization, and processes can of course take much longer. The speed with which the government was able to respond to the GFC was in part because of the flexibility the government had to change rates on (central) excise and service tax which were then entirely within the purview of the central government.

About the Rates

There are far too many conditional rates depending upon branded / non-branded, other perceptions of luxury. One such is the use of chocolate in sweets being considered as luxury and subject to a different rate from other "mundane" sweets, creating large scope for discretion and misadministration. Some of the rates are ludicrous and on items that are too small to worry about. There has been no ABC analysis of collected taxes or the potential item-wise with the intend to reduce the number of chapter and rates, or to avoid conditional especially transcendental conditions in classification. Mere reduction of rates may not work, if for example "Indian sweets" which in any harmonized system would have to be one get divided with different rates. So along with rate reduction, neighborhood consistency would be desirable.

Many rates are too high to have affected the markets adversely. A good example is automobiles where the income elasticities and price elasticities are large, and indeed some items like two wheelers may be having rates above the revenue maximization rates and reduction may be justified on the count of improved collections. Similarly, notions of luxury and necessity which pits all branded on higher rates would be significantly reducing the quality and safety in many items of mass consumption like foods and food preparations. Food processing for instance is highly discriminated against by the high rates on processed and on branded foods (while the Ministry of Food Processing in India -the only country that has such a ministry) wonders why so little of India's foods are processed and stored across the seasons.

Unfortunately, there are no studies which have gone into these issues thus far. And detailed data item-wise is not as yet available in the public domain. The time is certainly ripe for an RNR study with the objective of bringing about a flat standard classification, fewer rates, and avoidance of conditional and transcendental classification.

11.12 Conclusions

We have developed a new approach that is similar to the IMF's macro approach and builds on the direct measure of expenditures from the expenditure side of NAS, to measure RNR at the state level.[6] The method overcomes many issues with the conventional method of using taxes and rates to get to the base since that method ("tax turnover") is crucially dependent on the "compliance factor" and assumptions regarding trade, both of which are known to differ widely across states and even within states across items.

The systematic and large dispersion of the RNRS across states tells us that GST is going to be very hurtful to producing states. The current proposals would put the states' share at 50% (with a range of consideration being 40%-60%). One estimate of RNRS for Gujarat is around 15% (2014, Table 11.6 for Gujarat). At 50% of the total GST going to the state this should give a RNR for all GST collected by Gujarat of 30%. In contrast, similar figures for Bihar are only 12.4%! For Bengal it is 16.4%.

Neither is it desirable, nor necessary, to reverse GST to remove the fiscal bias against production. Indeed, GST is most conducive to bringing about locational, scale, and logistic efficiency. However, for large near federated systems that are yet to complete their economic transformation, it has the potential to hurt. This is because regional governments have the major role of attracting and sustaining investments and economic activity especially of manufacturing and tradable services for good of the national economy as a whole. This further necessitates the need to design the allocation and compensation mechanisms in such a way as to incentivize states to encourage the local embedding of manufacturing and tradable services.

Coastal states like Gujarat, Tamil Nadu, Odisha, Andhra Pradesh, Karnataka, and Maharashtra would have to play that role more vigorously. even as the large poor states develop their own engines of growth. Similarly, mineral and resource rich states would have to bear the role of producing minerals metals, and other materials required for industrialization. However, the compensation by the Centre at 15% per annum rise in nominal terms for the next 5 years would not be enough to compensate for the long-term fiscal losses that Gujarat, Chhattisgarh, and Tamil Nadu would encounter.

Spending on infrastructure and other supportive measures is dis-incentivized under GST unless the basis for allocation from the central collections changes. The way out is to arrange for an upfront share of the Centre's collection of around 40–50% to be allocated, based entirely on origination. Or, better yet, the gross capital formation realized by states in the previous three years, before the allocations by the Finance Commission comes in. Finance Commission allocation on the residual amount after the Centre's own expenditure can then be on the usual basis of population, poverty, etc. For a quick presentation of the structure and politics of government, finance in India see, Rao (2015).

[6] The base for checking efficiency as in Subramanian (2015) uses direct expenditure, but its potential to be used for RNRS and for RNR had not been given adequate attention.

The insistence by states to have their own separate administrative machinery for GST is misplaced. Does this mean that they (ex-ante) plan to game collection efficiency varying the same across goods and services? Clearly, that ought to be inadmissible. Best option would be single till—both bureaucracies being merged into one—with a single board at every regional level that has 50% of its members from the state; and 50% from the Centre.

The distortions brought about by high rates some of which may be above the revenue maximizing rates, conditional definitions of items, too many chapters, many rates, and notions of luxury that are dysfunctional to market development and quality improvements (such as the bias against brands), biases against processing of foods are highly distortionary and should be the target of reform going forward.

The institutional mechanism is not flexible enough for across the board cuts/increases in rates necessary for macroeconomic management, denying the government of an otherwise highly effective instrument of macroeconomic policy.

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Chapter 12
Conclusions

12.1 Managing the GFC

The Global Financial Crisis (GFC) did not lead to a reduction in growth in India. Growth, which had reached a level of 9.75% in certain quarters, before the crisis, had marginally slowed down over the last three quarters before the GFC. The RBI had tightened by raising the cash reserve ratio seven times in a row. Then it gave up accommodating the vast capital inflows allowing the rupee to appreciate from Rs. 45 to 39, the value is reached on the eve of the crisis. The RBI was responding to a rising inflation, but much of it was on the supply side. The first blast of the crisis expectedly was on the financial markets, and now the RBI under its new governor delayed responding to the same, which unnecessarily brought about a liquidity shortage in the country. Soon enough though the government unrolled its fiscal stimulus. And the RBI increased the liquidity in the system and bought down rates. The fiscal stimulus restored growth back to its original level exceeding 8.5% for the next two years—2009–10 and 2010–11. The Indian recovery then was commented upon. The belief, that the economy did not dip much owing to it being "disengaged" from the world economy, was obviously false. It was the purposeful and large fiscal stimulus consisting of both tax cuts and spending especially on the Mahatma Gandhi Rural Employment Guarantee Scheme (MGNREGS) and on infrastructure that ensured the recovery. Growth could otherwise have dipped below 4%.

12.2 The Fall from High Growth

However, the RBI had already begun to tighten and this led to the collapse of the growth when it raised repo rates c. 2010–11 onwards. From 2011 to 2012, when the fiscal stimulus was being withdrawn the monetary situation was very tight. The result was a collapse of investment and a sharp fall in the growth to about 4.5% from

S. Morris, *Macroeconomic Policy in India Since the Global Financial Crisis*, India Studies in Business and Economics,
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which the economy never really did recover. A brief spurt in 2015–2017 was killed by the demonetization end-2016, and one year bounce back from the demonetization was short lived. The economy on the eve of the COVID Crisis was growing at no more than 4.5%. Considering the entire period from 2011 to 2012 to the eve of the COVID Crisis it may not have grown at more the 5.7%.

To draw a correct picture we need to discount the growth rates, by about 1.5% per annum, in the initial 5 years or so, the new 2011–12 series. However, even without this correction, the broad picture of a slowdown from 2011–12 till the start of the COVID19 crisis holds, making this the longest period of slowdown since the Great Liberalization (GL) of 1991–92 and 1992–93, which as we all know had structurally transformed the economy allowing it to grow sustainably at high rates. Investment growth sharply declined. The share of Gross Capital formation fell to 32% of GDP from its high levels of 36–37% achieved over the high growth period. Since then it has hovered around 31% of GDP. Private investment has been particularly weak right through the period. Its share in GCF which had gone up to between 40 and 34% over the high growth period now fell to about 35%. Sustainability of growth has been all about raising the private "corporate" investments.

12.3 Monetary Tightening

In 2012–13 and 2013–14, the much talked about "policy paralysis" no doubt contributed to the slowdown, by further impacting investments including public investments now, but its role should not be exaggerated. Monetary policy continued to be tight right until 2018. Through much of this period, the policy rates were not as such meaningful, since the low end bond yields were above the repo rates. This was especially so during and after the so-called "Taper Tantrum", which the RBI apparently did not respond to, when it could have by increasing liquidity.[1] It was only from 2018 onwards that the monetary situation eased and the repo window was open enough to collar the low end yields.

The RBI's reason for keeping tight monetary conditions from 2010 to 2011 was the high inflation, which seemed to go from food and fuel to the core part of the CPI. However the RBI may have been misled because of an error in the CPI that showed "rents on housing" rising as much as 20–27% for many quarters, which would have raised the core from 7–8% to 12–13%. The "rise" in the rents and the concomitant "rise" in the core were entirely spurious, being the result of the erroneous way in which the 6th Pay Commission's award was treated to compute rents. The entire rise and fall in the CPI and the core, from perhaps as early as 1997–98, can be related to the movements in (largely) food and fuel prices. There is little of the expectations

[1] In a modern economy with large financial portfolios, the aspect of money in portfolios is the more dominant role of money in the short run. The portfolio demand for money sharplyrises during periods of uncertainty. This is the main understanding that emerged out of the GFC and its successful management, which in many ways is a rediscovery of the original Keynes.

rise leading to a spiral. Only the pass thru effects are visible. Indeed inflation and its fall over much of the period can be attributed to supply-side factors. There is little evidence for true, and actionable, demand-side core inflation.[2]

12.4 Inflation Targeting

In 2014 (formally) the RBI shifted to "inflation targeting" the dominant paradigm of central banks. Even in inflation targeting it is the core that is usually targeted. But the RBI chose to target the CPI itself, something which it can hardly do. Inflation targeting brought with it many problems for the RBI and the fact that forecasted inflation (conditional on the RBIs own policy measures) was always higher than realized inflation by a wide margin, raises doubts about the efficacy of the approach. Similarly, its expectations surveys are systematically off the mark by a wide margin. The RBI's reaction to CPI inflation (essentially due to food), rather than to unconditional estimates of forward-looking core inflation means that financial markets are reluctant to reduce the longer term yields, when the RBI lowers the policy rates at the low end. This is because the market believes the RBI could go back, the next time it sees a pep up the CPI. The approach of the RBI makes the future very uncertain, keeping the yield curve steeper than what it needs to be. Therefore, the first leg of the transmission between low end and longer duration bonds is hurt by the modus operandi of the RBI itself. The problem is compounded by the public sector banks' (PSBs') reluctance to lend. This stems from the absurd punitive processes on managers, which began to take root once the slowdown happened and got embedded thereafter.

There is very little support to the RBI's contention that even a supply-side inflation needs to be 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 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

[2] Unless one wants to call the rise in inclusion due to high growth episodes and the MGNREGS spending as dysfunctional. The demand arising on account of inclusion is entirely for wage goods, much of it being on account of food. Considering the same as demand side to be acted upon from the monetary side would mean that the RBI is willing to accept the large punishment on growth and inclusion, since the demand elasticities for food are low even in India. In other words inclusion is being sacrificed at the altar of orthodoxy. Ideally fighting food inflation ought to be from the supply side of—by liberalization of agricultural markets, the government giving up on ad hoc interventions, and instead bring about strategic and efficient market interventions including storage and processing, acting in coordination with farmers' organizations; on the lines pioneered by the National Development Board for milk and vegetable oil. Similarly processing which could have stabilized prices especially of fruits, vegetables and fish, is held back by the very high GST rates in relation, while unprocessed have zero rates.

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 needs to rise in favor of agriculture to allow those dependent on the agricultural sector to participate in the home market in a vigorous way.

12.5 Fiscal Conservatism

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 programs and especially the MGNREGS 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, all contributed to the demand decline. From the third year onwards the policy and action uncertainties including those that let loose on the automobile sector took their toll. The talk of banning diesel vehicles was highly damaging to industry that had just made the transition to being able to meet Bharat VI norms. Private investment saw the longest period of near stagnation from the mid-eighties. GST too contributed by raising the effective tax rate.

12.6 Programs Without Design

While nearly all the programs 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 country of transformative second-generation reforms. Instead, most of these fizzled out. There was little of the creativity of the earlier National Highway Development Program (NHDP) nor of the Prime Ministers Gram Sadak Yojyna (PGSY) under Vajpayee, when the government had the wisdom to accept and implement a well-crafted NHDP whose design actually came from the Planning Commission, the Ministry, and the IDFC working together. Only the movement to Direct Benefit Transfers were significant improvements. The task of combining (structural and tax) reforms with macroeconomic demand management in a positive way proved difficult for the government. It is unlikely though that the issue was even sensed. Thus even the vital 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. Government could have recognized this aspect of GST to raise expenditures elsewhere or lower the tax rates. Some products may well have rates which are above revenue maximizing!

12.7 Public Sector Banks

Lending by Public Sector Banks (PSBs) has more often than not been problematic. They have tended to go either overboard or have been overly "cautious" after a bout of bad loans. This enhances their pro-cylicality, which is a given feature of bank lending. Governmental interference not to speak of political pressures to lend to favorites have maimed public sector banks. A "laundry-list approach" of regulation pursued by the RBI was not conducive to filtering out high risk projects. Much of the lending that had taken place earlier (especially during the period of the fiscal stimulus) began to worry the public sector banks (PSU banks), once the slowdown happened. Many private corporates have long operated with the idea that they can dump the negatives on the PSBs when things take a turn for the worse, and they did so in good measure during the sharp slowdown.

The new feature was the significant size of private businesses in infrastructure. 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, and the perverse governance and regulation of the PSU banks. The combination of the sharp downturn and a long slowdown proved deadly to the health of the PSBs. The steep rise in interest rates way above expectations, imposed by the RBI in 2010–11 onwards proved disastrous for many infrastructure projects, especially PPPs and power projects on fixed revenues. With the near bankruptcy of many projects, the PSBs' NPAs went up. The credit flow to other sectors that could have absorbed credit was affected—MSMEs in the market and export oriented sectors. The delay in their recapitalization affected the Non-Banking Financial Companies (NBFCs) and real estate to create a gridlock on lending.

12.8 External Environment

The external environment was benign. The government could hardly use the opportunity of falling oil prices, in its single minded pursuit of reducing the fiscal deficit. Its perspective seemed to be that of managing a family's budget. Its focus exclusively on the numerator. 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 few external shocks in this period could easily have been addressed by macroeconomic counter-action if the policymakers had chosen to recognize the same and address them.

12.9 Reforms and Macroeconomic Policy

The issues of coordination between demand management (both fiscal and monetary) with structural reforms can hardly be brushed aside. Doctrinaire considerations do not help. The GFC brought back the issue of monetary and fiscal interventions in the advanced countries throwing to the wind the academic yarns of continuous "equilibrium" and the "optimality" of nonintervention. GFC also brought to the fore the aspect of rising liquidity demand in the face of uncertainty, taking the form of a rise in the demand for reserve currency (dollar) liquidity in a world open to short-term capital movements. This feature places a responsibility on the US, and in part on Europe to provide global liquidity during periods of high uncertainty. For large countries like India and China they imply some need to address local currency liquidity. Having large foreign currency reserves becomes a near necessity, since the biggest shocks to the balance of payments come from "capital" movements.[3] India, unlike China seems to be entrapped in a doctrinaire web, the severity of which to hold down growth is large. Emerging economies have always had the need to stitch macroeconomic policy and structural reforms in a functional way. In India in the few instance when this happened growth had been sustainably high.

12.10 The COVD19 Crisis

The COVID19 Crisis was universal, imposed negative shocks on both demand and supply. All over the world governments came out with large support measures to prop up expenditures and livelihoods, and shore up the net worth of enterprises, which were badly hit—travel, entertainment, hospitality, tourism, etc. The possible ill-effects of the crisis could be intuitively clear to even the most diehard "stay-off" economists and politicians. The experience of the GFC, and the successful response to the same that the US under Bernanke pioneered, was in the memory of policymakers.

12.10.1 Stimulus

The Government's "20 lakh crore stimulus" package when unraveled revealed a more modest Rs. 1.721 lakh crore including a direct expenditure increase of Rs. 0.331 lakh crore, and transfers (to both consumers and small producers) of Rs. 1.390 lakh crore.

[3] These shocks could be purely exogenous as is the case with contagion or crisis in the financial sector crisis in the advanced countries, even in the US as the GFC was. They could though arise on account of anticipated shocks on the current account. For poorly diversified countries with large exports of commodities, price volatility of their core export commodities continues to remain an import origination for crisis. The feature of the modern economy—that financial portfolios are very large and there is an amplification of their role due to leverage—means in macroeconomic language that the portfolio demand for money over shadows the circulation / transactions demand for money.

The rest were liquidity, credit enhancement, guarantees, and provisions, and included the raising of the borrowing limits of state governments by 2% of GDP. The estimate of expenditures and transfers when fed into an expenditure-based model gave a counter-action of about 2.65% to growth. Growth with no fiscal counter-action but with no "collapse" of productive entities would have fallen to between −8.9 and −12.3. The year ended with an early estimate of GDP growth of −7.5% which first Advance Estimates of the National Statistical Office revised to −7.4% (−7.53% if log rates are used).

12.10.2 Lockdowns

The "territorial" approach to the lockdowns and the universality of the same, the "unanticipated" displacement of migrant labor, exposed the limitations in the "knee-jerk" response of the administration. The lockdowns amplified the economic downturn giving rise to an impact of −11% or close to the median we had estimated in early May 2020. The brunt of the crisis was borne by the workers on daily contracts especially in the manufacturing sector. Employment which had more or less stagnated from 2017,[4] dived.

12.10.3 RBI to the Rescue

The RBI's measures helped to expand liquidity, shore up many businesses and kept the financial system functioning. Indeed, the liquidity expansion and the support to the NBFCs and the small firms through the Targeted Long Term Repo Operations (TLTRO) helped to overcome the precarious situation in the financial sector, which existed even prior to the Crisis. The ability of liquidity expansion to overcome the negative effects of uncertainty on financial portfolios, and on the financial sector more generally, worked. And many medium sized enterprises were shored up. The banks too by November 2021 were in far better shape than even before the Crisis.

The contrast between the fiscal and the monetary responses was very stark. This time the RBI responded in kind, while the government continued to delay and moderate its spending. Earlier in the counter-action of the GFC, the government responded, while the RBI sulked.

[4] It is only from 2016 that detailed monthly data on unemployment, employment and the labor force and on rural wages is available, from the CMIE.

12.10.4 Employment Fall

The COVID saw unemployment rise to record highs of almost 30% during the lock-down quarters and then fall to the levels before the COVID Crisis. These levels were high. But the unemployment figures hide the deeper distress in the economy. The dim prospects of employment made many people fall off the labor force. Much of this is involuntary, even if does not appear as such. If there was a reservation wage it had hardly gone up since 2014 and may have actually fallen. The employment figures bring out the grim picture. As late as November 2021 the employment in the manufacturing sector was 30% below the pre-COVID level when measured by a rolling 12 months average employment. The rise in employment in the agricultural sector paints the same picture, since in a situation of hopelessness people go back to the residual sector that houses all the disguised employment. Between 3 and 8 million people have yet to regain whatever employment they had. Most certainly, inequality would have risen sharply.[5] It is also likely that people under the poverty line have swelled, reversing some of the hard won gains made over in the past, especially over the periods of high growth.

12.10.5 Insipid Recovery

Few industries have reached their pre-COVID levels of output, and only a couple—pharma, rubber, and basic metals had reached close to their trend values. Overall the IIP was a mere 1% above the pre-COVID level. Yet the stock market peaked to reach dizzying heights. This, as many believe, is not because of a run-away overvaluation. It can almost entirely be explained by the fall in the discount rates, the fall in the share of interest in overall cost, the reduction in the corporate tax rates which had happened a wee bit before the Crisis, and the share of labor in costs falling, as the structure shifted in favor of larger players with less labor intensive modes of production, through the recovery itself was weak.

[5] Though as measured by the NSS Consumption Expenditures for this period it is most likely to reveal a decline, given the decline in consumption expenditures in almost all declines –whether voluntary or not. Since the NSS gives equal probability for inclusion to individuals irrespective of their incomes, and the high incomes at the top when it really starts diverging, are likely to be missed entirely. The NSS data, while excellent for examining the human condition, is not an appropriate for working out inequality. It is the widespread use of the same that gives the confounding result that inequality in India is lower or comparable to that of East Asia, when the experience is entirely the other way.

12.11 Working Through Reforms

The government's stated intent—that instead of demanding support they would like to work through "reforms" merits serious attention. After all, it was when reforms were enmeshed with macroeconomic policy correctly, during the GL, that we had the high 6.7% growth, which in many ways transformed the economy. And it was "second-generation reforms"—the NHDP—that kick-started the "Tiger" Period (2003-04–2007-08) with growth at 8.5%% average. So perhaps a fresh scheme that has just been given its operational form—the Production Linked Incentive (PLI) Scheme—of the Planning Commission could work?

"Make-in-India" had been one of the programs of the Modi government—the other more notable among the many being Swatch Bharat, Smart Cities and Make in India. The contrast with Vajpayee's National Highway Development Program is most apt. Then in 1999, after Vajpayee's speech to build roads from Kashmir to Kanyakumari, the government, through the expertise of Mr. Gajendra Haldea at the Planning Commission and the IDFC, was able to create the NHDP with its ring fenced road fund, an improved EPC, a sui-generis land acquisition act, an empowerment of the organization that was to execute—the NHAI, a BOT model, and an innovative Annuity Model. This creative exercise led to success. The NHDP and the PMGSY (due also to the Planning Commission and the IDFC) are among the few second-generation reforms that succeeded and continue to deliver even today. The contrast is with Swatch Bharat and Smart Cities. Here the Prime Minister's statements were interpreted "literally". After all, when officials too followed the PM to pick up the broom ceremoniously, instead of focusing on their role to create the systems, processes, policies, law and frameworks, organization, and coordination, to give the programs a functional form, one knows the game has been lost. Successful second-generation reforms have therefore been rare.

12.12 Make in India Today

Make in India had languished from the time it was initiated. The "thru-put" support idea of Dr. Kant (now CEO of Niti Aayog) c.2015 did not move forward. However today it has taken a reasonable form of identifying crucial technologies/products and capabilities to provide support in the proportion of the additional value or capability created. An outlay of more than Rs. 2 lakh crore over the next 5 years concentrated in certain industries is not trivial. The prospect for success is very much there given the following factors: (i) India has the lowest wage costs, with skills available on tap, and there are few competitors to India in this regard. Vietnam, Indonesia, and Bangladesh are credible, but they cannot immediately match the range of industries of India. (ii) The China plus factor. Now that China is seen as an adversary to the US (the country that upholds the global system), multinationals would be under pressure to have a footing outside of China. And the country cannot anymore be Taiwan, given

the distinct possibility now, of China being able and willing to extend its force to that country. (iii) China Green and China High Tech could lead to China vacating industries many of which could be picked up by India. The change in China being driven from the top, makes even very deep structural change credible despite their large risks to China. However, it is still too early to say, but there are signs in the stock market that firms and industries benefiting from the PLI have improved their valuations.

12.13 Debilities on Manufacturing

Nevertheless, one cannot forget the large debilities against manufacturing that continue: (i) Tariff inversion in a number of areas including flat screen TVs, tablets, computers, mobile phones, solar panels. The tariff bindings are low while input tariffs are higher. (ii) High prices of non-tradable inputs many of which are administratively priced—water, electricity, petroleum in part, other infrastructure goods. The "implicit cross subsidies" or inefficiencies of the service provider (largely government) are not vatable. (iii) High and asymmetric cost of finance as reflected in the large "fisher-open", i.e., that the forward premium overestimates the actual depreciation of the currency. In East Asia and China this deviation is considerably lower. (iv) The "equilibrium" approach to the balance of payments adopted by the RBI by which the currency is 'overvalued' (relative to China and Vietnam, now, and earlier nearly all Export Led Growth (ELG) economies). As a result a "Dutch disease" on manufacturing then emanates, in India, from the success of the ITES exports and the vast remittances.

12.14 Not ELG as Yet

At a deeper level, ELG is not the movement to laissez-faire, nor is it import substitution, but a simultaneous pursuit of both import substitution and export promotion with import substituted goods becoming export goods with time, when the lower order export goods lose their shine as labor costs rise. ELG builds on using otherwise idle labor. The macroeconomics of ELG seeks to enhance the full (employment) capacity output, even as it expands demand, building on the fact that the social cost of labor is close to zero when there is idle labor. This implies that macroeconomic policies favor investments and exports. In economies with idle labor, output can be constrained only by capital (and the technology that goes with capital). So aiming for the highest rates of functional capital formation and capability building becomes the strategy.

Unlike China or Vietnam both of which have moved to ELG since their opening up, India's macroeconomic policy has not been strategic in the way the ELG economies are. Added to that is the approach of inflation targeting that the RBI has adopted,

which would limit the spread effects of the PLI and the China factors as they begin to take effect. After all there is only so much that can be subsidized out of the government's budget, and the "force-multiplier" of exuberant demand that exports bring has to be mobilized for success.

12.15 Finally

Above all, the book argues for coordination between monetary and fiscal policies, and for macroeconomic policies to integrally take into account the influence on capacity output including that arising out of its own actions. It also suggests that the macroeconomic management, when idle but ready to employ labor exists, has to be different from the macroeconomics when there is no such idle labor, since in many ways the capacity (full employment level of) output is in part endogenous. In the advanced countries without disguised unemployment, the macroeconomics could be conventional—keeping to its core role of stabilization and inflation control. In highly diversified economies, with much idle labor, ELG becomes the way to build on the near zero social opportunity cost of capital. It also win-win and therefore feasible from the point of view of the countries ahead on the transformation that is the recipient of exports.

12.16 Revised Estimates' Indications

As we go to the press, the growth (YoY) being expected for 2021–22 is 9.5%, as was widely reported in the press. The revised growth for the COVID year 2020–21 is − 7.3% which is better than what had been anticipated. (It is likely that the growth for 2020–21 has a certain degree of overestimation, but we ignore that).

12.16.1 Growth and Recovery

The GVA for the year 2021–22, at basic prices is a mere 1.9% above the level in 2019–20. GDP 1.3%. This is hardly a recovery for an economy that can easily clip at rates in excess of 7%. The dip in growth should have been followed by a bounce that should have covered quite a bit of the lost ground. The pattern of growth, when considered from the demand side is interesting. Valuables (essentially gold and ornaments) purchase has shown a very high growth rising to a value of 178.7 indexed to 2019–20. Keeping aside net exports and stock accumulation, and working with the rest, gives an index value to GVA of 101.4 and further removing Government Final Consumption Expenditure 100.2. In other words, the recovery has just taken

domestic demand back to the 2019–20 level over nearly a year and two quarters of recovery as shown in Table 12.1.

Clearly as brought out in the book much more by way of stimulus is called for. Private Final Consumption Expenditure still remains at 97.1, i.e., nearly 3% points below the 2019–20 which itself was a low point. The sharp increase in valuables, at a time when the economy is down is suggestive of rising inequality. Exports and

Table 12.1 Index of national output and related measures (2011–12 = 100)

	2019–20	2020–21	2021–22	2019–20	2020–21	2021–22
	At 2011–12 Prices			*Per Capita at 2011–12 Prices*		
GVA at basic prices	100.0	93.8	101.9	100.0	92.9	99.8
Net Indirect taxes	100.0	81.6	94.9	100.0	80.8	92.9
GDP	100.0	92.7	101.3	100.0	91.8	99.2
NDP	100.0	92.6	101.2	100.0	91.6	99.1
Private final consumption expenditure	100.0	90.9	97.1	100.0	89.9	95.1
Government final consumption expenditure	100.0	102.9	110.7	100.0	101.9	108.5
Gross capital formation	100.0	89.2	102.6	100.0	88.3	100.5
Change in stocks	100.0	97.4	105.8	100.0	96.4	103.7
Valuables	100.0	102.0	178.7	100.0	100.9	175.1
Exports	100.0	95.3	111.1	100.0	94.3	108.8
Imports	100.0	86.4	111.8	100.0	85.5	109.5
Discrepancies	100.0	−4.3	153.8			
GDP	100.0	92.7	101.3	100.0	91.8	99.2
Population	100.0	101.0	102.1			
	At 2011–12 prices (GVA at basic prices)			*Implicit deflator using the 2011–12 Series*		
Agriculture and allied act	100.0	103.6	107.7	100.0	102.8	108.0
Mining	100.0	91.5	104.6	100.0	89.7	127.7
Manufacturing	100.0	92.8	104.4	100.0	102.7	114.3
Electricity, gas and water	100.0	101.9	110.5	100.0	98.3	99.8
Construction	100.0	91.4	101.2	100.0	102.5	121.8
Trade, hotels, transport communications etc	100.0	81.8	91.5	100.0	103.3	111.8
Finance and real estate	100.0	98.5	102.5	100.0	102.4	109.8
Public administration, Defense, and other services	100.0	95.4	105.6	100.0	105.3	109.9
GVA at basic prices	100.0	93.8	101.9	100.0	103.4	111.8

Source Compiled from Statements 1, 2 3 and 4 of NS0 ((2022, 7th January). 'Press Note on First Advance Estimates of National Income 2021–22'. National Statistical Office, New Delhi

imports have been a silver lining with exports rising to 111.1 and 111.8 respectively. Thus, the external market demand, as also demand from government, has been vital for production in India.

The year ended with the index for manufacturing at a modest GVA of 104.4. Not surprising that the data shows Trade, Hotels, Transportation, etc. to have taken a big hit being at 91.5 for the year 2021–22.

12.16.2 Inflation

When we look at the implicit deflator, it rose to 111.8 giving an inflation of 5.59% average across the two years and a high 7.83% in the year 2021–22. In some sectors it has been even higher: Construction etc. 17.28%, Manufacturing 6.68% and Mining and minerals a whopping 35.27%. Clearly the China effect, and disruptions (both mining and logistic) have raised mining and mineral prices. And the inflation in Manufacturing and Construction are beyond doubt.

It is beginning to become clear that the inflation is a global phenomenon. Is it entirely because of the Chinese disruptions? While the Chinese disruptions have certainly been important, no country has escaped this inflation, which for want of a better word we would like to call "logistic" inflation. The few quarters of near complete interruption of especially international movements of cargo (by ships and aircraft) may have been the root cause. The sheer complexity of the movement both national and international in the modern economy is difficult to visualize. Goods and subassemblies normally move across multiple countries, stay in warehouses, are processed in multiple factories and go to retailers and wholesalers. The optimality of the network had emerged gradually as the system expanded and grew, with the feedback of spatial price differences reflecting congestion and logistic costs, feeding back to decision-makers in organizations to create logistic investments along particular routes, and handling stations. Small shocks slow moving changes could be addressed by incremental optimality often arising out of analysis.

When the system was pushed to a near complete halt, there is no way it can quickly go back to the optimal. Even if a port say Shanghai has a program to optimally manage the berthing of ships and the handling of containers, it cannot really use the same since there is no constancy to the patterns of cargo it needs to handle, given that we are in a period of re-emergence of the logistic networks. All ports would face the same problem and there is no dynamic optimization software that includes all the major ports! Hence willy-nilly only the "market" can solve the problem and it would take time. The markets' way of working is to create price signals that then become the cues to re-develop portions of the network, deploy resources here, remove the resources from there, and so on. The optimality of global production and logistics was not an optimum of a gigantic enterprise. It was constituted by the optimum internal to particular corporations, with the networks across nations being base of the logistic network—a market mechanism—that had evolved, and hence cannot be rebooted. It would have to re-emerge.

12.16.3 Chinese Disruptions

Unfortunately for the world the Chinese disruptions caused by the structural realignment of their economy directed from the top would interfere with the re-emergence, delaying the process and also raising prices acutely. Demand elasticities need not be symmetric. The value a person attaches for instance to an air conditioner when he has not yet experienced the same is much lower than the value that he would attach if suddenly he is deprived of it. His willingness to pay to get back access can be very large, and this can lead to high prices during the re-emergence of optimality in logistic networks.

Countries like India with lower varieties in their wage goods consumption, and with much of the food output being sourced internally would not face a high inflation in bringing back the optimality of the network within India. Here because agricultural commodity movements never stopped, it is unlikely that India would face an undue burden on account of rising basic food prices.

12.17 "Logistics" Inflation

For the advanced countries with food (even basic) being sourced over continental distances, and with lower willingness to switch between staples, or food types, the inflation may be higher and could also spiral into wage inflation. The dilemma really is that the price rises are necessary to speed up the movement back to the optimal configuration of networks after which prices are likely to fall as well. Yet economists believe that the resulting inflation from these price adjustments could spiral into a raising expectations regarding inflation. Convergence processes are quick, but then governments have to be seen to be doing something, even when what they do—closing borders, and interrupting movements, and imposing—would have little effect, because in the glare of a media that dominates opinion, human lives matter! Global coordination to open up should be a top priority otherwise a slower process of reaching the optimal would lead to build up of expectations and hence to what the economist fear.

Of course the logistic nightmare may be amplified by the China factors. This may give Indian firms advantage, in such items as steel, basic metal manufacturers, chemicals, pharmaceuticals, automobiles, and many other products. On the balance there are already signs that the manufacturing sector is using exports to clamber back, even as consumption demand is muted in India. But would the investment cycle revive? For almost 9 years private investments have been lying low, so it is likely that with the push of PLI, the China Factors, and the 'logistic-inflation' would all work to revive the same. If there is a big push to demand, particularly consumption then the prospects improve a great deal. Indian firms have plans to have large capacities and that too has been raising the growth expectations And such a push may be necessary to bring back the "animal spirits".

12.17.1 Fight the Inflation?

Much would depend upon whether this pre-eminently a supply-side inflation—would invite tightening in the US and Europe? Tightening would have little workability, given that the high prices (not continuing inflation) are necessary to signal the (re)optimization of networks. They would only slow down economies without much effect on the inflation (that is bound to fall as the networks re-emerge). Allowing a quick rise in prices may make the movement towards the optimum quicker. And since the length of the period over which an increase in inflation is important in the buildup of expectations, it may actually help not to intervene on the demand side.

This "logistics" inflation, while on the supply side, is different from the oil price increase based inflation that the world saw in the late seventies and the early eighties. Being a price rise that is happening because of the misalignment and closure of portions of the network, the end point is known to be optimal, and hence the price rise would be temporary. In the oil case there was a permanent terms of trade push up in their favor by the OPEC, and the pass thru and secondary expectations rise had to be endured for long. The expectations part of the inflation could therefore be addressed by demand curtailment.

Administrative and coordination efforts of governments that go beyond their own countries—all agreeing to open up, clear shipping lines, the big 100 container ports in the world coordinating their handling—would be the best way forward. But then if the current inflation as the usual "vanilla inflation" a more protracted period of high inflation may be in the offing.

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