CONTENTS

1	**1**	**Economic Outlook, Prospects, and Policy Challenges**
	1	Introduction
	3	Macroeconomic Review and Outlook
	12	Inflation and Money
	15	External Sector
	18	Agriculture
	19	The Growth-Fiscal Policy Challenge
	21	'Wiping Every Tear From Every Eye': The JAM Number Trinity Solution
	25	Growth Private and Public Investment
	28	The Banking Challenge
	32	Manufacturing, Services and the Challenges of "Making in India"
	34	The Trade Challenge
	37	Climate Change
	38	Empowering Women: Unleashing *Nari Shakti*
	41	Cooperative Federalism and the Recommendations of the Fourteenth Finance Commission (FFC)
2	**44**	**Fiscal Framework**
	44	Introduction and Summary
	45	Background and History Lessons
	48	Medium-Term Strategy
	49	Short-Term Issues
	50	Conclusions
3	**52**	**'Wiping Every Tear From Every Eye': The JAM Number Trinity Solution**
	52	Introduction
	53	Subsidising Whom?
	57	The Case of Kerosene
	63	The Case of Food
	64	The Possibilities Offered by Cash Transfers
	64	The JAM Number Trinity Solution
4	**66**	**The Investment Climate: Stalled Projects, Debt Overhang and The Equity Puzzle**
	66	Introduction
	67	Rate of Stalling and Stock of Stalled Projects
	68	An Analysis of Stalled Projects
	71	Balance Sheet Syndrome With Indian Characteristics
	73	What is Impact of Balance Sheet Syndrome on Firm Equity?
	74	Policy Lessons
5	**77**	**Credit, Structure and Double Financial Repression: A Diagnosis of the Banking Sector**
	77	Introduction
	78	Financial Repression on the Liability Side
	79	Financial Repression on the Assets Side
	81	A Comparative Analysis of Banking and Credit
	85	Are Public Sector Banks Uniform in performance?
	88	Policy Implications

6	**89**	**Putting Public Investment on Track: The Rail Route to Higher Growth**
	89	Introduction
	89	Effects of Increasing Public Investment on Overall Output and Private investment
	91	The Case for Public Investment in Railways
	101	Policy Recommendations-Key Takeaways
7	**102**	**What to Make in India? Manufacturing or Services?**
	102	Introduction
	103	Desirable features of Sectors that can Serve as Engines of Structural Transformation
	105	The Manufacturing Scorecard
	111	The Service Scorecard
	114	Summary Scorecards and Conclusions
8	**117**	**A National Market for Agricultural Commodities- Some Issues and Way Forward**
	117	Introduction
	117	APMCs Levy Multiple Fees, of Substantial Magnitude, that are Non-transparent, and hence a Source of Political Power
	118	Essential Commodity act, 1955 vs APMC Act
	119	Model APMC Act
	120	Karnataka Model
	120	Inadequacies of Model APMC Act
	120	Alternative ways of Creating National Market for Agricultural Commodities
	121	Using Constitutional Provisions to Set up Common market
9	**122**	**From Carbon Subsidy to Carbon Tax: India's Green Actions**
	122	Introduction
	123	Excise Duty on Petrol and Diesel as an Implicit Carbon Tax
	125	How Does India Compare with Other Countries?
	125	CO2 Emission Reductions From Petrol and Diesel Taxes and Coal Cess
	125	Translating Coal Cess into Carbon Tax
	128	Conclusions and Key messages
10	**129**	**The Fourteenth Finance Commission (FFC) - Implications for Fiscal Federalism in India?**
	129	Introduction
	129	Major Recommendations of FFC
	131	Implications of FFC Recommendations for Fiscal Federalism: A way Ahead
	134	Balancing Fiscal Autonomy and Fiscal Space
	137	Caveats and Conclusion

NOTES

The following figures/units are used in the Economic Survey:

BCM	billion cubic metres	kg	kilogram
BU	billion units	ha	hectare
MT	million tonnes	Bbl	billion barrels per litre
lakh	1,00,000	billion	1,000 million/100 crore
million	10 lakh	trillion	1,000 billion/100,000 crore
crore	10 million		

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PREFACE

The Economic Survey is a collective effort, of numerous contributors in government and outside, as well as analysts abroad, but above all, of the dedicated staff of the Economic Division of the Department of Economic Affairs. To all of them is owed gratitude and thanks for hard work done, and done well and cheerily, meeting stiff deadlines and contending with the vicissitudes of rules and personalities.

All Economic Surveys bear the imprint of the incumbent Chief Economic Adviser. And so it is with this one. But the desire for change must be balanced by the imperative of maintaining continuity, in order to be respectful of, and gain from, traditions that have survived the tests of time, whim, fashion, and politics.

Inspired by the IMF's World Economic Outlook, this Survey departs structurally from its predecessors and presents its output in two volumes. Volume 1 discusses the outlook and prospects as well as a number of analytical chapters addressing topical policy concerns. Volume 2 describes recent developments in all the major sectors of the economy and contains all the statistical tables and data. In a sense, Volume 1 is forward-looking but gaining from the perspective provided by the recent past which is the subject of Volume 2.

In deciding the content of Volume 1 of the Survey, one challenge was to reconcile the vaguer claims of posterity and the clearer demands of the pressing present. Another related challenge was the hardy perennial: depth or breadth?

John Maynard Keynes famously said that it is necessary to distinguish the important from the urgent. At this juncture, with a new government in power and about to present its first full budget, and given the constraints of time and resources, this Survey has taken Keynes' advice to heart. The Survey favours the present, erring on the side of being expansive in scope even if the consequence has been to privilege cursory examination over in-depth analysis.

The broad themes of the Survey are "creating opportunity and reducing vulnerability." Growth is the prerequisite for achieving many economic and indeed other objectives. Maximizing the benefits of growth will, of course, require complementary public actions, but without growth, possibilities across the income spectrum shrink. Increasingly, the debate on reducing poverty and vulnerability more generally is less about "whether" and more about "how best" direct government support can complement broader economic growth. Growth versus distribution is, as it always should have been, a false choice.

Volume one begins with a chapter on the macroeconomic outlook and prospects for the Indian economy which sets the context for brief discussions of the policy issues focused on "creating opportunity and reducing vulnerability." These issues are then elaborated in the following nine chapters.

Growth requires macroeconomic and hence fiscal stability (Chapter 2). A re-visiting of the fiscal framework is also necessary because this is the first full budget of the government and because of the reported recommendations of the Fourteenth Finance Commission that could decisively shape center-state fiscal relations. This is followed by a chapter on "wiping every tear from every eye" where the focus is on how support is best provided and the role that technology can play in this regard.

The following chapters cover the state of stalled projects and their implications for private and public investment going forward (Chapter 4); a brief diagnosis of the banking system and its implications for reforming it (Chapter 5); and the role of railways in driving future Indian growth (Chapter 6). There is a more academic discussion that speaks to the Make in India initiative, shedding light on the debate between manufacturing and services and suggesting alternative ways of thinking about transformational sectors (Chapter 7). Completing the discussion of sectors is a chapter on creating a single market in agriculture from what are in effect thousands of markets (Chapter 8).

Climate change is increasingly central to economic development and creates challenges. These are discussed in Chapter 9. Chapter 10 deals with what is a dramatic re-shaping of Centre-State fiscal relations. It provides a preliminary analysis of the implications of the recommendations of the Fourteenth Finance Commission.

For the attention deficit-challenged, the outlook could be the port of only call, while others may find the detailed chapters of additional interest. Within Volume 1, there is some repetition, although that is inherent to having to cater to multiple audiences.

The Survey places a premium on new ideas or new perspectives both of an academic and policy nature. The limitations of time and resources mean that new ideas may not pass the most rigorous standards of the academy. But the approach is to find new data or present old data in a new form, to make connections, and to draw insights wherever possible, all with the aim of shedding light on policy. The aim is to provoke and stimulate debate and discussion, thereby enriching the process of policy-making, and hopefully, improving its outcome.

The survey also aims to be readable, rising to the challenge of making dry economics as accessible as an op-ed (or perhaps a blog) without fully sacrificing the rigor of a more serious tome. The discipline may be dismal but, dear reader, it should not be dreary.

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ABBREVIATIONS

\GDP	Gross Domestic Product
GST	Goods & Services Tax
CPI	Consumer Price Index
GTR	Gross Tax Revenue
RBI	Reserve Bank Of India
CSO	Central Statistics Office
MOSPI	Ministry of Statistics and Program Implementation
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
FRBM	Fiscal Responsibility & Budget Management Act
CST	Central Sales Tax
JAM	Jan Dhan Yojana - Aadhar - Mobile
ASER	Annual Survey of Education Report
LPG	Liquified Petroleum Gas
BPL	Below Poverty Line
AAT	Antodaya Anna Yojana
APL	Above Poverty Line
PDS	Public Distribution System
DBT	Direct Benefit Transfer
MSP	Minimum Support Price
NSSO	National Sample Survey Office
IFSC	Indian Financial System Code
UNDP	United Nations Development Program
UNIDO	United Nations Industrial Development Organisation
WDI	World Development Indicator
GGDC	Groningen Growth and Development Centre
APMC	Agricultural Produce Market Committee
VAT	Value Added Tax
FDI	Foreign Direct Investment
MoP&NG	Ministry of Petroleum and Natural Gas
GHG	Green House Gas
GIZ	German Agency for International Cooperation
PMGSY	Pradhan Mantri Gram Sadak Yojana
NTKM	Net Tonnes Per Kilometre
PKM	Passenger Kilometre
RIRI	Rational Investor Rating Index
BRIC	Brazil Russia India China
CPI (IW)	Consumer Price Index (Industrial Workers)
MMDR	Mines & Minerals (Development and Regulation)
LB	Labour Bureau
EC	Economic Census
ASI	Annual Survey of Industries
IMF	International Monetary Fund
US EIA	US Energy Information Administration
OPEC	Organization of Petroleum Exporting Countries
TOT	Terms of Trade
WPI	Wholesale
CMIE	Centre for Monitoring the Indian Economy
ICR	Interest-Coverage Ratio
PPP	Public Private Partnership
NDA	National Democratic Alliance
SLR	Statutory Liquidity Ratio
PSL	Prioroty Sector Lending
ROA	Return on Assets
SARFESI	The Securetization and Reconstruction of Financial Assets and the Enforcement of Security Interest
SMEs	Small & Medium Enterprises
SEZ	Special Economic Zone
CVD	Countervailing Duties
SAD	Special Additional Duties
ICAR	Indian Council of Agricultural Research
WTO	World Trade Organization
FTA	Free Trade Agreement
TPP	Trans-Pacific Partnership
TTIP	Trans-Atlantic Trade and Investment Partnership
RCEP	Regional Comprehensive Economic Partnership
ASEAN	Association of South-East Asian Nations
UNFCCC	United Nations Framework Convention on Climate Change
IPCC	Inter-governmental Panel on Climate Change
HDI	Human Development Index
GII	Gender Inequality Index
NFHS	National Family Health Survey
ELA	Expected Levels of Achievement
VECM	Vector Error Correction Model
VAR	Vector Auto-Regression
PPP	Purchasing Power Parity
DFC	Dedicated Freight Corridor
CAPEX	Capital Expenditure
BSE	Bombay Stock Exchange
EBIT	Earnings before Interest & Tax
NHAI	National Highway Authority of India
UMPP	Ultra Mega Power Projects
LPVR	Least Present Value of Revenue
ISB	Indian School of Business
ANBC	Adjusted Net Bank Credit
NPA	Non-Performing Asset
CRAR	Capital to Risk-Weighted Assets Ratio
PSB	Public Sector Banks

Economic Survey 2014-15

Volume I

Government of India
Ministry of Finance
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Economic Outlook, Prospects, and Policy Challenges

01
CHAPTER

1.1 Introduction

A political mandate for reform and a benign external environment have created a historic moment of opportunity to propel India onto a double-digit growth trajectory. Decisive shifts in policies controlled by the Centre combined with a persistent, encompassing, and creative incrementalism in other areas could cumulate to Big Bang reforms.

As the new government presents its first full-year budget, a momentous opportunity awaits. India has reached a sweet spot—rare in the history of nations—in which it could finally be launched on a double-digit medium-term growth trajectory. This trajectory would allow the country to attain the fundamental objectives of "wiping every tear from every eye" of the still poor and vulnerable, while affording the opportunities for increasingly young, middle-class, and aspirational India to realize its limitless potential.

This opening has arisen because facts and fortune have aligned in India's favour. The macro-economy has been rendered more stable, reforms have been launched, the deceleration in growth has ended and the economy appears now to be recovering, the external environment is benign, and challenges in other major economies have made India the near-cynosure of eager investors. Daunting challenges endure, which this Survey will not ignore, but the strong political mandate for economic change has imbued optimism that they can be overcome. India, in short, seems poised for propulsion.

Any Economic Survey has to grapple with prioritization, to navigate the competing pitfalls of being indiscriminatorily inclusive and contentiously selective. Accordingly, this Survey will focus on the two broad themes—creating opportunity and reducing vulnerability—because they are the two pressing themes of the day and which between them encompass the many key policy challenges that the new government must address.

The outline for this volume of the Economic Survey is as follows. A brief macroeconomic review and outlook will set the context for the broader thematic and policy discussions that follow. The importance of economic growth, both for lifting up those at the bottom of the income and wealth distribution, and providing opportunities for everyone in that distribution, cannot be overstated.[1] Rapid, sustainable, and all-encompassing growth requires a strong macroeconomic foundation, key to which is fiscal discipline and a credible medium term fiscal framework. These prerequisites are discussed in Sections 1.2 and 1.6.

But "wiping every tear from every eye" also requires proactive support from the government in the form of a well-functioning, well-targeted, leakage-proof safety net that will both provide (minimum income) and protect (against adverse shocks). This is also true in rural India where economic conditions for farmers and labourers are under stress. The policy issue now is no longer whether but how best to "provide and protect," and technology-based direct benefit transfers will play an important role in this regard (discussed in Section 1.7.

[1] Bhagwati, J. and Arvind Panagariya, "*Why Growth Matters: How Economic Growth in India Reduced Poverty and the Lessons for Other Developing Countries*", 2013, A Council on Foreign Relations Book, Public Affairs Books.

Perspiration and inspiration, investment and efficiency, respectively, determine long-run growth. But the Indian private investment climate is clouded by the experience of the last decade. A combination of factors—weak corporate balance sheets, an impaired banking system, difficulty of exit, the deficiencies of the public private partnership (PPP) model in infrastructure—could hold back private investment going forward. Private investment must remain the main engine of long-run growth. But, in the short to medium term, as the near-intractable problems get slowly resolved, public investment, especially by the railways, will have to play a catalytic role. These issues and how the banking system can play a supportive role are the focus of discussions in sections 1.8 and 1.9.[2]

Manufacturing and trade have been the engines of growth in the post-war period for most economies, especially in Asia. The validity of that experience for India, which acquires salience in the context of the 'Make in India' initiative, is the focus of section 1.10. The following section then takes up challenges related to trade.

Sections 1.12 and 1.13—on climate change and gender equality respectively— deal with issues which India cannot and must not ignore. These are central to the challenges of growth, development and equality of opportunity. The objective of protecting the vulnerable must specifically take account of the fact that while India is increasingly young, middle-class, and aspirational, it is still persistently stubbornly male.

All these policy issues and challenges are elaborated in Chapters 2-10 in this volume. The last section deals with what is a dramatic re-shaping of Centre-State fiscal relations. It provides a preliminary analysis of the key implications of the recommendations of the Fourteenth Finance Commission.

Given the expectations surrounding the upcoming budget, one question needs to be addressed head-on: *Does India need Big Bang reforms?* Much of the cross-country evidence of the post-war years suggests that Big Bang reforms occur during or in the aftermath of major crises. Moreover, Big Bang reforms in robust democracies with multiple actors and institutions with the power to do, undo, and block, are the exception rather than the rule. India today is not in crisis, and decision-making authority is vibrantly and frustratingly diffuse.

Not only are many of the levers of power vertically dispersed, reflected in the power of the states, policy-making has also become dispersed horizontally. The Supreme Court and the Comptroller and Auditor General have all exerted decisive influence over policy action and inaction.

Moreover, some important reforms such as improvements to tax administration or easing the cost of doing business, require persistence and patience in their implementation, evoked in Max Weber's memorable phrase, "slow boring of hard boards".

Hence, Big Bang reforms as conventionally understood are an unreasonable and infeasible standard for evaluating the government's reform actions.

Equally though, the mandate received by the government affords a unique window of political opportunity which should not be foregone. India needs to follow what might be called "*a persistent, encompassing, and creative incrementalism*" but with bold steps in a few areas that signal a decisive departure from the past and that are aimed at addressing key problems such as ramping up investment, rationalizing subsidies, creating a competitive, predictable, and clean tax policy environment, and accelerating disinvestment.

Thus, Weber's wisdom cannot be a licence for inaction or procrastination. Boldness in areas where policy levers can be more easily pulled by the center combined with that incrementalism in other areas is a combination that can cumulate over time to Big Bang reforms. That is the appropriate standard against which future reforms must be assessed.

[2] Financial sector issues were discussed extensively in last year's Survey.

1.2. Macroeconomic review and outlook

Macroeconomic fundamentals have dramatically improved for the better, reflected in both temporal and cross-country comparisons.

Start first with the changing macro-economic circumstances. The changing fortunes of India have been nothing short of dramatically positive (Figure 1.1). Inflation has declined by over 6 percentage points since late 2013, and the current account deficit has shrivelled from a peak of 6.7 percent of GDP (in Q3, 2012-13) to an estimated 1.0 percent in the coming fiscal year. Foreign portfolio flows (of US$ 38.4 billion since April 2014) have stabilized the rupee, exerting downward pressure on long-term interest rates, reflected in the yield on 10-year government securities, and contributed to the surge in equity prices (31 percent since April in rupee terms, and even more in US dollars, ranking it the highest amongst emerging markets). In a nearly 12-quarter phase of deceleration, economic growth averaged 6.7 percent but since 2013-14 has been growing at 7.2 percent on average, the later based on the new growth estimates (see Box 1.1 on how to interpret them).

As a result of these improvements, India's macroeconomic position now compares favourably with other countries. Figure 1.2 depicts an overall macro-vulnerability index (MVI) that combines a country's fiscal deficit, current account deficit, and inflation. The index is thus comparable across countries and across time. In 2012, India was the most vulnerable country as measured by its index value of 22.4, comprising an inflation rate of 10.2 percent, a budget deficit of 7.5 percent and a current account deficit of 4.7 percent of GDP, well above that in the other countries. Turkey in 2014 surpassed India because of high current account deficit (of nearly 8 percent). Today, India's fortunes have improved dramatically and India demonstrated the greatest improvement in the MVI while many others maintained the status quo or showed only a marginal improvement or deteriorated dramatically (Russia). India is still more vulnerable than the mean of countries in its investor rating category (BBB) but is less so than many of its larger emerging market peers.

If macro-economic stability is one key element in assessing a country's situation/potential, its growth- actual and prospective- is another. A simple way therefore to compare the relative economic situation is to supplement the macro-economic vulnerability index with a "Rational Investor Ratings Index (RIRI)."[3] In assessing the risks and rewards of competing destinations, rational investors take into account not just macroeconomic stability (which proxies for risks) but also growth which crucially determines rewards and returns.

In figure 1.3 this index is depicted for India and a number of comparator countries, including the BRICS, other major emerging markets (Turkey) as well as countries in India's investor rating category (BBB) and category (A) that is above India's. Regardless of whether Indian growth is measured according to the old methodology or the new methodology (see Box 1.1), India exhibits a dramatic improvement in the index.

India ranks amongst the most attractive investment destinations, well above other countries. It ranks well above the mean for its investment grade category, and also above the mean for the investment category above it (on the basis of the new growth estimates). Amongst BRICS (and other comparable countries) only China scores above India. The reality and prospect of high and rising growth, combined with macroeconomic stability, is the promise of India going forward.

[3]The RIRI is computed by averaging a country's GDP growth rate and its macro-economic indicators; the latter measured as the average of the fiscal deficit, current account deficit, and inflation (all with negative signs). Thus, equal weight is given to growth and macroeconomic stability. The greater the number, the better should be its investor rating. Since, updated WEO forecasts are not publicly available for all countries, data are from Citi Group and have been updated in January assuming an oil price in the range of US$ 58-60 per barrel for 2015. Data from other sources yield very similar estimates for the RIRI.

Figure 1.1A: WPI and CPI Inflation, April 2013 to January 2015 (Per cent)

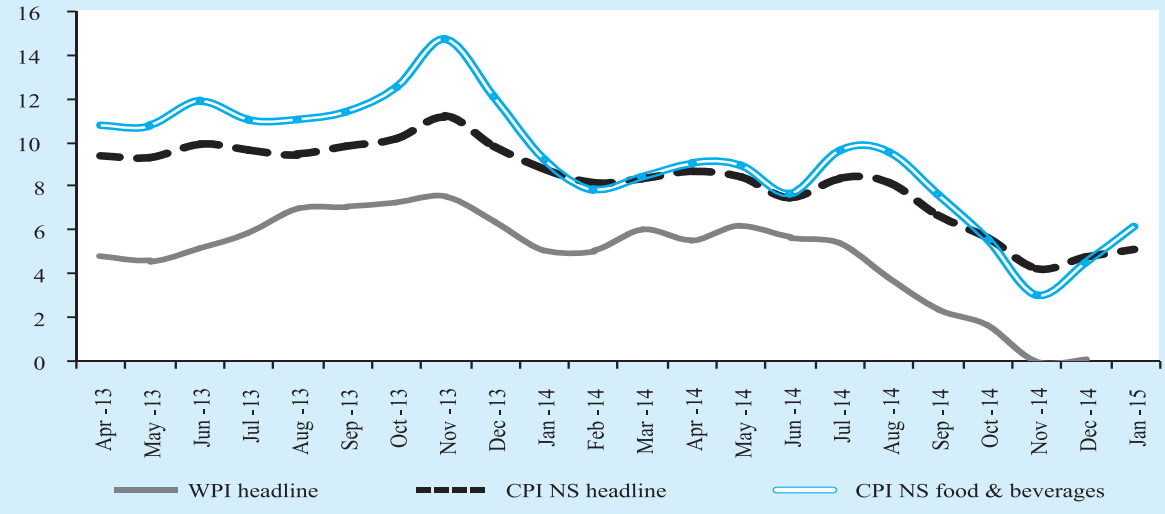


Figure 1.1B: Current Account Balance and Net Foreign Investment, 2004-05 Q1 to 2014-15Q2 (per cent of GDP)

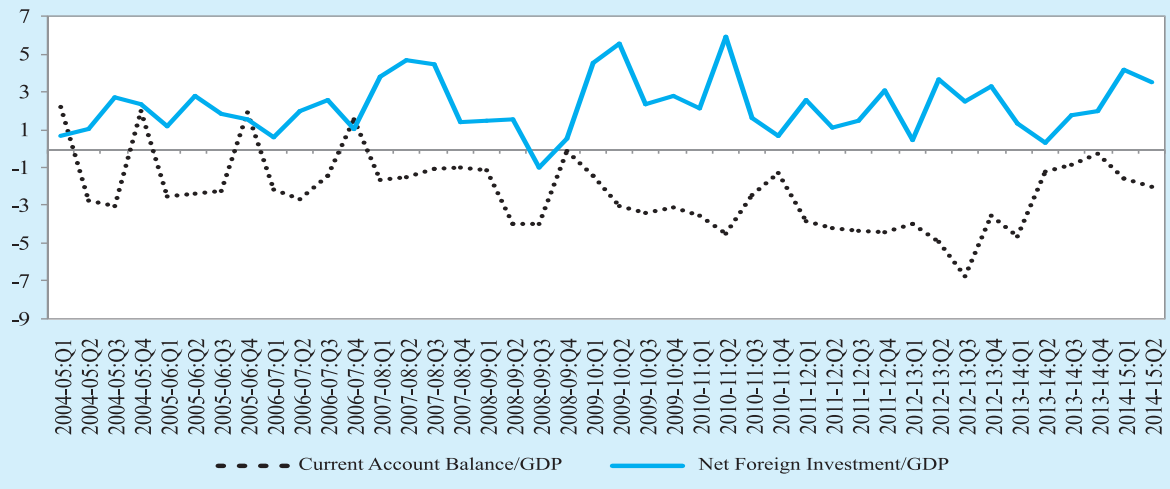


Figure 1.1C: Daily Stock Prices (Nifty), January 2013 to February 2015

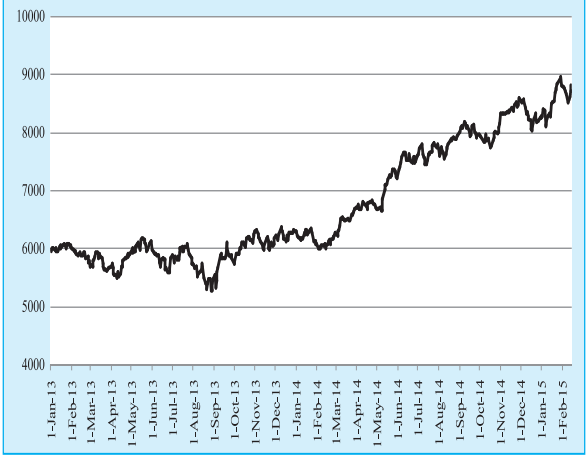
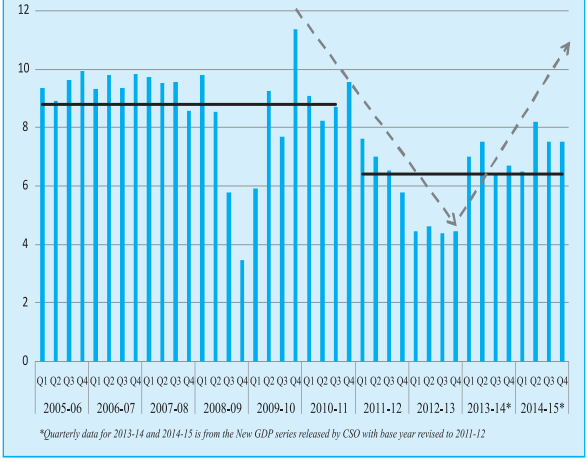


Figure 1.1D: Quarterly GDP Growth, 2005-06Q1 to 2014-15Q4 (Per cent)



Sources: **Office of Economic Adviser, Department of Industrial Policy and Promotion, Central Statistics Office, Reserve Bank of India and National Stock Exchange**

Figure 1.2: Maco-Vulnerability Index for Selected Emerging Market Countries, 2010 to 2015

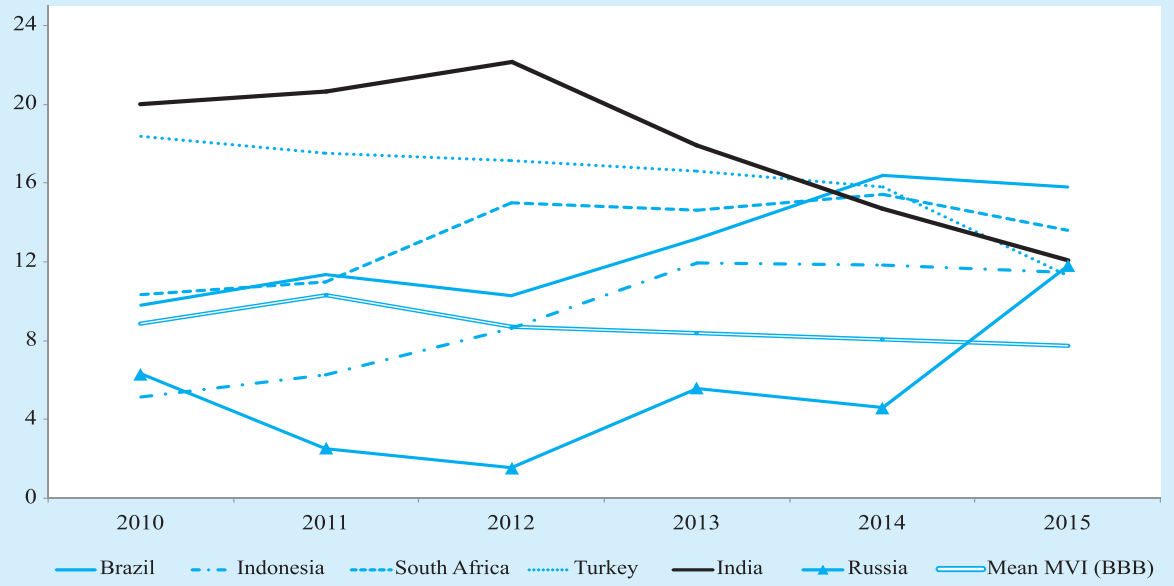
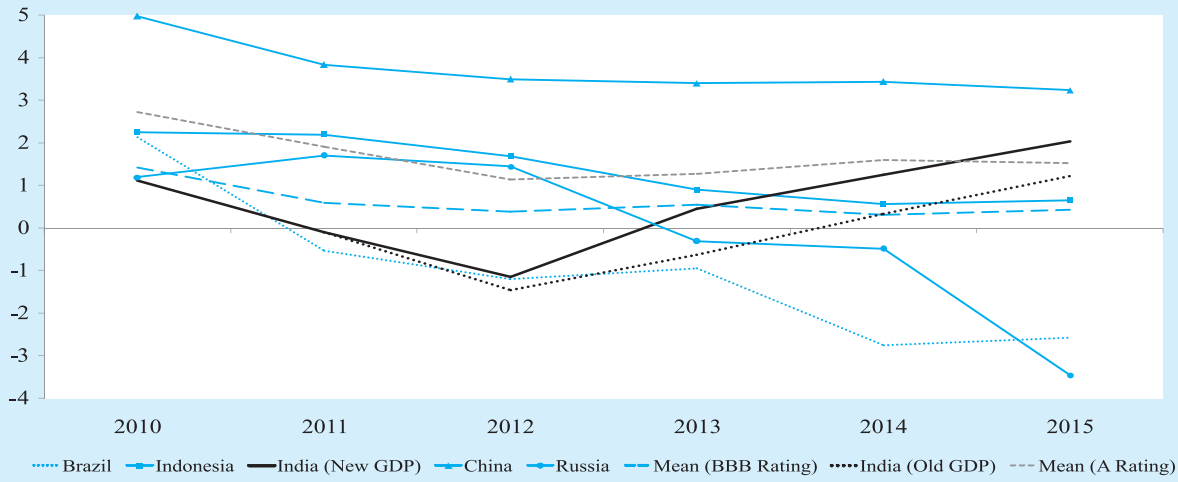


Figure 1.3: Rational Investor Ratings Index for Selected Emerging Market Countries, 2010 to 2015



Source: **MoF calculations.**

1.2A. Macro-economic management and policy reforms

Reforms have been initiated in a number of areas and major ones are on the horizon. The macroeconomic response to the favourable terms of trade shock has led to an appropriately prudent mix of increased government savings and private consumption.

The policy reforms of the new government—actual and prospective—have attracted worldwide attention. The cumulative impact of these reforms on reviving investment and growth could be significant. Equally important though has been macro-economic management which needs to be assessed in simple analytical terms.

Since June 2014, India has experienced a very favourable terms-of-trade shock as a result of a 50-55 percent decline in the price of crude-oil and other commodities. The accepted injunction from the standard macroeconomic manual is that responses to terms-of-trade shocks should be

Box 1.1 : Revised Estimates of GDP and GDP growth

Notwithstanding the new estimates, the balance of evidence and caution counsel in favour of viewing India as a recovering rather than surging economy.

On January 30, the Central Statistics Office released a new GDP series that entailed shifting the base year from 2004-05 to 2011-12 but also using more data and deploying improved methodologies (Chapter 1 in the second volume of the Survey provides greater details). New estimates for GDP have been provided for the years 2011-12 to 2014-15.

How should one view these estimates? First, the improvement in data and methods puts India on par with international standards of GDP estimation. India is perhaps unique in that GDP revisions result in lower numbers rather than the typically high upward revision seen in many countries. The key estimate for the level of GDP for 2011-12, which is the new base year, is actually 2 percent lower than previously estimated.

However, the growth estimates warrant further reflection. On the one hand, directionally the growth estimate for 2014-15 relative to that for 2013-14 seems plausible and consistent with the fact of improving investor sentiment and reform actions.

On the other, both directionally and in level terms, the growth estimate for 2013-14 is puzzling. According to the new estimates, growth at market prices in 2013-14 apparently accelerated by 1.8 percentage points to 6.9 percent (1.5 percentage points for growth at basic prices).

These numbers seem difficult to reconcile with other developments in the economy. 2013-14 was a crisis year—capital flowed out, interest rates were tightened, there was consolidation—and it is difficult to see how an economy's growth rate could accelerate so much in such circumstances. Also, imports of goods in 2013-14 apparently declined by 10 percent, which, even accounting for the squeeze on gold imports, is high. Growth booms are typically accompanied by import surges not import declines. This boom was one over-reliant on domestic demand because the contribution of net external demand was substantially negative.

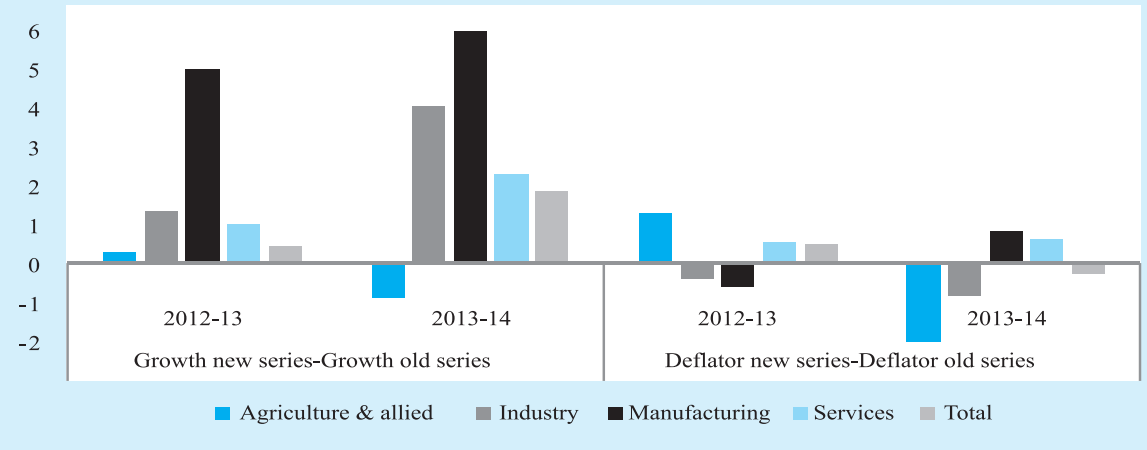
This growth surge also appears to have been accompanied by dramatic declines in savings and investment ratios. For example, gross fixed capital formation declined from 33.6 percent in 2011-12 to 29.7 percent in 2013-14 while gross domestic savings declined from 33.9 percent to 30.6 percent. The implication is that the growth surge in the crisis year of 2013-14 was also a massive productivity surge, reflected in an incremental capital ratio that declined by about 30 percent, and total factor productivity growth that improved by over 2 percentage points. The data show that private corporate investment increased robustly in 2013-14 which seems at odds with stressed balance sheets and the phenomenon of stalled projects.

Some clues to understanding the new series are provided in the chart below which decomposes the differences between the new series into those relating to real GDP growth and those to the deflator. This decomposition is shown sectorally.

The largest discrepancies between the two series arise in 2013-14 and relate to real GDP growth for the manufacturing sector, where the magnitude is 6 percentage points! Even in 2012-13 the divergence between the two series in manufacturing is 5 percentage points. Jumps in the level of the manufacturing share of GDP can be attributed to the new methodology but it is still unclear why the rate of growth should diverge so much from previous estimates and from other indicators of manufacturing growth (viz. the index of industrial production). Even allowing for the fact that the latter is a volume index and the former a valued-added index, the discrepancy remains large. Clearly, these issues need to be examined in greater detail.

Until a longer data series is available for analysis and comparisons, and until the changes can be plausibly ascribed to the respective roles of the new base, new data, and improved methodology, the growth narrative of the last few years may elude a fuller understanding. Regardless, the latest numbers will have to be the prism for viewing the Indian economy going forward because they will be the only ones on offer. But, the balance of evidence and caution counsel in favour of an interpretation of a recovering rather than surging Indian economy.

Figure: Difference between New and Old Estimates of Economic Growth, 2012-13 and 2013-14 (Per cent)



Source: **Central Statistics Office.**

determined by their nature: a positive shock that is perceived to be permanent should lead to larger consumption increases because the country's permanent income has increased; on the other hand, temporary positive shocks should lead to greater savings. What has India done?

Given the uncertainty about the nature of the shock, India has appropriately hedged. Figure 1.4 below compares the decline in international crude-oil prices with the corresponding decline in domestic retail prices of petrol and diesel. Since end-June 2014, the international price declined by about 50 percent. Of this, about 17 percent (representing about 34 percent of the overall decline) was passed on to consumers while the government retained the rest. In other words, 66 percent of the terms of trade shock went into the government's savings with the rest being passed on to consumers. (As detailed in section 1.12, the government's actions in this regard are also helping in form of a de-facto carbon tax.) Accounting for uncertainty about the future movement of prices, the macro-economic response has appropriately balanced savings and consumption, and by favouring the former, provided a necessary cushion to absorb the effects of higher oil prices in the future.

1.2B Outlook for Growth

In the short run, growth will receive a boost from lower oil prices, from likely monetary policy easing facilitated by lower inflation and lower inflationary expectations, and forecasts of a normal monsoon. Medium-term prospects will be conditioned by the "balance sheet syndrome with Indian characteristics," which has the potential to hold back rapid increases in private sector investment.

In the coming year, real GDP growth at market prices is estimated to be about 0.6-1.1 percentage points higher vis-a-vis 2014-15. This increase is warranted by four factors. First, the government has undertaken a number of reforms and is planning several more (Box 1.2). Their cumulative growth impact will be positive.

A further impetus to growth will be provided by declining oil prices and increasing monetary easing facilitated by ongoing moderation in inflation. Simulating the effects of tax cuts, declining oil prices will add spending power to households, thereby boosting consumption and growth. Oil is also a significant input in production, and declining prices will shore up profit margins and hence balance sheets of the corporate sector. Declining input costs are reflected in the wholesale price index which moved to deflation territory in January 2015.

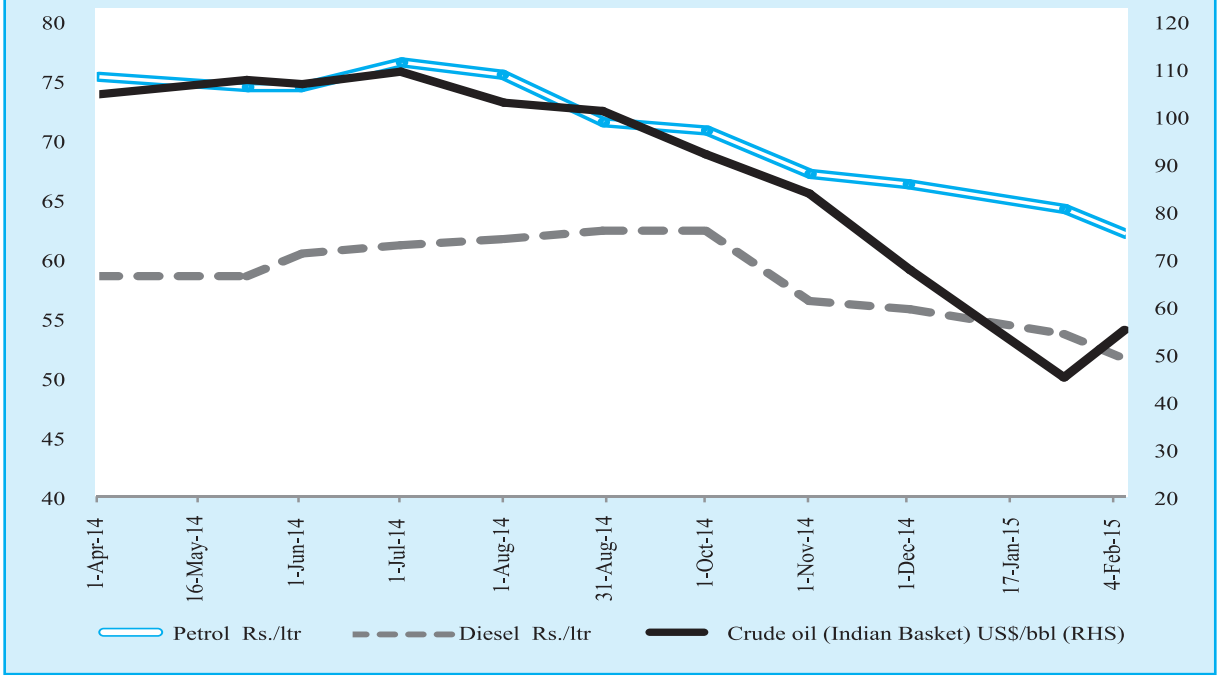
Further declines in inflation and the resulting monetary easing will provide policy support for growth both by encouraging household spending in interest-sensitive sectors and reducing the debt burden of firms, strengthening their balance sheets. The final favourable impulse will be the monsoon which is forecast to be normal compared to last year[4]. Using the new estimate for 2014-15 as the base, this implies growth at market prices of 8.1-8.5 percent in 2015-16.

The power of growth to lift all boats will depend critically on its employment creation potential. The data on longer-term employment trends are difficult to interpret because of the bewildering multiplicity of data sources, methodology and coverage (see Box 1.3). One tentative conclusion is that there has probably been a decline in long run employment growth in the 2000s relative to the 1990s and probably also a decline in the employment elasticity of growth: that is, a given amount of growth leads to fewer jobs created than in the past. Given the fact that labour force growth (roughly 2.2-2.3 percent) exceeds employment growth (roughly about 1½ percent), the challenge of creating opportunities will remain significant.

1.2C Outlook for reforms

In the months ahead, several reforms will help boost investment and growth. The budget should continue the process of fiscal consolidation, embedding actions in a medium-term framework. India's overall revenue-to-GDP ratio (for the general government) for 2014 is estimated at 19.5 percent by the IMF. This needs to move toward levels in comparator countries—estimated at 25 percent for emerging Asian economies and 29 percent for the emerging market countries in the G-20. At the same time, expenditure control should

Figure 1.4: Fall in International &Domestic Prices, April 2014 to February 2015 (Rs./ltr & US$/barrel)



Source: **PPAC, Ministry of Petroleum & Natural Gas and PIB, Govt. of India.**

Note: Prices for petrol and diesel are all India average.

[4].http://www.skymetweather.com/content/weather-news-and-analysis/el-nino-scare-abandoned-normal-indian-monsoon-likely-in-2015/

Box 1.2 : Reform Actions of the New Government

Since assuming office in May 2014, the new government has undertaken a number of new reform measures whose cumulative impact could be substantial.

These include:

- Deregulating diesel prices, paving the way for new investments in this sector;
- Raising gas prices from US$ 4.2 per million British thermal unit to US$ 5.6, and linking pricing, transparently and automatically, to international prices so as to provide incentives for greater gas supply and thereby relieving the power sector bottlenecks;
- Taxing energy products. Since October, taking advantage of declining oil prices, the excise tax on diesel and coal was increased four times. In addition to resulting in collections of about ₹ 70,000 crore (on an annualized basis), this action will have positive environmental consequences, as explained in section 1.12;
- Replacing the cooking gas subsidy by direct transfers on a national scale;
- Instituting the Expenditure Management Commission, which has submitted its interim report for rationalizing expenditures;
- Passing an ordinance to reform the coal sector via auctions;
- Securing the political agreement on the goods and services tax (GST) that will allow legislative passage of the constitutional amendment bill;
- Instituting a major program for financial inclusion—the Pradhan Mantri Jan Dhan Yojana under which over 12.5 crore new accounts have been opened till mid-February 2014;
- Continuing the push to extending coverage under the Aadhaar program, targeting enrollment for 1 billion Indians; as of early February, 757 million Indians had been bio-identified and 139-Aadhaar linked bank accounts created;
- Increasing FDI caps in defense;
- Eliminating the quantitative restrictions on gold;
- Passing an ordinance to make land acquisition less onerous, thereby easing the cost of doing business, while ensuring that farmers get fair compensation;
- Facilitating Presidential Assent for labour reforms in Rajasthan, setting an example for further reform initiatives by the states; and consolidating and making transparent a number of labour laws; and
- Passing an ordinance increasing the FDI cap in insurance to 49 percent. Commencing a program of disinvestments under which 10 percent of the government's stake in Coal India was offered to the public, yielding about ₹ 22,500 crore, of which ₹ 5,800 crore was from foreign investors;
- Passing the Mines and Minerals (Development and Regulation) (MMDR) Amendment Ordinance, 2015 is a significant step in revival of the hitherto stagnant mining sector in the country. The process of auction for allotment would usher in greater transparency and boost revenues for the States.

be consolidated while ensuring that there is switching from public consumption to public investment, with a focus on eliminating leakages and improving targeting in the provision of subsidies.

To provide legal certainty and confidence to investors, the ordinances on coal, insurance, and land need to be translated into legislation approved by Parliament. At the same time, the constitutional amendment bill to implement the goods and services tax (GST) also needs to be enshrined in legislation first by Parliament followed by ratification by the States. A single GST rate (across States and products) set at internationally competitive levels with limited exemptions would maximize its pro-growth, pro-compliance, and pro-single market creating potential.

While the framework for a modern and comprehensive indirect tax system is being put in place with the GST, parallel efforts are required

Box 1.3: Employment Growth and Employment Elasticity: What is the Evidence?

Estimates of employment growth and its elasticity relative to economic growth vary widely. However, tentatively, one might say that employment growth and elasticity have declined in the 2000s compared to the 1990s. Since labour force growth is in excess of employment growth, labour absorption will be a challenge. Reforms and faster economic growth will be central to meeting it.

If the new GDP estimates have raised questions about our understanding of recent economic developments, deciphering patterns of employment growth is no less a challenge. There is almost a bewildering variety of estimates on employment growth in India. Data come from multiple sources, for different time periods, coverage and sample sizes, with varying methodologies. These are described in the table below.

Table : Periodicity, Coverage and Population size of different Data Sources

Sl.	Data Source	Periodicity	Sector Coverage	Population/Sample
1	Census	Decadal	All	Population
2	Labour Bureau (LB)	Annual	All	Sample (1.37 lakh households, 6.80 lakh persons in 2013-14 survey)
3	National Sample Survey (NSS)	Quinquennial	All	Sample (1.02 lakh households, 4.57 lakh persons in 2011-12 round)
4	Economic Census (EC)	No fixed periodicity	All establishments including the unorganized sector and excluding crop production, plantation, public administration, defence and compulsory social security.	Sample (25 lakh households, 56 million establishments in 2014 EC)
5	Annual Survey of Industries (ASI)	Annual	All factories registered under Sections 2m(i) and 2m(ii) of the Factories Act, 1948 + all electricity undertakings engaged in generation, transmission and distribution of electricity registered with the Central Electricity Authority (CEA)	2.17 lakh factories in 2012-13 survey

Notes:
1. Census classifies employed as main and marginal.
2. NSS accounts for both principal and subsidiary status of employment.
3. From the Labour Bureau survey, we estimate population for the age group 15 and above.
4. For ASI data from 2000-01 to 2003-04, the census field was modified to include units employing 100 and more workers instead of 200 and more workers. Therefore post 2000-01 data are not strictly comparable with that of previous rounds.

What do these sources tell us about employment growth and the elasticity of employment growth with respect to GDP growth for the 1990s and 2000s?[1] The results are summarized in the table below.

Table : Employment Growth And Employment Elasticities

	CENSUS		NSS		LABOUR BUREAU	ECONOMIC CENSUS		ASI	
	1991 to 2001	2001 to 2011	1993-94 to 1999-2000	1999-00 to 2011-12	2011-12 to 2013-14	1990 to 1998	1998 to 2014	1990-91 to 1998-99	2003-04 to 2012-13
Change in Employment (million)	88.4	79.2	25.5	73.4	9.15	12.9	44.4	0.43	5.07
Employment Growth	2.5	1.8	1.1	1.4	1.0	2.1	2.7	0.6	5.7
GDP Growth	5.7	7.7	6.8	7.3	4.6	6.1	6.6	5.5	10.7
Employment Elasticity	0.44	0.24	0.16	0.19	0.22	0.35	0.41	0.12	0.54

A few very tentative conclusions can be drawn from what are fairly noisy estimates. Aggregate employment growth has been above 2 percent in the 1990s. The Census and Economic Census are fairly close to each other in this regard, although the NSS data paints a different picture. Employment growth declines to between 1.4 and 1.8 percent in the 2000s according to both the Census and NSS. In contrast, employment growth in organized industry exhibits the opposite temporal pattern, with substantially higher employment growth in the 2000s compared with the 1990s.

A similar pattern is suggested for the employment elasticity of growth: higher elasticity of about 0.35-0.44 in the 1990s and a drop to close to 0.2 in the 2000s. The most recent data from the Labour Bureau indicates that since 2011-12 too, the employment elasticity has remained low. Employment absorption was evidently less successful in the last decade.

Regardless of which data source is used, it seems clear that employment growth is lagging behind growth in the labour force. For example, according to the Census, between 2001 and 2011, labor force growth was 2.23 percent (male and female combined). This is lower than most estimates of employment growth in this decade of closer to 1.4 percent. Creating more rapid employment opportunities is clearly a major policy challenge.

[1]In computing the employment elasticity, consistency of coverage between the employment and growth data is ensured to the extent possible. For example, for EC data, manufacturing GDP is used as the relevant base; while for ASI data gross value addition (deflated by Manufacturing GDP) is used as the base in the computations.

References: Misra, Sangita and Anoop K Suresh *"Estimating Employment Elasticity of Growth for the Indian Economy"*, 2014, RBI Working Paper Series 6.

Mehrotra, Santosh "Explaining Employment Trends in the Indian Economy: 1993-94 to 2011-12", 2014, Economic and Political Weekly, XLIX(32).

on the direct tax side. The objective should be to create a competitive, predictable, clean, and exemptions-light tax policy regime that will lower the cost of capital, incentivize savings, and facilitate taxpayer compliance.

The government and the RBI need to conclude the monetary policy framework agreement to consolidate the recent gains in inflation control and codify into an institutional arrangement what has become the de facto practice. This would signal that both government and RBI jointly share the objectives of low and stable inflation.

Reforms of labor and land laws and reducing the costs of doing business will need to be a joint endeavor of the States and Center (see Box 3 of the *Mid-Year Economic Analysis* 2014-15 for an elaboration). The game-changing potential of implementing the GST and moving to technology-enabled Direct Benefit Transfers— which we call the JAM (Jan Dhan-Aadhaar-Mobile) Number Trinity solution-should not be underestimated.

1.3 Inflation and Money

Structural shifts in the inflationary process are underway caused by lower oil prices and deceleration in agriculture prices and wages. These are simultaneously being reflected in dramatically improved household inflation expectations. The economy is likely to over-perform on the RBI's inflation target by about 0.5-1.0 percentage point, opening up the space for further monetary policy easing.

As elaborated in the *Mid-Year Economic Analysis* 2014-15, the evolution in inflation has surprised market participants and policy makers, including the RBI. The momentum, measured as the three month average seasonally adjusted and annualized, has declined from nearly 15 percent to below 5 percent (Figure 1.5).[5] Interestingly, the momentum of food prices has declined even more and is at levels below overall inflation.

Going forward, this momentum is likely to persist because of three striking developments in three areas that signal a structural shift in the inflationary process in India: *crude-oil, agriculture,* and *inflation expectations*.

Crude-oil prices are expected to remain benign in the coming months. Indeed, the average of estimates by the IMF for (crude spot) and by the US Energy Information Administration (EIA) for Brent and West Texas Intermediate crude indicates that oil prices will be about 29 percent lower in 2015-16 compared with 2014-15 (US$ 59 versus US$ 82) (Figure 1.6).

The risk that the decline in oil prices will reverse itself always exists because of unpredictable geo-political developments. However, the persistence of moderated oil prices seems highly probable for at least three reasons: weaker global demand, increased supplies, and the global monetary and liquidity environment.

Demand will remain soft because of slow growth in major areas of the world economy, including China and Europe. Supply shifts are occurring related to the increase in crude-oil and shale gas production in the US and the concomitant decline in the oligopolistic power of OPEC, notably its swing producer, Saudi Arabia (which decided not to react to the increase in supply from other sources). Going forward, prices could increasingly be determined by the marginal cost of shale production estimated at around US$ 60-65 per barrel.[6]

Finally, the anticipated end to the abnormally low interest cycle in the US and the prospect of future rate increases will favour extraction of oil over keeping it in the ground, thereby further boosting supply and keeping prices soft. Higher rates will also lead to financial asset-reallocation away from commodities, especially oil, as a class into US financial instruments.

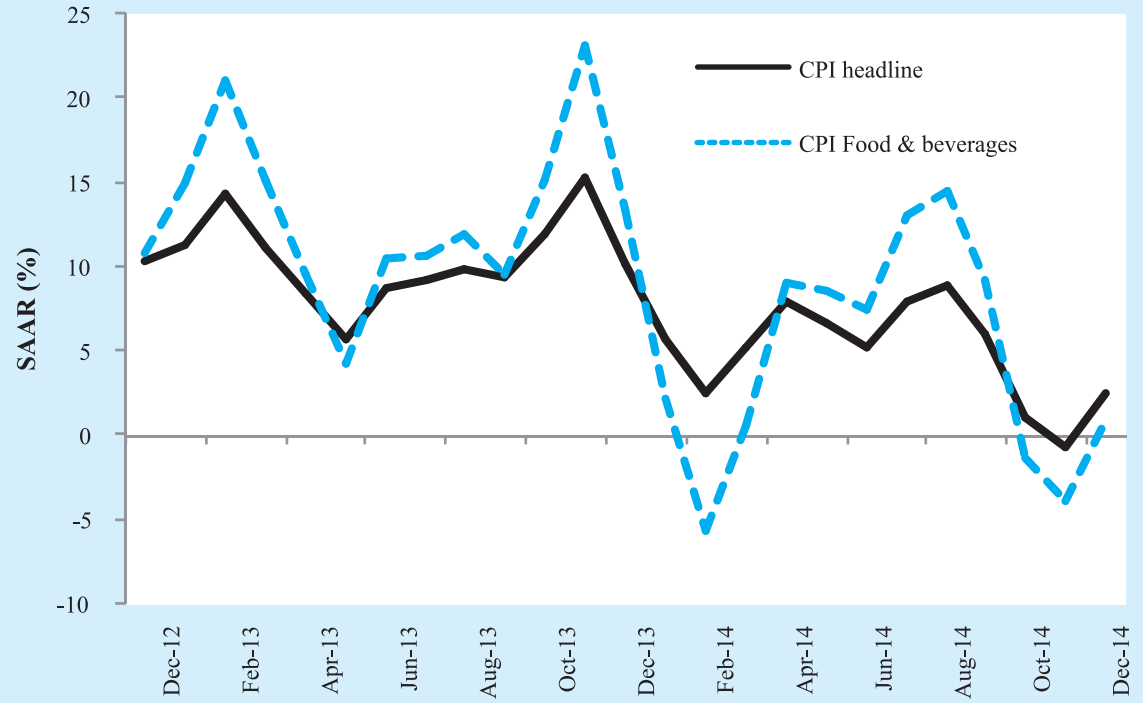
One lesson of the 2000s is instructive. This decade witnessed an across-the-board increase in commodity prices partly on account of excess liquidity, created by synchronized monetary policy easing in the advanced countries. That synchronization has been broken by the diverging macro-economic paths of the United States, where recovery will lead to a reversion to normal monetary policy, on the one hand, and Europe and Japan, on the other, where policies may remain loose. Of course, if China starts slowing and responds through a combination of cheaper credit and a depreciating exchange rate, global liquidity could surge again but the US will still be in tightening mode.

Second, in addition to oil prices, India's inflation will be shaped by pressures from agriculture, foreign and domestic. According to World Bank projections, global agricultural prices will remain muted- a likely decline of 4.8 percent in 2015

[5] Figure 1.5 is based on the new, re-based (from 2010 to 2012) CPI index.

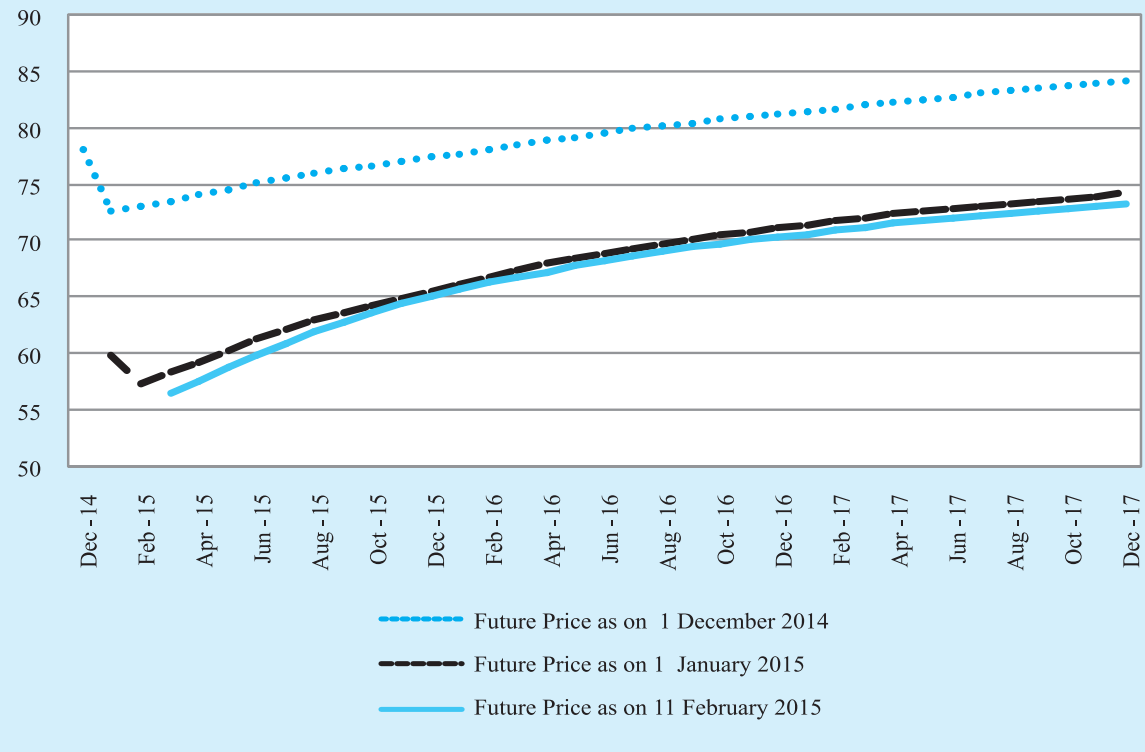
[6] Arezki, R & Olivier Blanchard, "*The 2014 oil price slump: Seven key questions*", January 2015 accessed at http://www.voxeu.org/article/2014-oil-price-slump-seven-key-questions.

Figure 1.5: Momentum of CPI (base 2012), December 2012 to December 2014 (Per cent)



Source: **CSO.**

Figure 1.6: Future Price of Brent Crude up to December 2017 (US$ per barrel)



Source: **Thomson Reuters.**

relative to 2014. This will likely have a key impact in moderating increases in domestic support prices.[7]

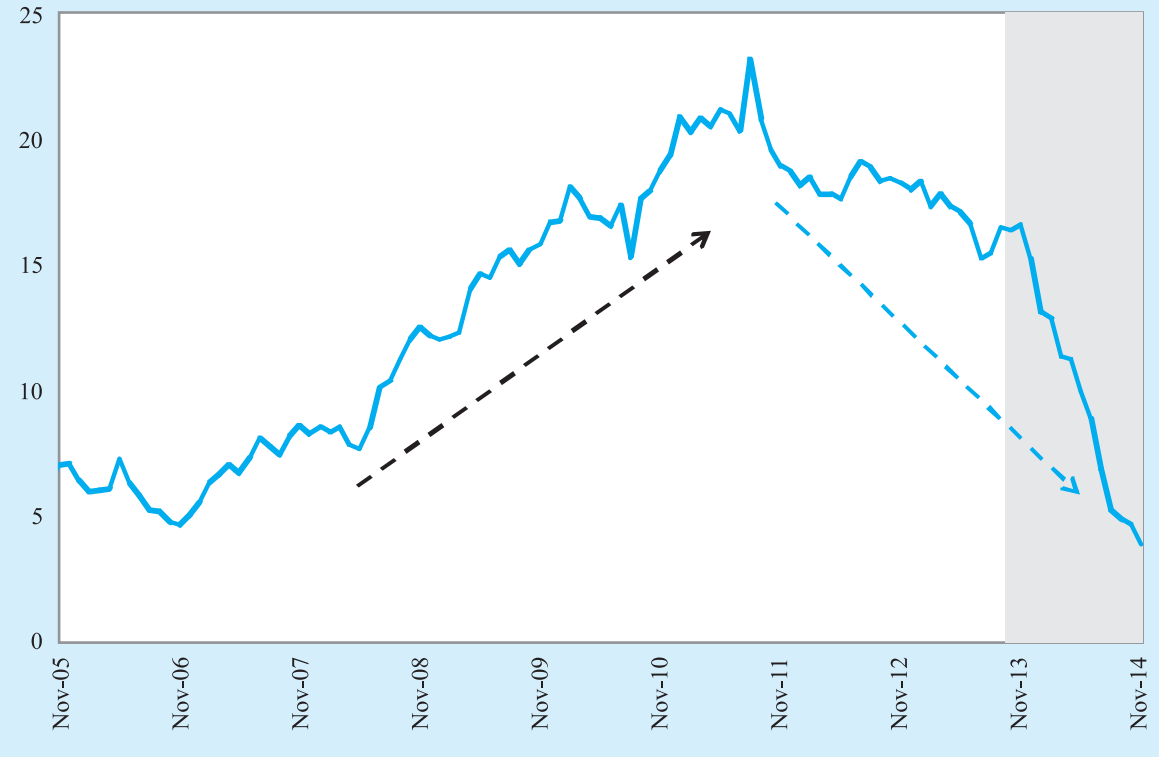
The most dramatic structural change relates to wage pressures. As shown in Figure 1.7, wage growth has declined to about 3.6 percent from over 20 percent. If these trends continue, rural wage growth can continue to decelerate, further moderating inflationary pressures.

The third factor relates to inflation expectations. Until recently, household surveys of inflation expectation conducted by the RBI showed that expectations have been stubbornly persistent and at levels well above actual inflation. But in the most recent survey they dropped by nearly 7-8 percentage points over all horizons (Figure 1.8). If this change conveys some information, inflation expectations will increasingly be anchored at more reasonable levels, moderating wage setting.

In sum, the structural shift that was argued in the *Mid-Year Economic Analysis* 2014-15 seems well under way. Consumer price inflation which is likely to print at 6.5 percent for 2014-15 is likely to decline further. Our estimate for 2015-16 is for CPI inflation to be in 5.0-5.5 percent range and for the GDP deflator to be in the 2.8-3.0 percent range. *The implication is that the economy will over-perform on inflation which would clear the path for further monetary policy easing.*

Trends in financial markets suggest that there has been a gradual easing of deposit rates in recent few months as yields on 10 year government bonds have been falling consistently during this period (Figure 1.9). Declining yields could trigger

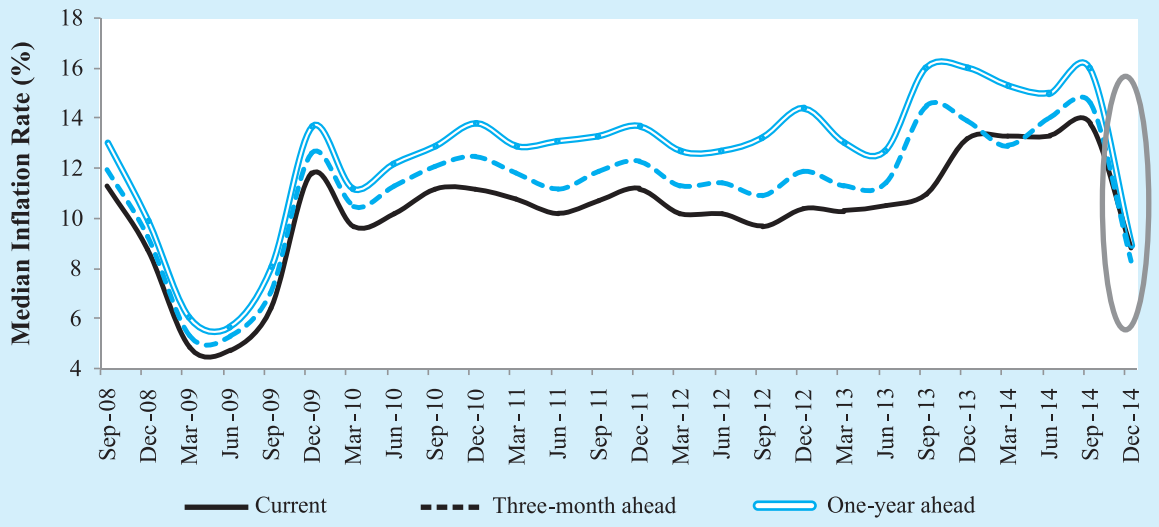
Figure 1.7: Rural Wage Growth, November 2005 to November 2014 (Per cent)



Source: **Labour Bureau.**

[7] The domestic production of oilseeds and pulses is likely to be below target, but greater imports could help dampen inflationary impulses from this sector.

Figure 1.8: Household Inflation Expectations, September 2008 to December 2014 (Per cent)



Source: **RBI.**

reduction in lending rates by banks in the coming months. With the easing of inflationary conditions, the RBI has already signalled a shift in the monetary policy stance when it cut policy repo rates by 25 basis points to 7.75 percent in January 2015. In some ways, further monetary policy easing would entail the policy rate catching up with market rates.

Liquidity conditions have remained broadly balanced so far during 2014-15. The implementation of a revised liquidity management framework has helped in reducing volatility in the overnight inter-bank segment and better anchoring the call rate near the policy rate. With the fiscal deficit to remain under control and the new liquidity management framework in place, liquidity conditions are expected to remain comfortable in 2015-16.

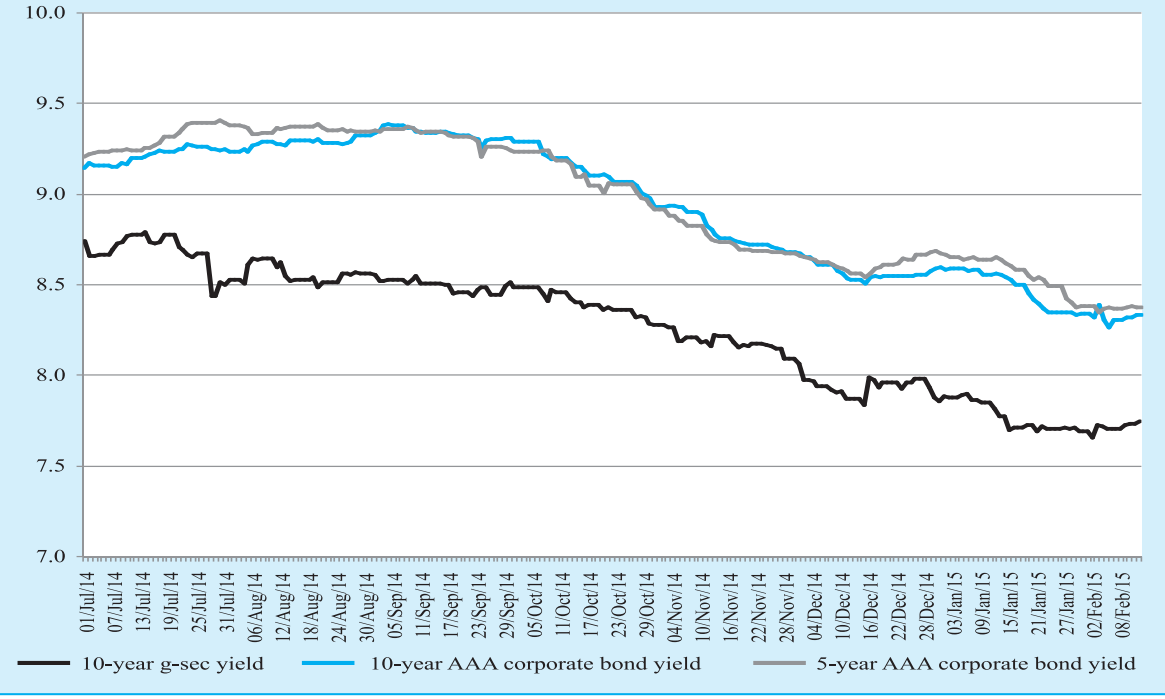
1.4 External Sector

The outlook is favourable for the current account and its financing. A likely surfeit, rather than scarcity, of foreign capital will complicate exchange rate management. Risks from a shift in US monetary policy and turmoil in the Eurozone need to be watched but could remain within control.

The outlook for the external sector is perhaps the most favourable since the 2008 global financial crisis, and especially compared to 2012-13, when elevated oil and gold imports fuelled a surge in the current account deficit. Global crude petroleum prices averaged about US$ 47/ bbl in January 2015 and about US$ 90/bbl for the year as a whole (April 2014-January 2015). Assuming a further moderation in average annual price of crude petroleum and other products, the current account deficit is estimated at about 1.3 per cent of GDP for 2014-15 and less than 1.0 per cent of GDP in 2015-16.

A rule of thumb is that a US$10 reduction in the price of oil helps improve the net trade and hence current account balance by US$ 9.4 billion. Moderated gold imports will also help sustain a manageable current account deficit. Since the elimination of restrictions on gold in November, gold imports have fallen well below the elevated levels seen in 2013. Declining international prices as well as moderating inflation have meant that gold imports averaged US$ 1.3 billion in December 2014 and US$ 1.6 billion in January 2015 compared with US$ 4.2 billion in October 2014 and US$ 5.6 billion in November 2014.

Figure 1.9: Bond Yields, July 2014 to February 2015 (Per cent)



Source: **Bloomberg.**

The outlook for external financing is correspondingly favourable, and surfeit rather than scarcity may pose the greater challenge. Financial flows in 2014-15 are likely to be in excess of US$ 55 billion, leading to a sizeable accretion to reserves by about US$ 26 billion, to about US$ 340 billion (Figure 1.10). This has been facilitated by extensive RBI exchange market intervention. These inflows are likely to continue through a large part of 2015-16. A key implication is that if the current account deficit is lower, a given level of capital inflows will create greater upward pressure on the rupee.

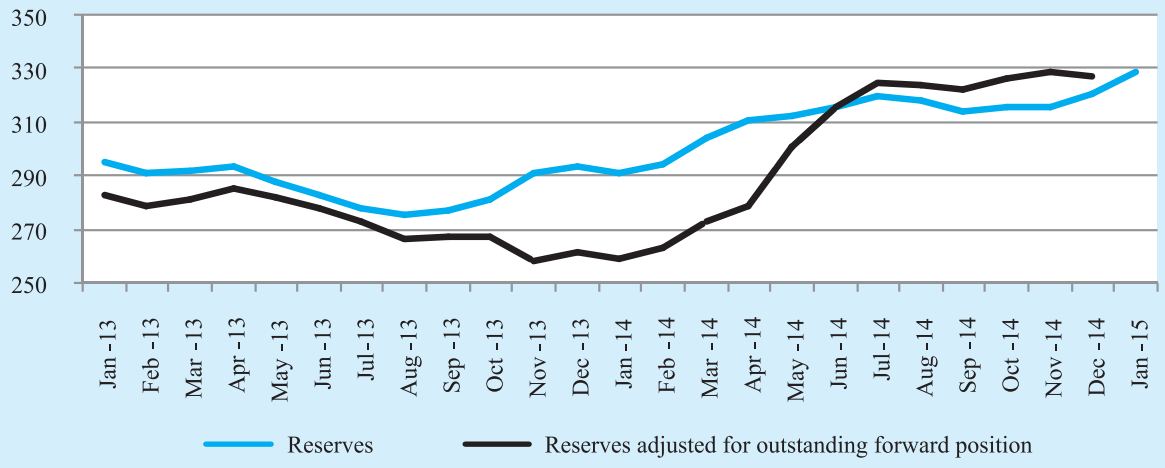
One source of concern is muted export growth and rising non-oil, non-gold imports which could be affected by India's deteriorating competitiveness, reflected in the appreciation of the real effective exchange rate by 8.5 per cent since January 2014. The interesting fact here is that higher inflation in India relative to trading partners is contributing only 2.3 percentage points, with the remaining 6.2 percentage points accounted for by the rupee strengthening in nominal terms against other currencies. In other words, surging capital inflows, notwithstanding the intervention by the RBI both in spot and forward markets, accounts for the bulk of the deteriorating competitiveness.

Reconciling the benefits of these flows with their impact on exports and the current account remains an important challenge going forward. The RBI, in other words, will be on the trident of the macro-economic trilemma, struggling to reconcile capital account openness and surging inflows, monetary policy independence, and the economy's competitiveness.

Four factors pose risks to the external situation:

- *renewed financial market volatility in response to US Federal Reserve monetary tightening which is expected later this year;*
- *possible turmoil if the viability of the Eurozone were to come into question in the event of a Greek exit;*
- *a spike in oil prices related to geopolitical events; and*
- *a slowly deteriorating international trade environment.*

Figure 1.10: Foreign Exchange Reserves, February 2013 to January 2015 (US$ billion)



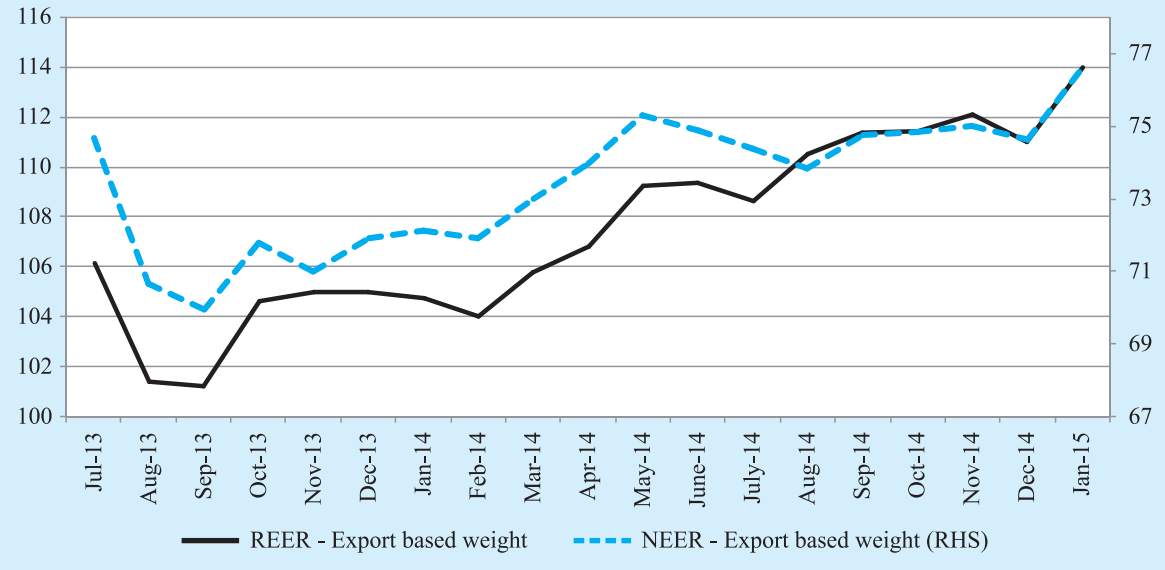
Source: **RBI.**

Two points are worth noting on the risks emanating from the Fed and Eurozone.

First, India may be vulnerable because a substantial portion of the foreign flows since March 2014 are interest sensitive. Of the total portfolio cumulative flows (US$ 38.4 billion), about US$ 23.8 billion have been portfolio debt flows. The decline in yields on government and corporate bonds shown in Figure 1.9 reflects these flows. Fed tightening could lead to reversal of some of these inflows, placing downward pressure on the rupee. However, India is more resilient today than in 2014 or 2013 not only because of greater reserves, but more importantly, due to a healthier macro-economic position. While complacency is never warranted, over-anxiety should also be kept at bay. In the medium-term, it is perhaps the trade challenge that is a greater source of concern (see section 1.11 below).

A larger issue on the external front is geo-strategic. If power used to flow from the barrel of a gun, in an increasingly inter-dependent economic world,

Figure 1.11: Nominal and Real Effective Exchange Rates-Export-Based Indices, July 2013 to January 2015



Source: **RBI.**

hard and soft power derive from a war-chest of foreign exchange reserves. China's abundant reserves have highlighted this fact. Reserves provide a cushion against shocks, creating economic and financial resilience. But they also create geo-political influence.

Today, China has de-facto become one of the lenders of last resort to governments experiencing financial troubles. It has also become one of the bigger providers of development assistance both bilaterally and plurilaterally. China, in its own heterodox and multiple ways, is assuming the roles of both an International Monetary Fund and a World Bank as a result of its reserves. The acquisition of reserves is not costless because it requires a policy of mercantilism and consequential distortion of financial and exchange markets. But there is a cost-benefit analysis that needs to be undertaken. The question for India, as a rising economic and political power, is whether it too should consider a substantial addition to its reserves, preferably its own reserves acquired though running cumulative current account surpluses, possibly targeting a level of US$ 750 billion- 1 trillion over the long run.

1.5 AGRICULTURE

The First Advance Estimate of Kharif crops (July-September 2014) indicates lower production compared to the last year. However, the estimate is generally revised upwards. The Rabi crops data released by the Directorate of Economics and Statistics recently indicates that although the total area coverage has declined, area under wheat has gone down marginally by 2.9 per cent. Nevertheless, for 2014-15, the CSO has estimated a positive growth rate of 1.1 per cent for agriculture despite lower rainfall that was only 88 per cent of long-period average, and following a bumper year in 2013-14. The CSO estimate is value-added while agricultural production data are volume based, hence positive agricultural GDP growth is not inconsistent with volume declines because input costs have declined sharply.

But perhaps a deeper shift in agriculture may be under way which calls for greater attention to this sector. The decade long shift in the terms of trade toward agriculture may have come to an end as global agricultural prices have peaked. This is illustrated in figure 1.12 which plots the terms of trade for agriculture according to two different measures. Both show a slow decline after 2010-11, following several years of improvement.[8]

As the terms of trade deteriorate and as rural incomes come under pressure (see also Figure 1.7), the political pressure for support will increase. Already, there have been proposals to raise tariffs in a number of sectors like oilseeds and pulses and to provide export subsidies in sugar.

One response in the short run must be to enhance targeted support for the vulnerable in agriculture, namely the small farmer and agricultural labourer. The MGNREGA program has the virtue of being reasonably well-targeted. The challenge here is to build on this feature and use the program to build assets such as rural roads, micro-irrrigation and water management, while also shoring up rural incomes.

In the medium-term, the time is ripe for a more broad-based response to the challenges in agriculture and to ensure that agriculture grows at about 4 percent on a sustained basis.

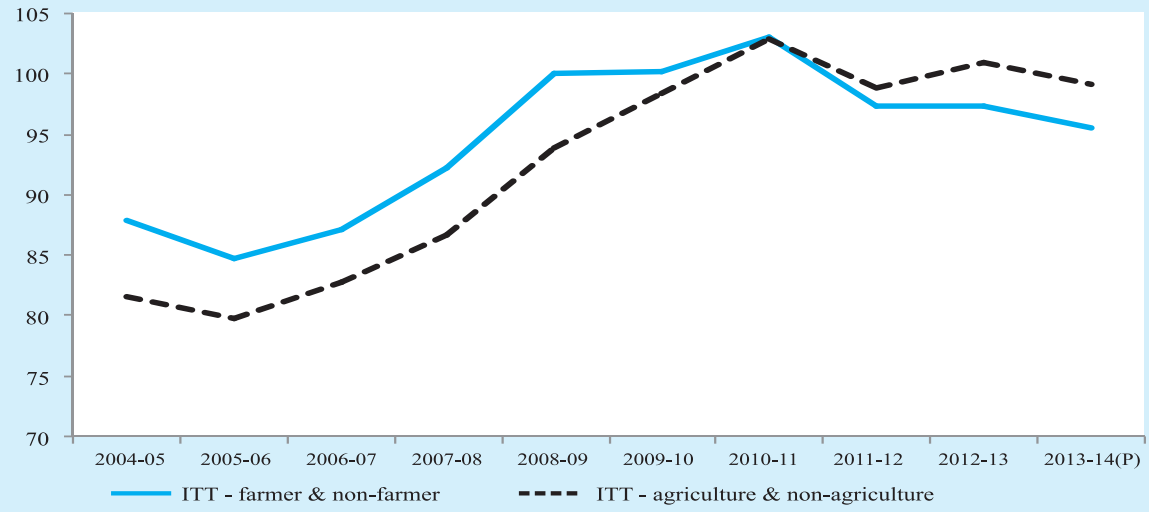
One of the most striking problems is how unintegrated and distortions-ridden are our agricultural markets (see chapter 8 of this volume, which also offers possible solutions). India needs a national common market for agricultural commodities by making the Agricultural Produce Market Committees (APMCs) just one among

[8] The TOT indices are based on the following formulae adopted by the Group (WG) in May 2012 under the chairmanship of Professor S. Mahendra Dev.

$$(1)\ \text{Index of Terms of Trade} = \frac{\text{Index of Price Received for Farm Products}}{\text{Index of Price Paid for Farm Inputs, Final Consumption and Capital Investment}} X100$$

$$(2)\ \text{Index of Terms of Trade} = \frac{\text{Index of Price Received for Farm Products and Agricultural Wages}}{\text{Index of Price Paid for Farm Inputs, Final Consumption and Capital Investment}} X100$$

Figure 1.12: Index of Agricultural Terms of Trade, 2004-05 to 2013-14



Source: **Refer to footnote 8.**

many options available for the farmers to sell their produce.

Rationalisation of subsidies and better targeting of beneficiaries through direct transfers would generate part of the resources for the public investment that is essential in research, education, extension, irrigation, water-management, soil testing, warehousing and cold-storage. Distortions emerging from various policies, including, exempting user charges for electricity and water need to be reduced, though better targeting and eliminating leakages.

The recommendations of the Shanta Kumar Committee provide useful suggestions for the future road-map of food-policy. The functioning of the Food Corporation of India needs to be revamped substantially.

There are also wide differences in the yields within states. Even the best of the states have much lower yield in different crops when compared to the best in the world. This is evident from the Table 1.1 below.

Vast amounts of cropped area (approximately 41 percent) are still unirrigated. Providing irrigation can improve yields substantially. For a shift in the underlying production function, investment in basic research will be necessary. This provides ample opportunity to increase production by bridging the yield-gap to the extent feasible within the climatic zone. Institutionally, the time may be ripe for re-assessing the role of the Indian Council of Agricultural Research (ICAR), its relationships with the state agricultural universities as well as with individual institutes (say the Indian Agricultural Research Institute or the National Dairy Research Institute), and whether research, education, and extension should be separated.

To provide efficient advance price-discovery to farmers and enable them to hedge price risks the Forward Markets Commission is being strengthened. The concern that there may be unnecessary speculation should be addressed though more effective regulation along the lines of the recommendations made by the Financial Sector Legislative Reforms Commission (FSLRC).

1.6 THE GROWTH-FISCAL POLICY CHALLENGE

India can balance the short-term imperative of boosting public investment to revitalize growth with the need to maintain fiscal discipline. Expenditure control and expenditure switching, from consumption to investment, both in the upcoming budget and in the medium term will be key.

Table 1.1: Crop Yield Comparison: India versus the World

Crop	India Highest Yield (State)	World Highest Yield
Paddy	Punjab - 3952	China - 6661
Wheat	Punjab - 5017	UK - 7360
Maize	Tamil Nadu - 5372	USA - 8858
Chickpeas	Andhra Pradesh - 1439	Ethiopia - 1663
Cotton	Punjab - 750	Australia - 1920
Rapeseed/Mustard Seed	Gujarat - 1723	UK - 3588

Note: Figures are in yield/kg/hectare and pertain to 2012.

The Medium-Term Fiscal Framework

Notwithstanding the challenging nature of the 2014-15 budget, elaborated in the *Mid-Year Economic Analysis* 2014-15, the Government will adhere to the fiscal target of 4.1 per cent of GDP. Despite weakness in revenue collection and delayed disinvestment, new excises on diesel and petrol (revenue yield of about ₹ 20,000 crores), reduced subsidies, and expenditure compression will ensure the commitment to discipline.

India can reconcile the requirements of fiscal consolidation and the imperative of boosting public investment to revive growth and crowd-in private investment provided the right lessons are learnt. How so?

Since this is the first full budget of the new government, and especially in light of the far-reaching recommendations of the Fourteenth Finance Commission, the time is ripe for reviewing the medium-term framework and setting targets for the upcoming year against that background and taking account of the lessons of recent history (Figure 1.13).

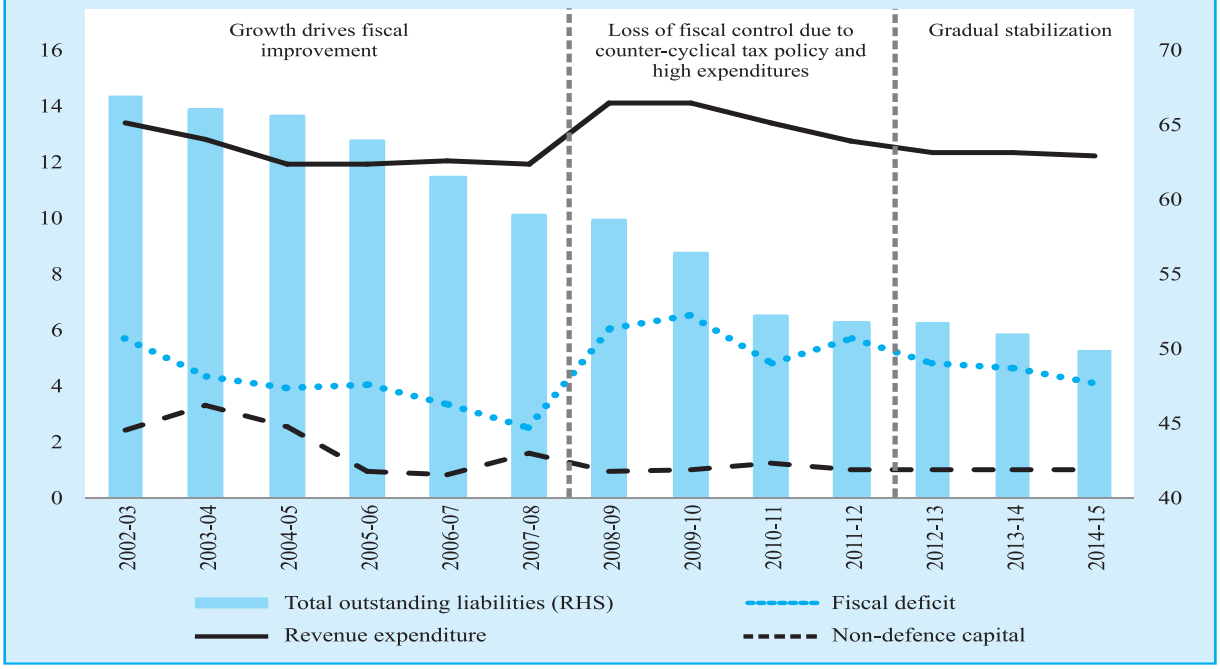
Three phases marked recent fiscal history. In the first (2002-08), rapid growth improved all fiscal aggregates, flows and stocks. But failure to control expenditure, especially revenue expenditure, towards the end of that phase, combined with excessive counter-cyclical policies in the second phase (2009-12) led to a loss of fiscal control that contributed to the near-crisis of 2013. A casualty has been low and stagnating capital expenditure. In the third phase (2013-today), a modicum of fiscal stability has been restored. This history suggests the following strategy going forward.

First, in the medium term, India must meet its medium-term target of 3 percent of GDP. This will provide the fiscal space to insure against future shocks and also to move closer to the fiscal performance of its emerging market peers. It must also reverse the trajectory of recent years and move toward the 'golden rule' of eliminating revenue deficits and ensuring that, over the cycle, borrowing is only for capital formation.

Second, the way to achieve these targets will be expenditure control and expenditure switching from consumption to investment. And the secular decline in capital expenditure in the last decade has undermined India's long run growth potential. From 2016-17, as growth gathers steam and as the GST is implemented, the consequential tax buoyancy when combined with expenditure control will ensure that medium term targets can be comfortably met. This buoyancy is assured by history because over the course of the growth surge in the last decade, the overall tax-GDP ratio increased by about 2.7 percentage points, from 9.2 percent in 2003-04 to 11.9 per cent in 2007-08 even without radical tax reform.

Third, the medium-term commitment to discipline cannot result in an Augustinian deferment of actions. In the upcoming year, too, fiscal consolidation must continue. However, the need for accelerated fiscal consolidation has lessened because macro-economic pressures have significantly abated with the dramatic decline in inflation and turnaround in the current account deficit. In these circumstances,

Figure 1.13: Recent Fiscal History, 2002-03 to 2014-15 (Percent of GDP)



Source: **Budget Documents and CSO.**

Note: **Numbers for 2013-14 and 2014-15 are revised estimates and budget estimates, respectively.**

especially if the economy is recovering rather than surging, pro-cyclical policy is less than optimal.

Debt dynamics also remain favourable going forward, ensuring a steady strengthening of public sector balance sheets. Further, accelerated fiscal consolidation will have to be conditioned in the upcoming fiscal year by a number of new and exceptional factors, such as implementing the recommendations of the Fourteenth Finance Commission, clearing the compensation obligations to the states for the reduction in the central sales tax in 2007-08 and 2008-09, and the need to increase public investment.

Nevertheless, to ensure fiscal credibility, and consistency with the medium-term goals, the upcoming budget should initiate the process of expenditure control to reduce both the fiscal and revenue deficits. At the same time, the quality of expenditure needs to be shifted from consumption, by reducing subsidies, toward investment. Broadly speaking, the additional space opened up, including through a reduction in subsidies and higher disinvestment proceeds, should be occupied by public investment. Increases in the tax-GDP ratio, stemming from the excise tax increases on petroleum products, will also help achieve both short and medium term fiscal goals.

1.7 Wiping Every Tear From Every Eye: The JAM Number Trinity Solution

The debate is not about whether but how best to provide active government support to the poor and vulnerable. Cash-based transfers based on the JAM number trinity—Jan Dhan, Aadhaar, Mobile— offer exciting possibilities to effectively target public resources to those who need it most. Success in this area will allow prices to be liberated to perform their role of efficiently allocating resources and boosting long-run growth.

Sixty eight years after Independence, poverty remains one of India's largest and most pressing problems. No nation can become great when the life chances of so many of its citizens are benighted by poor nutrition, limited by poor learning opportunities, and shrivelled by gender discrimination (discussed in section 1.13). The

recent Annual Survey of Education Report (ASER), which shows stagnation in learning outcomes over the past decade, makes for sobering reading (see Box in Volume 2, Chapter 9).

Economic growth is good for the poor, both directly because it raises incomes and because it generates resources to invest in the public services and social safety nets that the poor need. Growth – and the prospects and opportunities that it brings – also encourages individuals to invest in their own human capital. A recent study found strikingly that merely informing families in villages outside Bangalore that call centres were hiring educated women increased the likelihood that adolescent girls in those villages completed school[9].

However, growth must be complemented with effective state-delivered programs that raise the living standards of the most vulnerable in society. To be successful, anti-poverty programs must recognise that policies shape the incentives of individuals and firms, and also acknowledge the limited implementation capacity of the state to target and deliver public services to the poor.

Both the central and state governments subsidise a wide range of products with the expressed intention of making these affordable for the poor. Rice, wheat, pulses, sugar, kerosene, LPG, naphtha, water, electricity, fertiliser, iron ore, railways – these are just a subset of the products and services that the government subsidises. The estimated direct fiscal costs of these (select) subsidies are about ₹ 378,000 crore or about 4.2 percent of GDP. This is roughly how much it would cost to raise the expenditure of every household to that of a household at the 35th percentile of the income distribution[10] (which is well above the poverty line of 21.9 percent[11]). Table 1.2 below presents some rough, illustrative estimates of the cost of these subsidies and who benefits from them.

Price subsidies, no doubt provide help, but they may not have a transformative effect on the economic lives of the poor. For many subsidies, only a small fraction of the benefits actually accrue to the poor. For example, electricity subsidies benefit mainly the (relatively wealthy) 67.2 percent of households that are electrified[12]. A large fraction of subsidies allocated to water utilities are spent on subsidising private taps when 60 percent of poor households get their water from public taps[13].

Moreover, the implementation of subsidies can be fiendishly complex. In the case of fertilizers, they are firm-specific and import-consignment specific, they vary by type of fertilizer, and some are on a fixed-quantity basis while others are variable.

Subsidies are also susceptible to the brutal logic of self-perpetuation. In the case of sugar, to protect sugar cane producers high support prices are awarded; to offset this tax on mill owners, they are supported through subsidized loans and export subsidies; and then they are again taxed by placing restrictions on sales of molasses that are produced as a by-product.

Different subsidies also interact to hurt the poor. For example, fertiliser manufacturers do not have the incentive to sell their product in hard-to-access regions, since price controls mean that prices are similar everywhere, so freight subsidies on railways have been introduced to incentivise manufacturers to supply their produce widely. But those subsidies are sometimes insufficient, since freight rates are among the highest in the world, and intentionally so, to cross-subsidise artificially low passenger fares. This is an example of how a mesh of well-meaning price controls distort incentives in a way that ultimately hurt poor households.

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[9] Jensen, Robert, "*Do Labor Market Opportunities Affect Young Women's Work and Family Decisions? Experimental Evidence from India*" 2012, Quarterly Journal of Economics.

[10] Economic Survey of India 2014-15, Vol. I, Chapter 3.

[11] Planning Commission, July 2013, reporting on the Tendulkar Commission (http://planningcommission.nic.in/news/pre_pov2307.pdf)

[12] Census of India (2011), Source of Lighting.

[13] Do Current Water Subsidies reach the poor?, MIT and World Bank working paper (http://web.mit.edu/urbanupgrading/waterandsanitation/resources/pdf-files/WaterTariff-4.pdf)

Table 1.2 : How much do subsidies benefit the poor

Product	Producer subsidy	Consumer subsidy	Fiscal expenditure (Cr.)	Fiscal expenditure (percent of 2011-12GDP)	What share of benefits accrue to the poor?
Railways	N/A	Subsidised passenger fares[1]	₹ 51,000	0.57	The bottom 80 percent of households constitute only 28.1 percent of total passenger through fare on railways
Liquefied petroleum gas	N/A	Subsidy (now via DBT)	₹ 23,746	0.26	The bottom 50 percent of households only consume 25 percent of LPG
Kerosene	N/A	Subsidy via PDS	₹ 20,415	0.23	41 percent of PDS kerosene allocation are lost as leakage, and only 46 percent of the remainder is consumed by poor households
Fertiliser & nitrogenous commodities	Firm and nutrient specific subsidies to manufacturers. Import of urea regulated by the government	Maximum	₹ 73,790	0.82	Urea and P&K manufacturers derive most economic benefit from the subsidy, since farmers, especially poor farmers, have elastic demand for fertiliser
Rice (paddy)	Price floor (minimum support price)	Subsidy via PDS	₹ 129,000	1.14	15 percent of PDS rice is lost as leakage. Households in the bottom 3 deciles consume 53 percent of the remaining 85 percent that reaches households
Wheat					54 percent of PDS wheat is lost as leakage. Households in the bottom 3 deciles consume 56 percent of the remaining 46 percent that reaches households
Pulses	Price floor (MSP)	Subsidy via PDS	₹ 158	0.002	The bottom 3 deciles consume 36 percent of subsidised pulses
Electricity	Subsidy	Capped below market price	₹ 32,300	0.36	Average monthly consumption of bottom quintile = 45 kWh vs top quintile = 121 kWh. Bottom quintile captures only 10 percent of the total electricity subsidies, top quintile captures 37 percent of subsidy
Water	N/A	Subsidy	₹ 14,208	0.50	Most water subsidies are allocated to private taps, whereas 60 percent of poor households get their water from public taps
Sugar for sugar cane farmers, subsidy to mills	Minimum price	Subsidy via PDS	₹ 33,000	0.37	48 percent of PDS sugar is lost as leakage. Households in the bottom 3 deciles consume 44 percent of the remaining 52 percent that reaches households
Total			₹ 377,616	4.24	

All expenditure deciles are based on data from the household expenditure module of the 68th Round of the NSS (2011-12)
Railways – www.ncaer.org/free-download.php?pID=111 , p107 & NSS 68th round
LPG – Computations from the 68th Round of the NSS (2011-12)
Kerosene – *Economic Survey of India 2014-15, Vol. I ,Chapter 3.*
Fertiliser – *Agricultural Input Survey,* http://inputsurvey.dacnet.nic.in/nationaltable3.aspx
Rice & wheat – *Economic Survey of India 2014-15,Vol. I, Chapter 3.*
Pulses – Computations from the 68th Round of the NSS (2011-12)
Water – Report by MIT and World Bank http://web.mit.edu/urbanupgrading/waterandsanitation/resources/pdf-files/WaterTariff-4.pdf , p2
Sugar – Department of Food & Public Distribution (http://dfpd.nic.in/fcamin/sugar/Notice1.pdf)

Fertiliser subsides illustrate another difficulty with using price subsidies as a core anti-poverty strategy. The true *economic incidence of a subsidy* depends on the relative elasticities of demand and supply, with the party *less* responsive to price changes benefiting *more* from a subsidy. The ultimate aim of subsidising fertiliser is to provide farmers with access to cheap fertilisers to incentivise usage and cultivation of high-yielding varieties. Yet because it is likely that farmers' demand for fertiliser is more sensitive to prices[14] than fertiliser manufacturers' supply, the larger share of economic benefits from the price subsidy probably accrue to the fertiliser manufacturer and the richer farmer who accounts for a larger share of fertiliser consumption, not the beneficiary most in need, namely the poor farmer.

High minimum support for rice and wheat distort crop choice, leading to water-intensive cultivation in areas where water tables have been dropping like a stone, and ultimately induce greater price volatility in non-MSP supported crops which hurts consumers, especially poor households who have volatile incomes and lack the assets to weather economic shocks. High MSPs also penalise risk-taking by farmers who have ventured into non-traditional crops.

At first glance, kerosene seems a good candidate for price subsidies as it is popularly conceived to be consumed mostly by the poor, and yet work done in this Survey (Chapter 3) based on NSS data show that only 59 percent of subsidised kerosene allocated via the PDS is actually consumed by households, with the remainder lost to leakage, and only 46 percent of total consumption is by poor households. Even in the case of the food distributed via the PDS, leakages are very high (about 15 percent for rice and 54 percent for wheat, with most of these leakages concentrated in the APL segment).

This illustrates the importance of basing anti-poverty policy on data rather than popular perception. It also underscores the need for policymakers to acknowledge as a first-order concern the state's own constraints in implementing effective, well-targeted programs.

Technology is increasingly affording better means for the government to improve the economic lives of the poor. The JAM Number Trinity– ***J***an Dhan Yojana, ***A***adhaar and ***M***obile numbers— might well be a game changer because it expands the set of welfare and anti-poverty policies that the state can implement in future. These technological innovations have renewed academic interest in the potential of direct cash transfers to help the poor. Recent experimental evidence documents that unconditional cash transfers – if targeted well – can boost household consumption and asset ownership and reduce food security problems for the ultra-poor.[15]

Cash transfers can also augment the effectiveness of existing anti-poverty programs, like the MGNREGA. A recent study[16] reported evidence from Andhra Pradesh where MGNREGA and social security payments were paid through Aadhaar-linked bank accounts. Households received payments faster with the new Aadhaar-linked DBT system, and leakages decreased so much that the value of the fiscal savings – due to reduced leakages – were 8 times greater than the cost of implementing the program. Much of the leakage reduction resulting from biometric identification stems from fewer ghost beneficiaries. Indeed, the government is already realizing the gains from direct benefit transfers areas by paying cooking gas subsidies directly into the bank accounts of 9.75 crore recipients.

For the agriculture sector which is currently under stress, this evidence creates possibilities. The virtue

[14] One estimate suggests that farmers' demand for fertiliser falls by nearly 6.4 percent for a 10 percent increase in fertiliser prices. Dholakia, R.H. and Jagdip Majumdar, "*Estimation of Price Elasticity of Fertilizer Demand in India*", 2006, Working Paper.

[15] Johannes Haushofer & Jeremy Shapiro, "*Household Response to Income Changes: Evidence from an Unconditional Cash Transfer Program in Kenya*", 2013, Working Paper.

[16] Karthik Muralidharan, Paul Niehaus & Sandip Sukhtankar, "*Building State Capacity: Evidence from Biometric Smartcards in India*", 2014, Working Paper.

of MGNREGA, for all its deficiencies, is that it is self-targeting. If the program could lead to the creation of rural assets such as rural roads, micro-irrigation and water management infrastructure, and if leakages could be minimized through the JAM number trinity, rural India could witness both the creation of opportunity and protection of the vulnerable.

Today there are about 125.5 million Jan Dhan bank accounts[17], 757 million Aadhaar numbers, and approximately 904 million mobile phones[18]. It is possible to envisage that when the JAM trinity becomes linked, the goal of periodic and seamless financial transfers to bank accounts after identification through the Aadhaar number can be implemented with immeasurable benefits to helping the lives of the poor. The heady prospect for the Indian economy is that, with strong investments in state capacity, that *Nirvana* today seems within reach. It will be a *Nirvana* for two reasons—the poor will be protected and provided for; and many prices in India will be liberated to perform their role of efficiently allocating resources and boosting long-run growth. Even as it focuses on second and third generation reforms in factor markets, India will then be able to complete the basic first generation reforms. This will be the grand bargain in the political economy of Indian reforms.

1.8 Growth, private and public investment

"The balance sheet syndrome with Indian characteristics" creates a web of difficult challenges that could hold back private investment. Private investment must remain the primary engine of long-run growth. But in the interim, to revive growth and to deepen physical connectivity, public investment, especially in the railways, will have an important role to play.

Since the new government assumed office, a slew of economic reforms has led to a partial revival of investor sentiment. Tentative signs that the worst is over are evident for example in data that shows that the rate of stalled projects has begun to decline and that the rate of their revival is inching up (Figure 1.14).

But increasing capital flows are yet to translate into a durable pick-up of real investment, especially in the private sector. This owes to at least five interrelated factors that lead to what the *Mid-Year Economic Analysis* called the "*balance sheet syndrome with Indian characteristics.*"

First, hobbled by weak profitability and weighed down by over-indebtedness, the Indian corporate sector is limited in its ability to invest going forward (the flow challenge). One key indicator of profitability—the interest cover ratio, which if less than one implies firms' cash flows are not sufficient to pay their interest costs—has also worsened in recent years (Figure 1.15). Further, as the Figure 1.16 shows, the debt-equity ratios of the top 500 non-financial firms have been steadily increasing, and their level now is amongst the highest in the emerging market world.

Second, weak institutions relating to bankruptcy means that the over-indebtedness problem cannot be easily resolved (the stock and 'difficulty-of-exit' challenge). This is reflected in the persistence of stalled projects which have been consistently around 7 to 8 percent of GDP in the last four years.

Third, even if some of these problems were solved, the PPP model at least in infrastructure will need to be re-fashioned to become more viable going forward (the institutional challenge).

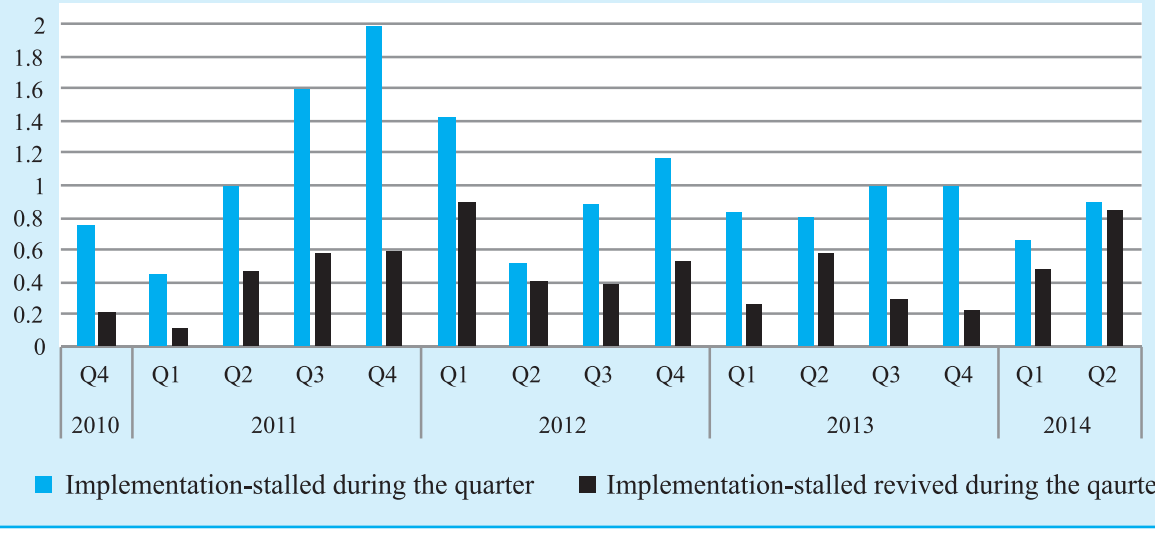
Fourth, since a significant portion of infrastructure was financed by the banking system, especially the public sector banks, their balance sheets have deteriorated.[19] For example, the sum of non-performing and stressed assets has risen sharply, and for the PSBs they account for over 12 percent

[17] Pradhan Mantri Jan-Dhan Yojana progress report (http://www.pmjdy.gov.in/account-statistics-country.aspx)

[18] http://www.trai.gov.in/WriteReadData/WhatsNew/Documents/Presspercent20Release-TSD-Mar,14.pdf.

[19] According to RBI's Financial Stability Report, December 2014, the contribution of mining, iron and steel, textiles, aviation and other infrastructure to total advances stands at 28 percent whereas their contribution in stressed assets is 54 percent.

Figure 1.14: Overview of Stalled Projects, 2011Q1 to 2014Q2 (lakh crore)



Source: **CMIE.**

of total assets (Figure 1.17). Uncertainty about accounting and valuation, and indeed the history of banking difficulties across time and space, counsel in favor of over- rather than under-recognizing the severity of the problem. When banks' balance sheets are stressed they are less able to lend, leading to reduced credit for the private sector (the financing challenge).[20]

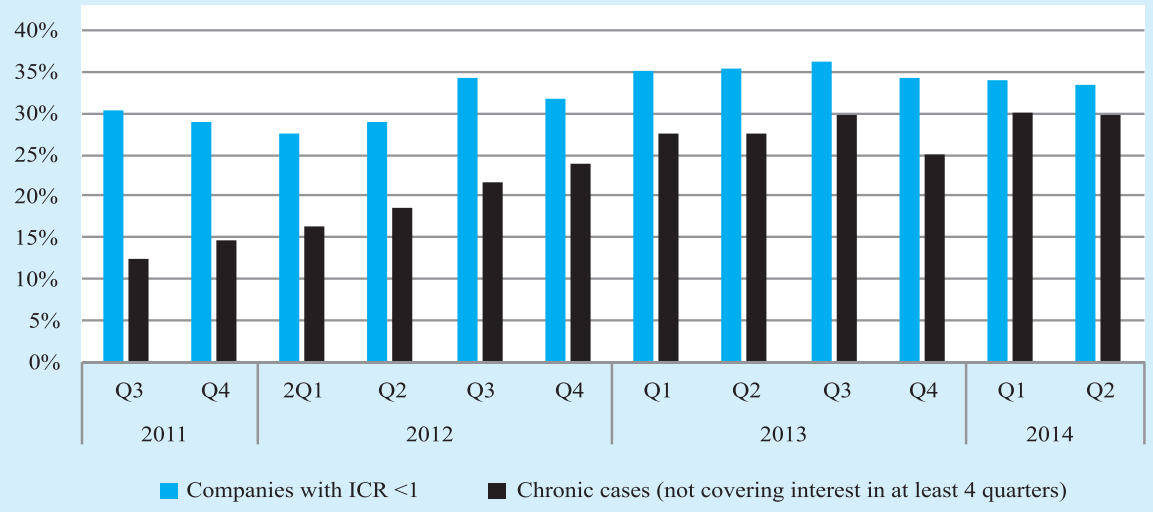
Finally, in a peculiarly Indian twist, this financing problem is aggravated by generalized risk-aversion (the challenge of inertial decision-making). For the public sector banks in particular, which are exposed to governmental accountability and oversight, lending in a situation of NPAs is not easy because of a generic problem of caution, afflicting bureaucratic decision-making.

Actions being undertaken by the government to enhance the supply of critical inputs such as coal and gas, as well as regulatory reform, will alleviate some of these constraints, especially in the public sector where the data identify them as being regulatory in character (clearances and land acquisition). Steps are being taken to address the institutional problem, by creating a better framework for PPPs and for infrastructure investment in general. The RBI is making efforts to get banks to recognize their bad loan problems, and address them. But the impact of these initiatives has so far been limited. The stock of stalled projects remains extraordinarily high; firm profitability, especially for firms working in the infrastructure sector, remains low. So, questions on the pace and strength of recovery of private sector investment remain open.

If the weakness of private investment offers one negative or indirect rationale for increased public investment, there are also more affirmative rationales. India's recent PPP experience has demonstrated that given weak institutions, the private sector taking on project implementation risks involves costs (delays in land acquisition, environmental clearances, and variability of input supplies, etc.). In some sectors, the public sector may be better placed to absorb some of these risks. Further, there continue to remain areas of infrastructure – rural roads and railways that provide basic physical connectivity- in which private investment will be under-supplied. One irony is that while financial and digital connectivity are surging ahead, basic physical connectivity appears to lag behind.

[20] Suggestions on how capital markets can play a greater role in infrastructure financing are elaborated in last year's Economic Survey.

Figure 1.15: Companies with ICR<1, 2011Q3 to 2014Q2



***Source*: Credit Suisse (sample of 3,700 listed companies).**

Figure 1.16A: Debt to Equity of Non-Financial Corporates (BSE 500), 2009-10 to 2014-15

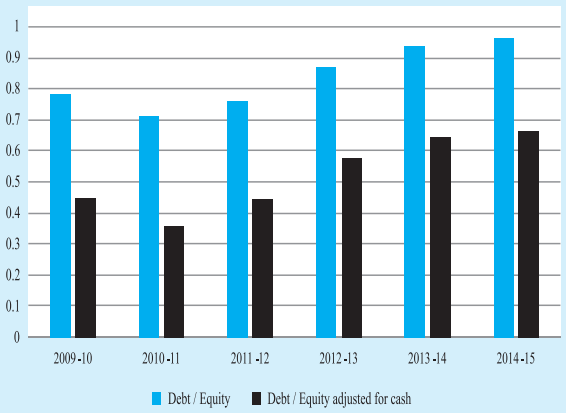
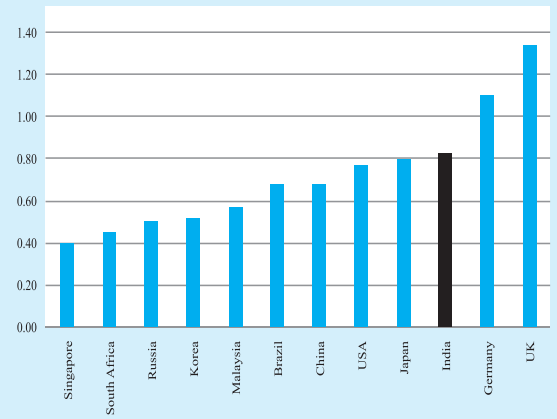


Figure 1.16B: Debt to Equity of Non-Financial Corporates (MSCI Index) as of December 2014

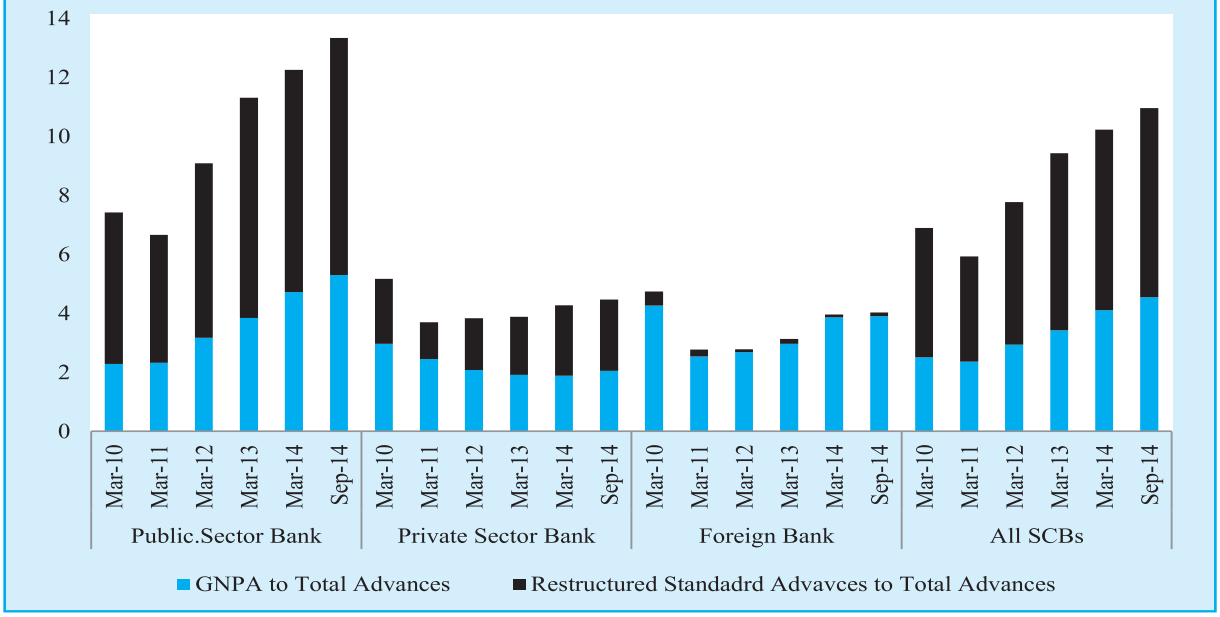


***Source*: Bloomberg and J.P. Morgan.**

Therefore, as emphasized in the *Mid Year Economic Analysis 2*014-15 it seems imperative to consider the case for reviving targeted public investment as an engine of growth in the short run not to substitute for private investment but to complement it and indeed to crowd it in. The two challenges of raising public investment relate to financing and capacity. Financing issues were addressed in section 1.6.

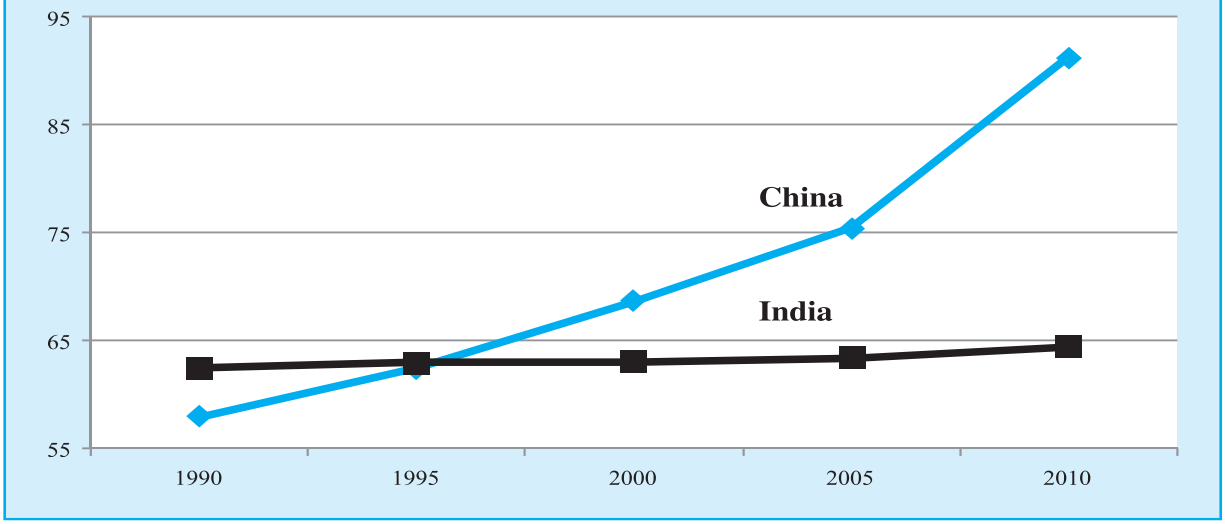
Public sector implementation capacity in India is variable. But the analysis in chapter 6 of this volume suggests that the Indian Railways could be the next locomotive of growth. Greater public investment in the railways would boost aggregate growth and the competitiveness of Indian manufacturing substantially. In part, these large gains derive from the current massive under-investment in the railways. For example, China and India had similar network capacities in until the mid-1990s but because it invested eleven times as much as India in per-capita terms, China's capacity and efficiency have surged (Figure 1.18). In contrast, stagnant investment has led to congestion, strained capacity, poor services, weak financial health, and deteriorating competitiveness of logistics-intensive sectors, typically manufacturing. Congestion has

Figure 1.17: Gross NPA and Restructured Assets as per cent of total advances



Source: **RBI.**

Figure 1.18: Capacity Addition-Indian and China Railways, 1990 to 2010 (route km '000)



Source: **World Bank.**

effectively led to the railways ceding a significant share in freight traffic to the roads sector. This is not a welcome development since rail transport is typically more cost and energy efficient. The profits generated by freight services have cross-subsidised passengers services and Indian freight rates (PPP adjusted) remain among the highest in the world.

What the previous NDA government did for roads, the present government could do for the railways, strengthening the physical connectivity of the Indian population, with enormous benefits in terms of higher standards of living, greater opportunities, and increased potential for human fulfillment.

1.9 The Banking Challenge

Banking is hobbled by policy, which creates double financial repression, and by structural factors, which impede competition. The

solution lies in the 4 Ds of deregulation (addressing the statutory liquidity ratio (SLR) and priority sector lending (PSL)), differentiation (within the public sector banks in relation to recapitalisation, shrinking balance sheets, and ownership), diversification (of source of funding within and outside banking), and disinterring (by improving exit mechanisms).

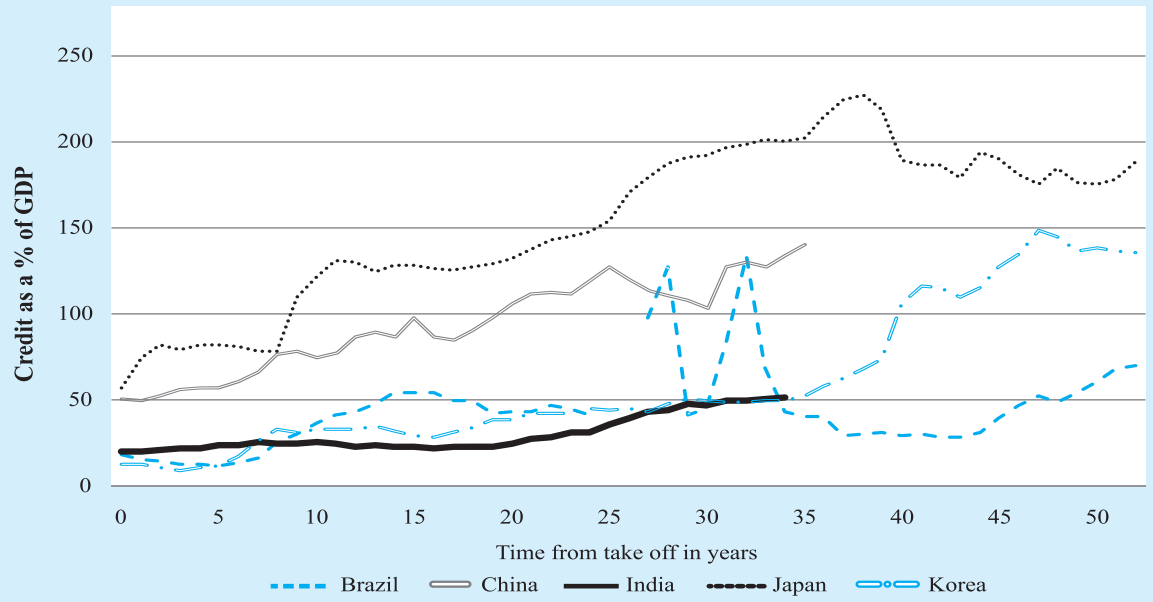
Discussions of banking in India have recently focused on the problem of stressed and restructured assets, the challenges in acquiring the resources to meet the looming Basel III requirements on capital adequacy, including the respective contributions of the government and markets, and the need for governance reform reflected in the 2013 Nayak Committee Report. Stepping back from these proximate issues allows a deeper analytical diagnosis of the problems of Indian banking which in turn provide the basis for more calibrated solutions.

A first question that arises is whether India is credit-addled and overbanked.

One way to assess this is to see whether Indian banks were unusually imprudent in the boom phase.[21] Figure 1.19 plots the domestic credit to GDP of a number of countries, as defined by the World Bank, during their period of rapid growth (these periods vary across countries) since the year of "takeoff". It shows that while the boom years of the last decade both spawned and were fed by a credit boom, originating in the public sector banks, irrationally exuberant behaviour was not out of line with similar experiences in other countries. Indian credit grew no more rapidly than elsewhere. For example, the Japanese and Chinese financial systems lent much more during their take-off years.

On the question of India being over-banked, we assess the share of banks in total credit for a cross-section of countries (Figure 1.20). The figure plots the ratio of banking credit to total credit in the economy less the government, which includes firms and household[22], against the level of development, as measured by the log of GDP per capita in PPP

Figure 1.19: Domestic Credit to GDP since Takeoff (Per cent)



***Source*: World Bank. Notes: Years of takeoff- Brazil, Japan and Korea: 1961, China: 1978, India: 1979.**

[21] In Chapter 5 of this volume, we also test for how credit-addled India is based on other cross-sectional and time-series comparisons.

[22] As defined by the Bank for International Settlements, this includes credit to non-financial corporations (both private-owned and public-owned), households and non-profit institutions serving households as defined in the System of National Accounts 2008.

terms. The chart shows that India is not an outlier: that is for its level of development, the share of bank credit is neither unusually high nor low. Of course, if India grows at 8 percent a year for the next twenty years, a rapid shift in the composition of India's financial sector away from banking may be necessary and desirable.

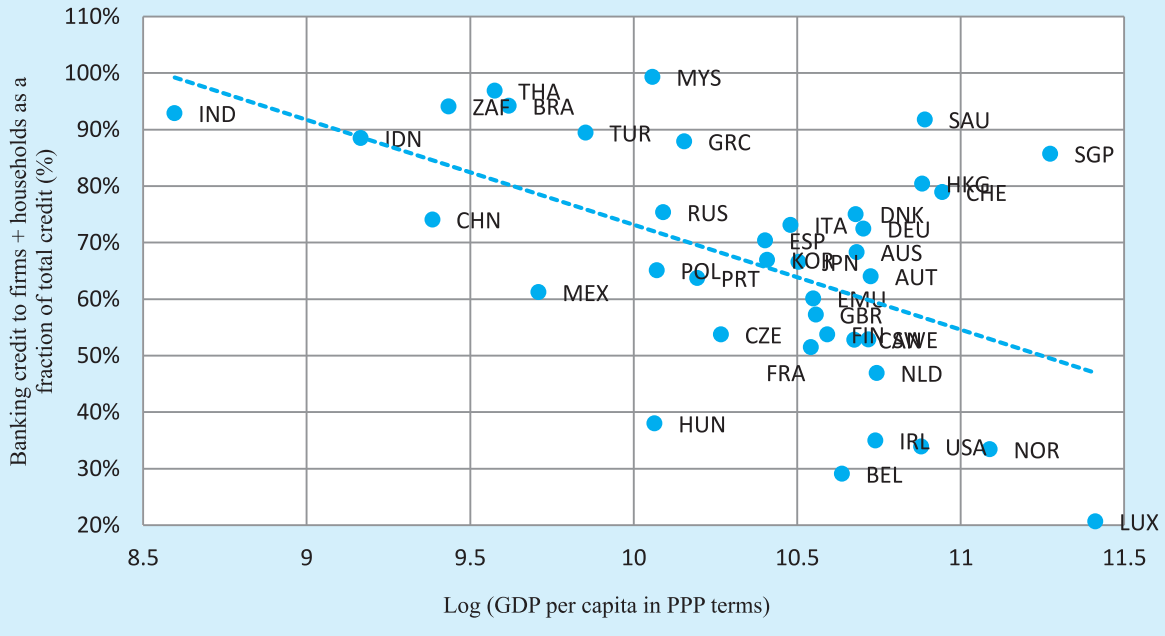
Where then does the problem lie? The problems in the Indian banking system lie elsewhere and fall into two categories: policy and structure.

The policy challenge relates to financial repression. The Indian banking system is afflicted by what might be called "double financial repression" which reduces returns to savers and banks, and mis-allocates capital to investors. Financial repression on the asset side of the balance sheet is created by the statutory liquidity ratio (SLR) requirement that forces banks to hold government securities, and priority sector lending (PSL) that forces resource deployment in less-than-fully efficient ways[23]. Financial repression on the liability side has arisen from high inflation since 2007, leading to negative real interest rates, and a sharp reduction in household savings. As India exits from liability-side repression with declining inflation, the time may be appropriate for addressing its asset-side counterparts.

The structural problems relate to competition and ownership. First, there appears to be a lack of competition, reflected in the private sector banks' inability to increase their presence. Indeed, one of the paradoxes of recent banking history is that the share of the private sector in overall banking aggregates barely increased at a time when the country witnessed its most rapid growth and one that was fuelled by the private sector. It was an anomalous case of private sector growth without private sector bank financing. Even allowing for the over- exuberance of the PSBs that financed this investment-led growth phase, the reticence of the private sector was striking (see Figure 1.21).

Second, there is wide variation in the performance of the public sector banks measured in terms of prudence and profitability. Figure 1.22 plots the

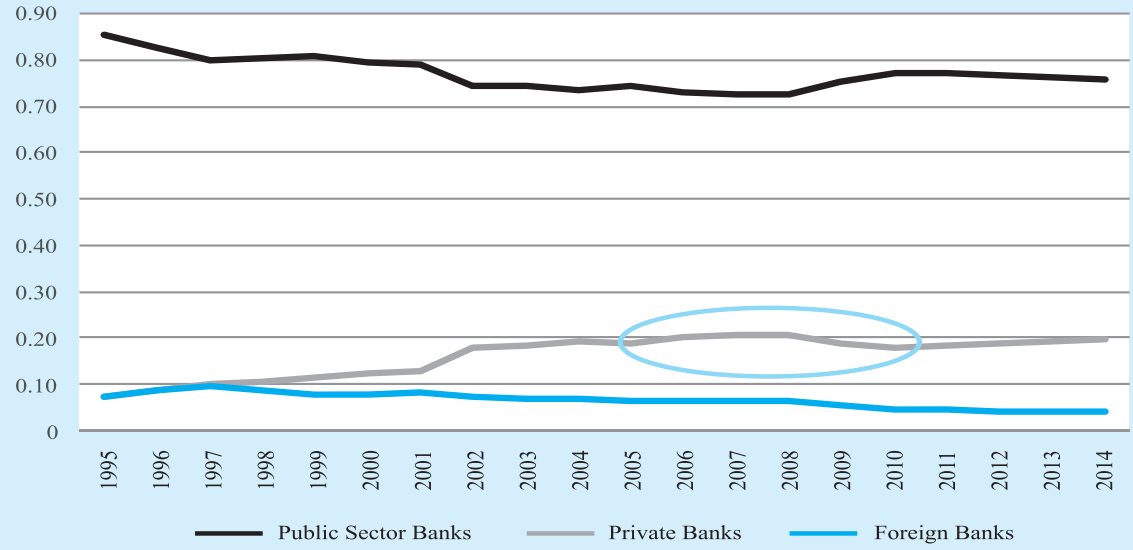
Figure 1.20: Banking Credit as a Fraction of Total Credit for 2014



***Source*: Bank for International Settlements.**

[23] More details can be found in Chapter 5 of this volume.

Figure 1.21: Ratio to total advances (fraction), 1995-2014



***Source*: RBI.**

Leverage Ratio and Return on Assets of public sector and private sector banks[24]. In addition it plots (as dotted lines) the variation within the public sector banks. In terms of actual numbers of leverage ratios, taking a three year average, the most prudent PSB was 1.7 times more capitalised than the most imprudent one.

Despite the significant variation in public sector banks, it is also striking that on these measures, the best public sector banks perform well below private sector banks on average, recognising of course that PSBs may be burdened with greater social obligations that places them at a competitive disadvantage relative to the private banks. The subtler problem with public sector ownership is that exit from debt difficulties is proving very difficult. If that is so, there is extra reason to worry about public sector ownership *ex-ante*.

The diagnosis above (and in chapter 5) leads to a four-fold policy response captured in 4 Ds: *deregulate, differentiate, diversify,* and *disinter.* As the banking sector exits the financial repression on the liability side, aided by the fall in inflation, this is a good opportunity to consider relaxing the asset side repression. Easing SLR requirements will provide liquidity to the banks, depth to the government bond market, and encourage the development of the corporate bond market. Second, PSL norms too can be re-assessed. There are two options: one is indirect reform bringing more sectors into the ambit of PSL, until in the limit every sector is a priority sector; and the other is to redefine the norms to slowly make PSL more targeted, smaller, and need-driven.

There must be differentiation between the PSBs and the recent approach to recapitalization adopted by the government is a step in the right direction. One size fits all approaches such as governance reform cannot be the most appropriate. Differentiation will allow a full menu of options such as selective recapitalization, diluted government ownership, and exit.

[24] *Leverage ratio* is defined by the RBI as ratio of total assets to total capital (Tier 1 + Tier 2), the international definition, for example as laid out by the Bank for International Settlements, is typically the inverse. For the purpose of this volume we will use the international definition. *Return on Assets* (ROA) is a profitability ratio which indicates the net profit (net income) generated on total assets. It is computed by dividing net income by average total assets.

Figure 1.22A: Banking Indicators: Leverage Ratio and Return on Assets, 2001 to 2014.

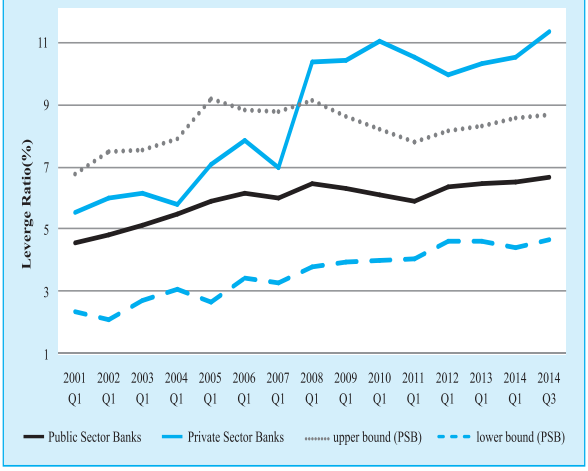
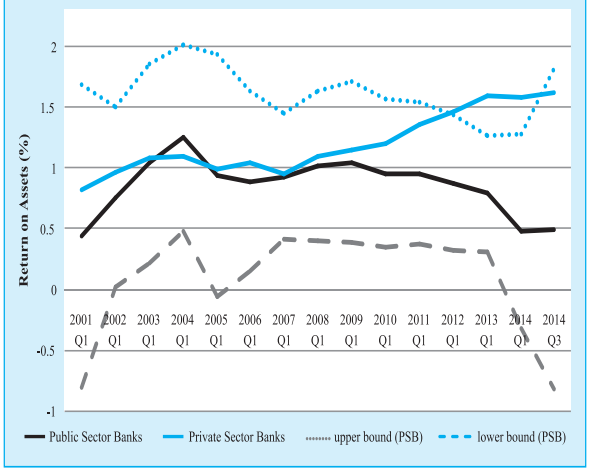


Figure 1.22B: Banking Indicators: Leverage Ratio and Return on Assets, 2001 to 2014.



***Source*: RBI.**

"Diversify" implies that there must be greater competition within the banking system, including liberal licensing of more banks and different types of banks. There must also be greater competition from capital, especially bond, markets. Facilitating that will require exiting from asset side repression, namely the phasing down of the SLRs which would also help develop bond markets.

"Disinter" implies that exit procedures must become more efficient. Debt Recovery Tribunals are over-burdened and under-resourced, leading to tardy resolution. The ownership structure and efficacy of Asset Restructuring Companies, in which banks themselves have significant stakes of banks, creates misaligned incentives. The Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest (SARFAESI) Act seems to be implemented most vigorously against the smallest borrowers and MSEs. Mechanisms for distributing pain efficiently amongst promoters, creditors, consumers, and taxpayers without creating moral hazard incentives for imprudent lending by banks are necessary. One important lesson is that the clean-up is as important as the run-up.

1.10 Manufacturing, Services and the Challenges of "Make in India"

Transformational sectors could be in registered manufacturing or services. Raising economy-wide skills must complement efforts to improve the conditions for manufacturing.

The Prime Minister has made the revival of Indian manufacturing a top priority, reflected in his "Make in India" campaign and slogan. The objective is as laudable as the challenges it faces are daunting because Indian manufacturing has been stagnant at low levels, especially when compared with the East Asian successes[25].

Two questions arise. Is manufacturing the sector that *Make in India* focus on? What instruments should be deployed to realize the objective? Consider each in turn.

New academic work suggests that there is a complementary way of thinking about transformational sectors in and for development. Growth theory suggests that transformational sectors should be assessed in light of their underlying characteristics and not just in terms of

[25] The recent upward revisions to the level of manufacturing share in GDP are to some extent statistical rather than "real". Moreover, even the revised data do not change the pattern of trend decline in this share. What has happened is the statistical opposite of the technological change which Jagdish Bhagwati ["*Splintering and Disembodiment of Services and Developing Nations",* 1984, The World Economy, 7(2)] referred to as 'splintering' services from goods.

the traditional manufacturing-services distinction (Table 1.3). Five such important characteristics can be identified.

- High *levels* of productivity, so that incomes can increase;
- Rapid rate of *growth* of productivity in relation to the world frontier (international convergence) as well as rapid growth toward the national frontier (domestic convergence);
- A strong ability of the dynamic sector to attract resources, thereby spreading the benefits to the rest of the economy;
- Alignment of the dynamic sector with a country's underlying resources, which typically tends to be unskilled labor; and
- Tradability of the sector, because that determines whether the sector can expand without running into demand constraints, a feature that is important for a large country like India.

In India, it is important to remember that when thinking about manufacturing as a transformational sector it is registered or formal manufacturing that possesses some of the critical prerequisites such as high productivity and rapid growth in productivity. Unregistered manufacturing cannot be a transformational sector. Thus, efforts to encourage formalization will be critical.

The Indian evidence is that some sub-sectors in services such as telecommunications and finance are like registered manufacturing in being highly productive and dynamic. However, these sectors, like registered manufacturing, have not been able to attract large amounts of unskilled labour, limiting the benefits of the underlying dynamism. In other words, the dynamic sectors have tended to be skill-intensive sectors in which India does not necessarily have comparative advantage. An exception is construction which is unskilled labour-intensive and which has been fairly dynamic. Construction, however, is not a tradable sector, which also limits its potential as a transformational sector.

One policy conclusion that follows is that efforts to improve the conditions for labor-intensive manufacturing need to be complemented with rapid skill upgradation because skill-intensive sectors are dynamic sectors in India and sustaining their dynamism will require that the supply of skills keeps

Table 1.3: Transformational Properties of Different Sectors

Feature	Registered Manufacturing	Trade, Hotels, and Restaurants	Transport, Storage and Communications	Financial Services and Insurance	Real Estate and Business Services, etc.	Construction
1. High productivity	Yes	No	Not really	Yes	Yes	No
2A. Unconditional domestic convergence	Yes	Yes	Yes	Yes	Yes	Yes
2B. Unconditional international convergence	Yes, but not for India	No	No	Yes	Yes	Yes
3. Converging sector absorbs resources	No	Somewhat	Somewhat	No	Somewhat	Yes
4. Skill profile matches underlying endowments	Not really	Somewhat	Somewhat	No	No	Yes
5. Tradable and/ or replicable	Yes	No	Somewhat	Yes	Somewhat	No

pace with the rising demand for these skills; otherwise even these sectors could become uncompetitive. In other words, the Prime Minister's Skill India objective should be accorded high priority along with, and indeed in order to realize, "Make in India".

We turn next to the means. What policy interventions can help realize "Make in India" They can be placed in three categories in decreasing order of effectiveness and increasing order of controversy.

The uncontroversial responses consist of improving the business environment by making regulations and taxes less onerous, building infrastructure, reforming labour laws, and enabling connectivity– all these would reduce the cost of doing business, increase profitability, and hence encourage the private sector, both domestic and foreign, to increase investments. Indeed, these measures would not just benefit manufacturing, they would benefit all sectors.

The next set of responses—what might loosely be called "industrial policy"— would target the promotion of manufacturing in particular: providing subsidies, lowering the cost of capital, and creating special economic zones (SEZs) for some or all manufacturing activity in particular.

The final set of responses—what might be called "protectionist"—would focus on the tradability of manufacturing, and hence consist of actions to: shield domestic manufacturing from foreign competition via tariffs and local content requirements; and provide export-related incentives. The effectiveness of these actions is open to debate given past experience. Moreover, they would run up against India's external obligations under the WTO and other free trade agreements, and also undermine India's openness credentials.

The risk to avoid is undue reliance on the latter two, especially if it leads to detailed micro-intervention, involving sector-specific tariff and tax changes and sector-specific grant of incentives. In this context, an intervention that can be immediately implemented, that can have large impacts, and that is win-win, is to eliminate the current *negative protection* facing Indian manufacturing (Box 1.4)

1.11 The Trade Challenge

Trade outcomes have been stagnating. The trading environment is becoming more challenging as the buoyancy of Indian exports has declined with respect to world growth, and as the negotiation of mega-regional trading arrangements threatens to exclude India.

Rapid and sustained rates of growth are associated with rapid rates of export growth. Few countries, if any, have grown at 7 plus growth rates on the basis of the domestic market alone. Indeed, as Ostry et. al. (2006)[26] show, sustained growth spurts are almost always associated with an average rise in manufacturing exports to GDP ratios over their growth episodes of about 36 percentage points. India should not expect to be any different.

If that is so, what is the prognosis for India? During India's rapid growth phase between 2002-03 and 2008-09, the ratio of exports of services to GDP increased dramatically, from 4.0 percent to nearly 9.0 percent. In contrast, manufacturing exports were less buoyant (Figure 1.23). After the global financial crisis, however, the roles seem to have been reversed; manufacturing exports seem to have done better than services exports. More worrisome, however, both have slowed down in the last five years which does not augur well.

A similar pattern emerges when we compute the buoyancy of Indian export growth (of goods and services) with respect to GDP growth of the world (Figure 1.24). In the early 2000s, this buoyancy was high and rising, particularly for services. Every 1 percent growth in world GDP was associated with a 3 percent growth in Indian exports of services in 2001, which rose to over 8 percent a few years

[26] Johnson, Simon, Jonathan D. Ostry, and Arvind Subramanian, *"The Prospects for Sustained Growth in Africa; Benchmarking the Constraints,"* 2007, IMF Working Papers 07/52, International Monetary Fund.

Box 1.4: "Make in India" Not by Protecting but by Eliminating Negative Protectionism

Eliminating all the exemptions for the countervailing duty (CVD) will eliminate the negative protection facing Indian manufacturers, and help the "Make in India" initiative, without violating India's international obligations.

There is one response that would help manufacturing and the "Make in India" initiative without being as difficult as improving the business environment, and as controversial and expensive as the industrial policy or protectionist response: eliminating the exemptions in the countervailing duties (CVD) and special additional duties (SAD) levied on imports. Why will this help?

It is a well-accepted proposition in tax theory that achieving neutrality of incentives between domestic production and imports requires that all domestic indirect taxes also be levied on imports. So, if a country levies a sales tax, value added tax (VAT), or excise or GST on domestic sales/production, it should also be levied on imports.

India's current indirect tax system, however, acts sometimes to favour foreign production over domestically produced goods.

The CVD, which is levied to offset the excise duty imposed on domestic producers, is not applied on a whole range of imports. These exemptions can be quantified. The effective rate of excise on domestically-produced non-oil goods is about 9 percent. The effective collection rate of CVDs should theoretically be the same but is in actual fact only about 6 percent. The difference not only represents the fiscal cost to the government of ₹ 40,000 crore, it also represents the negative protection in favour of foreign produced goods over domestically produced goods.

Three important nuances need to be noted here. First, it might seem that CVD exemptions on inputs help manufacturers by reducing their input costs. But under the current system and in future when the GST is implemented, the CVD on inputs can always be reclaimed as an input tax credit. So, CVD exemptions do not provide additional relief.

The second relates to a situation when both the excise and CVD are both exempted. This may seem apparently neutral between domestic production and imports but it is not. The imported good enters the market without the CVD imposed on it; and, because it is zero-rated in the source country, is not burdened by any embedded input taxes on it. The corresponding domestic good does not face the excise duty, but since it has been exempted, the input tax credit cannot be claimed. The domestic good is thus less competitive relative to the foreign good because it bears input taxes which the foreign good does not.

Third, the rationale advanced for exempting many imported goods from CVD is that there is no competing domestic production. This argument is faulty because the absence of competing domestic production may itself be the result of not having the neutrality of incentives that the CVD creates. Domestic producers may have chosen not to enter because the playing field is not level.

Indian tax policy is therefore effectively penalising domestic manufacturing. How can this anomaly be remedied? Simply by enacting a well-designed GST preferably with one, internationally competitive rate and with narrowly defined exemptions. In one stroke the penalties on domestic manufacturing would be eliminated because the GST (central and state) would automatically be levied on imports to ensure neutrality of incentives. In effect, India would be promoting domestic manufacturing without becoming protectionist and without violating any of its international trade obligations under the World Trade Organisation (WTO) or under Free Trade Agreements (FTAs).

In the meantime, the effect of the GST can be partially simulated by eliminating the exemptions applied to CVD. The default situation should be an exemptions-free regime. If particular sectors seek relief from the CVD, they should be required to make their case at the highest political level.

In a sense, India finds itself in a de-facto state of negative protection on the one hand, and calls for higher tariffs on the other. It is win-win to resist these calls that would burnish India's openness credentials and instead eliminate unnecessary and costly negative protection.

later, stabilizing at around 5 just prior to the financial crisis. Thereafter, it has been in steady decline and the most recent estimate suggests a buoyancy of one. The pattern is broadly similar for manufactured exports, although it was less buoyant than services in the boom phase.[27]

[27] The declining elasticity of global trade to global growth is documented in Constantinescu, C., A Mattoo and M Ruta (2015) "*The Global Trade Slowdown: Cyclical or Structural?*" World Bank Policy Research Working Paper, WPS-7158.

Figure 1.23: Exports of Manufactured Goods and Services (Per cent of GDP)

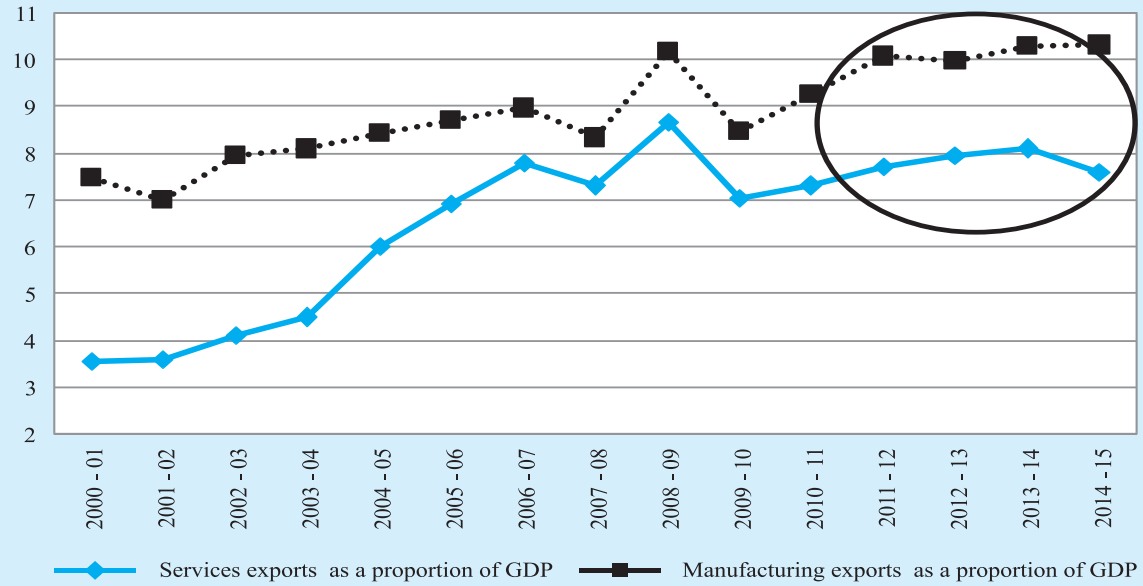
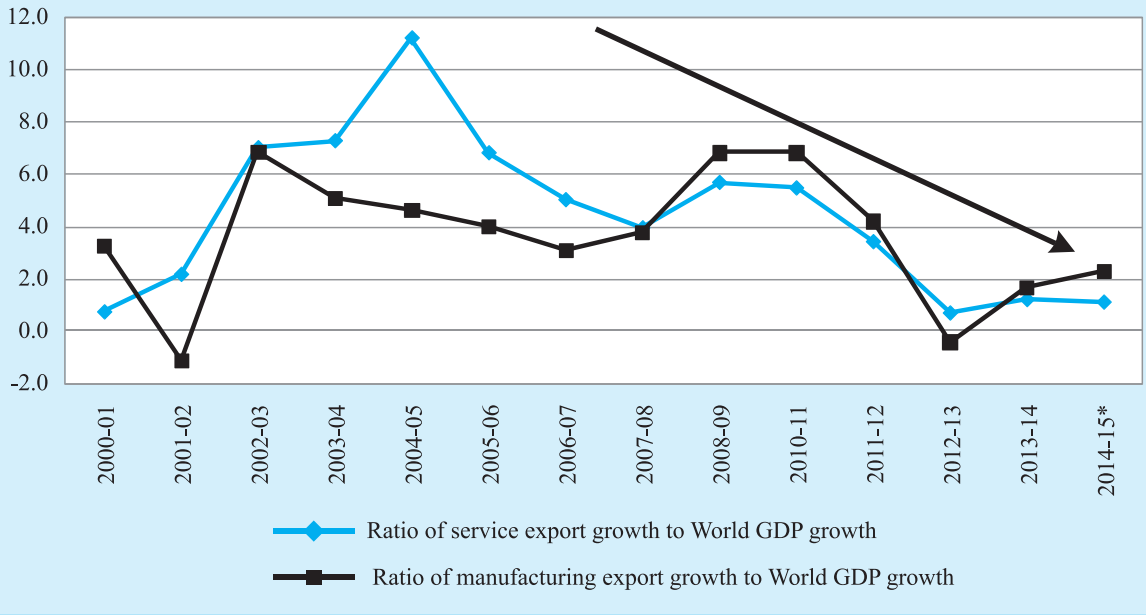


Figure 1.24: Buoyancy of Indian Exports Relative to Foreign Growth, 2000-01 to 2014-15 (Excluding 2009-10)



Source: IMF, WEO, DGCI&S and RBI.

Note: The buoyancy calculations are based on a three-year moving average. It excludes the year 2009-10 because a dramatic decline in exports renders the buoyancy calculation difficult to interpret.

Combining the two charts, the message for India seems to be that the external trading environment is encountering two sets of headwinds: first, a slowdown in world growth which will reduce Indian exports; and second, for any given world growth, export growth will be even lower because of trade's declining responsiveness.

And, India must be especially watchful about services exports—an engine of growth—which have slowed markedly. These headwinds are, of

course, in addition to the domestic factors that are contributing to the slowdown of export growth: weak infrastructure and challenging labour laws in the case of manufacturing, and rising wages and scarcity of skilled labour in the case of services.

In addition to the deteriorating external environment for trade, India has to contend with a rapidly changing policy environment. As the new government prepares to re-invigorate the Indian economy, it will encounter that the international trade landscape is substantially changing in three significant ways.

First, the phenomenon of global value-added chains based on fragmenting/unbundling successive stages of production and locating them at lowest cost destinations have become a defining, even if declining, feature of trade, especially in Asia. India has been slowly integrating into these chains, but at lower levels than most other dynamic Asian economies.

Second, negotiations on mega-regional agreements have been seriously initiated. Trade integration within Asia and between Asia and the United States will advance significantly if and when the Trans-Pacific Partnership (TPP) is negotiated and ratified. Similarly, the markets of North American and Europe will be brought together if and when the Trans-Atlantic Trade and Investment Partnership (TTIP) are concluded. Together, these two agreements will cover about half of world trade.

And third, China, which until recently has been comfortable with the status quo, may be on the verge of changing from passive bystander to active participant, wanting to engage in, and possibly shape, the formation of the next round of trade rules. This change is a reaction to the domestic imperatives of re-balancing the economy, which will require major liberalization of the Chinese economy; and to the fear of being excluded by American trade initiatives, including TPP and TTIP. China is also at the center of the Regional Comprehensive Economic Partnership (RCEP) which includes India, the Association of South East Asian Nations (ASEAN) countries, as well as Japan, Korea, Australia and New Zealand.

How should India react to this global shift in trade realities? It has two choices: measured integration (the status quo and/or RCEP) or ambitious integration (via the TPP). Measured integration would involve a slow but steady pace of domestic reform dictated by India's political constraints and capacity which could only sustain regional agreements of the kind India has negotiated with Asian partners: relatively few obligations, generous exemptions and exceptions, and lenient timetables for implementation.

The risk in the status quo scenario is one of India being excluded from large integrated markets with reduced trading possibilities, and because of the nature of global value chains in which trade, investment, and intellectual property are enmeshed, also reduced investment possibilities. (Joining RCEP might help but not fully since the expectation is that the overall standards in RCEP will be weaker than under the TPP and TTIP). There will not only be the standard diversion emanating from Indian exporters having to face higher tariffs in large, growing markets, but increasingly they will have to contend with different and higher product and sustainable development standards, placing them at an even greater disadvantage. In the context of the slowdown in both world growth and India's export buoyancy, any possible exclusion from the mega-regionals would be additionally worrisome.

Ambitious integration would essentially mean India joining, or rather seeking to join, at some future date the TPP. There is considerable uncertainty surrounding this option because the timing and terms of the TPP are still unclear. What is clear, however, is that the substantive liberalization obligations under any future TPP will be greater than those under India's current FTAs and probably ahead of India's planned pace of domestic reform. A significant upgrading of Indian trade capability will be necessary for India to be able to join these mega-regionals should it chose to do so.

1.12 Climate change

India has taken a number of green actions, including imposing significantly higher taxation of petroleum products and re-energizing the renewable energy sector. It can make a positive contribution to the forthcoming Paris negotiations on climate change.

Later this year, Heads of States from around the world will meet in Paris to conclude negotiations on a new agreement under the United Nations Framework Convention on Climate Change (UNFCCC) by December 2015. The expectation is one of action by all countries on climate change from 2020 onwards in accordance with the principle of common but differentiated responsibilities.

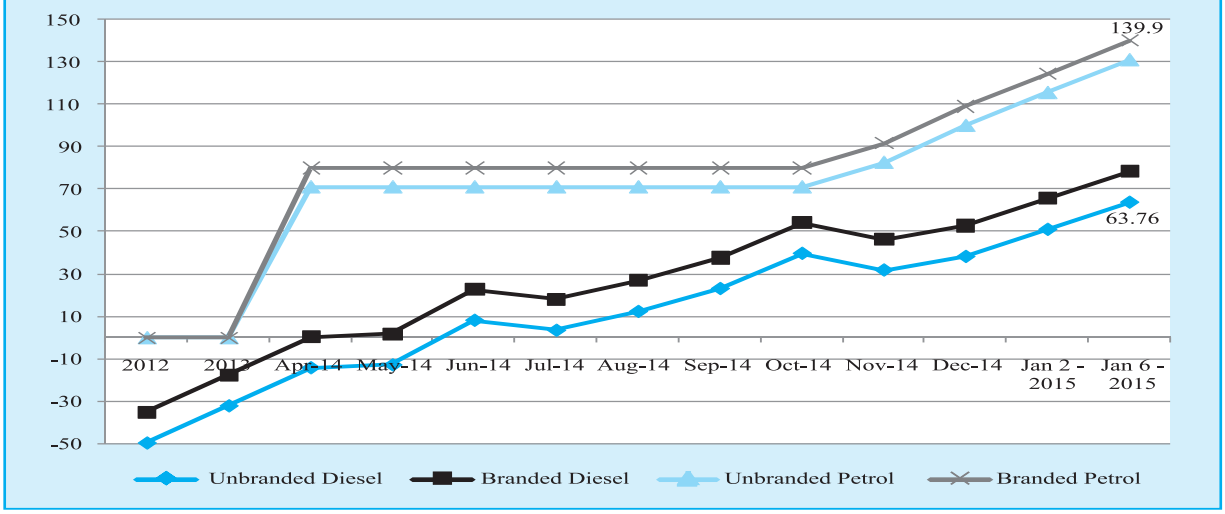
The Intergovernmental Panel on Climate Change (IPCC) in its recent report – the Fifth Assessment Report (AR5), published in 2014 — has observed that, there has been an increasing trend in the anthropogenic emissions of greenhouse gases (GHG) since the advent of the industrial revolution, with about half of the anthropogenic carbon dioxide (CO2) emissions during this period occurring in the last 40 years. The period 1983-2012 is likely to have been the warmest 30 year period of the last 1400 years. CO_2 emissions from fossil fuel combustion and industrial processes contributed a major portion of total GHG emissions during the period 1970 - 2010.

The change in the climate system is likely to have adverse impacts on livelihoods, cropping pattern and food security. Extreme heat events are likely to be longer and more intense in addition to changes in the precipitation patterns. Adverse impacts are likely to be felt more acutely in tropical zone countries such as India, and within India, the poor will be more exposed.

India can make a significant contribution in addressing climate change. Unlike some countries, it has taken substantial actions to eliminate petroleum subsidies and gone beyond to impose substantial taxes on these products.

These actions have taken India from a carbon subsidization regime to one of significant carbon taxation regime—from a negative price to an implicit positive price on carbon emissions. And the shift has been large. For example, the effect of the recent actions since October 2014 has been a de facto carbon tax equivalent to US$ 60 per ton of CO_2 in the case of (unbranded) petrol and nearly US$ 42 per ton in the case of (unbranded) diesel. In absolute terms, the implicit carbon tax (US$ 140 for petrol and US$ 64 for diesel) is substantially above what is now considered a reasonable initial tax on CO_2 emissions of US$ 25 per ton (Figure 1.25). India now ranks quite

Figure 1.25: Implicit Carbon Tax from Increasing Excise Duty on Petrol and Diesel, 2012-January, 2015. (US$/tCO2)



Source: **World Bank estimates.**

high in terms of taxation of petroleum products. The recent actions alone have significantly burnished India's green and climate change credentials.

In addition India has increased the coal cess from Rs. 50 per ton to Rs.100 per ton, which is equivalent to a carbon tax of about US$ 1 per ton. The health cost of coal for power generation in India is estimated to range from US$ 3.41 per ton to US$ 51.11 per ton depending on the value of statistical life. The average number is US$ 27.26 per ton. The health costs of emissions from coal fired power plants include costs associated with premature cardiopulmonary deaths and illnesses from the chronic effects of long-term exposure and the acute effects of short-term exposure. Higher taxes on coal to offset these purely domestic externalities would need to be balanced against their implications for power pricing and hence access to energy for the 300 million households still without electricity.

This trade-off suggests that alternative paths to energy access need to be considered, including renewables. The Jawaharlal Nehru National Solar Mission launched in January 2010 seeks to establish India as a global leader in solar energy by creating policy conditions for its diffusion across the country. The Twelfth Plan financial outlay for this scheme is ₹ 8795 crore. The Solar Mission is now being scaled up five-fold from 20,000 megawatts to 100,000 megawatts. This in effect requires an additional investment of 100 billion US dollars. The aim of this initiative is primarily to provide energy access to nearly 300 million households. The collateral benefit would be lower annual emissions of CO_2 by about 165 million tonnes.

Reconciling India's climate change goals and energy imperatives will require a major technological breakthrough to make the burning of coal cleaner and greener. If India is to focus on becoming green, correspondingly the world must devote more resources into coal technology research. That means greater international public investment in R&D for improving coal technologies. And if the private sector is to be incentivized to undertake this research, high and rising carbon pricing by advanced countries must become an immediate priority. (An elaboration of the contours of a new type of global deal and the required contribution from advanced and emerging economies can be found in Aaditya Mattoo and Arvind Subramanian's *Greenprint: A New Approach to Cooperation on Climate Change).*

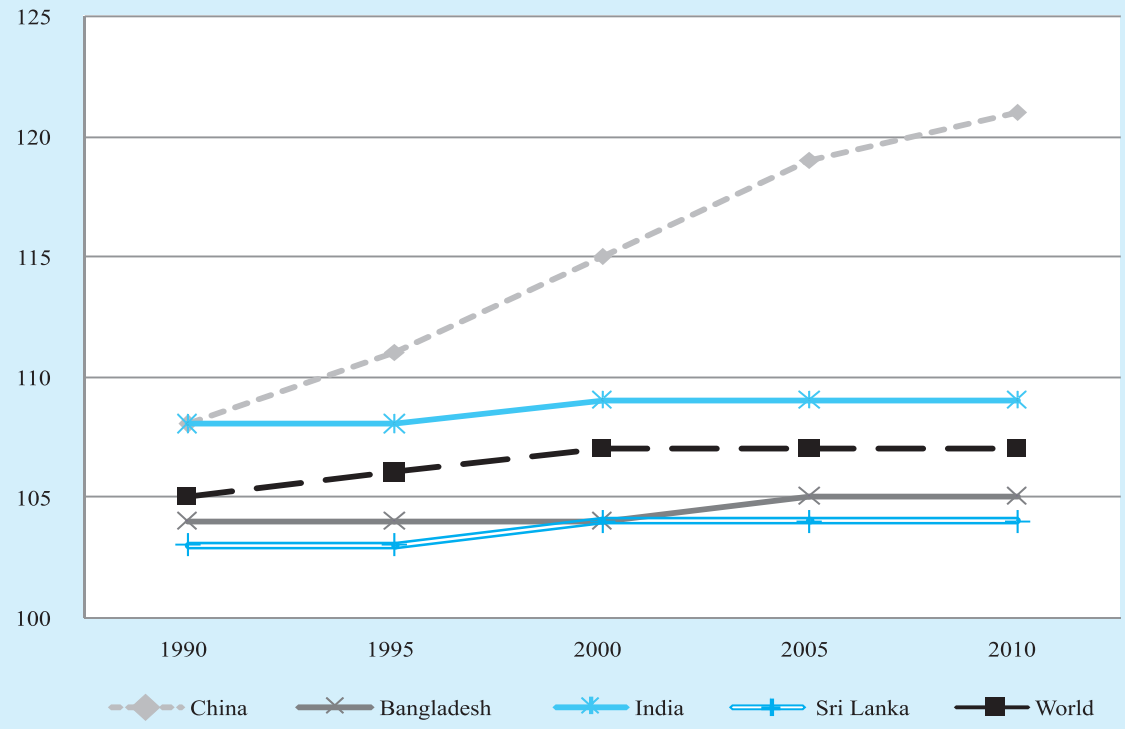
1.13 Empowering Women: Unleashing *Naari Shakti*

Improving the status and treatment of women is a major development challenge. In the short run, family planning targets and the provision of incentives are leading to an undesirable focus on female sterilization.

On January 22nd, 2015, the Prime Minister launched the *Beti Bachao, Beti Padhao* campaign from Panipat in Haryana. The campaign is aimed at increasing the very low value that Indian society puts on a girl child. But India is somewhat of a paradox on gender issues. On the one hand, India has had prominent and visible women leaders such as a female President, a female Prime Minister, several female heads of large political parties at the national and state levels, several Cabinet rank ministers, and several captains of industry (particularly in the banking sector).

And yet, according to the UNDP's latest Human Development Report (2014), India ranks 135 out of 187 countries on the Human Development Index (HDI) and 127 out of 152 countries on the Gender Inequality Index (GII). The GII is a composite measure reflecting inequality in achievement between women and men in three dimensions: reproductive health, empowerment and the labor market. This puts India in the bottom 25 percent of all countries on the HDI and even lower—in the bottom 20 percent on the GII. Furthermore, the child sex ratio—the number of girls to boys at birth—is relatively low in the world, and moreover declined from 927 girls per 1000 boys in 2001 to 918 girls for every 1000 boys in 2011 (Figure 1.26). China is one of the few countries with a more adverse child sex ratio.

Figure 1.26: Boys per 100 Girls,1990 to 2010



Source: **Statistical Yearbook for Asia and the Pacific 2011, UNESCAP.**

But the November 2014 tragedy in Bilaspur, Chhattisgarh in which 13 young women with very young children lost their lives, and forty-five more were taken critically ill, highlights a specific and serious problem that needs urgent attention: female sterilization. The third round of the National Family Health Survey (NFHS-3, 2005-06) reports that even in developed states like Tamil Nadu and Maharashtra female sterilisation accounts for 90 per cent and 76 percent of all contraceptive use, respectively; the median age at sterilisation for women was reported at 24.9 years in both Tamil Nadu and Maharashtra.

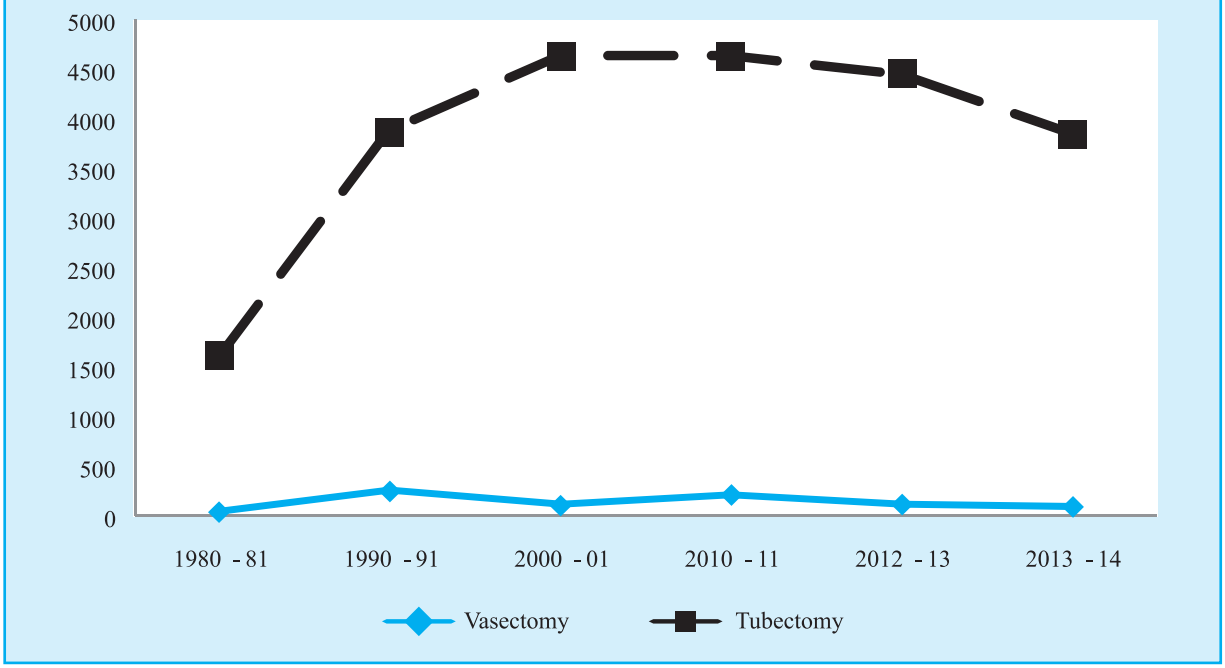
There appears to be renewed focus on controlling the rise in population, directed in particular at women, and through means that blur the lines between persuasion and coercion. Persuasion takes the form of incentives offered not just to poor couples for sterilisation but rewards to local bodies for their performance, euphemistically described as "promotional and motivational" measures, resulting in the organization of mass camps for female sterilization. India's population policy seems focused on extending family planning measures, mainly contraceptives for women, leaving them with little reproductive choice or autonomy.

Of the total sterilisation operations performed in 2012-13, tubectomy/laproscopic sterilisations account for 97.4 percent, while male vasectomy operations, considered less complicated risky, account for only 2.5 percent (Figure 1.27). Government expenditures are also skewed toward female sterilization. Out of the budget of Rs 397 crores for family planning for 2013-14, 85 percent (₹ 338 crore) is spent on female sterilization. By contrast 1.5 percent of the total budget is spent on spacing methods and 13 percent on infrastructure and communications.

The negative fallouts of pursuing a population policy that largely focuses on birth control also contributes to declining child sex ratios: if every family is to have fewer children, there is a greater anxiety that at least one of them should be male.

In this instance, there may be a case for the government to undo as much as to do for example,

Figure 1.27: Number of Vasectomies and Tubectomies, 1980-81 to 2012-13. (Number in '000)



Source: **Ministry of Health & Family Welfare, Government of India.**

by not setting targets (ELAs or expected levels of achievement), withdrawing incentives for female sterilization and for mass camps. In addition, the government could:

(i) *Review the family planning program in India and reorient it such that it is aligned with reproductive health rights of women, and needs of India's population.*

(ii) *Increase budgets for quality services, static family planning clinics and quality monitoring and supervision.*

(iii) *Address youth needs, induct more counsellors for sexual health, more youth-friendly services, and adequate supply of spacing methods.*

1.14 Cooperative Federalism and the Recommendations of the Fourteenth Finance Commission (FFC)

Far-reaching changes for sharing of revenues between the Center and the States, on the one hand, and between the States, on the other, have been recommended by the FFC. Successful implementation will advance the cause of cooperative federalism that the new government has enthusiastically embraced.

The Fourteenth Finance Commission (FFC) has recently submitted its recommendations for devolution of taxes and other transfers from the center to the states, and between the states, for the period 2015-16 to 2020-21. They are likely to have major implications for Center-State relations, for budgeting by, and the fiscal situation of, the Center and the States. Some of the recommendations are as follows.

The FFC has radically enhanced the share of the states in the central divisible pool of taxes from the current 32 percent to 42 per cent which is the biggest ever increase in vertical tax devolution. The last two Finance Commissions viz. Twelfth (2005-10) and Thirteenth (2010-15) had recommended a state share of 30.5 per cent (increase of 1 percent) and 32 per cent (increase of 1.5 percent), respectively in the central divisible pool.

The FFC has also proposed a new horizontal formula for the distribution of the divisible pool among the States. There are changes both in the variables included/excluded as well as the weights assigned to them. Relative to the Thirteenth Finance

Commission, the FFC has incorporated two new variables: 2011 population and forest cover; and excluded the variable relating to fiscal discipline (see Chapter 10 for greater details.)

Implementing these recommendations will move the country toward greater fiscal federalism, conferring more fiscal autonomy on the States. For example, based on assumptions about nominal GDP growth and tax buoyancy and the policy measures that are contemplated for 2015-16, it is estimated that the additional revenue for the states could be as much as ₹ 2 lakh crores relative to 2014-15. Of this, a substantial portion represents the difference that is purely due to the change in the States' share in the divisible pool.

Preliminary estimates shown in Table 1.4 suggest that *all States stand to gain* from FFC transfers in absolute terms. However, to assess the distributional effects, the increases should be scaled by population, Net State Domestic Product (NSDP) at current market price, or by States' own tax revenue receipts. These are shown in columns 4-6 of Table 1.4. The biggest gainers when scaled by any of these indicators tend to be the Special Category States (SCS, mostly those in the North-East) and by orders of magnitude. The major gainers in per capita terms turn out to be Arunachal Pradesh, Mizoram and Sikkim for the SCS states and Kerala, Chhattisgarh and Madhya Pradesh for other states (GCS or General Category States).

Table 1.4 : Additional FFC Transfers (in 2015-16 over 2014-15)

State	Category	Benefits from FFC (in crore)	Benefits Per capita (₹)	Benefits as percent of OTR	Benefits as percent of NSDP
1	2	3	4	5	6
Andhra Pradesh (united)	GCS	14620	1728	27.4	2.2
Arunachal Pradesh	SCS	5585	40359	1758.1	51.0
Assam	SCS	7295	2338	95.5	5.8
Bihar	GCS	13279	1276	105.3	4.9
Chhattisgarh	GCS	7227	2829	67.5	5.2
Goa	GCS	1107	7591	44.1	3.0
Gujarat	GCS	4551	753	10.3	0.8
Haryana	GCS	1592	628	7.8	0.5
Himachal Pradesh	SCS	8533	12430	207.7	14.6
Jammu & Kashmir	SCS	13970	11140	294.4	22.4
Jharkhand	GCS	6196	1878	89.1	4.8
Karnataka	GCS	8401	1375	18.1	1.8
Kerala	GCS	9508	2846	37.0	3.1
Madhya Pradesh	GCS	15072	2075	55.9	4.5
Maharashtra	GCS	10682	951	12.2	0.9
Manipur	SCS	2130	8286	578.7	19.5
Meghalaya	SCS	1381	4655	198.0	8.6
Mizoram	SCS	2519	22962	1410.1	33.3
Nagaland	SCS	2694	13616	886.5	18.7
Odisha	GCS	6752	1609	50.2	3.2
Punjab	GCS	3457	1246	18.3	1.4
Rajasthan	GCS	6479	945	25.5	1.6
Sikkim	SCS	1010	16543	343.7	10.7
Tamil Nadu	GCS	5973	828	10.0	0.9
Tripura	SCS	1560	4247	181.8	6.9
Uttar Pradesh	GCS	24608	1232	46.8	3.5
Uttarakhand	SCS	1303	1292	23.2	1.4
West Bengal	GCS	16714	1831	67.0	3.0
Total		204198	1715		

Source **: Ministry of Finance.**

GCS : General Category States. SCS : Special Category States.

Clearly, this increase in taxes to the States is sustainable for the center, only if there is a reduction in the central ("Plan") assistance to the states (CAS). In other words, States will now have greater autonomy both on the revenue and expenditure fronts.

It is also possible to tentatively estimate what the FFC recommendations would do to net spending capacity of the States, where net refers to the difference between the extra FFC transfers and the reduced CAS that will be required by the FFC recommendations.Broadly, the Special Category States will be the biggest gainers. In addition, there are nine States among the GCS which are expected to get more than 25 per cent of their own tax revenue (for details, see Chapter 10).

A collateral benefit of moving from CAS to FFC transfers is that overall progressivity will improve; that is, on average, States with lower per capita NSDP will receive more than those with a higher per capita NSDP. This results from the fact that CAS transfers, which tended to be discretionary, were less progressive than Finance Commission transfers.

To be sure, there will be transitional costs entailed by the reduction in CAS transfers. But the scope for dislocation has been minimized because the extra FFC resources will flow broadly to the states that have the largest CAS-financed schemes.

In sum, the far-reaching recommendations of the FFC, along with the creation of the NITI Aayog, will further the government's vision of cooperative and competitive federalism. The necessary, indeed vital, encompassing of cities and other local bodies within the embrace of cooperative and competitive federalism is the next policy challenge.

Fiscal Framework

02
CHAPTER

2.1 Introduction and Summary

Santayana once warned that those who ignore history are condemned to repeat it. For that reason, it's worth examining India's recent fiscal past, to see if there are lessons for the country's future fiscal trajectory. A look back at recent history is especially warranted now because India today is in a very similar situation to that in the early 2000s, with comparable fiscal deficit (4 percent of GDP) at a broadly similar state of the macroeconomic cycle. Today, like then, inflation is close to 5 percent. Today, like then, the current account deficit is manageably low. And, today, like then, the economy is poised to attain a faster growth trajectory.

So, it is worth asking: What are the lessons from recent fiscal performance in India? How should they inform fiscal policy in this year's budget and for the medium term? This chapter attempts to answer these questions. The major conclusions are:

First, in the medium term, India must meet its medium-term fiscal deficit target of 3 percent of GDP. This will provide the fiscal space to insure against future shocks and also to move closer to the fiscal performance of its emerging market peers. It must also reverse the trajectory of recent years and move towards the golden rule of eliminating the revenue deficit and ensuring that, over the cycle, borrowing is only for capital formation.

Second, the way to achieve these targets will be expenditure control, and expenditure switching from consumption to investment. The loss of expenditure control and hence fiscal space contributed to the near-crisis of 2013. From 2016-17, as growth gathers steam and as the GST is implemented, the consequential tax buoyancy when combined with expenditure control will ensure that medium term targets can be comfortably met. This buoyancy is assured by history because over the course of the growth surge over the last decade, the overall tax-GDP ratio increased by about 2-2.5 percentage points with some but not radical increases in the tax rate and base.

Third, in the upcoming year, the pressures for accelerated fiscal consolidation have been lessened because macro-economic pressures have significantly abated with the dramatic decline in inflation and turnaround in the current account deficit. In these circumstances, especially if the economy is recovering rather than surging, pro-cyclical policy will be less than optimal.

Moreover, growth will ensure favourable debt dynamics going forward which alleviates consolidation compulsions emanating from concerns about public sector indebtedness. Further, accelerated fiscal consolidation will also be limited in the upcoming fiscal year by a number of new and exceptional factors, such as implementing the recommendations of the Fourteenth Finance Commission, clearing the compensation obligations to the states for the reduction in the central sales tax in 2007-08 and 2008-09, and the need to modestly ramp-up investment.

Finally, nevertheless, to ensure fiscal credibility and consistency with the medium-term goals, the

upcoming budget should initiate the process of expenditure control to reduce both the fiscal and revenue deficits. At the same time, the quality of expenditure needs to be shifted from consumption, by reducing subsidies, towards investment. Increases in the tax-GDP ratio stemming from the taxation of petroleum products will also help achieve short and medium term fiscal goals.

2.2 Background and History Lessons

India's macroeconomic improvement has been nothing short of dramatic—inflation has been cut in half to about 5 percent today, underlying rural wage growth has declined from over 20 percent to below 5 percent, and the current account deficit has shrivelled from over 6.7 percent of GDP (in Q 3, 2012-13) to an estimated 1.0 percent in the coming fiscal year.

That said, there is hardly room for fiscal complacency. To understand why, to realize where India needs to go, it is important to understand where it has been, and to draw lessons from this experience. The similarity between India's situation today and in the early 2000s makes this exercise especially important.

Key fiscal indicators for the central government are summarized in Table 2.1. At least three phases of policy can be distinguished since the early 2000s: 2002-2007; 2008-2011; and post-2012 (Figures 2.1-2.3 describe these phases in terms of the overall flow aggregates (Figure 2.1), debt stocks (Figure 2.2), and quality of expenditure (Figure 2.3).

In the first phase, all key measures of fiscal performance improved dramatically, driven largely by rapid growth. The fiscal deficit of the central government declined by nearly 3.2 percentage points, accounted for largely by an increase in the tax-GDP ratio (3.4 percentage points) along with a decline in other non-debt receipts (1.4 percentage points) and the rest by expenditure reductions (1.2 percentage points). Growth drove the increase in tax-GDP ratio but there was some expansion in the indirect tax base and increases in rates relating to the service tax (Figure 2.1). This tax was levied on 52 services at a rate of 5 per cent, yielding ₹ 4122 crore in 2002-03 but was expanded to 98 services at the rate of 12 per cent, resulting in revenues of ₹ 51301 crore in 2007-08.

On the stock side, debt declined because of a strong improvement in the "debt-dynamic wedge", defined as the difference between the real rate of economic growth (g) on the one hand, and the real cost of borrowing (r, which is itself the difference between the interest on government securities and inflation as per the GDP deflator) and the primary deficit (pd) on the other.[1] (Figure 2.2).

This wedge increased by about 9 percentage points in this period, resulting in a decline in the debt-GDP ratio of 8 percentage points. It is important to note that growth was the primary driver of this improving wedge, directly (by increasing g) and indirectly via improving the primary balance.

Two noteworthy conclusions can be drawn from this period. First, nearly all the improvement in the fiscal indicators stemmed from rapid growth, which averaged about 8 percent in this phase. Second, and one with important lessons for the future, was the ratcheting up of overall expenditures. Until 2005-06, the expenditure to GDP ratio declined in line with rising growth but in the following two years, it increased—at a time when growth averaged 9.5 percent. In other words, real expenditures grew at a staggering 10 percent.

Rapid expenditure growth over 2005-06 to 2007-08 did not stem from any increase in the subsidy burden. Rather, it largely reflected higher growth in interest payments (13.2 percent average annual growth) and an increase in non-plan grants recommended by the Twelfth Finance Commission for state-level fiscal reforms. Unavoidable though some of these expenditures may have been, the consequence was to limit the favourable fiscal impact of rapid growth.

[1] (Roughly, if g-r-pd = 0, the debt-GDP ratio remains stable)

Table 2.1: Select Fiscal Indicators (as per cent of GDP)

	Particulars	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
1	Real GDP growth [g] (in per cent)	3.9	8	7.1	9.5	9.6	9.3	6.7	8.6	8.9	6.7	4.5	4.7^	5.9
2	CPI Inflation # (in per cent)	5	4.1	4	3.7	6.8	5.9	9.2	10.6	9.5	9.5	10.2	9.5	7.2
3	Inflation from GDP Deflator (in per cent)	3.7	3.9	5.7	4.2	6.4	5.8	8.7	6.1	9.0	8.5	7.2	6.9	
4	GDP at market price in ₹ lakh crore	25.3	28.4	32.4	36.9	42.9	49.9	56.3	64.8	78.0	90.1	101.1	113.6	128.8
		Central Government												
5	Total Revenue ## (before devolution)	12.8	14.6	13.9	12.3	13.1	14.8	12.6	11.9	13.4	11.6	12.0	12.2	12.8
6	Gross Tax Revenue	8.5	9.0	9.4	9.9	11.0	11.9	10.8	9.6	10.2	9.9	10.2	10.2	10.6
7	Total Expenditure (including tax devolution)	18.5	18.9	17.8	16.2	16.4	17.3	18.5	18.4	18.2	17.3	16.8	16.8	16.9
	Major Subsidies	1.6	1.5	1.4	1.2	1.2	1.3	2.2	2.1	2.1	2.3	2.4	2.2	1.9
	Food	1	0.9	0.8	0.6	0.6	0.6	0.8	0.9	0.8	0.8	0.8	0.8	0.9
	Fertilizer	0.4	0.4	0.5	0.5	0.6	0.7	1.4	0.9	0.8	0.8	0.6	0.6	0.6
	Petroleum	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.5	0.8	1.0	0.8	0.5
	Tax devolution to States	2.2	2.3	2.4	2.6	2.8	3.0	2.8	2.5	2.8	2.8	2.9	2.8	3.0
	Revenue Expenditure	13.4	12.8	11.9	11.9	12.0	11.9	14.1	14.1	13.4	12.7	12.3	12.3	12.2
	Capital Expenditure	2.9	3.8	3.5	1.8	1.6	2.4	1.6	1.7	2.0	1.8	1.6	1.7	1.8
	Non-Defence	2.4	3.3	2.5	0.9	0.8	1.6	0.9	1.0	1.2	1.0	1.0	1.0	1.0
8	Fiscal deficit	5.7	4.3	3.9	4	3.3	2.5	6	6.5	4.8	5.7	4.8	4.6	4.1
9	Revenue Deficit	4.3	3.5	2.4	2.5	1.9	1.1	4.5	5.2	3.2	4.4	3.6	3.3	2.9
10	Primary Deficit [pd]	1.1	0	0	0.4	-0.2	-0.9	2.6	3.2	1.8	2.7	1.8	1.3	0.8
11	Total outstanding liabilities	66.9	66	65.5	63.9	61.4	58.9	58.6	56.3	52.1	51.7	51.7	50.9	49.8
12	Average cost of borrowing [n] (in per cent)	7.5	7.3	7.2	7	7.3	7.6	7.6	7.5	7.4	7.8	7.7	8.3	--
13	Average cost of borrowing [r] (in per cent)	3.8	3.4	1.5	2.8	0.9	1.8	-1.1	1.4	-1.6	-0.7	0.5	1.4	--
14	Debt Dynamic Wedge [g-r-pd]	-1.0	4.6	5.6	6.3	8.9	8.4	5.2	4.0	8.7	4.7	2.2	2.0	--

^: Provisional n=nominal r= real

 # Back series from the Urjit Patel Committee Report, RBI. CPI Data for 2014-15 is up to November, 2014.

Total revenue consists of GTR, non-tax revenue, recovery of loans and other receipts.

***Note*: 1. Data for 2013-14 and 2014-15 for central government is revised estimates and budget estimates respectively.**

2. Total outstanding liabilities are derived by adding 'other liabilities' (that includes national small savings fund, state provident funds and other accounts) to the government's public debt. External liabilities of the Centre is at current exchange rate.

3. Data on GDP at current market prices and GDP growth numbers at factor cost are from CSO's National Accounts series of 2004-05.

4. The exact formula for the Debt Dynamic Wedge is: $\triangle d_{(t+1)} = p_{(t+1)} + [(r_t - g_t)/(1+g_t)]\ d_t$ where p_t is the primary deficit as per cent of GDP,; r_t is the real rate of interest; g_t is the real growth rate; d_t is debt to GDP ratio

***Source*: Budget documents and MoSPI.**

Figure 2.1: Fiscal Flow Indicators, 2002-03 to 2014-15 (Per cent of GDP)

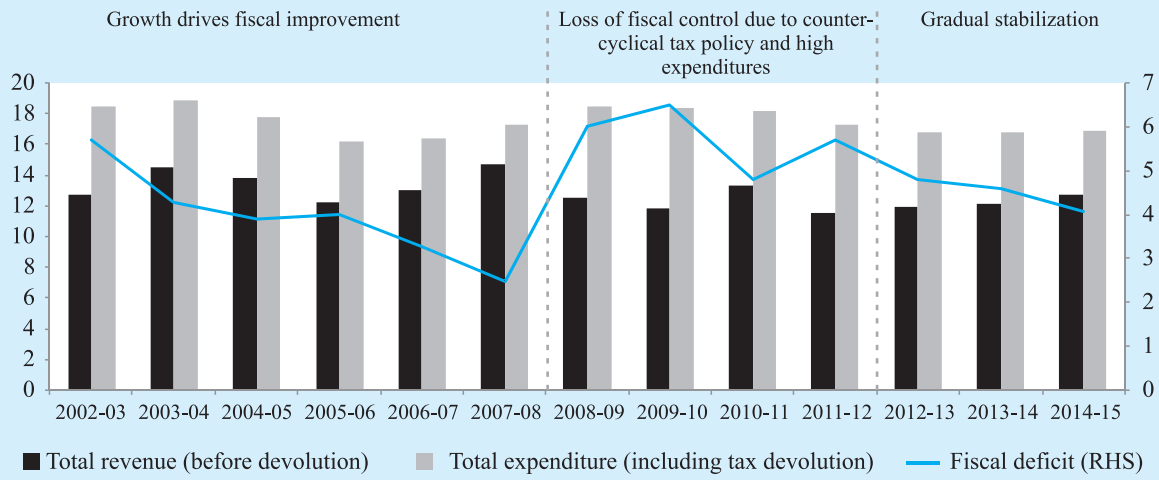
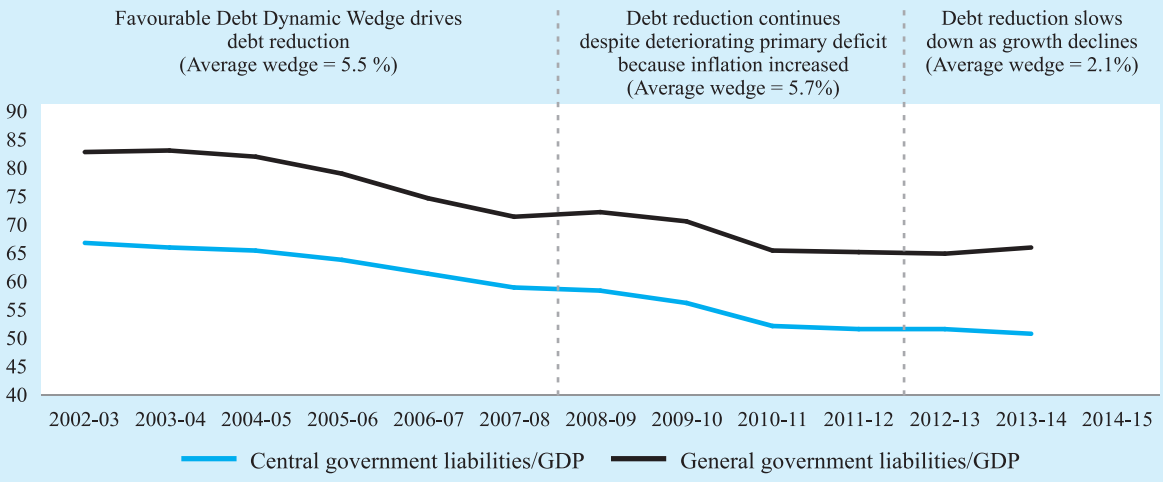
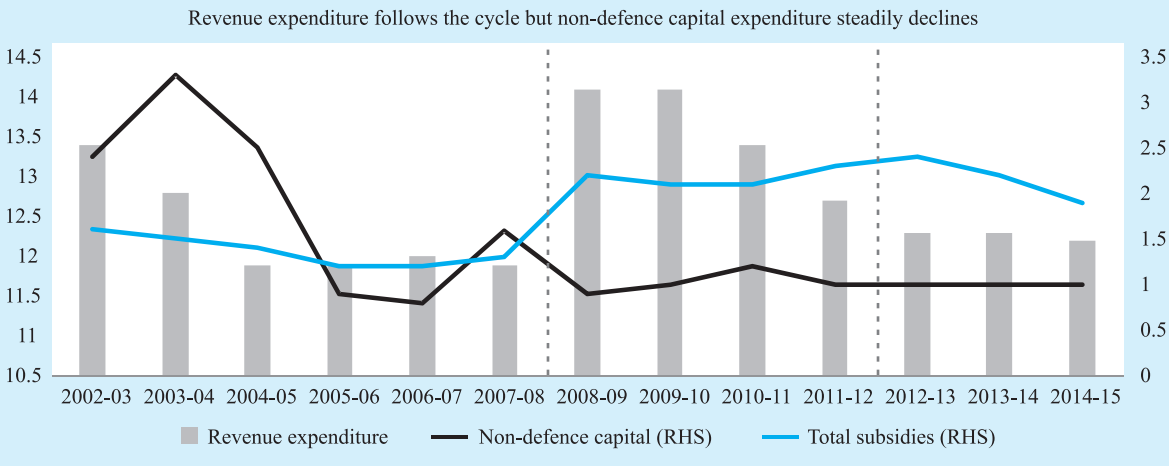


Figure 2.2: Fiscal Stock Indicators, 2002-03 to 2014-15 (Per cent of GDP)



Numbers for the year 2013-14 and 2014-15 for Central government are revised estimates and budget estimates respectively. For General government, numbers for the year 2012-13 and 2013-14 are revised estimates and budget estimates, respectively.

Figure 2.3: Expenditure Quality Indicators, 2002-03 to 2014-15 (Per cent of GDP)



***Source*: Budget documents and CSO.**

The second and difficult phase of Indian fiscal history began with the Lehman crisis in 2008-09 and lasted four years. In this period nearly all the positive trends of the previous six years were reversed. The fiscal deficit increased by about 4 percentage points, shared equally between revenue reductions (owing to large indirect tax cuts) and expenditure increases. In the initial years (2008-09 to 2011-12), current expenditures (public consumption) increased dramatically due to the rising subsidy bill (up by 1 percentage point of GDP); the increase in pay and allowances because of implementation of the Sixth Pay Commission recommendations (0.4 percent of GDP); and schemes that built in permanent entitlements such as MGNREGA (0.3 percent of GDP). Meanwhile, the quality of spending suffered as non-defence capital expenditure stagnated while current expenditures rose by about 2 percentage points on average during the period (Figure 2.3).

Despite the deterioration in the deficit, government debt continued to decline. The basic debt dynamic wedge became less favourable initially because of the increase in the primary deficit but was subsequently shored up by high growth, and rising inflation and the associated financial repression which lowered the real cost of borrowing for the government.

In the third and most recent phase, from 2012-13 to 2014-15, which was characterized by a sharp growth slowdown, the fiscal position finally began to be repaired. The fiscal stimulus provided in the post-Lehman phase was unwound, with equal contributions from revenue increases and expenditure reductions, bringing the deficit close to the level prevailing in the early 2000s, at a comparable stage of the business cycle.

Even so, developments in other key indicators have been less encouraging. During this phase, the debt-GDP ratio stopped declining on account of slowing growth and still-high deficits, which rendered the debt dynamic wedge less favourable. Moreover, non-defence public capital expenditures remained exceptionally low, significantly below the level recorded in the early 2000s. Most significantly, India experienced a near-crisis during July/August 2013, as the conjunction of the U.S. Federal Reserve's decision to taper its monetary stimulus and India's growing current account deficit, high inflation, and still-large fiscal deficits caused capital to flee the country. This episode underscored the final and most critical lesson, namely that India needs to create additional fiscal space, in order to ensure macro stability and to create buffers for economic downturns in the future.

2.3 Medium-term Strategy

To create this fiscal space, a medium-term fiscal strategy needs to be put in place, based on fundamental principles, as well as on legacy and credibility issues. In India's case, both of these considerations point in the same direction.

2.3.1 Investment and the golden rule

The case for increased public investment has been made earlier in this Survey. What are the medium term implications? The *golden rule* of fiscal policy is that governments are expected to borrow *over the cycle* only to finance investment and not to fund current expenditures. This implies that achievement of the government's fiscal consolidation should ideally take place over the business cycle and short-term targets should be set accordingly.

In the first phase of recent fiscal history, India did move toward the golden rule by narrowing revenue deficits. But the period from 2008-09 to 2012-13 saw a reversal. Looking ahead and beginning in this budget, the government should target steady declines in the revenue deficit to move closer to the golden rule. This would also assist the government to take the economy back to a durably higher growth path.

2.3.2 Legacy/credibility

Reinforcing these considerations are legacy issues. India's FRBM Act as well as the Kelkar Committee (2012) established the principle of aiming to bring the centre's fiscal deficit down to 3 percent of GDP. Adhering to this objective is

essential for maintaining credibility and also to bring India closer in line with its emerging market peers. For example, the average general government deficit for India in 2013-14 is about 4.8 percentage points higher than the average for countries in India's investment grade rating[2]. States are a constant while governments come and go. In this regard, if every new government decided to change the rules of the game, volatility and uncertainty would be the rule and the overall credibility of the state and the country would suffer as a result.

Moreover, even if there were good reasons to change the rules of the game, there is a signalling problem. Fiscally responsible governments may not be able to credibly convey to the market early in their tenure that they are indeed fiscally responsible. In this situation, until they can establish a track record, governments will be required to adhere to previous commitments.

Accordingly, the medium-term fiscal strategy should be based on two pillars. First, the fiscal deficit should be reduced over the medium-term to the established target of 3 percent of GDP. Second, and mindful of the experience of the past decade, efforts to achieve this objective should be based on firm control over expenditures, most notably by eliminating leakages in subsidies and social expenditures.

Further, switching from public consumption (via the rationalisation of subsidies) to public investment will, for any given level of overall spending, mitigate long-run inflationary pressures because the latter will add to capacity and boost the aggregate supply potential of the economy. Also, asset sales to finance investment is consistent with boosting growth without adding to aggregate demand pressures in the short run.

If expenditure control is maintained, revenue increases will flow straight through to the flow and stock fiscal aggregates. This effect should be large, since accelerating growth and the introduction of the GST in 2016-17 could raise India's tax-GDP ratio from the current level of 17.5 percent to close to 20 percent for the general government. Moreover, debt dynamics will then work strongly in India's favour. Simple calculations suggest that if growth averages 9 percent over the next three years, and real interest rates remain broadly where they are, overall debt-to-GDP ratios (more precisely, the ratio of total outstanding liabilities[3] to GDP) for the central government could decline to around 40 percent in 2017-18 from the current level of 49.8 percent and would be associated with a similar decline in the general government debt. This would create the buffers to insure against future downturns.

2.4 Short-term issues

Against this medium-term background, what should be the stance of fiscal policy in the short term? A number of perspectives help shape this answer, including cyclical considerations and one-off factors.

1. Cyclical considerations

In the short-run, fiscal policy serves as a cushion, stabilizing demand and growth. A generally accepted rule is that from a demand management perspective governments should not run a pro-cyclical fiscal policy unless there are compelling factors such as macro-economic overheating. Put differently, if short run growth is below potential growth or the actual level of output is below potential output, actual fiscal deficits can increase without reflecting any weakening of fiscal discipline.

As discussed earlier, macro-economic pressures have abated significantly. And, notwithstanding the new GDP growth estimates, the Indian economy appears to be reviving rather than surging. Both these factors weaken the case for pro-cyclical policy.

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[2] In the Fitch ratings, for example, India is in the BBB (investment grade) category.

[3] Total outstanding liabilities are derived by adding 'other liabilities' (that includes national small savings fund, state provident funds and other accounts) to the central government's public debt.

2. One-off/new factors

The budget for 2015-16 will be confronted by a number of one-off factors. One one-off factor/ windfall that favours further consolidation stems from the windfall reduction in prices that will reduce the subsidy burden by about 0.2-0.3 percent of GDP. However, there are three countervailing factors.

- The Fourteenth Finance Commission has just submitted its recommendations on the transfer of resources to the states. It is possible that implementing them will entail the centre having to pay an additional cost.
- Negotiations on the GST had been stalled on account of a trust deficit between the centre and states which had arisen because the centre had not compensated the states for the reduction of the CST (Central Sales Tax) from 4 percent to 2 percent in the aftermath of the global financial crisis. Securing political agreement to launch the GST in 2016/17 was facilitated by the offer of the government to compensate the states for the backlog of CST compensation of up to 25,000 crores.
- As discussed in Chapter 4 of this Volume, there is a pressing need to increase public investment to revive private investment and growth.

2.5 Conclusions

Macro-economic circumstances have improved dramatically in India. Macro-economic pressures have abated and as per the latest estimates for the GDP (2014-15), the GDP growth has exceeded that in most countries including China. Provided that fiscal discipline is maintained, India's debt dynamics will consequently remain exceptionally favourable going forward.

At the same time, India's fiscal situation is close to that about ten years ago at a comparable stage of the cycle. In other words, the stimulus provided in the last few years has mostly been withdrawn. All of these factors suggest that in the short-run, the pressures for sharp further fiscal consolidation have lifted to some extent.

But there is no ground for complacency. The loss in fiscal discipline led to the near-crisis in 2013 and on pure fiscal measures, India does not rank as favourably as its investment grade peers. Even allowing for the fact that a narrow focus on fiscal measures does not capture the full range of factors that go into serious investors' risk-reward calculation when allocating portfolios across countries, India must meet its medium-term target of fiscal deficit of 3 percent of GDP. India must also reverse the trajectory of recent years and move toward the golden rule of eliminating revenue deficits and ensuring that, over the cycle, borrowing is only for capital formation.

In this light, the lessons of recent fiscal history are clear.

For India, the key to achieving medium-term fiscal targets resides in expenditure control, the failure to do so during the boom growth years between 2005-06 and 2008-09, playing a major role in the loss of macro-economic control and the near-crisis of July/August 2013.

Another cost of the failure to maintain expenditure, and hence fiscal control was the quality of spending, with public investment being the casualty and public consumption the beneficiary. This, in turn, has affected India's medium-term growth potential.

These trends need to be reversed, and the nation's public finances need to be set back on the path toward fiscal deficit of 3 percent of GDP, as planned in FRBM (Amendment) Act 2012. To do this, concrete actions will be needed in this budget to control expenditure via subsidy reductions, improve its quality in altering the mix between public consumption and investment in favour of the latter, and move India toward the golden rule of borrowing only for public investment. Broadly, the increase in fiscal space, including that gained from subsidy reductions and higher disinvestment proceeds should be devoted to public investment.

Even with these measures, progress toward the medium-term target may be limited in the upcoming fiscal year by a number of new and exceptional factors, such as implementing the recommendations of the Fourteenth Finance Commission, clearing the compensation obligations to the states for the reduction in the central sales tax, and the need to modestly ramp-up investment.

Subsequently, with current expenditures on a downward path and the quality of spending improving through a switch away from public consumption to investment, India's growth, introduction of the GST, and the associated revenue buoyancy can comfortably ensure the attainment of medium-term targets. This buoyancy is assured by history because over the course of the growth surge over the last decade, the overall tax-GDP ratio increased by about 2-2.5 percentage points even without radical tax reform.

'Wiping every tear from every eye': the JAM Number Trinity Solution

03
CHAPTER

3.1 Introduction

Sixty-eight years after Independence, poverty remains a pressing problem. No nation can become great when the life chances of so many of its citizens are benighted by poor nutrition, limited by poor learning opportunities, and shrivelled by gender discrimination (discussed in section 13 in this Volume). The recent Annual Survey of Education Report (see Box 9.2 of Volume 2, Chapter 9), which documents that only a quarter of standard III students could do a two-digit subtraction and read a standard II text, makes for particularly sobering reading.

Any government must have an agenda on how to help those left behind. This chapter lays out some simple facts and analysis on the current mechanisms employed to help the poor, the efficacy of those mechanisms, and prospective reforms going forward.

Economic growth has historically been good for the poor, both directly because it raises incomes, and indirectly, because it gives the state resources to provide public services and social safety nets that the poor need (more than anyone else). The opportunities that growth creates also encourage individuals to invest in their own human capital. A recent study found strikingly that merely informing families in villages outside Bangalore that call centres were hiring educated women increased the likelihood that adolescent girls in those villages completed school.[1]

But growth needs to be complemented with active government support to improve the economic lives of the poor and vulnerable – about that there is no debate. The issue is *how best* to deploy fiscal resources in support of that goal. Effective anti-poverty programs ought to be:

(i) based on data rather than popular perception,

(ii) mindful of how policies shape – indeed frequently distort – the incentives that individuals and firms face, and

(iii) acutely conscious of the state's own limited implementation capacity to target and deliver services to the poor.

Price subsidies have formed an important part of the anti-poverty discourse in India and the government's own policy toolkit. Both the central and state governments subsidise the price of a wide range of products with the expressed intention of making them affordable for the poor. Rice, wheat, pulses, sugar, kerosene, LPG, naphtha, water, electricity, diesel, fertiliser, iron ore, railways – these are just a few of the commodities and services that the government subsidises. The estimated direct fiscal cost of this illustrative subset of subsidies is about ₹ 378,000 crore or about 4.24 percent of GDP. Just to give a sense of how large this amount is: ₹ 394,000 is roughly how much it would cost to raise the expenditure of every household to that of a household at the 35th percentile of the income distribution[2] (which is well above the poverty line of 21.9 percent).[3]

[1] Jensen, Robert "*Do Labor Market Opportunities Affect Young Women's Work and Family Decisions? Experimental Evidence from India*" , 2012, *Quarterly Journal of Economics*, 127(2), p. 753-792.

[2] Economic Survey of India 2014-15, Chapter 3.

[3] Planning Commission, July 2013, reporting on the Tendulkar Commission (http://planningcommission.nic.in/news/pre_pov2307.pdf)

Prima facie, price subsidies do not appear to have had a transformative effect on the living standards of the poor, though they have helped poor households weather inflation and price volatility. A closer look at the price subsidy landscape reveals why they may not be the government's best weapon of choice in the fight against poverty.

3.2 Subsidising whom?

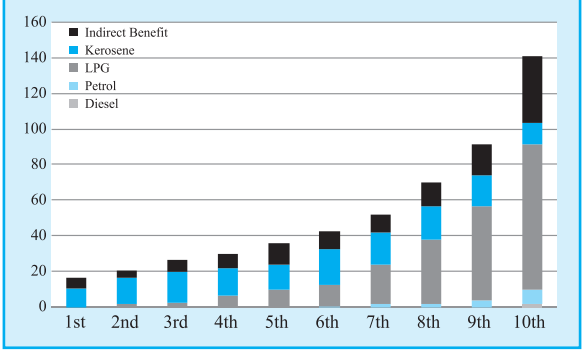
Table 3.1 offers a rough illustration – not an exhaustive compilation– of several price subsidies the government offers, and juxtaposes the intended beneficiaries with simple data computations that suggest how much of these benefits actually reach the poor. We make three observations based on the table.

3.2.1 Price subsidies are often regressive

By regressive, we mean that a rich household benefits more from the subsidy than a poor household. If one were to plot the distribution of welfare gains against income, the benefits of a regressive price subsidy would increase as we move up the income distribution.

For a start consider price subsidies in electricity. Note first that these subsidies can only benefit the (relatively wealthy) 67.2 percent of households that are electrified.[4] Second, note that even among electrified households, richer households (predictably) use much more power: Table 3.1 shows that the bottom quintile of households consume on average 45 kWh per person per month (or 10 percent of the total subsidy amount) while the top quintile consumes 121 kWh (capturing 37 percent of power subsidies).

Figure 3.1: Welfare gains from fuel subsidies by income decile (Rupees per capita per month)



Source: **IMF working paper**

Fuel subsidies can be similarly regressive. Figure 3.1 graphs the benefits that fuel price subsidies confer on households of various income deciles.[5] The welfare gains for households in the second decile are about ₹ 20 per capita per month, while households in the top decile gain about ₹ 120. The story is similar when one just considers subsidies for Liquefied Petroleum Gas (LPG). From the table we note the striking fact that *the poorest 50 percent of households consume only 25 percent of LPG.* Figure 3.1 shows that the bottom 3 deciles gain very little from subsidised LPG – the monthly welfare gain from their LPG subsidies is less than ₹ 10 per capita – whereas the top decile gains significantly (their monthly welfare gain is close to ₹ 80 per capita).

Now move further down the fuel quality ladder and consider kerosene. At first glance, kerosene seems a good candidate for price subsidies as it is popularly conceived to be consumed mostly by the poor. Yet, as Table 3.1 shows, only 46 percent of total consumption of subsidised kerosene is by households with a Below Poverty Line (BPL) or Antyodaya Anna Yojana (AAY) card[6], and only 49 percent is consumed by households in the bottom 3 deciles of the expenditure distribution. Popular perception is thus partly correct: poor households are indeed more likely to use kerosene than rich households, but a majority (51 percent) of subsidised kerosene is consumed by the non-poor and almost 15 percent of subsidised kerosene is actually consumed by the relatively well-off (the richest 40 percent).

4 Census of India (2011), Source of Lighting

5 Rahul Anand, David Coady, Adil Mohommad, Vimal Thakoor, and James P. Wal. "*The Fiscal and Welfare Impacts of Reforming Fuel Subsidies in India*". May 2013, IMF Working Paper.

6 AAY cards are intended for the poorest 5 percent of households.

Table 3.1: How much do subsidies benefit the poor?

Product	Producer subsidy	Consumer subsidy	Fiscal expen diture	Fiscal expen-diture (percent of 2011-12 GDP)	What share of benefits accrue to the poor?
Railways	N/A	Subsidised passenger fares	₹ **51,000**	**0.57**	The bottom 80 percent of households constitute only 28.1 percent of total passenger through fare on railways
Liquefied petroleum gas	N/A	Subsidy (now via DBT)	₹ **23,746**	**0.26**	The bottom 50 percent of households only consume 25 percent of LPG
Kerosene	N/A	Subsidy via PDS	₹ **20,415**	**0.23**	41 percent of PDS kerosene allocation are lost as leakage, and only 46 percent of the remainder is consumed by poor households
Fertiliser & nitrogenous commodities	Firm and . nutrient specific subsidies to manufac-turersthe Import of urea regulated by government	Maximum Retail Price for urea is determined by the government	₹ **73,790**	**0.82**	Urea and P&K manufacturers derive most economic benefit from the subsidy, since farmers, especially poor farmers, have elastic demand for fertiliser
Rice (paddy)	Price floor (minimum support price)	Subsidy via PDS	₹ **129,000**	**1.14**	15 percent of PDS rice is lost as leakage. Households in the bottom 3 deciles consume 53 percent of the remaining 85 percent that reaches households
Wheat					54 percent of PDS wheat is lost as leakage. Households in the bottom 3 deciles consume 56 percent of the remaining 46 percent that reaches households
Pulses	Price floor (MSP)	Subsidy via PDS	₹ **158**	**0.002**	The bottom 3 deciles consume 36 percent of subsidised pulses
Electricity	Subsidy	Capped below market price	₹ **32,300**	**0.36**	Average monthly consumption of bottom quintile = 45 kWh vs top quintile = 121 kWh. Bottom quintile captures only 10percent of the total electricity subsidies, top quintile captures 37 percent of subsidy
Water	N/A	Subsidy	₹ **14,208**	**0.50**	Most water subsidies are allocated to private taps, whereas 60 percent of poor households get their water from public taps
Sugar	Minimum price for sugar cane farmers, subsidy to mills	Subsidy via PDS	₹ **33,000**	**0.37**	48 percent of PDS sugar is lost as leakage. Households in the bottom 3 deciles consume 44 percent of the remaining 52 percent that reaches households
Total			**₹ 3,77,616**	**4.24**	

All expenditure deciles are based on data from the household expenditure module of the 68th Round of the NSS (2011-12)
Railways – *www.ncaer.org/free-download.php?pID=111 , p107 & NSS 68th round*
LPG – Computations from the 68th Round of the NSS (2011-12)
Kerosene – *Economic Survey of India 2014-15, Vol. I ,Chapter 3.*
Fertiliser – *Agricultural Input Survey, http://inputsurvey.dacnet.nic.in/nationaltable3.aspx*
Rice & wheat – *Economic Survey of India 2014-15,Vol. I, Chapter 3.*
Pulses – Computations from the 68th Round of the NSS (2011-12)
Water – Report by MIT and World Bank http://web.mit.edu/urbanupgrading/waterandsanitation/resources/pdf-files/WaterTariff-4.pdf , p2
Sugar – Department of Food & Public Distribution (http://dfpd.nic.in/fcamin/sugar/Notice1.pdf)

Subsidised water is almost as regressive as subsidised heat and light. Table 3.1 shows that a large fraction of price subsidies allocated to water utilities – by one estimate up to 85 percent[7] – are spent on subsidising private taps when 60 percent of poor households get their water from public taps.

It is not just commodity subsidies that are sometimes regressive; subsidised services can be as well. Passenger tariffs on railways are held artificially low – since 1993, the CPI has increased by over 4 times, whereas average passenger rates have not even doubled (from 16.7 paise per passenger-km in 1993-94 to 31.5 paise per passenger-km in 2013-14[8]; Figure 3.2). Controlled rail prices actually provide more benefits for wealthy households than poor households, since the bottom 80 percent of households constitute only 28.1 percent[9] of total originating passengers on non-suburban rail routes.

The exercise above illustrates the value of complementing conventional wisdom with hard data when forming opinions about the likely beneficiaries of subsidies.

3.2.2 Price subsidies can distort markets in ways that ultimately hurt the poor

In a market economy, prices play a key role in allocating scarce resources to different agents. Subsidies can distort the incentives of consumers and producers, and result in misallocation of resources across sectors and firms, which lowers aggregate productivity and often disproportionately hurts the poor and vulnerable[10].

Consider for example rice and wheat subsidies. The government provides both producer and consumer subsidies totalling about ₹ 125,000 crore. Wheat and rice are procured from farmers at guaranteed above-market minimum support prices (MSPs – ₹ 14/kg of wheat, ₹ 13.6/kg of rice).

High MSPs induce distortions, some of which ultimately hurt the poor. Here are two examples.

(a) Ramaswami, Seshadri and Subramanian (2014) describe how high MSPs result in farmers over-cultivating rice and wheat, which the Food Corporation of India then purchases and houses at great cost. High MSPs also encourage under-cultivation of non-MSP supported crops. The resultant supply-demand mismatch raises prices of non-MSP supported crops and makes them more volatile. This contributes to food price inflation that disproportionately hurts poor households who tend to have uncertain income streams and lack the assets to weather economic shocks.

(b) High MSPs and price subsidies for water together lead to water-intensive cultivation that causes water tables to drop, which hurts farmers, especially those without irrigation.

The railway passenger subsidies described in section 3.2.1 are not just regressive; they also induce the following distortions:

(a) loss-making passenger transit services mean that the railways cannot generate sufficient internal resources to finance capacity expansion investments;

(b) the high freight tariffs which cross-subsidise passenger fares has resulted in diversion of freight traffic to road transport. This entails not only financial and efficiency costs but also acute costs associated with emissions, traffic congestion, and road traffic accidents;

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[7] *Do Current Water Subsidies reach the poor?,* MIT and World Bank working paper *(http://web.mit.edu/urbanupgrading/waterandsanitation/resources/pdf-files/WaterTariff-4.pdf)*

[8] *Economic Survey of India 2015,* Volume 1, Chapter 6 (on Railways)

[9] www.ncaer.org/free-download.php?pID=111 , p107 & 68th Round of the NSS

[10] Hsieh, Chang-Tai and Klenow, Peter J, "*Misallocation and manufacturing TFP in China and India*", 2009,The Quarterly Journal of Economics 124(4), pp. 1403—1448.

(c) in order to cross-subsidise low passenger fares, freight tariffs are among the highest in the world (see Chapter 6 on Railways in this Volume). This reduces the competitiveness of Indian manufacturing and raises the cost of manufactured goods that all households, including the poor, consume.

Fertiliser subsidies illustrate another difficulty with using price subsidies as a core anti-poverty strategy. The true *economic incidence of a subsidy* depends on the relative elasticities of demand and supply, with the party *less* responsive to price changes benefiting *more* from a subsidy. The ultimate aim of subsidising fertiliser is to provide farmers with access to cheap fertilisers to incentivise usage and cultivation of high-yielding varieties. Yet because farmers' demand for fertiliser is likely to be more sensitive to prices[11] than fertiliser manufacturers' supply, the larger share of economic benefits from the price subsidy probably accrue to the fertiliser manufacturer and the richer farmer, not the intended beneficiary, the farmer.

Different subsidies may also interact to hurt the poor. For example, fertiliser manufacturers do not have an incentive to sell their product in geographically isolated regions. Since price controls mean that prices are similar everywhere, freight subsidies on railways have been introduced to incentivise manufacturers to supply their produce widely. But those subsidies are sometimes insufficient, since freight rates on Indian railways are among the highest in the world to cross-subsidise artificially low passenger fares. This is an example of how a mesh of well-meaning price controls distort incentives in a way that ultimately hurt poor households

The implementation of subsidies can be fiendishly complex, and are susceptible to the brutal logic of self-perpetuation. In the case of fertilisers, they are firm-specific and import-consignment specific, they vary by type of fertiliser, and some are on a fixed-quantity basis while others are variable. In the case of sugar, to protect sugar cane producers, high support prices are awarded; to offset this tax on mill owners, they are supported through subsidised loans and export subsidies; and then they are again taxed by placing restrictions on sales of molasses that are produced as a by-product.

The associated distortions make the total cost of subsidies much greater than the direct fiscal cost, and many of these distortions ultimately hurt those who are most vulnerable and have the least cushion to bear them.

3.2.3 Leakages seriously undermine the effectiveness of product subsidies

The Prime Minister recently stated that leakages in subsidies must be eliminated without reducing the subsidies themselves.

Price subsidies are often challenging for the state to implement because they offer large rent-seeking opportunities to black marketers. We use the term leakages to describe the subsidised goods that do not reach any households. Like the distortions emphasised above, leakages not only have the direct costs of wastage, but also the opportunity cost of how the government could otherwise have deployed those fiscal resources.

The stance of trying to rationalise subsidy leakages should not be seen as a strike against the poor, for three reasons. First, the regressive nature of many price subsidies reduce their effectiveness as anti-poverty strategies; second, reducing subsidy leakages gives the government the fiscal space required for higher-return social transfer programs without causing welfare losses; and, third, the same amount of benefit that households gain through subsidies can be directly transferred to the poor through lump-sum income transfers, avoiding the distortions that subsidies induce.

Converting all subsidies into direct benefit transfers is therefore a laudable goal of government policy. But developing the state capacity to implement the direct transfers to replace subsidies will take time

[11] One estimate suggests that farmers' demand for fertiliser falls by nearly 6.4 percent for a 10 percent increase in fertiliser prices. Ravindra H. Dholakia and Majumdar Jagdip" *Estimation of Price Elasticity of Fertilizer Demand in India*,", 2006, Working Paper.

and should not be allowed to slow down the pace of reform. In the interim, is the goal of maintaining subsidies while cutting leakages achievable?

In what follows, we estimate leakages using data from the census and NSS. Our calculations suggest that leakages are large, and can – at least in the case of kerosene – likely be reduced without compromising household welfare.

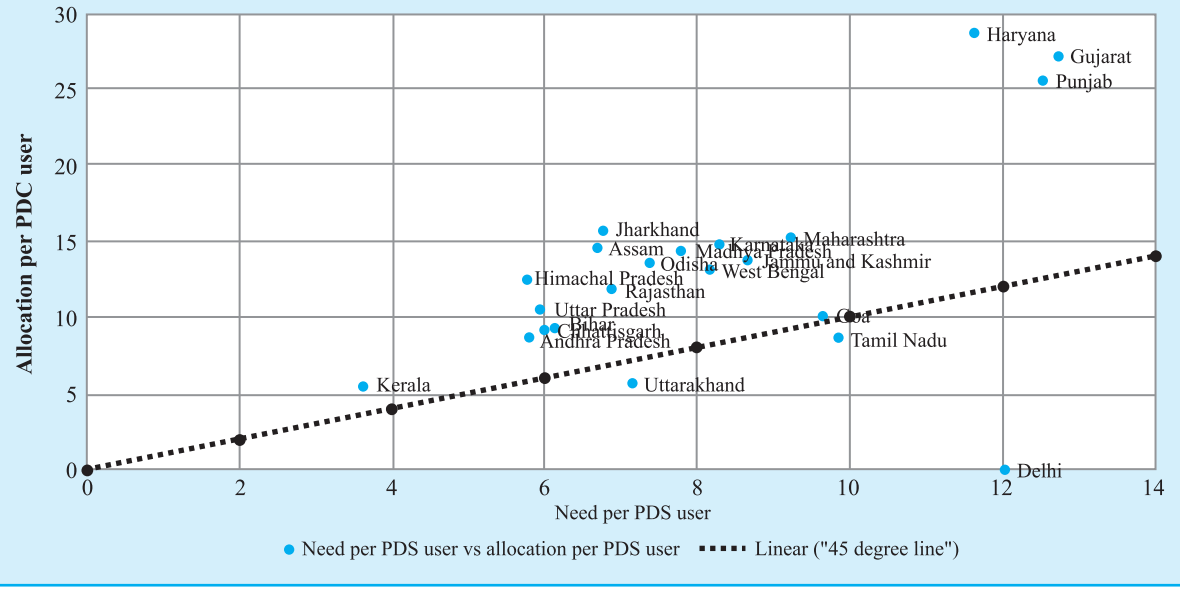
3.3 The case of kerosene

Evenings in poor un-electrified households can be cold and dark. The central government thus subsidises kerosene to lower the cost of accessing this particular source of energy. Kerosene subsidies totaled ₹ 30,574 crores in 2013-14 and are expected to cost ₹ 28,382 crores this financial year.

We quantify leakages of PDS kerosene in different states using data from the household expenditure module of the 68th Round of the NSS (2011-12) and population data from the 2011 Census. PDS leakages are defined as the difference between total allocation of PDS kerosene and *actual household consumption*. Based on these data, we make 5 observations:

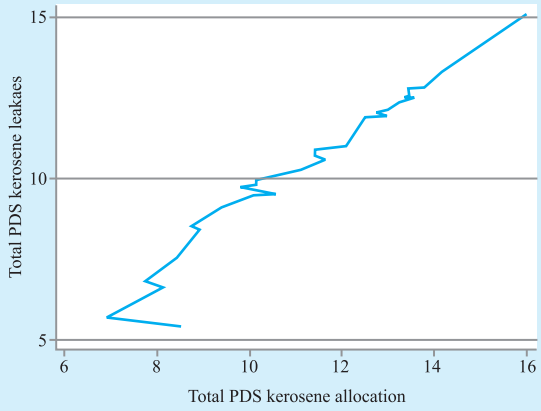
- ***Leakages are large and universal:*** Figure 3.2 plots the kerosene allocation per PDS user against the kerosene consumption per PDS user across states. The chart shows that PDS kerosene allocations significantly exceed consumption in nearly every state – that is to say, nearly all states show a large amount of PDS kerosene leakage.[12] In absolute terms, leakages are greatest in UP, West Bengal, Gujarat, and Maharashtra; in per capita terms, leakages are greatest in Haryana, Gujarat, and Punjab; and in percentage of actual allocations, they are greatest in the Northeastern states of Manipur, Sikkim, and Arunachal Pradesh.
- ***Leakages increase with the size of PDS allocations:*** Figure 3.3 shows that there is a positive relationship between leakages and allocations of PDS kerosene. This positive relationship remains in more formal analysis – a linear regression of leakages on allocations and controlling for states' level of economic development and corruption measures.

Figure 3.2: Need per PDS user relative to allocation per PDS user



[12] There appear to be data problems with a few states such as Tamil Nadu and Delhi

Figure 3.3: Leakages of PDS kerosene vary with allocations



The regression results in Table 3.2 suggest that a 1 percent increase in PDS kerosene allocations are associated with a 1.1 percent increase in PDS leakages. In other words, if allocations are reduced, leakages may decrease by a more-than-proportionate amount. *Put differently, in states that get more allocations, we see the greatest leakages and misappropriation of their allocations.*

- ***The poor consume only 46 percent of subsidised kerosene, so large PDS***

Table 3.2 : Relationship between allocations and leakages in the PDS

	All states	Excluding North eastern states	Only major states
Log (per capita PDS allocation)	1.389***	1.130***	1.227***
	(0.000)	(0.002)	(0.007)
Log (GDP per capita)	-0.376	-0.565	-0.558
	(0.308)	(0.158)	(0.174)
Measure of corruption	0.223	0.281	0.277
	(0.169)	(0.121)	(0.134)
Observations	28	21	17
Adjusted R-squared	0.670	0.702	0.685

p-values in parenthesis* p < 0.10, ** p < 0.05, *** p <0.01

Figure 3.4: Excess kerosene allocation or user relative to the log of GDP per capita

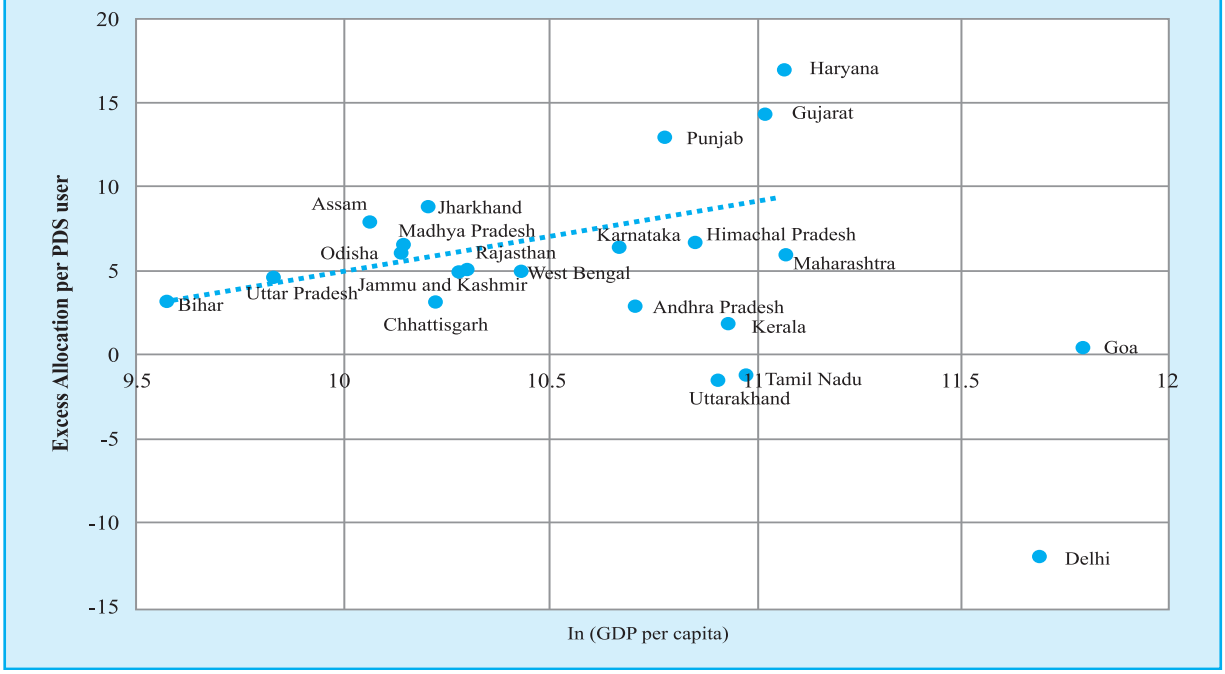


Table 3.3 : Income elasticity of kerosene (dependent variable is log (total kerosene consumption)

	All states	Excluding North eastern states	Only major states
Log (GDP per capita)	-1.857***	-2.228***	-1.620***
	(0.004)	(0.000)	(0.001)
Measure of corruption	0.0169	0.363*	0.395**
	(0.963)	(0.080)	(0.048)
Observations	30	23	19
Adjusted R-squared	0.152	0.424	0.420

p-values in parenthesis* p < 0.10, ** p < 0.05, *** p <0.01

kerosene allocations – far in excess of actual consumption – are difficult to justify on equity grounds: Large allocations of subsidised kerosene are sometimes justified on the grounds that they are used as a source of lighting by poor households. While that is true, Figure 3.4 shows that PDS kerosene leakages are larger in richer states. Reducing allocations in these states – while allowing a buffer so that they are still significantly above *actual consumption levels* – is likely to affect wealthier states more. Moreover, the NSS micro data show that 46 percent of subsidised kerosene is consumed by households holding a BPL or AAY card, which is inconsistent with the popular perception that it is exclusively poor households who use kerosene.

- ***Kerosene is an inferior good:*** Kerosene consumption tends to decline as incomes rise. As households get richer, they consume less of it because they substitute to cleaner, higher quality but more expensive fuels like LPG. Table 3.3 demonstrates this intuition by estimating a series of linear regressions of total kerosene per capita on a state's per capita GDP. The results are shown for different samples of states to check for robustness. For every 1 percent increase in a state's income, total kerosene consumption tends to decline by more than 1.5 percent. Income growth between 2011-12 (68th Round of NSSO) and the current year can thus be expected to have reduced household demand for kerosene rather than increase it. The policy implication is that kerosene allocations should 'naturally' decline over time.

- ***PDS allocations exceed total (i.e. PDS + non-PDS) consumption of kerosene:*** Table 3.4 suggests that in fact PDS kerosene allocations are more than even *the sum of PDS and non-PDS kerosene consumption*. 1.8 million kiloLitres of allocated subsidised kerosene remains unaccounted for – that is, unconsumed by households—and may be indicative of illicit activities such as adulteration of petrol and diesel fuels.

Table 3.4 also shows the fiscal cost of these leakages. Using a per unit subsidy rate of ₹ 33.9 per litre (columns 3 and 4), we calculate that kerosene consumption of states can be met even if PDS allocations of subsidised kerosene are reduced by 41 percent from its current level of approximately 9 million kilolitres to about 5.3 million kilolitres. The fiscal cost of these leakages is about ₹ 10,000 crore, and indicates that the opportunity cost of wasting these fiscal resources is indeed significant.

Table 3.4 : Savings from Rationalising Allocations

States	Total PDS allocation (kiloLitres)	Total PDS consumption as per aggregate NSS data 2011-12 (kL)	Fraction of consumption by poor households (%)	Excess PDS allocation (kL)	Leakage (%)	Total PDS consumption of all ration card holders as per NSS micro data 2011-12 (kl)	Fiscal cost of excess PDS allocation (₹ crores)
All-India	**9,028,806**	**5,349,541**	**46**	**3,679,265**	**41**	**4,776,000**	**10,044**
Uttar Pradesh	1,590,000	897,104	28	692,896	44	771,600	**1,892**
West Bengal	963,528	598,645	33	364,883	38	548,400	**996**
Gujarat	673,416	316,528	45	356,888	53	296,400	**974**
Maharashtra	730,464	442,258	37	288,206	39	399,600	**787**
Madhya Pradesh	625,668	339,104	50	286,564	46	291,600	**782**
Bihar	814,068	537,918	49	276,150	34	453,600	**754**
Karnataka	522,888	294,351	79	228,537	44	270,000	**624**
Rajasthan	508,764	294,658	30	214,106	42	262,800	**585**
Odisha	398,988	217,362	60	181,626	46	176,400	**496**
Assam	327,966	150,700	50	177,266	54	132,000	**484**
Andhra Pradesh	465,996	310,257	96	155,739	33	298,800	**425**
Jharkhand	268,704	116,363	50	152,341	57	91,440	**416**
Chattisgarh	180,072	118,196	69	61,876	34	105,360	**169**
Haryana	91,260	37,113	83	54,147	59	36,840	**148**
Punjab	90,132	44,260	50	45,872	51	38,640	**125**
Kerala	120,192	79,595	35	40,597	34	78,960	**111**
Jammu and Kashmir	90,072	56,831	30	33,241	37	43,440	**91**
Manipur	24,967	3,893	35	21,074	84	2,556	**58**
Meghalaya	25,943	7,827	62	18,116	70	7,092	**49**
Nagaland	17,100	579	7	16,521	97	310	**45**
Tripura	39,179	25,273	37	13,906	35	24,360	**38**
Himachal Pradesh	24,660	11,394	36	13,266	54	10,560	**36**
Arunachal Pradesh	11,479	2,766	21	8,713	76	2,016	**24**
Sikkim	6,348	1,282	67	5,066	80	1,142	**14**
Mizoram	7,800	3,216	36	4,584	59	2,868	**13**
A & N islands	6,912	3,100	12	3,812	55	2,832	**10**
Puducherry	4,440	2,653	76	1,787	40	2,508	**5**
Dadra & N Haveli	2,280	1,326	41	954	42	1,308	**3**
Chandigarh	3,528	2,764	52	764	22	2,208	**2**
Lakshwadeep	1,008	699	16	309	31	583	**1**
Goa	5,244	5,016	11	228	4	4,884	**1**
Daman & Diu	876	920	12	(44)	(5)	533	**(0)**
Delhi	-	4,704	51	(4,704)	-	3,504	**(13)**
Uttarakhand	36,168	45,478	31	(9,310)	(26)	42,360	**(25)**
Tamil Nadu	348,696	396,244	39	(47,548)	(14)	366,000	**(130)**

Notes: **a) The per litre subsidy cost of ₹ 33.9 per litre for 2013-14 was used in the calculations. This data was provided by the Policy and Analysis Cell of the Petroleum Ministry.**

b) The 68th round of the NSS (2011-12) reports PDS consumption of kerosene for surveyed households. We scale household consumption by each household's multiplier which indicates how representative that household is of the overall sample.

Table 3.5 : Quantifying and estimating the fiscal cost of PDS rice leakages

States	Total PDS offtake (tonnes)	Total PDS consumption as per NSS 2011-12 (tonnes)	Leakage (tonnes)	Leakages (%)	Fiscal cost of excess PDS allocation (₹ crores)
All-India	**24,325,843**	**19,188,000**	**3,639,478.89**	**15**	**5,892**
All-India ex NFSA	**17,717,053**	**13,881,541**	**3,835,512**	**22**	**6,210**
Uttar Pradesh	2,824,555	1,635,600	1,188,955	42	1,925
Maharashtra	1,432,041	892,320	539,721	38	874
Andhra Pradesh	3,031,942	2,960,400	71,542	2	116
West Bengal	1,222,344	798,480	423,864	35	686
Karnataka	1,925,849	1,428,000	497,849	26	806
Jharkhand	1,000,369	568,800	431,569	43	699
Assam	1,229,041	895,200	333,841	27	540
Bihar	1,630,176	1,368,000	262,176	16	424
Kerala	1,155,661	922,800	232,861	20	377
Tamil Nadu	3,532,541	3,156,000	376,541	11	610
Gujarat	305,644	154,800	150,844	49	244
Manipur	124,444	5,268	119,176	96	193
Delhi	129,384	18,672	110,712	86	179
Odisha	1,685,706	1,536,000	149,706	9	242
Nagaland	106,512	9,780	96,732	91	157
Meghalaya	155,719	90,120	65,599	42	106
Tripura	256,990	225,600	31,390	12	51
Himachal Pradesh	190,807	151,200	39,607	21	64
Arunachal Pradesh	75,963	50,760	25,203	33	41
Goa	51,562	28,560	23,002	45	37
Sikkim	42,236	22,560	19,676	47	32
Puducherry	41,209	36,120	5,089	12	8
Uttarakhand	190,977	170,400	20,577	11	33
Dadra & N Haveli	9,219	5,340	3,879	42	6
Chandigarh	3,353	917	2,436	73	4
A & N islands	10,873	19,200	(8,327) -	77-	13
Daman & Diu	3,041	125	2,916	96	5
Lakshwadeep	4,053	4,344	(291) -	7-	0
Punjab	0	534	(534)	--	1
Haryana	0	2,436	(2,436)	--	4
Rajasthan	0	4,380	(4,380)	--	7
Mizoram	58,378	67,560	(9,182)	167	15
Madhya Pradesh	404,878	316,800	88,078	22	143
Jammu and Kashmir	522,074	505,200	16,874	3	27
Chattisgarh	892,302	1,123,200	(230,898) -	26-	374

Table 3.6 : Quantifying and estimating the fiscal cost of leakages in PDS wheat

States	Total PDS offtake (tonnes)	Total PDS consumption as per NSS 2011-12 (tonnes)	Leakage (tonnes)	Leakages (%)	Fiscal cost of excess PDS allocation (₹ crores)
All-India	**18,776,070**	**8,592,000**	**10,184,070**	**54**	**12,598**
All-India ex NFSA	**13,350,441**	**5,605,725**	**7,744,716**	**58**	**9,580**
Uttar Pradesh	3,820,778	1,380,000	3,013,326	69	3,727
Maharashtra	2,107,204	1,088,400	1,018,804	48	1,260
West Bengal	2,058,861	552,000	1,506,861	73	1,864
Gujarat	937,155	312,000	625,155	67	773
Rajasthan	2,078,693	870,000	1,208,693	58	1,495
Madhya Pradesh	2,248,539	1,094,400	1,154,139	51	1,428
Bihar	1,127,174	1,015,200	111,974	10	139
Punjab	686,355	264,000	422,355	62	522
Haryana	586,431	313,200	273,231	47	338
Delhi	415,911	74,760	341,151	82	422
Assam	363,710	12,960	350,750	96	434
Odisha	372,299	88,920	283,379	76	351
Chattisgarh	192,892	116,520	76,372	40	94
Jharkhand	15,669	7,428	8,241	53	10
Uttarakhand	265,889	166,800	99,089	37	123
Kerala	273,146	150,000	123,146	45	152
Himachal Pradesh	321,856	235,200	86,656	27	107
Karnataka	308,763	243,600	65,163	21	81
Nagaland	33,582	109	33,473	100	41
Manipur	20,440	3	20,437	100	25
Tripura	18,391	4,152	14,239	77	18
Meghalaya	26,971	358	26,613	99	33
Chandigarh	30,863	8,820	22,043	71	27
A & N islands	5,153	3,072	2,081	40	3
Mizoram	7,855	754	7,101	90	9
Goa	8,859	3,984	4,875	55	6
Arunachal Pradesh	7,626	686	6,940	91	9
Daman & Diu	1,628	40	1,588	98	2
Sikkim	2,700	71	2,629	97	3
Puducherry	6,607	9,276	(2,669)	(40)-	3
Dadra & N Haveli	1,028	174	854	83	1
Lakshwadeep	-	42	(42)	-	-
Andhra Pradesh	33,532	40,680	(7,148)	(21)-	9
Jammu and Kashmir	221,411	187,200	34,211	15	42
Tamil Nadu	-	352,800	(352,800)	--	436

Notes on Tables 3.5 and 3.6:

a) Excess allocations are computed as the difference between PDS allocation and PDS consumption.

b) The fiscal cost is calculated by multiplying the per quintal subsidy (₹ 1237 for wheat and ₹ 1619 for rice) by the total excess allocation.

c) Our proposed allocation is calculated by scaling up the 2011-12 PDS consumption as per NSS by 25 percent

d) Savings due to our proposal is the difference between the PDS allocation and our proposed allocation.

e) Fiscal savings is again calculated by multiplying the total savings (in tonnes of grain) by the per quintal subsidy.

3.4 The Case of Food

A similar situation prevails in the distribution of subsidised grain via the PDS. Table 3.5 and 3.6 show that leakages are large and present in most states, and that they are significantly larger for wheat (54 percent) than for rice (15 percent). The fiscal cost of these leakages is also large – about ₹ 5800 Cr for PDS rice and ₹ 12,600 Cr for PDS wheat. Recent academic research on the subject of PDS leakages has found that leakages are falling though still unacceptably high[12]. There is also suggestive evidence that leakages are larger in the APL rather than the BPL category[13]. We note that any proposal to reduce food subsidy leakages has to bear in mind the provisions of the National Food Security Act, which provides for a total of 5 kg of subsidised grain (rice, wheat and/or millet at ₹ 3, 2 and 1 per kg, respectively) to households as well as cash benefits for pregnant women and hot meals for young children.

Like for kerosene, leakages are also larger in states that have larger allocations (Table 3.7), and consumption of grains tends to decrease as households get wealthier (Table 3.8).

Table 3.7 : Relationship between rice allocations and PDS leakages

	All states	Excluding North eastern states	Only major states
Log (per capita PDS allocation)	0.972***	0.736***	0.913***
	(0.000)	(0.010)	(0.015)
Log (GDP per capita)	0.226	0.332	0.252
	(0.382)	(0.139)	(0.340)
Measure of corruption	-0.172	-0.225	-0.270
	(0.262)	(0.212)	(0.186)
Observations	27	20	17
Adjusted R-squared	0.428	0.292	0.279

Dependent variable is Log(per capita excess PDS allocations)p-values in parenthesis* p < 0.10, ** p < 0.05, *** p <0.01

Table 3.8 : Income elasticity for rice

	Log(consumption)	Log(consumption)	Log(consumption)	Log(consumption)
Log (per capita PDS allocation)	-0.142***	-0.137***	0.106***	-0.123***
	(0.000)	(0.000)	(0.000)	(0.000)
District fixed effects	No	Yes	Yes	Yes
State fixed effects	No	Yes	Yes	Yes
Observations	30835	3085	18581	1703
Adjusted R-squared	0.019	0.518	0.516	0.628

p-values in parenthesis* p < 0.10, ** p < 0.05, *** p <0.01

[12] Ashok Gulati and Shweta Saini "*Leakages from Public Distribution System (PDS) and the Way Forward"*, 2015, ICRIER working paper

[13] Jean Dreze and Reetika Khera "*Understanding Leakages in the Public Distribution System"*, 2015, Economic and Political Weekly, February 14.

3.5 The possibilities offered by cash transfers

Technology is increasingly affording better means for the government to improve the economic lives of the poor. In particular, technologies that enable the state to better target and transfer financial resources to households expand the set of anti-poverty tools the government has in its armoury. These technological innovations have renewed political, policy and academic interest in the potential of direct cash transfers to help the poor. Recent experimental evidence documents that unconditional cash transfers – if targeted well – can boost household consumption and asset ownership and reduce food security problems for the ultra-poor.[14]

Cash transfers can also augment the effectiveness of existing anti-poverty programs. By reducing the number of government departments involved in the distribution process, opportunities for leakage are curtailed. A recent study[15] reported evidence from Andhra Pradesh where MGNREGA and Social Security payments were paid through Aadhaar-linked bank accounts. Households received payments on average 10 days faster with the new Aadhaar-linked direct benefits transfer system, and leakages reduced by 10.8 percentage points. The value of the fiscal savings – due to lower leakages – were 8 times greater than the cost of implementing the program. This shows the high returns to public investments in the state capacity required to deliver secure payments.

In addition to net fiscal savings, income transfers can compensate consumers and producers for exactly the welfare benefits they derive from price subsidies without distorting their incentives in the way described in Section II above.

3.6 The JAM Number Trinity solution

Eliminating or phasing down subsidies is neither feasible nor desirable unless accompanied by other forms of support to cushion the poor and vulnerable and enable them to achieve their economic aspirations. The JAM Number Trinity – ***J****an Dhan Yojana*, ***A****adhaar* and ***M****obile numbers* – allows the state to offer this support to poor households in a targeted and less distortive way.

As of December 2014, over 720 million citizens had been allocated an Aadhaar card. These enrolments are increasing at a rate of 20 million per month and by December 2015, the total number of Aadhaar enrolments in the country is expected to exceed 1 billion. Linking the Aadhaar number to an active bank account is key to implementing income transfers. To this effect, the government had seeded over 100 million bank accounts with registered Aadhaar numbers by December 2014. With the introduction of Jan Dhan Yojana, the number of bank accounts is expected to increase further and offering greater opportunities to target and transfer financial resources to the poor. Indeed, the government is already attempting this transition in certain areas by paying cooking gas subsidies directly via Direct Benefit Transfer into the bank accounts of 9.75 crore recipients.

We describe two alternative financial delivery mechanisms below:

- ***Mobile Money*** – With over 900 million cell phone users and close to 600 million unique users, mobile money offers a complementary mechanism of delivering direct benefits to a large proportion of the population.[16] Moreover, 370 million

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[14] Johannes Haushofer & Jeremy Shapiro (2013), *Household Response to Income Changes: Evidence from an Unconditional Cash Transfer Program in Kenya*, Working Paper.

[15] A group of 158 sub-districts implemented this new payment system, but were enrolled in the program in a random order, which enabled the researchers to carefully examine the impact of enrolment on leakages of MGNREGA payments. Karthik Muralidharan, Paul Niehaus & Sandip Sukhtankar (2014), *Building State Capacity: Evidence from Biometric Smartcards in India*, Working Paper.

[16] *http://www.trai.gov.in/WriteReadData/WhatsNew/Documents/Presspercent20Release-TSD-Mar,14.pdf*

of these cell phone users are based in rural areas, and this number is increasing at a rate of 2.82 million every month. Mobile money therefore offers a very viable alternative to meet the challenge of last mile connectivity. Given that Aadhaar registrations include the mobile number of a customer, the operational bottlenecks required to connect mobile numbers with unique identification codes is also small. With several cell phone operators reportedly applying for a payment bank license in February 2015[17], mobile money platforms offer tremendous opportunities to direct Aadhaar based transfers.

- ***Post Offices*** – India has the largest Postal Network in the world with over 1,55,015 Post Offices of which (89.76 percent) are in the rural areas.[18] Similar to the mobile money framework, the Post Office (either as payment transmitter or a regular Bank) can seamlessly fit into the Aadhaar linked benefits-transfer architecture by applying for an IFSC code which will allow post offices to start seeding Aadhaar linked accounts. The post office network also enjoys a long-standing reputation of using its deep network to serve many geographically isolated consumers in the country.

If the JAM Number Trinity can be seamlessly linked, and all subsidies rolled into one or a few monthly transfers, real progress in terms of direct income support to the poor may finally be possible. The heady prospect for the Indian economy is that, with strong investments in state capacity, that *Nirvana* today seems within reach. It will be a *Nirvana* for two reasons: the poor will be protected and provided for; and many prices in India will be liberated to perform their role of efficiently allocating resources in the economy and boosting long run growth. Even as it focuses on second generation and third generation reforms in factor markets, India will then be able to complete the basic first generation of economic reforms.

[17] *http://articles.economictimes.indiatimes.com/2015-02-03/news/58751845_1_payments-banks-small-banks-shinjini-kumar*

[18] *http://www.indiapost.gov.in/our_network.aspx.*

The Investment Climate: Stalled Projects, Debt Overhang and the Equity Puzzle

04
CHAPTER

4.1 Introduction

India's investment has been much below potential over the last few years. From a peak of 24 per cent in the last quarter of 2009-10 financial year, the rate of growth of gross fixed capital formation now languishes around zero (Figure 4.1). Stalling of "projects," a term synonymous with large economic undertakings in infrastructure, manufacturing, mining, power, etc., is widely accepted to be a leading reason behind this decline. The stock of stalled projects at the end of December 2014 stood at ₹ 8.8 lakh crore or 7 per cent of GDP.

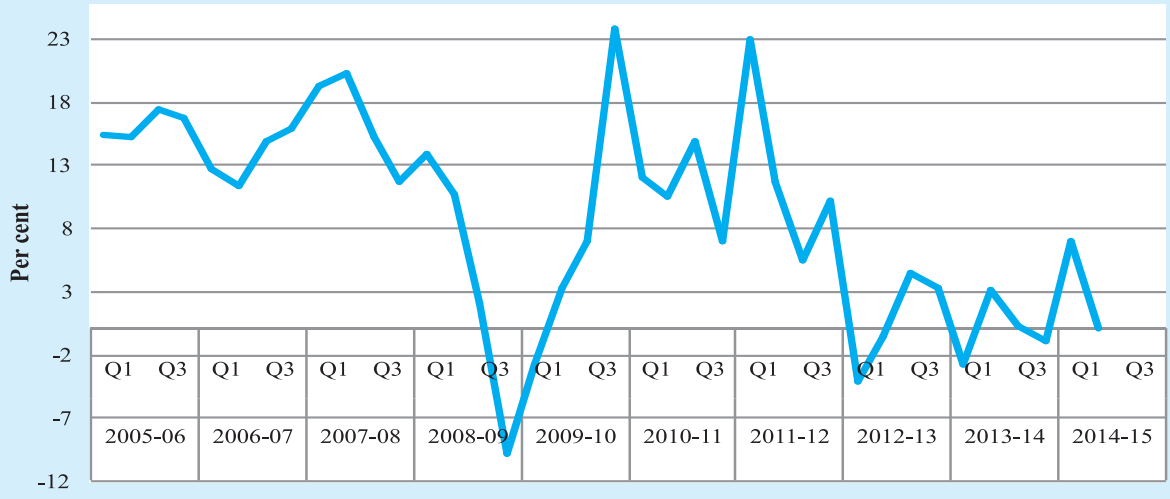
This analysis uses the CAPEX database in the Center for Monitoring Indian Economy (CMIE) platform to analyse stalled projects, offering some insights and policy lessons. The database contains a large sample of firm level public and private investment data, balance sheet reports and survey of companies, and the timeline of projects. This mix of data allows us to generate a plausible picture of the investment climate in the country with the caveat being that it is a sample and hence not immune to selection biases.

This chapter provides five key take-home messages and two policy lessons. The key messages are follows.

i. The stalling rate of projects has been increasing at an alarmingly high rate in the last five years, and the rate is much higher in the private sector.

ii. The good news is that the rate of stalling seems to have plateaued in the last three quarters. Moreover, the stock of stalled projects has come down to about 7 per cent of the GDP at the end of the third

Figure 4.1: Gross Fixed Capital Formation (year-on-year, rate of growth)



Source : Central Statistics Office

quarter of 2014-15 from 8.3 per cent the previous year.

iii. The data shows that manufacturing and infrastructure dominate in the private sector, and manufacturing dominates in total value of stalled projects even over infrastructure. The government's stalled projects are predominantly in infrastructure. Unfavourable market conditions (and not regulatory clearances) are stalling a large number of projects in the private sector, and in contrast regulatory reasons explain bulk of stalling in the public sector. Also, clearing the top 100 stalled projects will address 83 per cent of the problem of stalled projects by value.

iv. Stalling of projects is severely affecting the balance sheets of the corporate sector and public sector banks, which in turn is constraining future private investment, completing a vicious circle, characterised by an investment slowdown leading to less financing back to weak investment.

v. Despite high rates of stalling, and weak balance sheets, the equity market seems to be performing quite well. A plausible hypothesis being that equity valuations of affected companies are not being sufficiently priced in. Through an event study we show that the stalling of projects is indeed not having a significant impact on firm equity. This may potentially be due to the pure political economy reason that the market is internalising the expectations of bailouts.

And, the two policy lessons are as follows.

i. Combining the situation of Indian public sector banks and corporate balance sheets suggests that the expectation that the private sector will drive investment needs to be moderated. In this light, public investment may need to step in to recreate an environment to crowd-in private sector investment in the short term.

ii. Efforts must be made to revitalise the public-private partnership model of investment, albeit in a different manner (specific details are offered in Box 4.1). In addition, serious consideration must be given to setting up an Independent Renegotiation Committee. In the presence of weak mechanisms for bankruptcy and exit, we have to think creatively about distributing pain amongst the stakeholders from past deals gone sour.

4.2 Rate of stalling and stock of stalled projects

4.2.1 Alarmingly high and dominated by the private sector

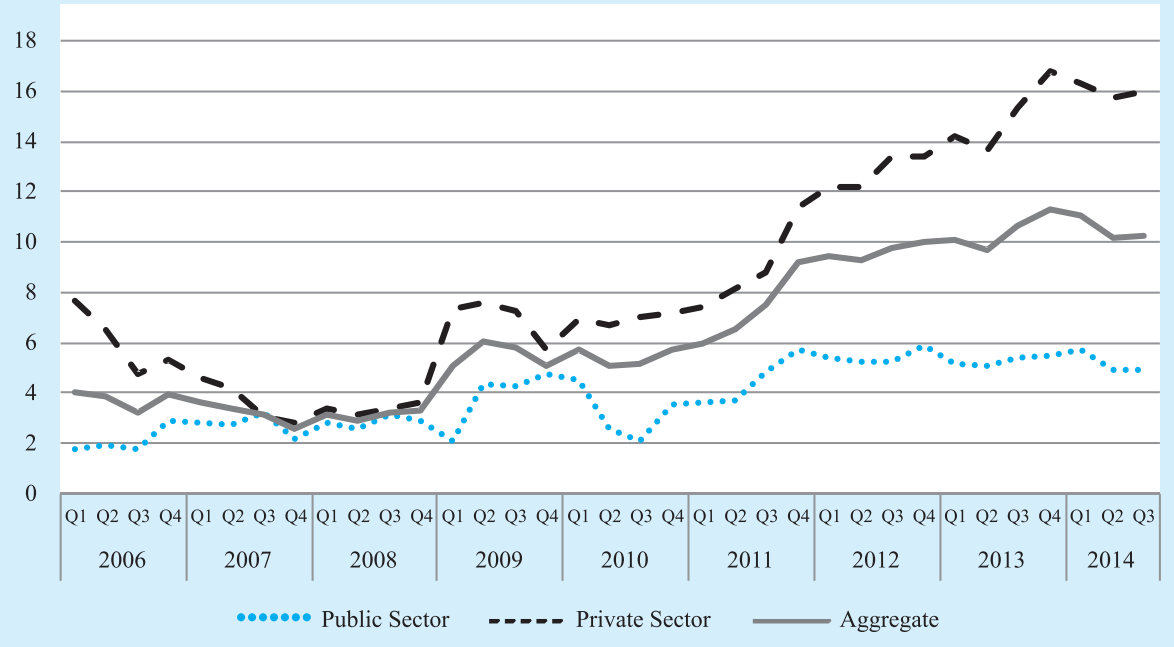
Figure 4.2 plots quarterly data on the stalling rate, defined as the stock of stalled projects as a percentage of those under implementation in terms of value of projects. It is evident that the stock of stalled projects has been rising at an alarming rate. Moreover, it is dominated by the private sector, especially in the last five years. At end of the third quarter of the current financial year, for every 100 rupees of projects under implementation, 10.3 rupees worth of projects were stalled, and the number for private sector stood at 16.

4.2.2 Tapering in the last three quarters

The stock of stalled projects is driven by two factors: rate of stalling and the rate of revival. Figure 4.3 depicts the gross value of projects stalled and revived during the last few quarters. As can be seen both were contributing to the problem, a large volume of projects were being stalled, and not enough were being revived. However, in the last few quarters there have been some improvements on both fronts.

Table 4.1 reports the stock of stalled projects as a fraction of GDP. Stalled investments at the rate of 8-9 percent of GDP over the last three fiscal years have been a leading reason behind the decline in gross fixed capital formation seen earlier in Figure 4.1. However, the number has come down to around 7 per cent of GDP at the end of

Figure 4.2: Stalling Rate by Value (Stock of Stalled Projects as Percentage of Projects under Implementation



Source **: CMIE.**

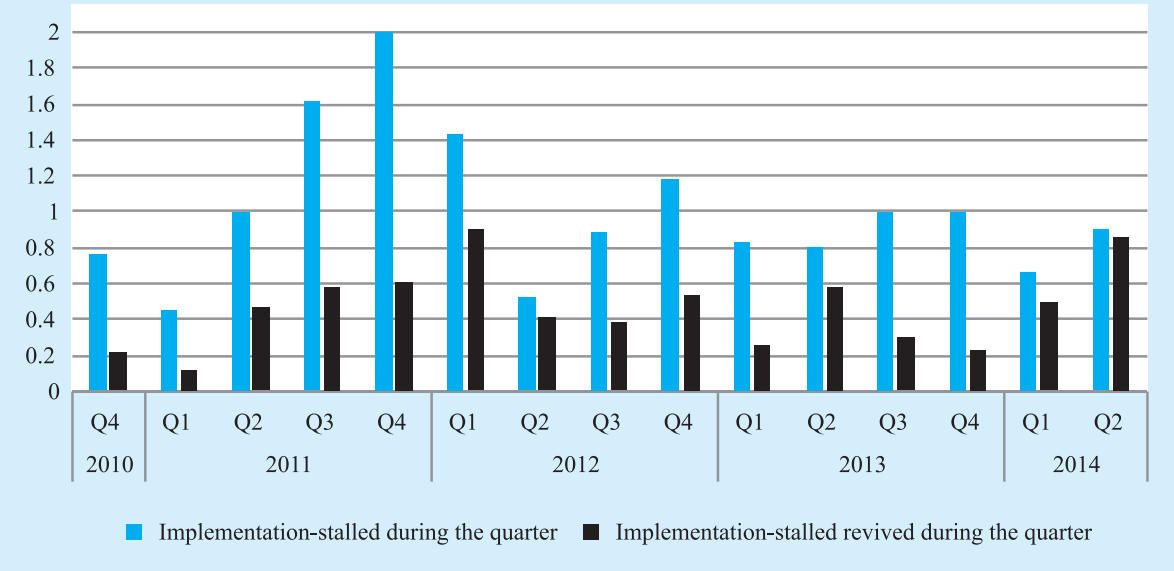
the third quarter of 2014-15, showing a gradual improvement.

4.3 An Analysis of Stalled Projects

Using all the available information in the CAPEX database, we analyse the set of stalled projects along five dimensions: ownership, value, sector, geography and reasons for stalling (disaggregated in further detail in Table 4.2).

Figures 4.4 and 4.5 show the sectoral decomposition of the ₹ 8.8 lakh crore worth of stalled projects for public and private sector firms, respectively. The first thing to note is that the public and private sector account for ₹ 1.8 and ₹ 7 lakh

Figure 4.3: Stalling and Revival of Projects by value (in lakh crore)



Source **: CMIE**

Table 4.1 : Stalled Projects (by value) as a fraction of GDP

Year	Government	Private	Total
2011-12	2.0%	5.7%	7.7%
2012-13	1.9%	6.1%	8.9%
2013-14	1.8%	6.5%	8.3%
2014-15 (till Q3)	1.4%	5.5%	6.9%

Source **: CMIE and Central Statistics Office**

crores, respectively, of the total worth of stalled projects. In terms of share in total, electricity and services dominate for both public and private sectors[1], while manufacturing forms the major component of stalled projects in the private sector.

One sector with large a number (and total worth) of stalled projects in both public and private sectors is electricity. At the end of third quarter of this financial year, 80 projects were stalled in the electricity sector out of which 75 are in generation and 5 in distribution, and 54 of these 80 are in fact private. It is important to note that almost all the projects in electricity under the "private" category

Table 4.2 : Characterising Stalled Projects

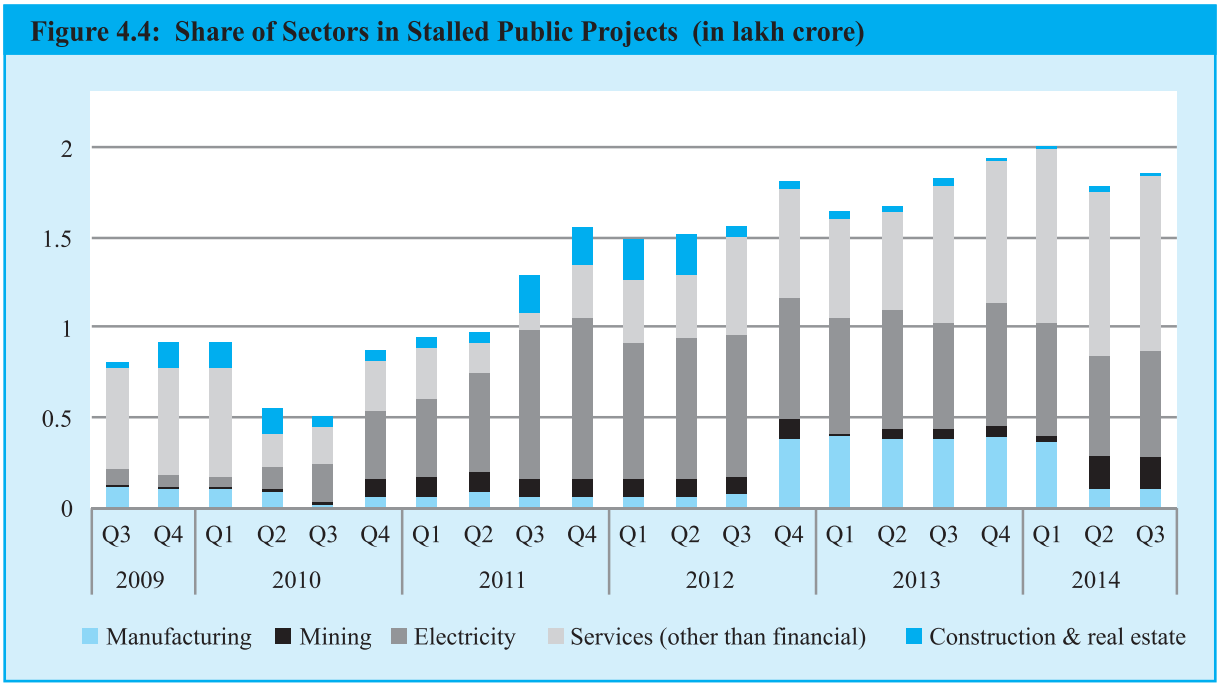
Dimension	Components
Ownership	Public, Private (Indian), Private (Foreign)
Sector	Infrastructure: Electricity, Highways, Airports, Construction Mining: Coal, Iron Manufacturing: Steel, Cement, Drugs, Garments, Processed Food
Geography	States
Value	In rupees
Reason for Stalling	Clearances: Environmental, LandFuel. Other raw materials Market: lack of demand, funds

Source **: CMIE**

are actually public-private partnerships, which affects the public sector directly.

A more granular analysis shows that manufacturing, mining and electricity, in that order, have had the highest stalling rates in the last few quarters among all sectors. Air transport, roads and shipping are the other big contributors in infrastructure, and steel, cements, garments, and food processing are the

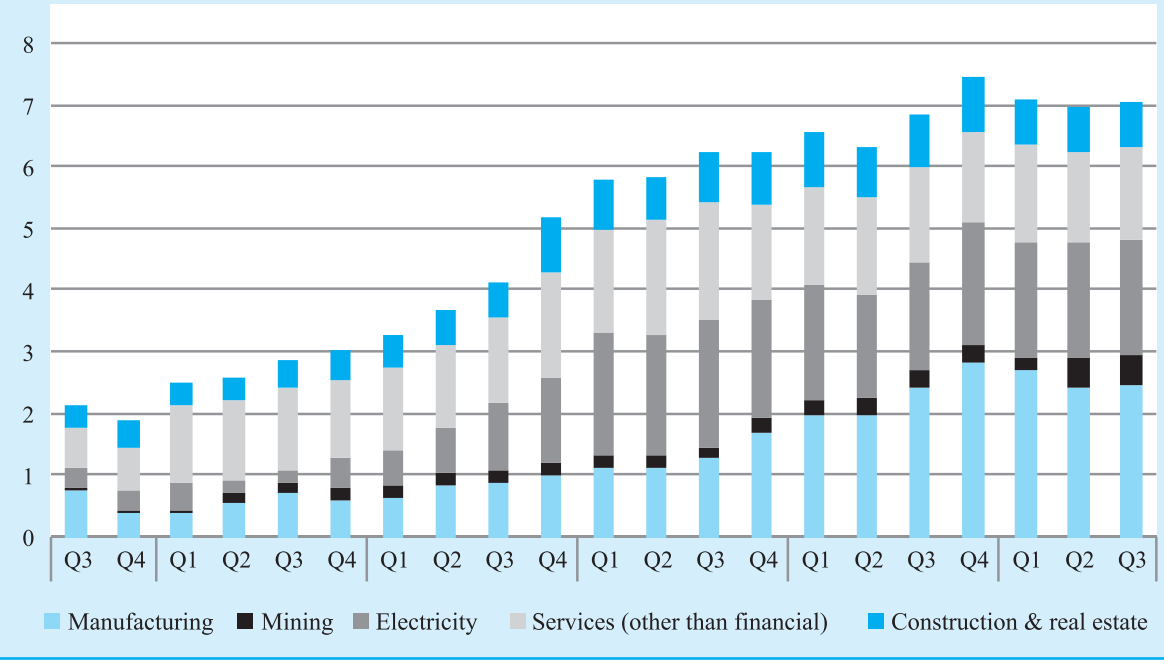
Figure 4.4: Share of Sectors in Stalled Public Projects (in lakh crore)



Source**: CMIE**

[1] Services includes Hotel and Tourism, Wholesale and retail trading, Transport services, Communication services, IT and other miscellaneous non-financial services.

Figure 4.5: Share of Sectors in Stalled Private Projects (in lakh crore)



Source **: CMIE**

largest contributors within the manufacturing sector.

Next, in Table 4.3, we analyse primary reasons for stalling in public and private sectors. It is clear that private projects are held up overwhelmingly due to market conditions and non-regulatory factors whereas the government projects are stalled due to lack of required clearances.

Perhaps contrary to popular belief, the evidence points towards over exuberance and a credit bubble as primary reasons (rather than lack of regulatory clearances) for stalled projects in the private sector. On the flipside, government projects were the most severely affected by "policy paralysis" of regulatory clearances. There are of course interdependencies, but a private sector "project bubble" is not inconsistent with the data.

Table 4.4 shows the top reasons for stalling across sectors. Two lessons are crucial here. First manufacturing is being stifled by a general deterioration in the macroeconomic environment. Second, stalled projects in electricity are a victim of lack of coal (or coal linkages).

Table 4.5 presents all the states that have stalling rates in excess of 10 per cent. While it is true that some states have large amounts of projects under implementation to begin with (thus the large volume of stalled projects may potentially be driven by aggregate volume of projects in the state), our definition of stalling rate, as the value of stalled projects as a percentage of projects under implementation, scales the numbers appropriately. On this measure, it seems that with a few exceptions states with relatively weak institutional environments have more stalled projects.

Table 4.3 : Top Reasons for stalling across ownership

Owner	No. of Projects	Top Reasons for Stalling
Private (Indian)	585	Unfavourable market conditions Lack of promoter interest Lack of non-environmental clearances
Government	161	Land acquisition problem Lack of non-environmental Clearances Lack of funds

Source **: CMIE**

Table 4.4 : Top reasons for stalling across industries

Industry	No. of Projects	Top Reasons
Manufacturing	212	Unfavourable market conditions
Mining	40	Lack of non-environmental clearances
Electricity	80	Fuel/feedstock/raw material supply problem
Services	283	Lack of promoter interest
Construction and Real Estate	143	Lack of non-environmental clearances

Source **: CMIE**

Finally what is the distribution of the value of stalled projects? They are top heavy in the sense that a small fraction accounts for a bulk of the total value of stalled projects. Table 4.6 shows that clearing the top 100 projects by value will address 83 per cent of the problem of stalled projects. This makes the problem look relatively manageable.

4.4 Balance Sheet Syndrome with Indian Characteristics

As reported in the Mid-Year Economic Analysis (2014-15), corporate balance sheets in India continue to be over-extended. Here we provide a deeper empirical analysis of the same, and add banks' balance sheets to the picture.

Table 4.5 : States with stalling rate > 10%

State	2013 Q4	2014 Q3
West Bengal	34.4	28.9
Himachal Pradesh	20.2	22.7
Odisha	11.4	19.9
Jharkhand	32.0	17.3
Uttar Pradesh	26.2	16.6
Chhattisgarh	20.2	15.4
Andhra Pradesh	12.3	14.9
Maharashtra	7.5	12.4
Telangana	9.0	10.0

Source **: CMIE**

Table 4.6 : Share of top stalled projects in total value of stalled projects

Percentile	Percentage of Total
Top 10	28.67%
Top 20	43.91%
Top 50	65.73%
Top 100	82.55%

Source **: CMIE**

Figure 4.6 shows the debt to equity ratio of non-financial corporates in the BSE 500 across time and in comparison to other countries. Debt to equity is a measure of financial leverage that indicates the proportion of debt and equity used by the company to finance its assets. An unambiguous fact emerging from the data is that the debt to equity for Indian non-financial corporates has been rising at a fairly alarming rate

Figure 4.6A: Debt to Equity Ratio of Non-financial Corporates (MSCI index as of December 2014)

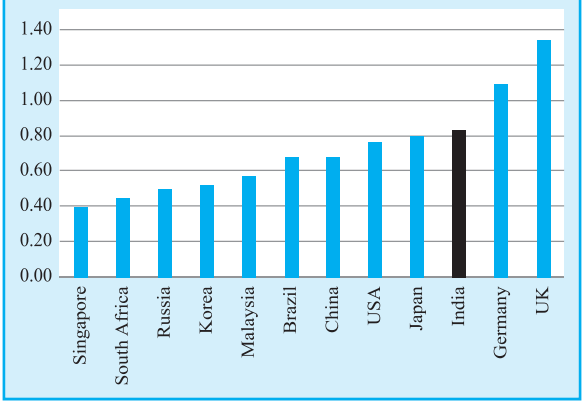
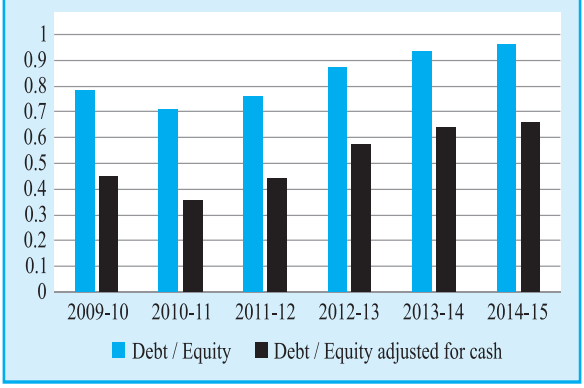


Figure 4.6B: Debt to Equity Ratio of Indian Corporates (BSE 500)



Source**: Bloomberg and J.P. Morgan**

over time and is significantly higher when viewed against other comparator countries.

To some extent high levels of debt may be justified if a company has sufficient earnings to pay the interest component of outstanding debt. This ability of a company to pay the interest on its outstanding debt is measured using the Interest Coverage Ratio (ICR). ICR is technically defined as the ratio of a company's earnings before interest and taxes (EBIT) of one period to its interest expenses over the same period. An ICR below 1 therefore indicates a low EBIT relative to interest expenses and highlights serious weaknesses in the company's balance sheet.

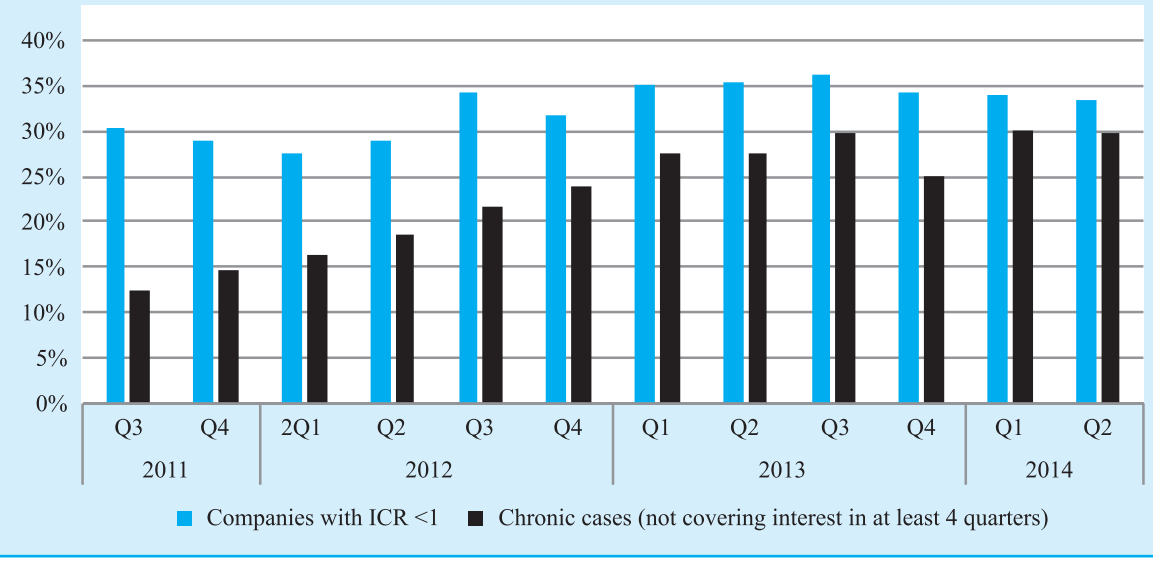
The figure 4.7 shows the percentage of companies in a large sample of 3,700 listed companies in India that have ICR <1. Of these a fairly large fraction have not been able to cover interest in the last four quarters for which data was available. In fact, Credit Suisse reports that of the total debt of US$ 450bn in the sample, US$ 140bn (about 33 per cent) is currently with companies with ICR<1. Four years ago only 17 per cent of the debt was with such companies.

Many countries before, including Japan in the aftermath of the real estate and equity boom of the late 1980s, have experienced over-extended corporate balance sheets. However, there is something fundamentally Indian about this phenomenon.

First, the debt overhang of the corporate sector is accompanied by a relatively high growth of around 6 to 7 per cent. Second, it has been accompanied by high inflation (instead of the price deflation in the Japanese example), see Figure 1.1A in Chapter 1. Third, the public sector is exposed to corporate risk in the form of public private partnerships, and lending by the public sector banks. Fourth, unlike many other countries with high debt to equity ratios currently, India's debt is almost exclusively financed by public sector banks. This has translated into high and rising non-performing assets for these banks, see Figure 4.8.

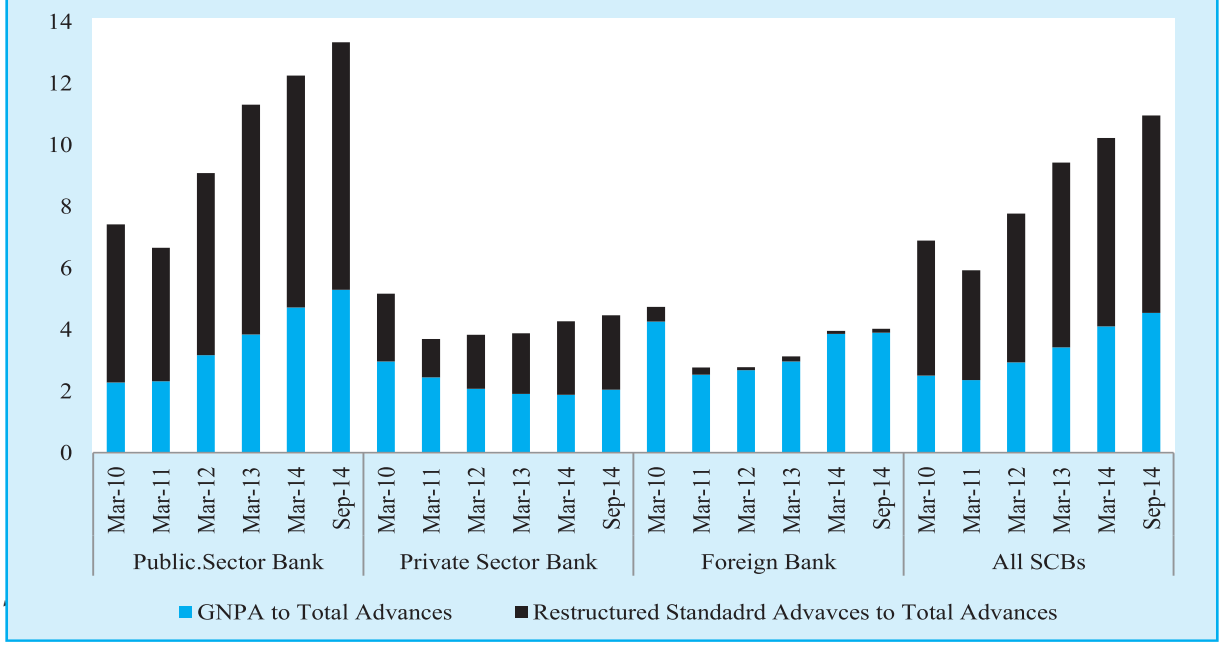
Tying things together- a steep decline in gross fixed capital formation, a large volume of projects in suspended animation, worryingly high number of stressed assets in banks' balance sheets and a highly leveraged corporate sector- suggests that Indian firms face a classic debt overhang problem in the aftermath of a debt fuelled investment bubble, translating into a balance sheet syndrome with Indian characteristics.

Figure 4.7: Companies with ICR<1 (percentage of total sample)



***Source*: Credit Suisse (sample of 3,700 listed companies)**

Figure 4.8: Gross NPA and Restructured Assets as per cent of total advances



***Source*: RBI**

4.5 What is the impact of Balance Sheet Syndrome on Firm Equity?

Figure 4.9A shows the Nifty Index since January 2011. There is a clear surge in equity values of Indian firms in the last three years. The puzzle though is that this surge coexists with rising stalling rates of big projects (see Figure 4.2), weak balance sheets (see Figure 4.6 and 4.7), declining new investments in the private sector (see Figure 4.9B), and toxic assets on banks' balance sheets (see Figure 4.8).

Frozen credit and overleveraged balance sheets should theoretically have a direct impact on the stock value of firms. The evidence to the contrary can be driven by (i) expectations of a significant turnaround in the macroeconomic environment, and (ii) internalisation of political economy factors in that the markets perceive that promoters and financiers of stalled projects will be aided by the government in some way (too big to fail).

While some indicators in the macroeconomy (inflation and current account deficit) have definitely turned around, it is a very recent phenomenon. Moreover, investment has remained muted (see Figure 4.1 and 4.9B). The market's reaction to a strong political mandate for the new government is definitely a reason, as can be seen in the rise in the slope of the equity surge post May 2014. But, can that be the exclusive explanation?

The rest of this section tests the hypothesis that stalling of projects has not had a significant impact on firm equity. To that end, we analyse the stock returns around the date of stalling of all firms with stalled projects and compare the same to the Nifty Index.

Figure 4.10A reports the rate of change of raw returns of all listed companies with stalled projects hundred days before and after the date of stalling, since 2008. The 100 day window is used to account for uncertainty regarding both the exact day of stalling and its perceived impact on the firm. The absolute numbers are accompanied by the 95 per cent confidence interval of the sample.[2] There is a clear decline in the value of firms with stalled projects around the date of stalling. The decline starts a bit before the projects is declared stalled because the market often internalises the status of the project as being stalled before the database declares so.

[2] The values are statistically significant if the confidence interval lies above or below the x-axis.

Figure 4.9A: Nifty Stock Price Index (daily, end of day)

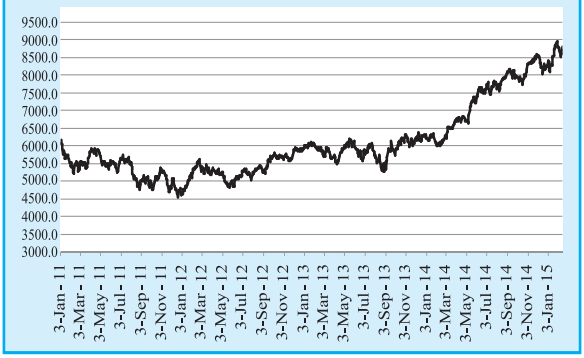
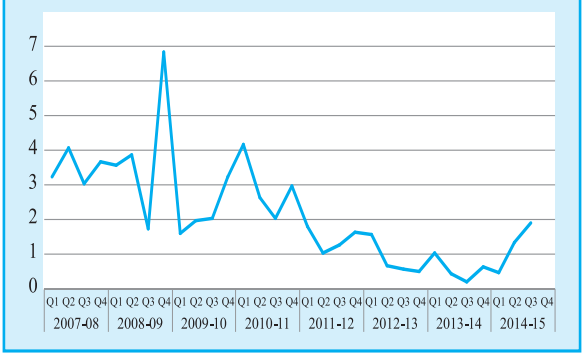


Figure 4.9B: New Private Investments (in lakh crore)



Source **: Nifty and CMIE**

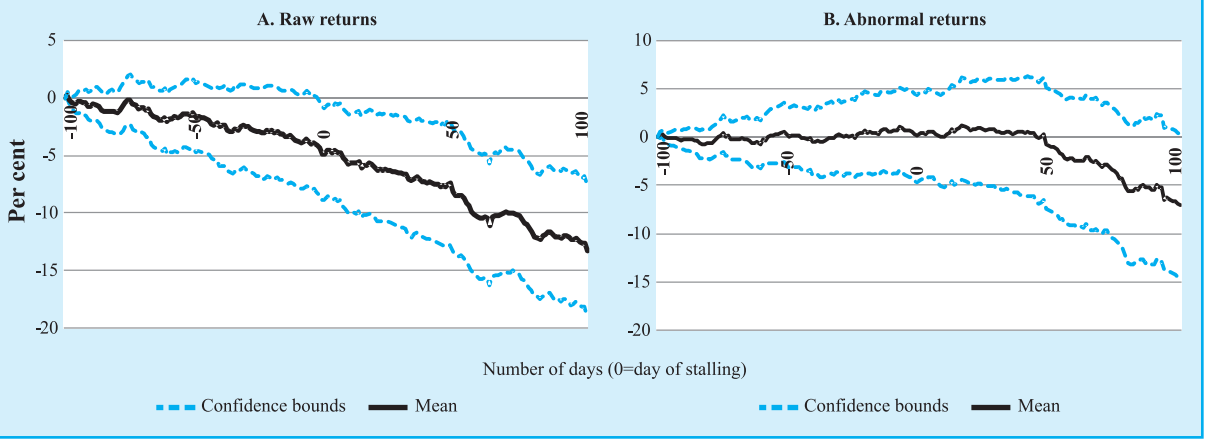
The question though is- Is the decline "enough"? In other words, how much impact does a stalled project have on a firm's equity relative to the index?[3] To answer this question, we plot the abnormal returns around date of stalling for all listed companies with stalled projects since 2008 (Figure 4.10B). Abnormal returns are defined as the returns generated by a given security or portfolio over a period of time that is different from the expected rate of return. We take the given portfolio to be the companies with stalled projects and the expected rate of return to be the Nifty index. Since this is an event study, the analysis of equity returns is conducted around the date of stalling.

We find that the abnormal returns are not statistically different than zero. The returns on the firms with stalled projects are not statistically different than the Nifty index before stalling and at least 50 days after stalling of the project. Even from the 50th to the 100th day after stalling the returns decline by not more than 5 per cent. This provides suggestive evidence that the market is not penalising firms severely for the debt pile-up in the wake of investments turning sour.[4] This may potentially be due to the pure political economy reason that the market is internalising the expectations of bailouts.

4.6 Policy Lessons

India needs to tread the path of investment-driven growth. Can the private sector be expected to rise to the occasion? Highly leveraged corporate

Figure 4.10: Rate of change around the date of stalling of all listed companies with stalled projects



Source **: CMIE, Prowess and Bloomberg** ***Source*** **: CMIE, Prowess and Bloomberg**

[3] Technically speaking, the null hypothesis is whether the market penalises firms with stalled projects sufficiently relative to the overall Nifty index?

[4] The result must be caveated in that it is based on a very reduced form exercise. Though it does provide much food for thought and an invitation for further exploration of the equity puzzle.

balance sheets, and a banking system under severe stress suggest that this will prove challenging. Against this backdrop, public investment may need to be augmented to recreate an environment to crowd-in private sector investment. The argument for desirability of public investment, and finding the fiscal space for its realisation are detailed in Chapters 2 and 6.

But, the call for public investment is not a counsel of despair for private investments going forward, especially the public-private partnership model. Concrete ideas on re-orienting the public-private partnership model of investment are provided in Box 4.1.

The biggest lesson from stalled projects and the associated credit aided infrastructure bubble is that perhaps more than a run up problem (over exuberant and misdirected private investment), we face a clean-up problem (bankruptcy laws, asset restructuring, etc.). Creative solutions are necessary for distributing pain equally amongst the stakeholders from past deals gone sour.

An idea to fix the clean-up problem is setting up of a high powered Independent Renegotiation Committee. In the presence of a market and regulatory failure, perhaps a creative step would be to involve external experts for a quick and independent resolution of the problems.

Box 4.1 : Restructuring the Framework for Public-Private Partnerships*

Many infrastructure projects are today financially stressed, accounting for almost a third of stressed assets in banks. New projects cannot attract sponsors, as in recent NHAI bids, and banks are unwilling to lend. Given its riskiness, pension and insurance funds have sensibly limited their exposure to these projects. This current state of the public private partnership (PPP) model is due to poorly designed frameworks, which need restructuring.

Flaws in existing design

First, existing contracts focus more on fiscal benefits than on efficient service provision. For example, in port and airport concessions, the bidder offering the highest share of gross revenue collected to the government is selected. Thus, if this share is 33% (higher in many actual contracts), the user pays 50% more than what is required, since the concessionaire is able to provide service even though it gets only ` 1 for every ` 1.50 charged.

Second, they neglect principles allocating risk to the entity best able to manage it. Instead, unmanageable risks, e.g., traffic risk in highways, even though largely unaffected by their actions, are transferred to concessionaires. This is also true for railways and in part, for ports (though inter-terminal competition is possible) and airports.

Third, the default revenue stream is directly collected user charges. Where this is deemed insufficient, bidders can ask for a viability grant, typically disbursed during construction. This structure leaves the government with no leverage in the case of non-performance, with few contractual remedies short of termination.

Fiscal reporting practices also affect this choice. Current accounting rules treat future committed expenditure as a contingent liability. However, foregone future revenue is not accounted for.

Fourth, there are no ex-ante structures for renegotiation. If a bureaucrat restructures a project, there are no rewards; instead it may lead to investigation for graft. Failed projects lead neither to penalties nor investigation. With such asymmetric incentives, bureaucrats naturally avoid renegotiation.

Finally, contracts are over-dependent on market wisdom, e.g., bidders in ultra-mega power projects (UMPP) could index tariff bids to both fuel prices and exchange rates, but almost all chose very limited indexation. When fuel prices rose and the rupee fell, these bids became unviable. To enforce market discipline and penalise reckless bidding, these projects should have been allowed to fail.

Needed Modifications

Despite such flaws, PPP generated significant investment. Can these flaws be rectified in a country, like India, which is reluctant to let concessionaires fail? What should future contracts look like?

First, it is better to continue combining construction and maintenance responsibilities to incentivise building quality. In many projects, especially highways, maintenance costs depend significantly on construction quality. If a single entity is responsible for both construction and maintenance, it takes lifecycle costs into account. Separating

Contd.

these responsibilities provide an incentive to increase profits by cutting corners during construction. Suggestions to let the public sector build assets and have the private sector maintain and operate them ignore this linkage.

Second, risk should only be transferred to those who can manage it. In a highway or a railway project, it is not sensible to transfer usage risk since it is outside the control of the operator. But, it can be done in telecom projects and for individual port terminals that compete with each other, where demand can respond to tariff and quality.

Third, financing structures should be able to attract pension and insurance funds, which are a natural funding source for long-term infrastructure projects.

What does this mean for key sectors? First, rather than prescribe model concession agreements, states should be allowed to experiment.For example, in ports, terminals can be bid on the basis of an annual fee, with full tariff flexibility, subject to competition oversight. For electricity generation, bids can be two-part, with a variable charge based on normative efficiency, or alternatively, determined by regulators and a capacity charge.

Another option, without that drawback, is the Least Present Value of Revenue (LPVR)[a] contract, where the bid is the lowest present value (discounted at a pre-announced rate) of total gross revenue received by the concessionaire. The concession duration is variable and continues until the bid present value amount is received. A key advantage of this contract is that it converts usage risk to risk of contract duration, which is more manageable for financial institutions. Since the bid is on gross revenue, it also selects bidders who can execute at low cost and demand relatively lower margins and by limiting the scope for renegotiation to the remaining uncollected value of the LPVR bid, it discourages opportunistic bidding. Further, since the present value is protected, this structure is suitable for pension and insurance funds.

Restructuring of existing contracts

Revival of private interest and bank lending needs existing contracts to be restructured, with burden sharing among different stakeholders. Lenders may have extended credit without necessary due diligence, assuming that projects were implicitly guaranteed. Without burden sharing, this behaviour will be reinforced. Similarly, many bidders may have assumed that they could renegotiate in the event of negative shocks. Thus, there was potentially adverse selection of firms who felt they had the capacity to renegotiate; rather than firms better at executing and operating the project. In particular, this may have limited participation by foreign firms. In the absence of burden sharing, such adverse selection would be supported. Thus, the guiding principle should be to restructure contracts based on the project's revenues, differentiating between temporary illiquidity and insolvency.

For example, all stressed highway projects could be switched to electronic tolling. All revenues can go, as now, into an escrow account, but with a revised order of priority. Long-term bullet bonds, at the risk-free government rate, can be issued to the extent of the debt in the project. After operations and maintenance, interest payments on these bonds, which may also be guaranteed by the Union government, will be first in order of priority. Lenders can opt to switch existing debt to these bonds. Allocations for repayment of their principal will have second priority and existing debt that has not been switched, the next priority. Equity can be the residual claimant. If the project makes money over its lifetime, equity holders will earn a return, though some may exit now, at a discount.

The private sector remains key to rapid delivery of high quality infrastructure. Restructured PPP frameworks will revive their interest in infrastructure and bring in funding from pension and insurance funds.

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* Inputs from Partha Mukhopadhyay (Center for Policy Research, New Delhi) are gratefully acknowledged.

[a] Engel E, R Fischer and A Galetovic (1997), 'Highway Franchising: Pitfalls and Opportunities', The American Economic Review, 87(2), pp 68–72. Engel E, R Fischer and A Galetovic (2001), 'Least-Present-Value-of-Revenue Auctions and Highway Franchising', Journal of Political Economy, 109(5), pp 993–1020.

Credit, Structure and Double Financial Repression: A Diagnosis of the Banking Sector

05 CHAPTER

"The nature of transactions between creditors and debtors on which the welfare of the kingdom depends, shall always be scrutinized," Kautilya in Arthshastra around 3rd century BC.

5.1 Introduction

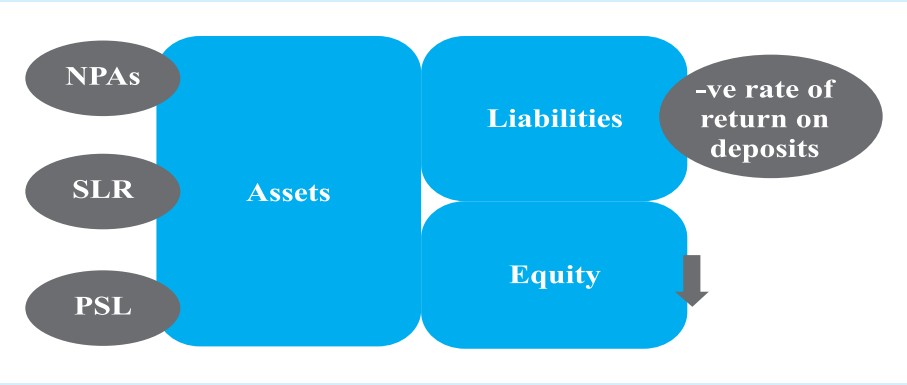
The policy discourse around banking in India has thrown up many specific ideas and challenges recently, prominent amongst them being the problem of stressed and restructured assets, the difficulty in acquiring the resources to meet the looming Basel III requirements on capital adequacy, and the need for governance reform (see for example the Nayak Committee Report).[1] Stepping back from these proximate issues allows a deeper analytical diagnosis of the problems of Indian banking which in turn provide the basis for more calibrated solutions.

We start with the size of credit in India. In terms of a number of indicators, the Indian financial sector does not appear to be an outlier. The overall credit-GDP ratio as well as the proportion of total credit accounted for by the banking sector is not out of line taking account of India's level of development. Moreover, its size hasn't increased dramatically over time compared to other countries. While the boom years of the last decade both spawned and were fed by a credit boom, originating in the public sector banks, irrationally exuberant behaviour was not out of line with similar experiences in other countries.

Rather, the challenges in the Indian banking system lie elsewhere and fall into two categories: policy and structure.

The policy challenge relates to financial repression. The Indian banking system is afflicted by what might

Figure 5.1: Double Financial Repression on the Indian banking balance sheet



NPA: Non-Performing Assets (bad loans), SLR: Statutory Liquidity Ratio, PSL: Priority Sector Lending

[1] Recapitalisation requirements for Public Sector Banks as estimated by Krishnamurthy Subramanian (ISB and member of Nayak Committee) range from ₹ 9.6 lakh crore to ₹ 4.8 lakh crore depending on the assumptions on forbearance and the ratio of restructured assets turning into NPAs.

be called "double financial repression" (Figure 5.1). Financial repression on the asset side of the balance sheet is created by the statutory liquidity ratio (SLR) requirement that forces banks to hold government securities, and priority sector lending (PSL) that forces resource deployment in less-than-fully efficient ways. Financial repression on the liability side has arisen from high inflation since 2007, leading to negative real interest rates, and a sharp reduction in households' financial savings. As India exits from liability-side repression with declining inflation, the time may be appropriate for addressing its asset-side counterparts.

The structural problems relate to competition and ownership. First, there appears to be a lack of competition, reflected in the private sector banks' inability to increase their presence. Indeed, one of the paradoxes of recent banking history is that the share of the private sector in overall banking aggregates barely increased at a time when the country witnessed its most rapid growth and one that was fuelled by the private sector. It was an anomalous case of private sector growth without private sector bank financing. Even allowing for the irrational exuberance of the Public Sector Banks (PSBs) that financed this growth phase, the reticence of the private sector was striking.

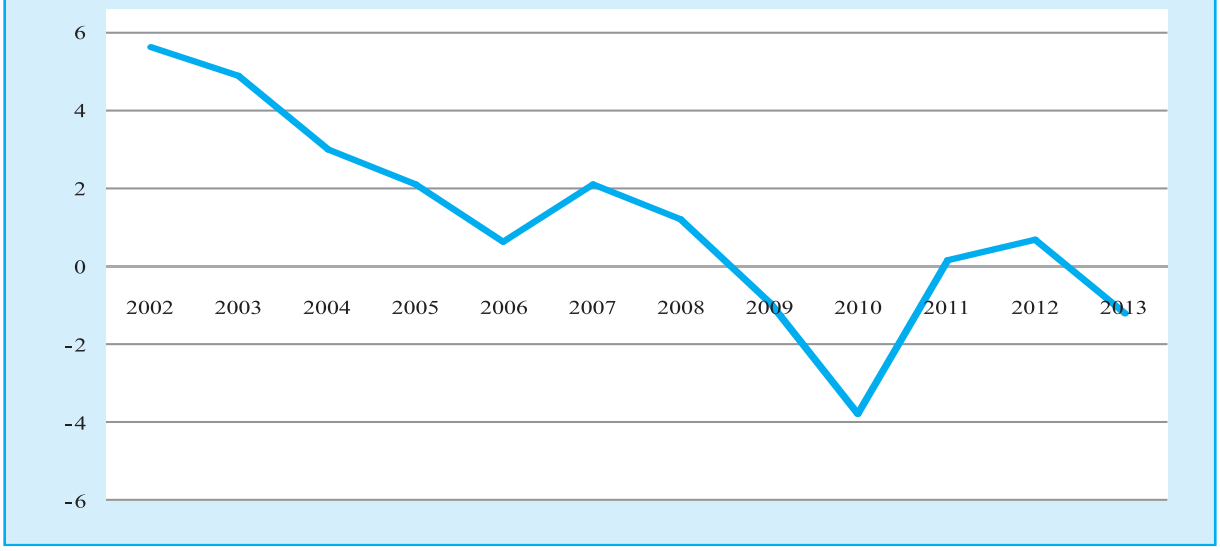
Finally, even within the public sector banks there is sufficient variation in performance. Viewing public sector banks as one homogenous block would be a mistake. Rather than adopting a one-size-fits-all approach, there needs to be greater selectivity in relation to recapitalisation, exit, and the level of government ownership.

The chapter ends with four key policy recommendations which we call the four Ds: *deregulate (in relation to financial repression), differentiate (within the PSBs), diversify (within and outside banking), and disinter (to create more efficient exit)*.

5.2 Financial Repression on the Liability Side

Figure 5.2 plots the average rate of return on deposits in all scheduled commercial banks in India over the last 14 years. These are calculated as the difference between the weighted average return on term deposits as reported by the Reserve Bank of India minus the CPI-IW inflation rate for that year as reported by the Central Statistics Office. High inflation and limited return on banks' assets has ensured that the rates maintained by banks fetched households a negative real rate of return on deposits.

Figure 5.2: Average Real Rate of Return on Deposits



Source **: RBI and Central Statistics Office**

Table 5.1: Savings as a percentage of GDP

	2004-05	2009-10	2010-11	2011-12	2012-13	2013-14
Household (Financial)	10.1	12.0	9.9	7.0	7.1	7.2
Household (Physical)	13.4	13.2	13.2	15.8	14.8	10.6
Household (Total)	23.6	25.2	23.1	22.8	21.9	17.8
Gross	32.4	33.7	33.7	31.3	30.1	30.6

Source **: Central Statistics Office. Caveat: New method employed in 2013-14.**

Household savings continue to be the largest contributor to gross capital formation. Household savings has two components- financial and physical, where the latter typically does not lend itself easily to financial intermediation in the economy. As can be seen from Table 5.1, the contribution of physical assets to household savings has stood stubbornly above 60 per cent all through the last decade.

5.3 Financial Repression on the Asset Side

Financial repression on the asset side has had a long history in India. As the state expanded its role in the economy and especially the financial sector in the 1970s, new rules had to be introduced to set aside bank capital to provide for it. Two key legacies of this piece of history are the Statutory Liquidity Ratio and Priority Sector Lending.

5.3.1 Statutory Liquidity Ratio

The Statutory Liquidity Ratio is a requirement on banks to hold a certain share of their resources in liquid assets such as cash, government bonds and gold. In principle, the SLR can perform a prudential role because any unexpected demand from depositors can be quickly met by liquidating these assets.

SLR requirements have traditionally been high. From 38 per cent in the period before 1991, there was a dramatic decline to about 25 per cent at the end of the 1990s. Since then however, the number has hovered around the quarter century mark, only recently falling to 22 per cent. As of Feb 4, 2015 the minimum requirement is 21.5 per cent of total assets. Banks typically keep more than the required SLR, the current realised SLR is in fact over 25 per cent.[2] In practice, the SLR has become a means of financing (at less than market rates presumably) a bulk of the government's fiscal deficit, suggesting that SLR cuts are related to the government's fiscal position.[3]

Box 5.1 presents the case for gradually reducing this requirement- both to free up capital for the banks and to make the market for government bonds more liquid.

5.3.2 Priority Sector Lending (PSL)

A key component of equality of credit in India has been the so called "priority sector lending". All Indian banks are required to meet a 40 per cent target on priority sector lending. The law states that all domestic commercial banks, public or private, have to lend 40 per cent of their adjusted net bank credit (ANBC) or credit equivalent amount of their off balance sheet exposure—whichever is higher—to the priority sectors, and number for foreign banks (with more than 20 branches) is 32 per cent. Further, public sector banks have clearly defined rules they have to follow in the subcategories- agriculture, micro and small enterprises, education, housing, export credit and others. The most important amongst them is that 45 per cent of all priority sector lending must be made to agriculture.

[2] This anomaly could probably be the result of the high level of stressed assets which encourage overinvestment in risk free government securities to maintain a respectable risk-weighted capital adequacy ratio. As the financial sector addresses this problem and the economy creates lending opportunities, this anomaly should be corrected.

[3] Vishwanathan, Vivina: "*DYK: Difference between CRR and SLR*," Livemint, June 2014

Box 5.1 : Reducing the Statutory Liquidity Ratio

The SLR is a form of financial repression where the government pre-empts domestic savings at the expense of the private sector. Real interest rates are lower than they would be otherwise.

Recently, the RBI has taken commendable and gradual steps in lowering the SLR from 25 per cent to 21.5 per cent. The question is whether the ambitions in this area should be ratcheted up. Three developments make this question particularly salient.

The argument has always been that SLRs can only be reduced if the government's fiscal situation improves. That is only partly correct because stocks rather than flows should condition SLR reform. India's fiscal deficit situation still needs consolidation but the public debt situation has been steadily improving and will continue to improve because of India's growth and inflation compared to borrowing costs. Overall indebtedness (center and states) has declined from over 80 percent to 60 percent in a decade. And this trend will continue because favorable debt dynamics will continue to operate in the future as long as growth remains above 8 percent.

This creates the first opening for phasing down the SLR over time. To be sure the government's borrowing costs will go up but the magnitudes are likely to be small for two reasons: first, costs will rise only on debt that is maturing, which over the next five years is about 21.1 per cent of total outstading debt; and second, the macro-environment and progress in durably reining in inflation may favor lower real interest rates.

The second reason relates to the health of the banks. As interest rates decline, there is scope for capital appreciation for the banks that hold the bulk of government securities. SLR reductions could allow them to offload G-secs and reap the capital gains which could help recapitalise them, reducing the need for government resources, and helping them raise private resources. (This is a better and cleaner way of recapitalizing the banks than to allow banks to mark their G-secs to market and realize the accounting profits). To avoid any moral hazard issues, gains from recapitalization should go first towards provisioning against NPAs, and only the surplus should go towards being counted as capital.

The third reason relates to the recent experience of infrastructure financing. PPP-based projects have been financed either by public sector banks or through foreign currency-denominated debt (ECBs). The former has proven tricky to say the least and the latter contributed to decline in corporate sector profitability especially in the infrastructure sector: investors borrowed in dollars and their revenues were predominantly in rupees so that when the rupee depreciated their profitability and balance sheets were adversely affected.

The time is therefore ripe for developing other forms of infrastructure financing, especially through a bond market. But SLRs have also stymied the development of government bond markets which in turn stifles the development of corporate bond markets. Reducing SLRs are therefore critical to finding better sources of infrastructure financing. The end-point of reform should be to combine the SLR and the Capital to risk weighted assets ratio (CRAR)[a] into one liquidity ratio set at a desirable level depending on international norms.

[a] *Capital to risk weighted assets ratio* (CRAR) is arrived at by dividing the capital of the bank with aggregated risk weighted assets for credit risk, market risk and operational risk.

To be sure, the social and economic objectives that underlie PSL make it a salient feature of banking in India. But like in the case of subsidies and direct transfers, greater attention must be given to ensuring that the deployed means are the most effective to achieving desired ends. There is hence greater need for evidence-driven policy and Box 5.2 below illustrates this point in relation to agricultural lending.

In this Box, we draw on the results from Ramakumar and Chavan (2014) and summarize striking findings on agricultural credit. The main takeaway is that a much more careful approach needs to be applied to defining what constitutes priority sector and closer monitoring of how these funds are disbursed. This is especially important because a 40 per cent requirement absorbs a large fraction of the banks' resources.

Box 5.2 : Agricultural Credit: Scratching the Surface of Rising Numbers*

1. Total agricultural credit has increased substantially since the turn of the century. The annual rate of growth that averaged 6.8 per cent in 1981-1991, was at 17.8 per cent for 2001-2011. In nominal terms, agricultural credit has grown more than 8 times in the last 15 years compared to the facts that agriculture's share in GDP has remained almost constant, and that significant urbanisation has occurred in this time.

Period	Annual Growth Rates		
	Credit to agriculture	Total Bank Credit	Agricultural GDP
1981-1991	6.8	8.0	3.5
1991-2001	2.6	7.3	2.8
2001-2011	17.8	15.7	3.3

2. There has been a sharp increase in the share of large-sized loans in agricultural credit as the table below shows which warrants scrutiny.

Year	Distribution of direct advances (per cent) along benchmark credit limits in rupees			
	< 2 lakhs	> 2 lakhs	< 10 lakhs	> 10 lakhs
1990	92.2	7.8	95.8	4.2
1995	89.1	10.9	93.6	6.4
2000	78.5	21.4	91.3	8.7
2003	72.6	27.4	87.5	12.5
2005	66.7	33.4	88.1	11.9
2011	48.0	52.0	76.2	23.8

3. There has been a substantial increase in share of agricultural credit outstanding that emanates from urban and metropolitan areas, which is deeply puzzling.
4. There has been a concentration of disbursal of agricultural credit from January to March, which are generally not the normal periods of borrowing by farmers. This shows that in order to meet priority sector lending targets banks possibly raise their lending activity in months when farmers may not necessarily need it the most.
5. There is a sharp decrease in the share of long-term credit in total agricultural credit. Thus, the portion of agricultural credit that was used for capital formation in agriculture has become small. The number has come down from over 70 per cent in 1991-92 to about 40 per cent in 2011-12.
6. The implication of this evidence is that lending to agriculture may be excessive and going predominantly to large farmers. It is not being used for agricultural capital formation. Perhaps most significantly a large share of it may not be going to core agricultural activities at all.

**Points 1 to 5 are based on the analysis of Ramakumar and Chavan (2014), "Bank Credit to Agriculture in India in the 2000s: Dissecting the Revival," Review of Agrarian Studies.*

5.4 A COMPARATIVE ANALYSIS OF BANKING AND CREDIT

5.4.1 Is India credit-addled and over-banked?

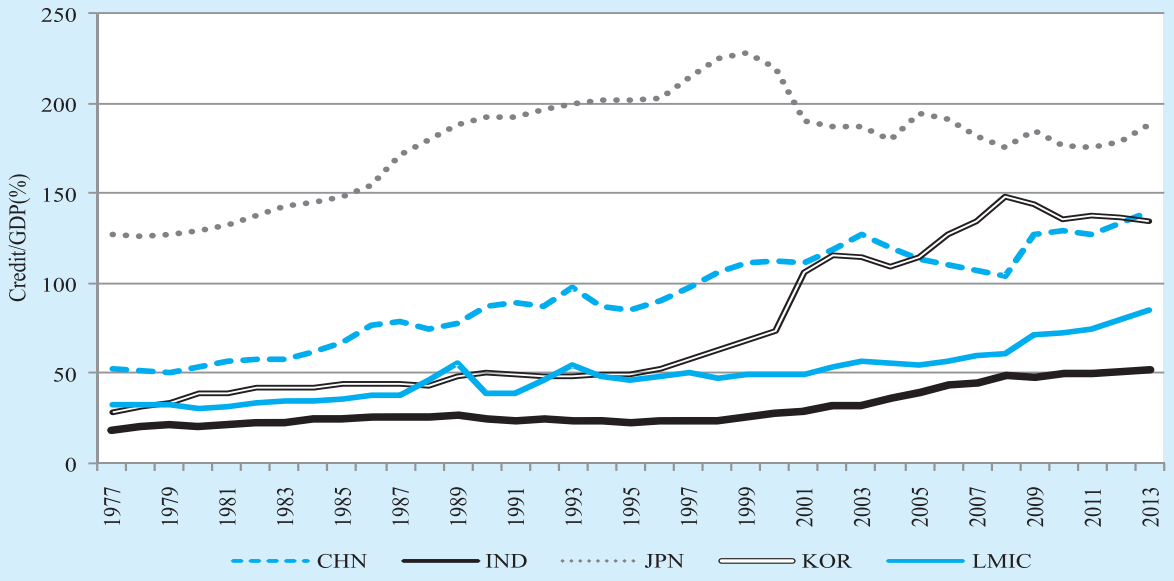
India has witnessed a credit boom over the last decade[4], with the share of credit-GDP increasing from 35.5 percent in 2000 to 51 percent in 2013, with the bulk accounted for by bank lending. Is this unusual? We answer this question in four ways.

First, we show the evolution over time in credit-GDP ratios in India and selected other countries (Figure 5.3) (as defined by the World Bank).[5] The

[4] See "*Corporate Vulnerabilities in India and Banks' Loan Performance*," IMF Staff Working Papers (2014), and "*House of Debt*," Credit Suisse Research (2013).

[5] The graphs uses World Bank's domestic credit to private sector, defined as financial resources provided to the private sector by financial corporations, such as through loans, purchases of non-equity securities, and trade credits and other accounts receivable, that establish a claim for repayment.

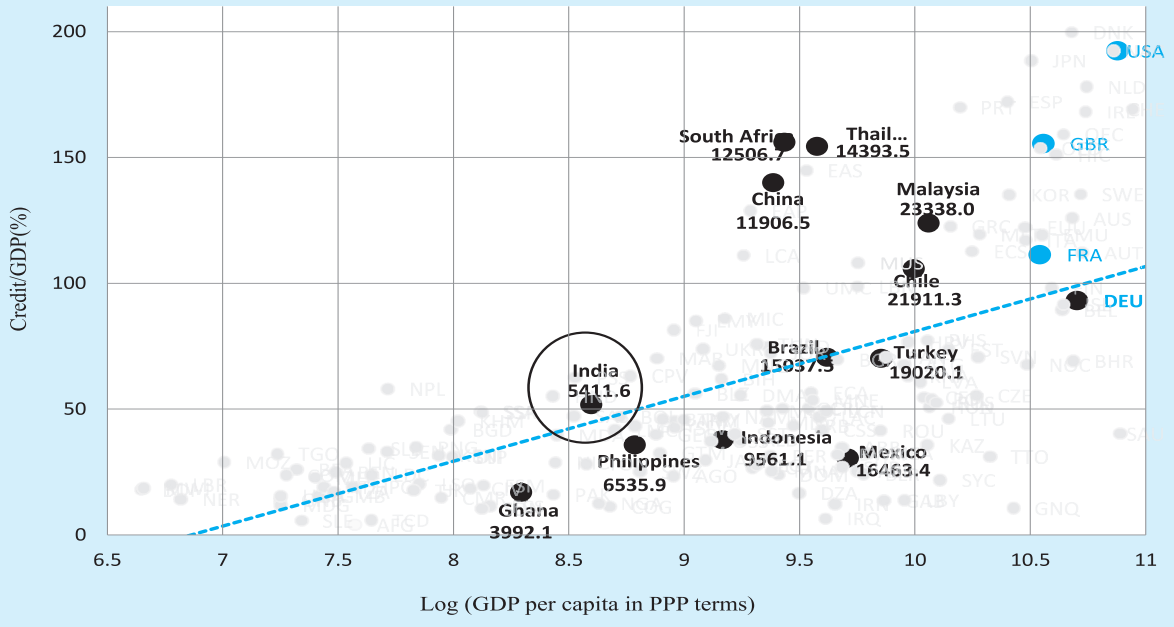
Figure 5.3: Domestic Credit to GDP Ratio (Time Series) India below Low Middle-Income Countries



***Source*: World Bank Databank. Note: LMIC stands for low and middle income countries.**

level of credit is lower than most countries nor has it increased more rapidly. Next we undertake a cross-country comparison plotting this same indicator against a country's level of development using the log of per capita GDP in purchasing power parity (PPP) terms as a proxy (Figure 5.4). As countries become richer, they tend on average to see a rise in credit, reflected in the upward sloping trend line.[6] But again, India is close to the trend line, indicating that for its level of development, credit levels are reasonable.

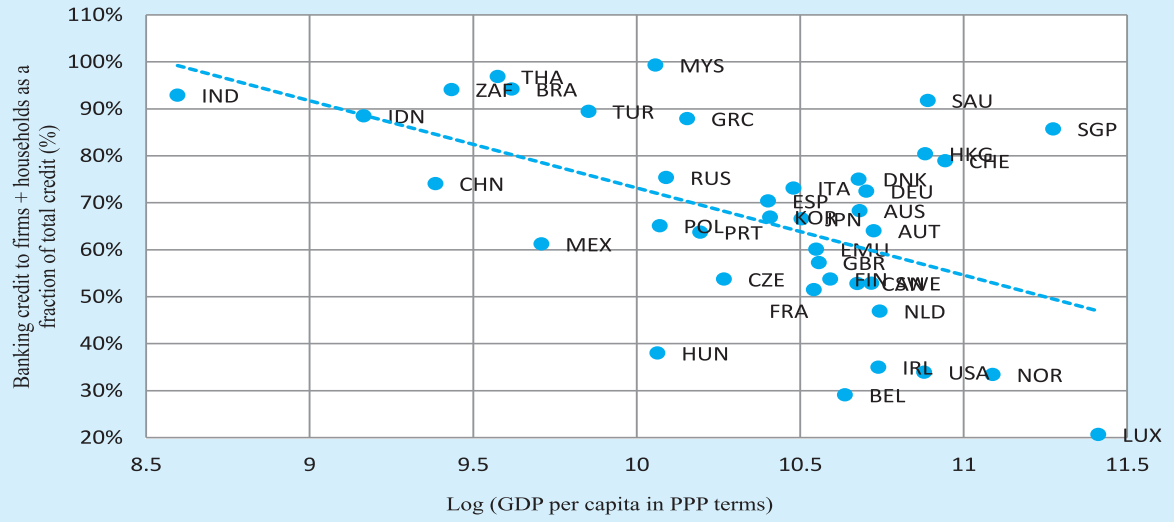
Figure 5.4: Domestic Credit to Per-capita GDP for 2013-India Placed Well



***Source* : World Bank Data**

[6] Note that the trend line drawn for the entire set of 176 countries in the World Bank data set.

Figure 5.5: Banking Credit as a Fraction of Total Credit for 2014

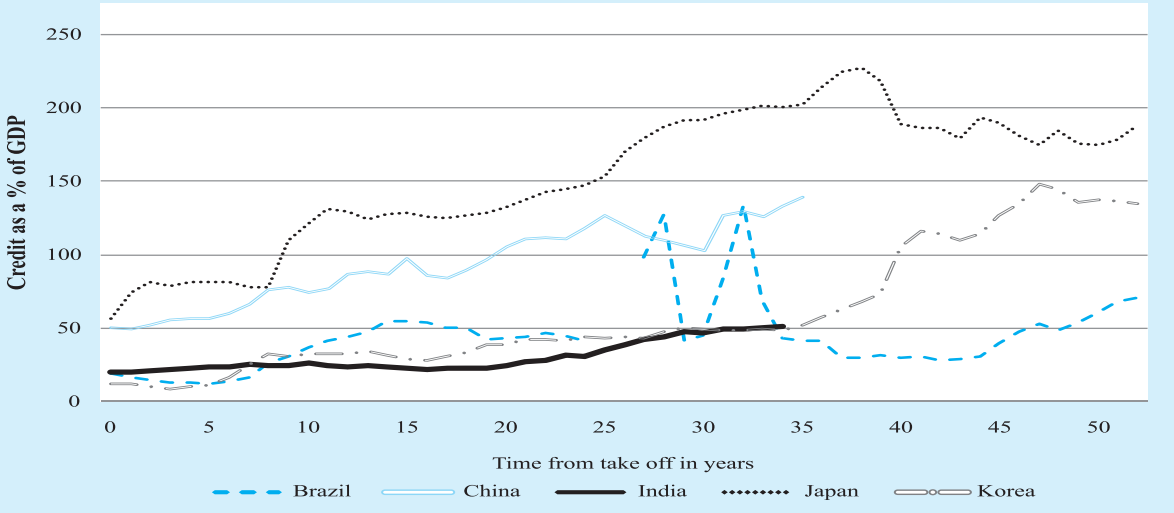


Source **: Bank of International Settlements**

Next we ask whether India is over-banked. In Figure 5.5 we plot the share in total credit in the economy that is accounted for by banks against a country's level of development.[7] The trend line is downward sloping suggesting that banking should shrink in size over the course of development relative to other sources of funding such as capital markets. Here too, India is well placed, in fact it is below the trend line. India is neither over-banked nor are capital markets too small at this stage of development. That will have to change over time and the policy conditions should facilitate that transition but for the moment India is not an outlier.

Finally, it is worth asking, whether the Indian banking and financial system has been especially irresponsible and imprudent in the growth phase.

Figure 5.6: Domestic Credit to GDP Since Take-off-India placed well



Source **: World Bank Databank**

Notes **: Years of takeoff. Brazil, Japan and Korea: 1961, China: 1978, India: 1979.**

[7] As defined by the Bank of International Settlements, this consists of "credit to non-financial corporations (both private-owned and public-owned), households and non-profit institutions serving households as defined in the System of National Accounts 2008."

Figure 5.7A: Ratio to total deposits (fraction)

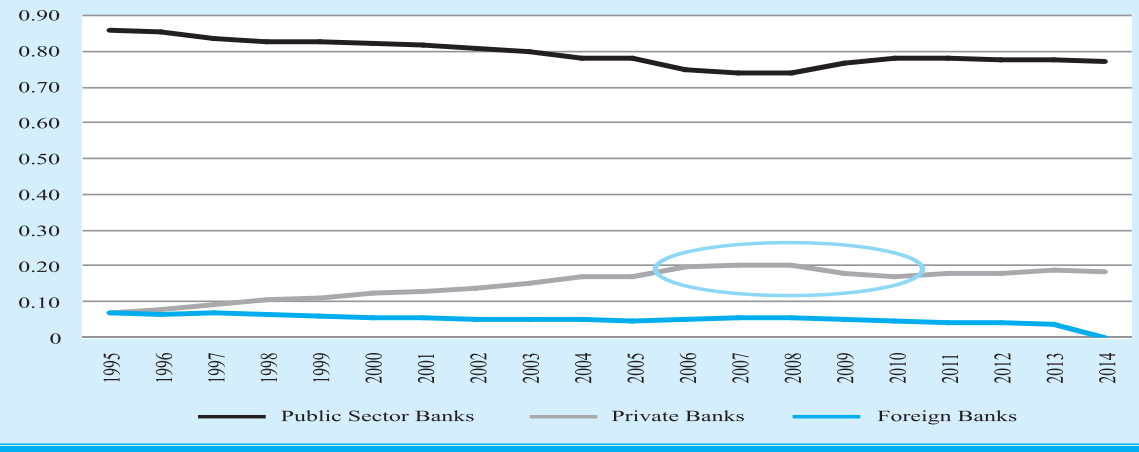
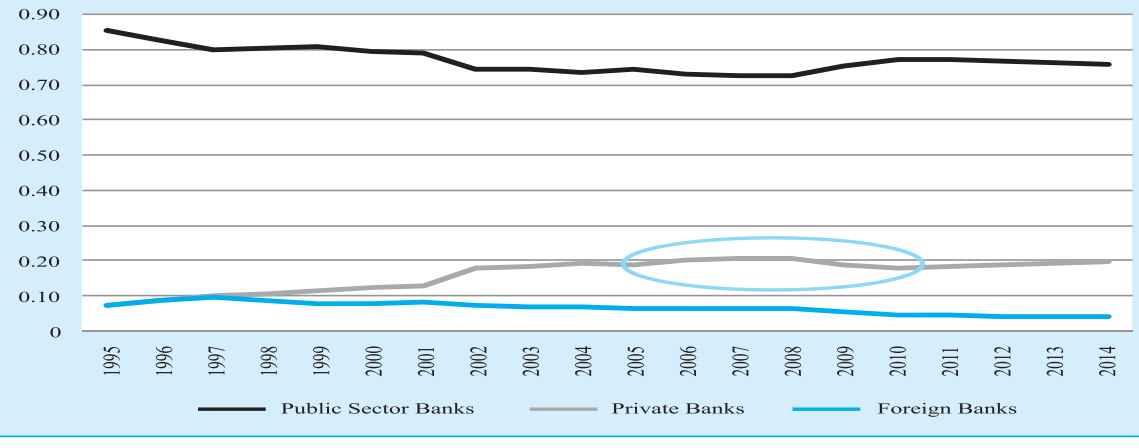


Figure 5.7B: Ratio to total advances (fraction)



Source **: RBI**

To answer this, we plot the evolution of credit-GDP in take-off time (Figure 5.6). For each country, the starting point is when its growth started to accelerate. The chart shows that India's credit bubble was not worse than the experience of countries during comparable times. Other countries such as Japan and China saw faster credit growth during boom years. Thus, even in the last phase of rapid credit growth during the 2000s, the Indian financial system was no more irrationally exuberant than those around the world.

This evidence leads naturally to the question of what then is the problem on the structural side.

5.4.2 Is there adequate competition?

A primary concern of the health of the banking sector in India has been lack of sufficient internal competition. Private banks have slowly been brought into the arena since 1990. It is important to note that India's approach was not privatisation of public sector banks, rather it was based on allowing entry of new private banks. This strategy worked reasonably well in the telecommunication and civil aviation sectors but did it work in banking? The results have been mixed.

Figure 5.7 A and B show that India saw a steady rise in the size of private sector banks till 2007 both in relation to deposit and lending indicators. Thereafter, the process slowed considerably (and of course in the aftermath of the Lehman crisis, there was a flight to safety toward the PSBs).

So, one of the paradoxes of recent banking history is that the share of the private sector in overall banking aggregates barely increased at a time when the country witnessed its most rapid growth and one that was fuelled by the private sector. It was a case of private sector led growth without private sector bank financing. Even allowing for the irrational exuberance of the PSBs that financed

this growth phase, the reticence of the private sector was striking.

The question of competition extends to other sources of funding as well. Figure 5.5 suggested that India's size of the banking is not too large relative to the level of development, suggesting that that level of competition from capital markets is line with a cross country comparison. Of course, over time, if India grows at 8 percent a year for the next twenty years, a rapid shift in the composition of India's financial sector away from banking is desirable. This shift will encourage transparency and better pricing of corporate risk.

5.5 Are Public Sector Banks uniform in performance?

How much variation in performance exists within the public sector banks and between the public sector and private sector banks? To answer this questions, Figure 5.8 plots the time series of four key banking indicators for public and private sectors banks- CRAR, Leverage Ratio, Return on Assets and Non-performing + Restructured Assets.[8]

In addition to the weighted average numbers, the figure also plots a 95 per cent confidence interval for the public sector banks (the upper line refers to the upper confidence bound and the lower line refers to the lower confidence bound). Note that

Figure 5.8A: Banking Indicators: CRAR

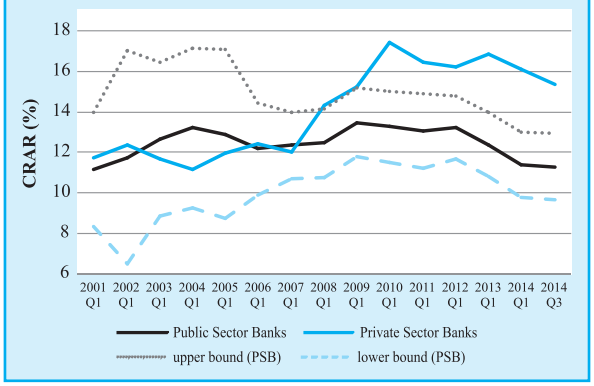


Figure 5.8B: Banking Indicators: Leverage Ratio

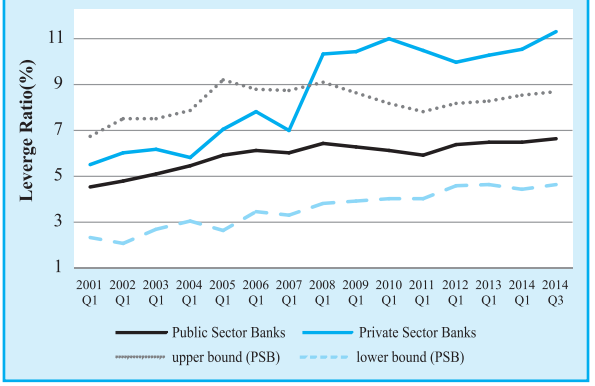


Figure 5.8C: Banking Indicators: Return on Assets

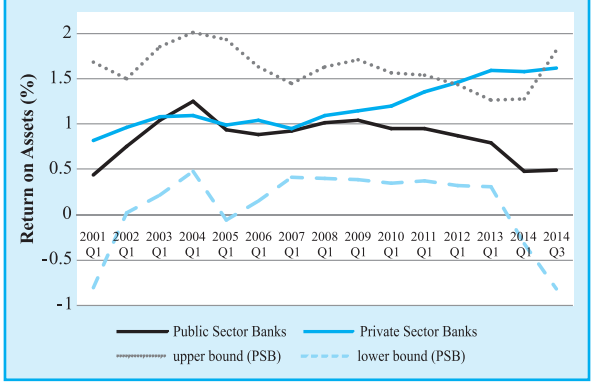
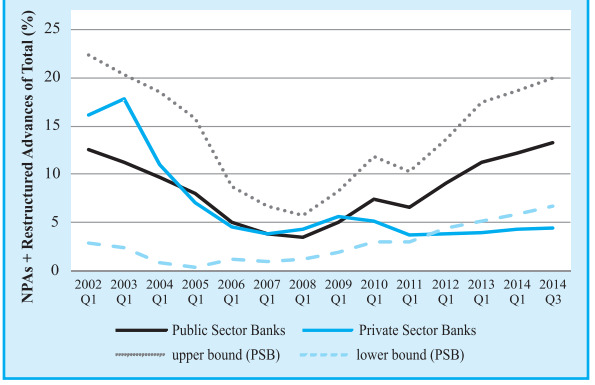


Figure 5.8D: Banking Indicators: NPAs + Restructured Advances



[8] *Capital to risk weighted assets ratio* (CRAR) is arrived at by dividing the capital of the bank with aggregated risk weighted assets for credit risk, market risk and operational risk. *Leverage ratio* is defined by the RBI as ratio of total assets to total capital. The international definition, for example as laid out by the Bank of International Settlements, is typically the inverse. For the purpose of this chapter we will use the international definition. *Return on Assets* (ROA) is a profitability ratio which indicates the net profit (net income) generated on total assets. It is computed by dividing net income by average total assets. *Non-Performing Asset*: An asset, including a leased asset, becomes non-performing when it ceases to generate income for the bank. *Restructured Asset*: A restructured account is one where the bank, grants to the borrower concessions that the bank would not otherwise consider.

except for NPAs, the higher the number, the better the indicator value.[9] The figures show that there is a lot of variation within the public sector banks. In numerical terms, the leverage ratio for the best bank is about 1.7 times more than for the worst, and the Gross NPAs plus restructured assets are 4 times more for the worst bank than the best.

It is also important to note that the best amongst the public sector banks are often performing less than the private sector average, although this fact should be seen against the greater social obligations imposed on the PSBs.

There are two other key things to notice in Figure 5.8. First, the variation in the Leverage Ratio is

Box 5.3 : Leverage Ratio

One of the legacies of the Great Recession (2008-2013) in the West has been active soul searching for adequate measures of risk and safe capital in the banking system. Almost all stress tests formerly were based on ratio of a risk weighted measure of capital to the total assets. In India this avatar, called CRAR- Capital to Risk (Weighted) Assets Ratio, has been the dominant measure of capital adequacy for bank stability in policy and popular discourse.

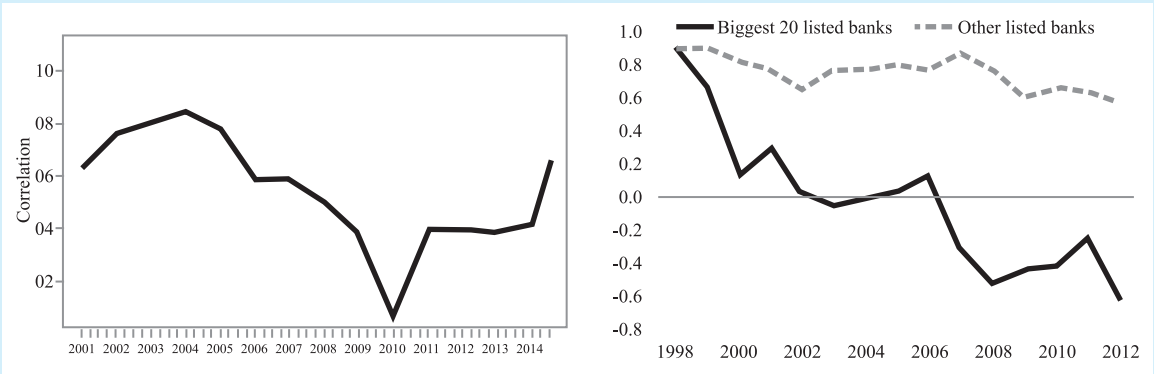
There is however growing international discontent with the measure because it failed to capture risk appetite before the financial crises in the US and in Europe. For this reason the focus is shifting to giving more weight to the Leverage Ratio. Defined by the Reserve Bank of India as the ratio of total assets to total capital, the international definition, for example as laid out by the Bank of International Sentiments, is typically the inverse. We will use the international definition.

A study by prominent economists, Pagano et all (2014), on the European banks states 'While large banks' leverage ratios fell between 2000 and 2007, the regulatory ratio – Tier 1 capital to risk-weighted assets – remained relatively stable. The median Tier 1 capital ratio was around 8 per cent in each year between 1997 and 2007 – a period over which the median leverage ratio fell by half. These insights reflect increasing divergence between book and regulatory measures of leverage. These two measures were highly correlated in the 1990s, as one would expect. But the correlation between them broke down in the early 2000s for the largest banks. By 2012, the correlation had turned strongly negative. Remarkably, a negative correlation implies that banks that were more capitalised according to the regulator had lower equity-to-asset ratios."

Why did this happen? Simple arithmetic implies that the ratio of total assets to risk weighted assets diverged over time. The risk weights were no longer doing their job!

Figure below plots the time series of the correlation of the two indicators- CRAR and Leverage Ratio for Europe and India. In Europe, the correlation has steadily gone south over the last decade with alarmingly negative numbers for the last few years. For the public sector banks in India the correlation of the average of last three years of CRAR and Leverage Ratio stands at 0.45, which is good but definitely not great. In fact as the figure shows the correlation dipped to less than 0.1 in 2010.

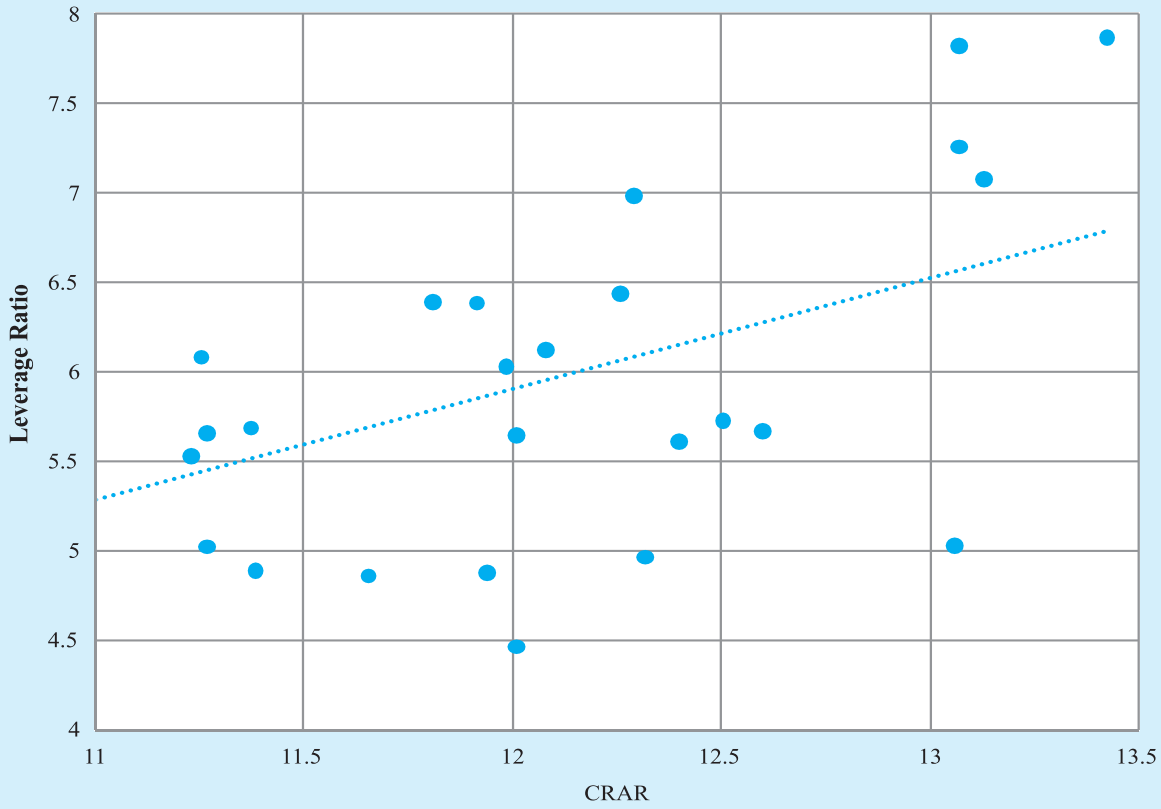
Figure: Correlation Between CRAR-Leverage Ratio for Indian PSBs (lhs) & Europe (rhs)



***Source*: RBI, Bloomberg and Pagano et all (2014)[a]**

[9] The upper and lower lines represent the second or third best and worst banks, respectively for CRAR, Leverage Ratio, Return on Assets, and the reverse for NPAs.

Figure: Scatter Plot of Leverage Ratio and CRAR (3 year averages, 2012-2014) for PSBs



***Source*: RBI**

The next Figure below shows a scatter plot for the last three year average of CRAR and Leverage Ratio for all public sector banks in India. As can be seen the trend-line is positively sloped which is good news. However, there are some worrying outliers that must be examined imminently.

The scatter plot Figure also shows the average of Leverage Ratios for public sector banks varies from 7.8 to 4.5. Admati and Hellwig in a new book called "*Bankers New Clothes*" argue that at 3 per cent the bank will go bankrupt if its assets loose more than 3 per cent in value. Banks themselves would never grant loan to a firm that only had only 3 per cent effective equity.[b] They propose a much higher leverage ratio in excess of 10, even 15 per cent.

It is important to note that if a bank has a moderate-low leverage ratio, and excellent return on assets and negligible NPAs, the leverage ratio is less of a concern. But, this changes dramatically when there is a substantial quantity of toxic loans on its books.

There are at least two reasons why we should focus on the leverage ratio in India. First, as the European and indeed Indian experience shows, the CRAR can be a very poor indicator of stability, especially in adverse situations when risk weights loose meaning and value. More important, given weak governance systems within banks and the difficulty of regulating them from the outside, it is difficult to know how the risk weights are being assigned. This becomes more important because of the size of stressed assets. In other words, today with weak institutions and sizable stressed assets, there is an even greater premium on transparency in India which a leverage ratio provides.

Indian regulators and policymakers should therefore elevate the role of the leverage ratio in financial stability and soundness assessments.

[a] Pagano M, V Acharya, A Boot, M Brunnermeier, C Buch, M Helwig, S Langfield, A Sapir, and L van den Burg (2014), *Is Europe Overbanked?* Report of the Advisory Scientific Committee, European Systemic Risk Board, June.

[b] Admati, Anat, and Martin Hellwig. 2013. *The Bankers' New Clothes: What's Wrong with Banking and What to Do about It.* Princetion University Press.

much more than in CRAR. And, second the return on assets has declined and stressed assets loans have increased to worrying levels with substantial variation across banks. On the former, Box 5.3 presents the case, especially strong for India, for using the leverage ratios to measure, test, and monitor financial stability almost as much as, if not more than, the CRAR ratio.

5.6 Policy Implications

To summarize, we propose the 4Ds of policy going forward- deregulate, differentiate, diversify and disinter.

- *Deregulate*: As the banking sector exits the financial repression on the liability side, aided by the fall in inflation, this is a perfect opportunity to relax asset-side repression. First, as described in Box 5.1, SLR requirements can be gradually relaxed. This will provide liquidity to the banks, depth to the government bond market, and encourage the development of the corporate bond market. The right sequence would be to gradually reduce SLR and then provide incentives for a deeper bond market. Second, PSL norms can be re-assessed. There are two options: one is indirect reform, bringing more sectors into the ambit of the PSL, until in the limit every sector is a priority sector; the other is to redefine the norms to slowly make priority sector more targeted, smaller, and need-driven. The dual responsibility of building a modern economy and lifting the standard of living at the lowest percentiles of income demand creativity, including more evidence-based policy making especially in relation to PSL.
- *Differentiate within PSBs*: The analysis in this chapter suggests that there is sufficient variation in the performance of public sector banks. The policy implication is that a one-size-fits-all approaches to governance reforms, public ownership, exit and recapitalisation should cede to a more selective approach.
- *Diversify within and outside the banking system*: More banks and more kinds of banks must be encouraged. Healthy competition from capital markets is essential too which will require policy support which was discussed extensively in last year's Economic Survey.
- *Disinter*: Better bankruptcy procedures for the future is essential. Debt Recovery Tribunals are over-burdened and under-resourced, leading to tardy turnaround times and delayed justice. The ownership structure of Asset Restructuring Companies in which banks themselves have significant stakes creates misaligned incentives. The SARFAESI act seems to work more against the smallest borrowers and medium sector enterprises. Distressed assets hang like a Damocles sword over the economy and require creative solution. One possibility is the appointment of an Independent Renegotiation Commission with political authority and reputational integrity to resolve some of the big and difficult cases. When the next boom and bust comes around, India needs to be better prepared to distribute pain between promoters, creditors, consumers, and taxpayers. Being prepared for the clean-up is as important as the being prudent in the run-up.

Putting Public Investment on Track: The Rail Route to Higher Growth

06 CHAPTER

"*the introduction of the railways has been historically the most powerful single initiator of take-offs"* - W. W. Rostow[1]

6.1 Introduction

Since the new government assumed office, a slew of economic reforms has led to a partial revival of investor sentiment. But increasing financial flows are yet to translate into a durable pick-up of real investment, especially in the private sector. This owes to a number of interrelated factors that stem from what has been identified as the "*balance sheet syndrome with Indian characteristics.*" If the weakness of private investment offers one negative or indirect rationale for increased public investment, there are also more affirmative rationales that are elucidated in chapter 1. As emphasized in the *Mid Year Economic Analysis* 2014-15 there is merit in considering the case for reviving targeted public investment as a key engine of growth in the short run- not to substitute for private investment- but to complement and indeed to crowd it in.

This chapter starts off with simple facts to demonstrate that an increase in public investment would not crowd out private investments in India under in the present circumstances, and then goes on to build the case for targeting public investment to the sector where it can generate the largest spillovers- which could well be the Indian Railways.

6.2 Effects of increasing public investment on overall output and private investments

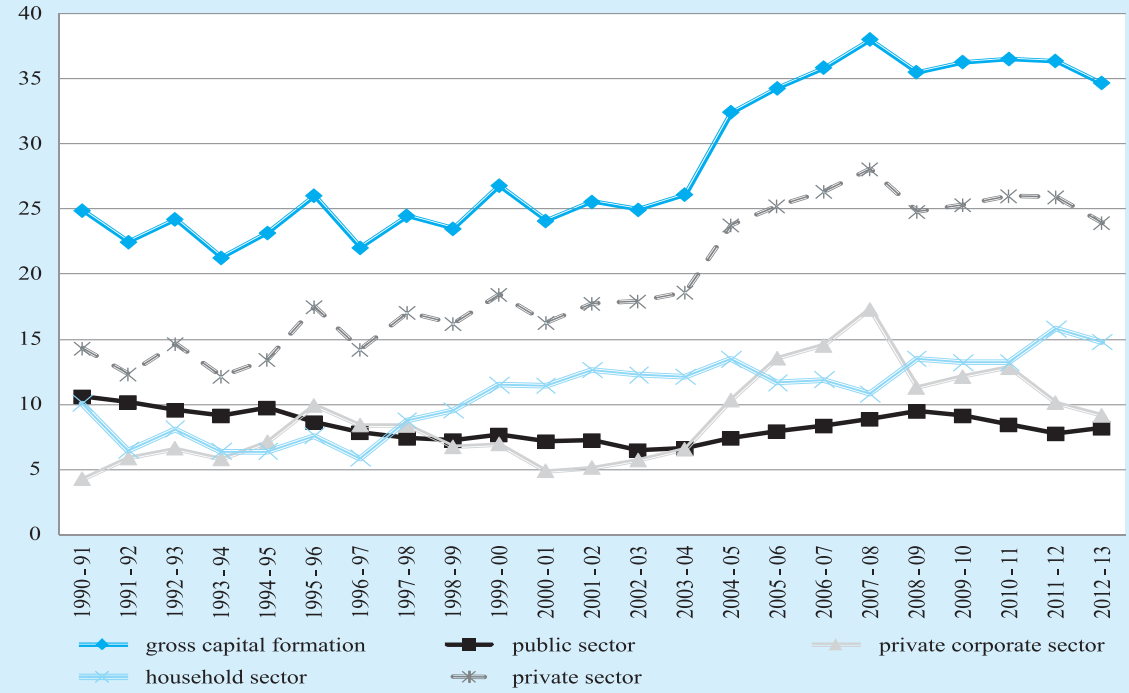
The decline in public as well as private corporate investment has been associated with the growth decline in recent years. Data based on the older series of the Central Statistics Office (CSO) indicates that a boom in private corporate investment in the high growth phase (2004-05 to 2007-08) was accompanied by an increase in public investment by about 1.5 percentage points. A decline in public investment by more than 1 percentage point between 2007-08 and 2012-13, is accompanied by a general decline in private corporate investment by more than 8 percentage points (barring an increase during 2009-10 and 2010-11) (Figure 6.1).

The International Monetary Fund (IMF), in the World Economic Outlook (October 2014)[2], has noted that increases in public infrastructure investment, if efficiently implemented, affects the economy in two ways. In the short run it boosts aggregate demand and crowds in private investment due to the complementary nature of infrastructure services. In the long run, a supply side effect also kicks in as the infrastructure built

[1] Rostow, W. W. "*The process of Economic Growth*" , Oxford, Clarendon Press, 2d ed., 1960, pp. 302-3 cited in Mitchell, B. R. "*The Coming of the Railway and United Kingdom Economic Growth*", The Journal of Economic History, 24(3), September 1964.

[2] IMF, "*Is it Time for an Infrastructure Push? The Macroeconomic Effects of Public Investment*", World Economic Outlook, Chapter 3, October 2014.

Figure 6.1: Gross Capital Formation by Sectors as a ratio of GDP, 1990-91 to 2012-13



Source: **Central Statistics Office.**

feeds into the productive capacity of the economy. Econometric exercises reported by the IMF confirm that public investment increases can have positive effects on output. The medium term public investment multiplier for developing economies is estimated to be between 0.5 and 0.9 - a little lower than that estimated for advanced economies. However, the magnitudes depend on the efficiency of implementation.

Indeed, the two biggest challenges facing increased public investment in India are financial resources and implementation capacity. The former is addressed in Chapter 5 in this volume. As regards the latter, the trick is to find sectors with maximum positive spillovers and institutions with a modicum of proven capacity for investing quickly and efficiently. Two prime candidates are rural roads and railways. The impetus to roads was imparted by the previous NDA government under the then Prime Minister Atal Bihari Vajpayee [The National Highways Development Project (NHDP) and the Pradhan Mantri Gram Sadak Yojana (PMGSY)] and the evidence suggests that the payoffs, especially with regard to rural employment, were large in villages that were not already connected to the road network[3].

The present government can now do for the neglected railways sector what the previous NDA government did for rural roads. This impetus has the potential to *crowd in* greater private investment and do so without jeopardizing India's public debt dynamics.

What does existing empirical evidence say about the influence of public investment on growth in India? Rodrik and Subramanian (2005)[4] while analysing India's productivity surge around 1980 acknowledge a possible productivity boosting role of public infrastructure investments (in contrast to the demand creating effects). They analyse the effects on overall growth using a framework

[3] Asher, Sam & Paul Novosad, "*The Employment Effects of Road Construction in Rural India*", 2014, Working Paper accessed at http://www.nuffield.ox.ac.uk/users/Asher/research.html.

[4] Rodrik, D. & A. Subramanian, *"From "Hindu Growth" to Productivity Surge: The Mystery of the Indian Growth Transition"* 2005, IMF Staff Papers, 52(2).

developed by Robert Barro ("*Government Spending in a Simple Model of Endogenous Growth",* 1990, Journal of Political Economy, 98(5)) where government infrastructure services are an input into private production. Their results indicate that allowing for the appropriate lag (around five years) between public infrastructure spending and growth, the former can explain around 1.5-2.9 percent of overall growth. A Study by the Reserve Bank of India (RBI) reports the *long run* multiplier (of capital outlays on GDP) to be 2.4[5]. The study also confirms that the effect of revenue expenditure on GDP, though high, fades out after the first year, suggesting gains from re-prioritizing expenditures.

6.3 The Case for Public Investment in Railways

6.3.1 Why railways? Under investment and Lack of Capacity Addition

Conceptually, there is a strong case for channeling resources to transport infrastructure in India given the widely known spillover effects of transport networks to link markets, reduce a variety of costs, boost agglomeration economies, and improve the competitiveness of the economy, especially manufacturing which tends to be logistics-intensive. However, resources need to be *prioritized among sectors* based on assessments of risks, rewards, and capacity for efficient implementation.

The first railway lines in India were built in the 1850s and after by private British companies who were guaranteed, by the colonial government, a return of 5 percent on their capital investment[6]. The establishment of railways led to integration of markets and boosted incomes[7]. Today the 'lifeline of the nation' operates over 19,000 trains carrying 23 million passengers and over 3 million tonnes of freight per day while employing over 13 lakh people.

In contrast to sectors such as civil aviation, the two major land transport sectors— roads and especially railways– are dependent on public investments. While all public investment in the railways is undertaken by the central government, public investment in roads is undertaken by the central government as well as state governments.

How much resources have flowed to railways over the years? Successive plans have allocated less resources to the railways compared to the transport sector as Figure 6.2A shows. The legacy of inadequate allocation is reflected in the fact that

Figure 6.2A: Resource Allocation in Transport Sector and Railways (Per cent)

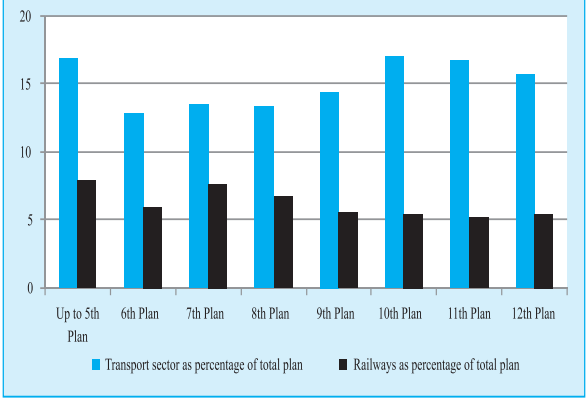
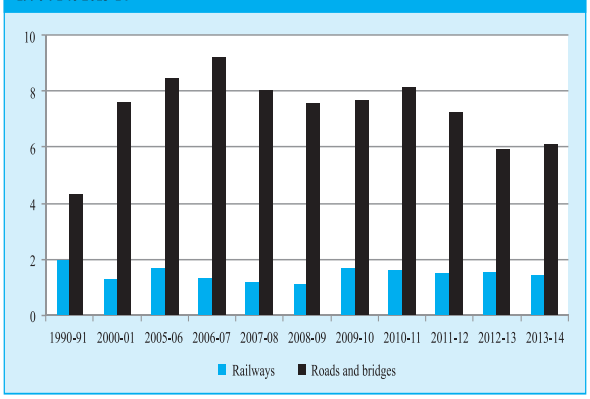


Figure 6.2B: Share of Railways and Roads in Total Developmental Expenditure* (Per cent), 1990-91 to 2013-14



***Source* : Indian Public Finance Statistics, Ministry of Finance.*; Includes both Centre and States.**

[5] Reserve Bank of India, *"Fiscal Multipliers in India"* Box II.16, Annual Report 2011-12.

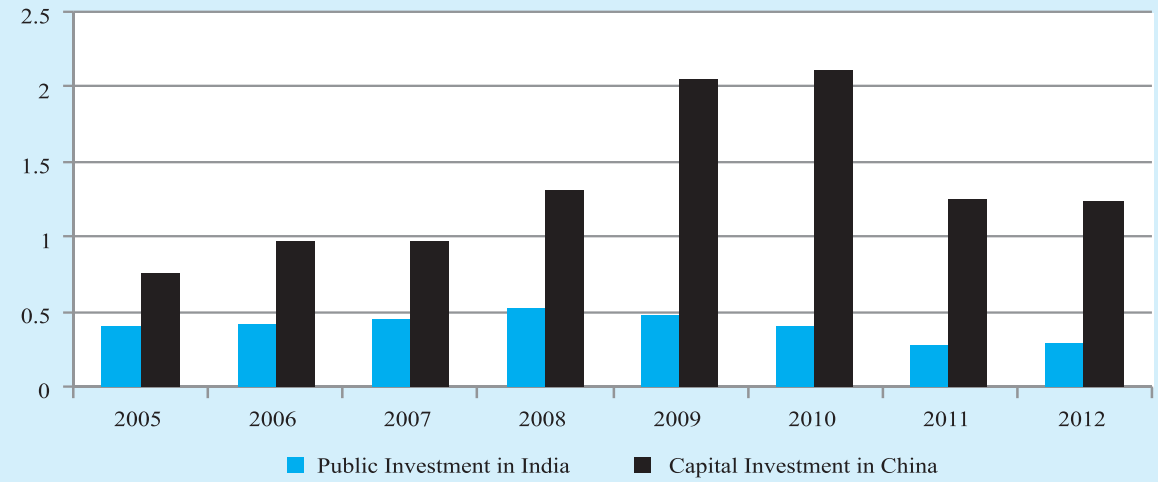
[6] Bogart, Dan & Latika Chaudhary, "*Could railways have done more to aid economic development in India?",* May 2013, accessed at http://www.ideasforindia.in/article.aspx?article_id=142. Expert Group on Indian Railways, "*The Indian Railways Report – 2001: Policy Imperatives for Reinvention and Growth*". New Delhi. NCAER 2001.

[7] Bogart, Dan & Latika Chaudhary, "*Railways in Colonial India: An Economic Achievement?*", May 2012 , accessed at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2073256.

the share of railways in total plan outlay is currently only 5.5 per cent vis-à-vis about 11 per cent for the other transport sectors and its share in overall development expenditure has remained low at below 2 percent over the past decade (Figure 6.2B).

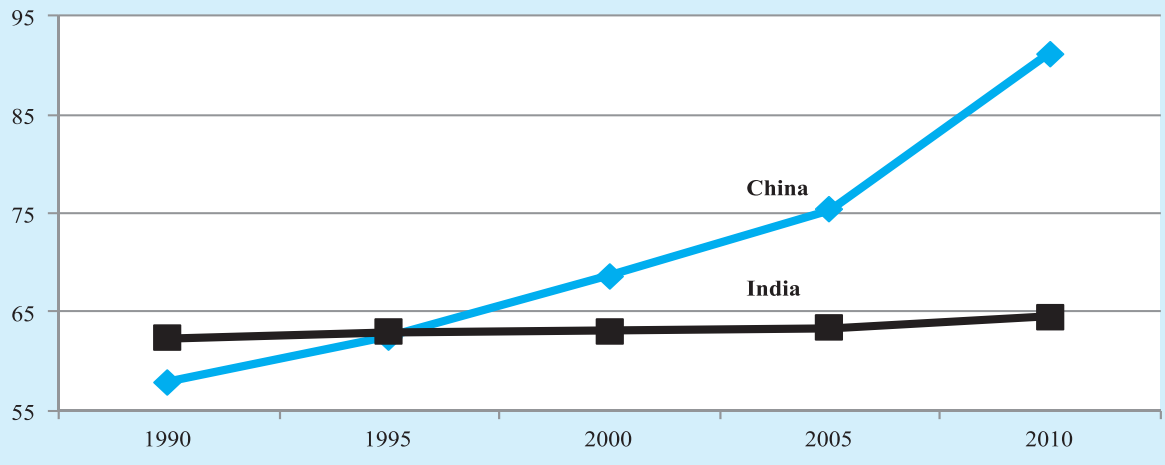
That these numbers are low is indicated by a comparison with China. In absolute terms and as a share of GDP, Chinese investment in railways dwarfs that in India. As a share of GDP, China has invested around three times as much as India on average over the period 2005-2012 (Figure 6.3). In per-capita terms, China has invested on average eleven times as much over the same period even though both countries have similar populations[8]. Even allowing for China's size, these numbers are telling.

Figure 6.3: Investment in Railways-India and China (Per cent of GDP), 2005 to 2012



Source **: World Bank and MoF calculations.**

Figure 6.4: Addition to Capacity (route kilometres, '000) , 1990 to 2010



Source **: World Bank.**

[8] It is important to note that a significant portion of investment in the Chinese Railways is via joint ventures of the government with provincial authorities and, for some freight railways, major users such as coal mines are also a party. A part of the freight tariff is earmarked as a Railway Construction Fund (RCF) which is used only for infrastructure capital spending. This eases strain on the budget and facilitates capacity creation. Since the Chinese Railways has been corporatized, it is also allowed to issue debt and borrow from the market to meet funding requirements.

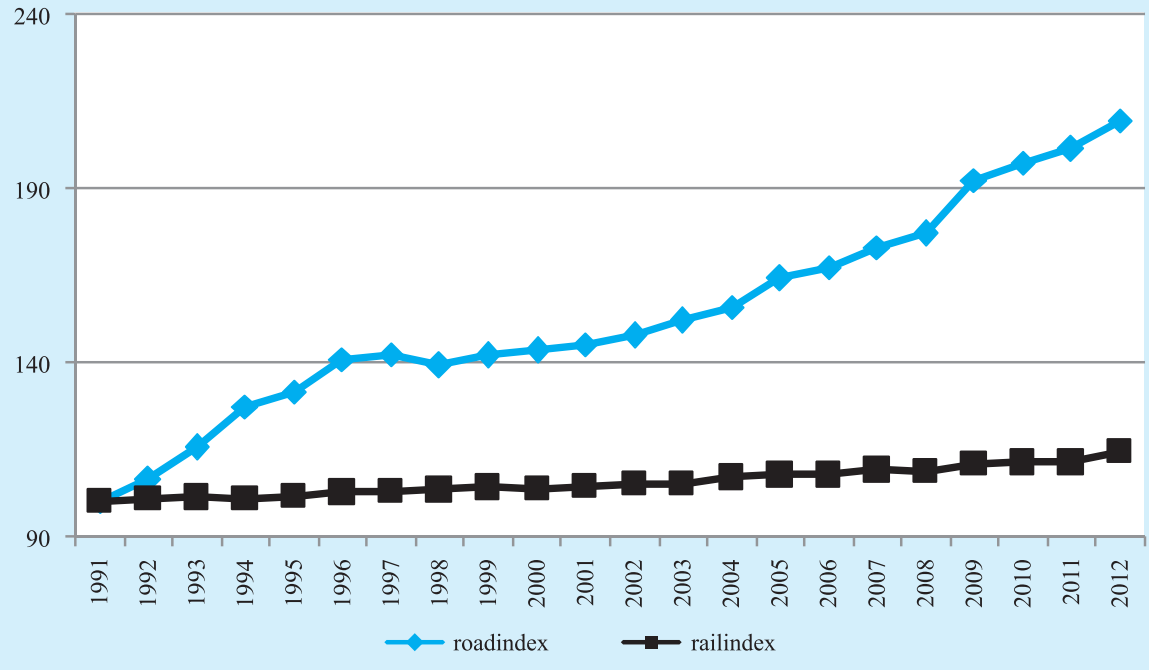
What have been the consequences of such underinvestment for the Indian Railways? The first casualty has been capacity expansion. Figure 6.4 indicates that in 1990 the Chinese rail network of about 57,900 route kilometers lagged behind India's 62,211 route kilometers. By 2010, the situation was reversed in favour of China with the country's network expanding to over 90,000 route kilometers while India's grew marginally to 64000 route kilometers. With lack of capacity addition, the share of railways in the GDP has declined to stand at around 1 per cent in recent years.

As figure 6.5 shows, track expansion in the Indian railways (as measured by an index of running track kilometers over the period 1991 to 2012 with base 1991) has miserably lagged behind capacity addition in the domestic roads sector (measured by an index of length of roads in kilometers inclusive of national and state highways, urban and rural roads**).**

This has effectively led to railways ceding significant share in passenger and especially freight traffic to the road sector. The *Total Transport System Study on Traffic Flows & Modal Costs (Highways, Railways, Airways & Coastal Shipping*) by RITES Ltd. had estimated that the share of the railways in originating tonnage has fallen from 65 per cent in the late 1970s to 30 per cent in 2007-08. McKinsey's *Building India: Transforming the Nations' Logistic Infrastructure* (2010) study has estimated that the modal share in freight traffic stands at 36 per cent for the railways vis-à-vis 57 per cent for roads. According to the Report of the National Transport Development Policy Committee (NTDPC, 2014) this share is estimated to decline further to 33 per cent in 2011-12. The share of railways in freight traffic in some other countries as of 2011 is reported in figure 6.6. The cross-country numbers need to be interpreted with care. For example, the US has a 44 per cent share despite having extensive networks of coastal shipping links and elaborate inland waterways that carry significant freight (Amos, 2011).

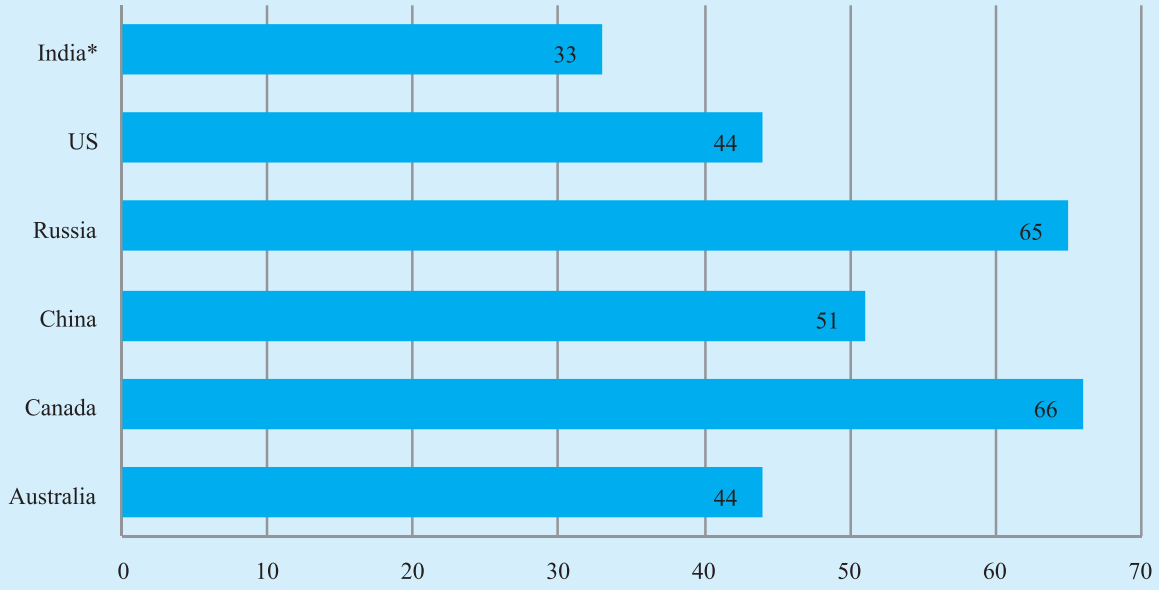
According to the McKinsey Study (2010) continuation of the current state of affairs in India would imply the share of railways in freight traffic declining further to 25 percent by 2020. As Amos

Figure 6.5: Indian Railways; *The Road Less Traveled* (1991=100)



Source: **CEIC database.**

Figure 6.6: Modal Share of Railways in Domestic Freight (Per cent)



Source: **Amos, Paul "*Freight Railways Governance, Organization and Management: An International Round-up*", July 2011, World Bank Paper submitted to NTDPC (2014). *Data for India is an estimate for 2011-12 reported in the Report of the NTDPC (2014).**

(2011) observed "International experience is unequivocal. The more efficiently that freight railways are managed, the greater will be their role in the markets they serve, the fuller will be their contribution to economic development and the higher will be their external benefits." An efficient rail freight network can help industry to transport raw materials at lower costs and also with associated lower green house gas emissions, comparatively better energy efficiency, and reduced congestion. As compared to road, railways consume 75 to 90 per cent less energy for freight and 5 to 21 per cent less energy for passenger traffic and, typically, the unit cost of rail transport for freight was lower vis-à-vis road transport by about ₹ 2 per net tonne-kilometer (NTKM) and for passenger by ₹ 1.6 per passenger-kilometre (PKM) (in the base year 2000)[9].

Consequently just as the previous NDA government transformed the Indian road sector through initiation of the NHDP and PMGSY, the current need is for a bold accelerated programme of investment in dedicated freight corridors (DFCs) that can parallel the golden quadrilateral, along with associated industrial corridors. Such an initiative will transform Indian manufacturing industry with "Make in India" becoming a reality. With the separation of freight traffic passenger trains can then be speeded up substantially with marginal investments.

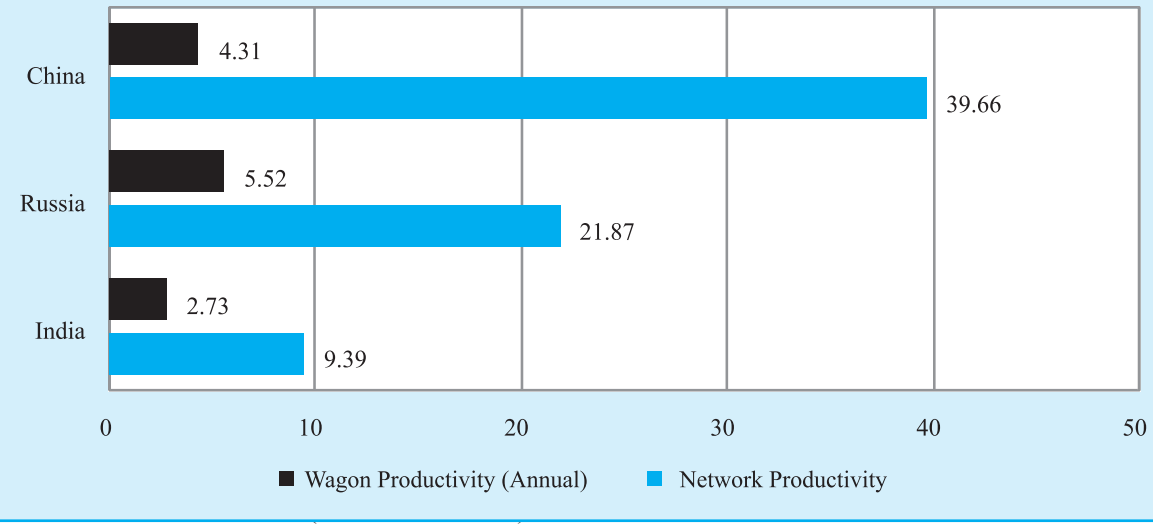
6.3.2 Congestion

A second and related consequence has been congestion and stretching of capacity. The increasing load on railway infrastructure and lower speeds are a logical consequence of lack of capacity addition. For example, the speed of the average freight train has remained virtually constant between 2000-01 and 2012-13 at around 24-25 km/hour. In contrast, in China, the maximum speed of freight trains was 80 km/h around 2008-09, and the maximum train speed that was around 80 - 100 km/h in 1991 was raised in stages to 160 and 200 km/h on the most popular passenger corridors by 2008[10] and is above 300 km/h at present.

[9] Report of the NTDPC (2014), Table 1.4, p.6.

[10] World Bank, "*Tracks from the Past, Transport for the Future: China's Railway Industry 1990-2008 and its Future Plans and Possibilities*" China Country Office, Beijing, May 2009.

Figure 6.7: Benchmarking Efficiency: India vis-a-vis China and Russia



How congested are the Indian Railways vis-à-vis the two other comparable countries-China and Russia? Given that the Chinese Railways also faces congestion and has embarked on huge capacity expansion, network productivity (as measured by NTKM (million) /network length) turns out to be much greater in China vis-à-vis both Russia and India. Wagon productivity (as measured by NTKM (million)/wagon holding) is the lowest in India among the three (Figure 6.7).

The same track network is shared by both passenger and freight trains in India. The extent of congestion can be gauged from map 6.1 below where the black lines represent the rail network and grey lines indicate those that are operating at above 100 percent capacity. Congestion exists irrespective of the railways network being thick or thin. On high density network (HDN) routes, over 65 per cent of total sections (161 out of 247) are running at a capacity of 100 percent or above[11]. This percentage is higher for specific zones. For example, in the north central railways 96 percent of sections and in the south eastern railway about 75 percent of sections are operating at above full capacity. The NTDPC (2014) report argues that capacity utilisation of 80 per cent is the optimum as some slack in line capacity is necessary to absorb and recover from unforeseen disruptions in operations of trains.

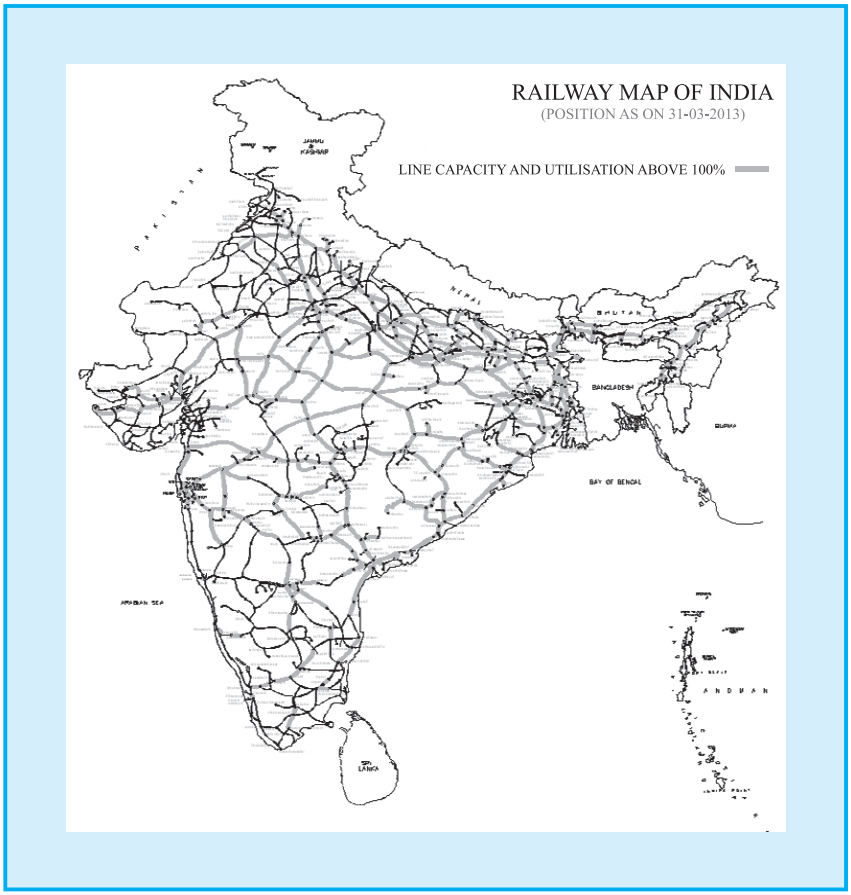
With passenger trains utilizing around 65 percent of the network capacity, the above situation imposes constraints on the running of heavy freight trains (that hampers the ability of the railways to carry bulk commodities from mines to power and steel plants) and high speed passenger trains[12]as passenger traffic is generally accorded priority. Over these years, data indicates that the load carried and distance travelled by a wagon per day and the turnaround time has almost stagnated.

The preceding paragraphs provide an overview of the 'route to nowhere' that the Indian Railways find themselves in: underinvestment resulting in lack of capacity addition and congestion; below-potential contribution to economic growth; neglect of commercial objectives, poor service provision, and consequent financial weakness (to which we revert later). Greater public investments, once utilized efficiently, can help the railways to overcome some of these problems. But even if it received an investment boost what would be the economy-wide impact?

[11] Source: Ministry of Railways data.

[12] Report of the NTDPC (2014), p. 40.

Map 6.1 : Capacity Utilization in Indian Railways*



***Source*: Ministry of Railways. * Grey lines indicate capacity utilization above 100 percent.**

6.3.3 How much boost can vibrant railways provide to the economy?

i. Forward and Backward Linkages of the Railways

Transport, and especially railways infrastructure, are critical for manufacturing and services. How much impetus would the fiscal boost provided to the railways generate for the economy? One way to estimate this is to draw upon Albert Hirschman's idea of backward and forward linkages. The former measures the effect on other sectors that provide inputs consequent upon a big push for railways. The latter measures the effects of the big push on other sectors that use railways as an input. The input output tables published by the CSO provide data on the value of output of a sector that is used by other sectors as input for their production as well as for consumption purposes. Backward and forward linkages can be calculated from this data[13].

[13] To capture backward and forward linkages, it is important to capture direct as well as indirect linkages. For this, the inverse of the input-output matrix (Leontief inverse) needs to be calculated. The inverse matrix shows the value of input (direct and indirect both) required to produce 1 unit of output of any sector. Increasing the output of railway service by Re 1 would not only increase the demand for output from other industries that are used as inputs by the railways, but also increase the input available for other sectors that use railway services for production. To find the backward linkage of railways, sum of value of output used from all input sectors is calculated (column sum of the matrix) and to find the forward linkage of railways, sum of value of output of railways used as an input by all other sectors is calculated. The methodology is outlined in: Guo, J & A. Planting "*Using Input-Output Analysis to Measure US Economic Structural Change Over a 24 Year Period"*, 2000 accessed at http://www.bea.gov/papers/pdf/strucv7all.pdf.

Railways are found to posses strong *backward* linkages (demand pull from other sectors) with manufacturing and services (Table 6.1). Based on 2007-08 data (the latest year for which the input-output tables are available), it appears that increasing the railway output by ₹ 1 would increase output in the economy by ₹ 3.3. This large multiplier has been increasing over time, and the effect is greatest on the manufacturing sector. Investing in Railways could thus be good for "Make in India."

Further, there are sectors where railway services are an input to production (*forward* linkages). A ₹ 1 push in railways will increase the output of other sectors by about ₹ 2.5. This forward linkage effect has declined over time but this is largely endogenous to capacity constraints in the railways sector which has led to reliance on other modes of transport.

Combining forward and backward linkage effects suggests a very large multiplier (over 5) of investments in Railways.

ii. Effects of public investment in railways on overall output and private investment: An econometric analysis

We can supplement the backward-forward linkage estimates with more formal econometric analysis which we show in figure 6.8. The impulse responses from the vector error-correction model (VECM)[14] indicate that increases in railway investment have positive and durable effects on levels of manufacturing and aggregate output. They confirm the results derived from the input-output tables.

The figure shows that an unanticipated shock to public investment in railways has a strong positive effect on both manufacturing and aggregate output and the effects are permanent. In order to convert the statistical representation in figure 6.8 to a standard interpretation of a multiplier, (i.e. the unit change in manufacturing and aggregate output for a unit change in public investment in railways) we follow the procedure outlined in Ramey[15] (2008).

Table 6.1 : Railways; Backward and Forward Linkages

Sector	1993-94	1998-99	2003-04	2007-08
	Backward Linkage			
AGRICULTURE	0.01	0.01	0.01	0.02
INDUSTRY	0.63	0.76	0.93	2.04
SERVICES	1.28	1.32	1.24	1.23
Total Backward Linkage	**1.92**	**2.08**	**2.19**	**3.29**
	Forward Linkage			
AGRICULTURE	0.13	0.12	0.16	0.07
INDUSTRY	2.15	2.03	2.11	1.18
SERVICES	1.13	1.13	1.16	1.19
Total Forward Linkage	**3.41**	**3.28**	**3.44**	**2.45**

***Source* : Calculations based on CSO input-output tables.**

[14] Typically for such analyses a vector auto-regression (VAR) model is used to assess the impact of a shock to one variable on the others. We use a variant of this, the vector error-correction model (VECM), as the data on public investment in railways as well as manufacturing and aggregate output are non-stationary in levels. These variables are, however, co-integrated and we are interested in their relationships both over the short as well as the long run.

[15] Ramey, Valerie A., "*Identifying Government Spending Shocks: It's All in the Timing*", 2009, National Bureau of Economic Research. http://www.nber.org/papers/w15464. In order to convert the 1 standard deviation (s.d.) shock to public investment in the railways to a standard multiplier we divide the elasticity coefficient (obtained from VECM) by the average ratio of railway public investments to manufacturing and aggregate output.

Figure 6.8: Impact of Railway Investment on Output

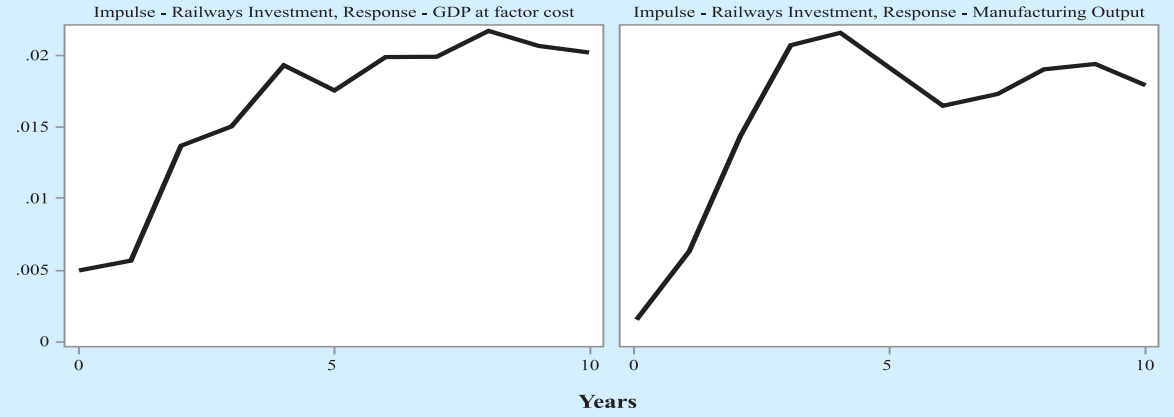


Table 6.2: Railway Public Investment: Output Multipliers

Years	Cholesky Impulse-Response (1-S.D.)		Rescaled Multipliers	
	Manufacturing Output	*Aggregate Output*	*Manufacturing Output*	*Aggregate Output*
0	0.00	0.01	0.04	0.94
1	0.01	0.01	0.17	1.05
2	0.01	0.01	0.40	2.56
3	0.02	0.02	0.58	2.80
4	0.02	0.02	0.60	3.58
5	0.02	0.02	0.53	3.27
6	0.02	0.02	0.47	3.71
7	0.02	0.02	0.48	3.70
8	0.02	0.02	0.53	4.04
9	0.02	0.02	0.54	3.86
10	0.02	0.02	0.50	3.76

Table 6.2 above underlines the large positive multiplier effect of railways. For instance, a ₹ 1 increase in railway investment has a cumulative multiplier effect of ₹ 7.4 and ₹ 1.2 on aggregate and manufacturing output respectively, within three years of investment. This effect intensifies over the subsequent years. Taking the econometric results and those from the I-O analysis together, it seems safe to infer that the railways multiplier effect is around 5 or more: that is a ₹ 1 increase in railways investment would increase economy-wide output by 5 rupees. These numbers are consistent with results of the linkages analysis.

6.3.4 Price Distortions

Ultimately, the railways has to be a viable commercial organization that is less dependent on state support and able to generate enough resources on its own to not only provide world-class passenger amenities but also by providing freight services at reasonable rates. In the long-run, state support should be largely restricted to the universal service obligations that the railways fulfill. Passenger tariffs have registered negligible increases over the past several years as indicated by a persistent larger gap between the index of consumer prices and that of passenger rates (Figure 6.9A). In contrast, the freight rate index tracks the wholesale price index more closely (Figure 6.9B). The profits generated via freight services have cross-subsidized passenger services and Indian (PPP adjusted) freight rates remain among the highest in the world as indicated in table 6.3.

Figure 6.9A: Index of Consumer Prices and Passenger Rates (1993-94 = 100)

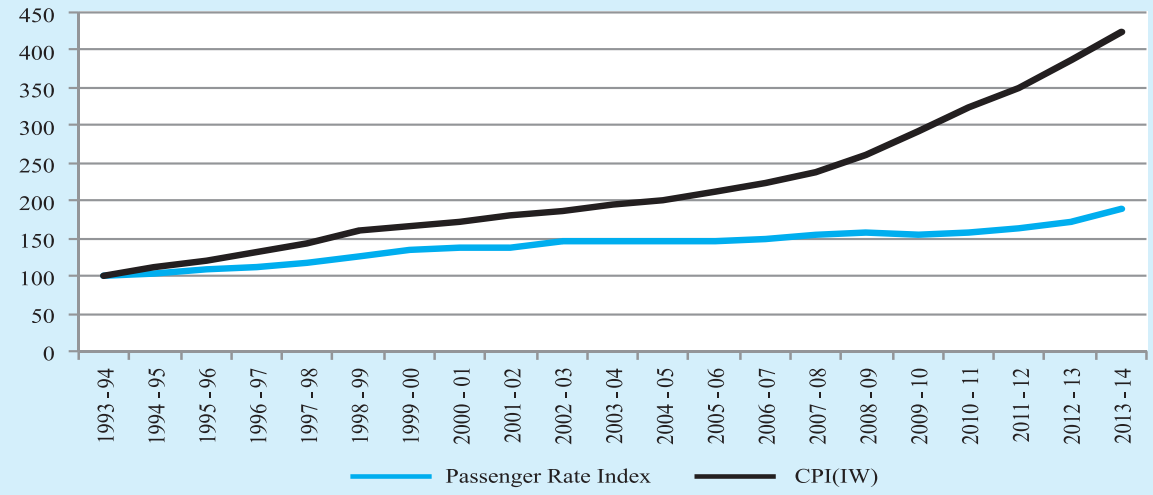


Figure 6.9B: Index of Wholesale Prices and Freight Rates (1993-94 = 100)

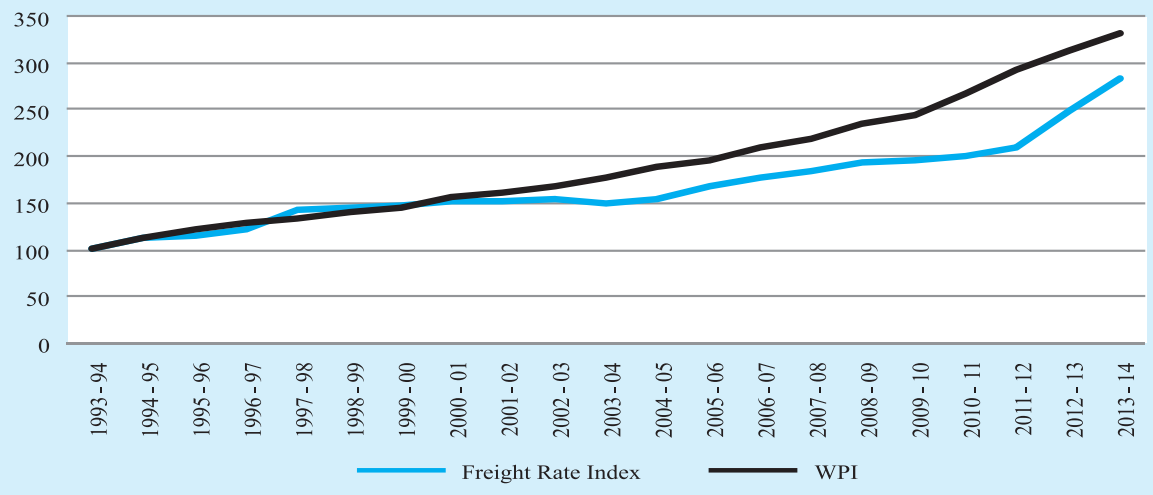


Table 6.3 : Passenger and Freight Yields in some Major Economies

Country	Passenger Service Yield US Cents/ Passenger-km adjusted for PPP (India=1)	Freight Yield US Cents/Total Tonne-km adjusted for PPP (India=1)
India	1.0	1.00
China	2.7	0.58
Russia	6.7	0.75

Source: **World Bank (2012): Railways International Overview: Issues for India (12th Plan document).**

Table 6.3 captures the heart of the price distortions in the Indian Railways. The objective of keeping fares low for consumers has forced high freight tariffs – high even by cross-country standards. The political economy of price setting and railway operations over the years has also meant that new investments are often directed at populist projects at the cost of those that help to ease congestion and enhance productivity. Apart from the problems discussed in the earlier sections this tendency has undermined the commercial viability of railways, including the inability to generate enough internal resources to finance capital investments. More importantly, the cross-subsidization and consequently high freight charges, along with inefficiency and stressed capacity, has undermined the competitiveness of Indian industry.

Table 6.4 : Freight Carried; The Case of Coal in India and China

		India	China	Ratio (India/China)
1.	Average distance (km)	639*	653#	0.98
2.	Cost ($)	0.021*	0.016^	1.31
3.	Cost(PPP terms) ($ per ton-km)	0.064	0.029	2.21
4.	Load carried by avg. freight train (ton)	1700*	3500#	0.49
5.	Avg. freight train speed (km/hr)	25	34^	0.74
		Indicators		
6.	Time inefficiency (hours) (1/5)	25.6	19.2	**1.33**
7.	Capacity (ton/hour)(4/6)	67	182	**0.37**
8.	Cost inefficiency($/ton)in PPP terms (1x3)	40.89	19.23	**2.13**

***Note* *: Ministry of Railways, India. #: Statistical Yearbook, China 2013. ^: World Bank. Data on the load carried by the average freight train is for 2011.**

To illustrate the impact on *competitiveness*, we compare selected indicators of Indian railways vis-a-vis China, for coal, as it accounts for over 40 per cent of freight carried in both countries. Competitiveness, among other things, crucially depends on the cost of transporting coal (to, say, steel and power plants), the amount transported and the time taken to do so. The cost of transportation of a ton of coal, for each country, is derived by multiplying the average distance (in kilometers) travelled by the coal with the average cost (PPP adjusted $) of transportation per ton kilometer. The average distance over which the coal is transported divided by the average speed yields the time taken. Load carried by the average freight train divided by the time taken yields capacity (tons carried per hour). As the ratios reported in table 6.4 indicates, China carries about thrice as much coal freight per hour vis-à-vis India. Coal is transported in India at more than twice the cost vis-à-vis China, and it takes 1.3 times longer to do so.

There is some, albeit limited, scope for adjusting rates to correct these anomalies. In what follows, a few simple observations on passenger and freight prices are made based on estimate of new price elasticities for different types of passenger and freight traffic.[16] There is potential for price discrimination among different passenger and freight types because of varying price elasticities (Table 6.5).

Table 6.5 : Price Elasticity of Demand

	Per cent
Total passengers	**14.4**
Overall suburban passengers	23.2
Overall non-suburban passengers	13.4
Upper class passengers	9.8
Mail and express class passengers	13.0
Ordinary passengers	14.5
Total Freight	**55.4**
Cement	37.4
Coal	47.9
Fertilizer	44.1
Iron ore	17.9
Petroleum and petro products	91.4
Pig iron ore	33.3

***Source:* MoF estimates.**

It is clear from the table that freight traffic is more price sensitive than passenger traffic. Within passenger traffic categories, upper-class passengers are less price sensitive and may be

[16] The elasticities are arrived at by regressing passenger kilometers on average passenger prices (downloaded from MOSPI's infrastructure statistics report) and NTKMs on average tariff rates (identical source). They should be treated as indicative because the analysis is based on few observations and does not control for other factors that influence the choice of mode of transport.

better placed to internalize prices hikes vis-à-vis other passenger classes. We also calculate the cross-elasticity of civil aviation traffic to changes in railways prices to be 5.7 percent which indicates that upper class passengers do not easily switch to airlines as a response to hikes in railway prices. Similarly, in freight categories, petroleum products are observed to be very price sensitive. Iron ore on the other hand does not easily respond to price changes.

6.4 Policy Recommendations-Key Takeaways

- Greater public investment in the railways would boost aggregate growth and the competitiveness of Indian manufacturing substantially.
- In part, these large gains derive from the current massive under-investment in the railways. China invests eleven times as much in per-capita terms and underinvestment in the Indian Railways is also indicated by congestion, strained capacity, poor services, and weak financial health.
- In the long run, the railways must be commercially viable and public support for the railways should be restricted to (i) equity support for investment by the corporatized railways entities and (ii) for funding the universal service obligations that it provides. In the interim, there is scope for public support of railways, including through assistance via the general budget.
- However, any public support should be clearly linked to serious reform: of the structure of the railways; of their adoption of commercial practices; of rationalizing tariff policies; and through an overhaul of technology.

What to Make in India? Manufacturing or Services?[1]

07 CHAPTER

"Since the industrial revolution, no country has become a major economy without becoming an industrial power."

Lee Kuan Yew, delivering the Jawaharlal Memorial Lecture in New Delhi, 2005

7.1 Introduction

Echoing the Sage of Singapore, Prime Minister Narendra Modi has elevated the revival of Indian manufacturing to a key policy objective of the new government, identifying this sector as the engine of long-run growth. "Make in India" is now a flagship initiative not to mention a catchy campaign. But the question arises "What should India make?"

Early development thinking, exemplified most famously (though not exclusively) in the two-sector model of Lewis (1954) was fixated on the idea of sectoral transformation: moving resources from the agricultural/traditional sector to the manufacturing/ non-traditional sector. There was never any doubt about the hierarchy (the latter was unquestionably superior) and hence no doubt about the desirability of the structural transformation.

Although development thinking over the last two decades has moved away from discussions about sectoral transformation and towards a more explicit growth perspective, the importance of structural transformation is starting to be rehabilitated – but without abandoning the growth perspective. Rodrik (2013 and 2014) provides the clearest exposition of this marriage of the two perspectives.

Consider the following equation:

$$\hat{y} = \beta(\ln y^*(\theta) - \ln y) + (\pi_M - \pi_T)d\alpha_M + \alpha_M\pi_M\beta_M(\ln y_M^* - \ln y_M)$$

The equation has three parts. First, growth of gdp per capita (denoted by $\hat{y}$) can be viewed in a conventional conditional convergence perspective, with catch-up to the frontier ($y^*(\theta)$) depending on a number of fundamentals (policies, human capital, openness, institutions, etc). But this is a slow process because by definition fundamentals are slow to change. Moreover, this conditional convergence framework is inadequate because it has difficulty explaining growth miracles or accelerations—China being the classic outlier with many of these fundamentals.

Hence this framework needs to be supplemented with explicit structural transformation elements. These are captured in the second and third terms of the equation. The second term captures structural change from low productivity traditional sectors (T) to high productivity modern sectors (M), where π_i denotes productivity in sector *i* and α_M denotes the share of employment in the modern sector. This is the classic dualism model, which suggests that economic development is by definition a process of shifting resources from low to high productivity sectors, thereby raising economy-wide levels of productivity.

[1] Since this chapter was written, the CSO has published new estimates of the size of manufacturing and other sectors in India. They suggest and increased in the level of manufacturing's share in GDP, although for the three years for which new estimates have been provided, there is still a decline in this share. Even the level increased owes more to statistical than 'underlying' reasons. We thus expect the results in this chapter to remain broadly valid but cannot be definitive until the analysis is replicated for the new data.

The third term is new and captures the phenomenon of unconditional convergence in the high productivity sector. Essentially, once resources move into this sector, they then experience unconditional or "automatic" catch-up due to rising productivity (represented by the convergence growth rate of the modern sector). This further increases economy-wide levels of productivity.

In other words, there are two gains to shifting resources from the traditional to the new sectors: first, a compositional gain, which is a gain in economy-wide productivity achieved by shifting the weight of the economy from low to high productivity sectors; second, a subsequent dynamic gain as these resources experience rapid productivity growth. The contribution of Rodrik (2013) is to show empirically that the manufacturing sector does indeed exhibit this rapid growth or unconditional convergence toward the frontier: that is, manufacturing in poorer countries and less productive manufacturing activities grow faster over time.

No sooner than having adopted this framework, the question poses itself: *are these compositional and dynamic gains restricted to manufacturing?* In other words, whereas the first phase of thinking about structural transformation was informed by certitude about the hierarchy of sectors, today there is less ground for that certitude because the comparison is not between agriculture and manufacturing but between manufacturing and services (or at least certain service subsectors).

This chapter is a modest initial attempt at shedding some light on the new structural transformation question, and in particular comparing manufacturing and services.

7.2 Desirable Features of Sectors that can Serve as Engines of Structural Transformation

India is taken up as a case study for addressing this question due to the poor performance of manufacturing in India and the relatively strong performance of services – which in some ways mirrors the performance of many Sub-Saharan African countries (Ghani and O'Connell, 2014).

Lee Kuan Yew was clearly on to something when he challenged the Indian model of development. Historically, there have been three modes of escape from under-development: geology, geography, and "jeans" (code for low-skilled manufacturing). In recent years West Asia, Botswana and Chile, and further back in time Australia and Canada, exploited their natural resources endowed by geology to improve their standards of living. Some of the island successes (Barbados, Mauritius, and others in the Caribbean) have exploited their geography by developing tourism to achieve high rates of growth.

In the early stages of their success, East Asian countries (China, Thailand, Indonesia, Malaysia etc) relied on relatively low-skilled manufacturing, typically textiles and clothing, to motor economic growth. Later on they diversified into more sophisticated manufacturing but "jeans" offered the vehicle for prosperity early on. No country has escaped from underdevelopment using relatively skill-intensive activities as the launching pad for sustained growth as India seems to be attempting.

Put differently, India seems to have defied its "natural" comparative advantage, which probably lay in the "jeans" mode of escape because of its abundant unskilled and low-skilled labor. Instead, it found or created—thanks to historical policy choices and technological accidents—such advantage in relatively skilled activities such as information technologies and business process outsourcing (Kochhar et. al., 2007).

The Indian experience, still a work-in-progress, raises the question of whether structural transformation necessarily requires manufacturing to be the engine of growth. But before we compare manufacturing with alternative sectors in terms of their potential for structural transformation, it is worth elaborating on the desirable attributes of such sectors.

In fact, building upon the Rodrik (2013) framework, it is argued that there are five attributes that allow a sector to serve as an engine of

structural transformation and thereby lead an economy to rapid, sustained and inclusive growth:

1. *High level of productivity:* As described above, economic development is about moving from low productivity to high productivity activities.

2. *Unconditional Convergence* (i.e. faster productivity growth in lower productivity areas): This too has been discussed earlier. Recall that convergence ensures that the relevant sector acts as an "escalator" which automatically leads to higher levels of sectoral and economy-wide productivity. In fact one can distinguish between two types of unconditional convergence:

   A. Domestic convergence: In large countries such as India, China, Brazil, and Indonesia, one would ideally like to see convergence *within* a country. That is, productivity growth should be faster in richer than poorer parts. Otherwise severe within-country regional inequality may arise.

   B. International convergence: whereby less-productive economic units (firms, sectors or entire economies) in all countries catch-up with units at the international frontier (i.e. those in the most productive countries).

3. *Expansion:* To ensure that the dynamic productivity gains from convergence spread through the economy, it is necessary that the sector experiencing convergence absorbs resources. Convergence accompanied by contraction will fail to ensure economy-wide benefits, because the country's resources that are outside the sector in question will not experience higher, convergent productivity growth. Convergence, in the case of the industrial sector, should be accompanied by natural industrialisation and not premature de-industrialisation, if it is to lead to truly inclusive growth.

4. *Alignment with comparative advantage:* To ensure that expansion occurs and the benefits of fast-growing sectors are widely shared across the labor force, there should be a match between the skill requirements of the expanding sector and the skill endowment of the country. For example, in a labour abundant country such as India, the converging sector should be a relatively low-skilled activity so that more individuals can benefit from convergence.[2]

5. *Tradability:* Historically, countries that had growth spurts enjoyed rapid growth in exports, typically manufacturing exports (Johnson, Ostry and Subramanian (2010)). Rapid growth has seldom been based on the domestic market. Part of the reason for this might be that trade serves as a mechanism for technology transfer and learning, which may have spillovers on related industries (Hausmann, Hwang, and Rodrik (2007)). Perhaps a more important part is that trade and exports in particular provide a source of unconstrained demand for the expanding sector. This is particularly important for a country of India's size because of the possibility that its expansion can run up against the limited political and economic ability of trading countries to absorb Indian exports and/or to turn the terms of trade against itself.

The two sectors—manufacturing and services (including services disaggregated by subsector)—are now evaluated, in succession, along these five dimensions in the Indian context.[3]

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[2] There may be concerns that a country's pattern of specialization (in skilled or low-skilled activities) may in turn effect the skill endowment of the country. In particular, Blanchard and Olney (2013) show that increasing exports of low-skill products tends to lower average levels of human capital attainment through a Stolper-Samuelson effect. Nevertheless, in this chapter we take the position that the aforementioned mechanism is likely to be a second-order effect in the development process. Indeed, the experience of East Asia shows that it is possible for countries to start by specializing in low-skill but dynamic activities and subsequently move to more skill intensive production once the growth process has picked up steam.

[3] NB: for information on the data sources used in this chapter, please consult the working paper- Amirapu and Subramanian (2015).

7.3 The Manufacturing Scorecard

7.3.1 Productivity Level

Table 7.1 compares productivity (measured simply as value added per worker) levels in the various Indian sectors – including manufacturing – for two time periods: 1984 and 2010. Several features stand out. First, in India it is highly misleading to speak generally of manufacturing because of the clear difference between *unregistered* manufacturing – which is a very low productivity activity – and *registered* manufacturing – which is an order of magnitude (7.2 times) more productive. It is *registered* manufacturing, not manufacturing in general, which has the potential for structural transformation.

Second, the level of productivity in registered manufacturing is not only high relative to unregistered manufacturing, it is high compared to most other sectors of the economy and it is even high in an absolute sense, at US$ 7800 at market exchange rates and nearly three times as much at PPP exchange rates. If the entire Indian economy were employed in registered manufacturing, India would be as rich as say Korea.

Third, these differentials between registered manufacturing and the rest of the economy were already prevalent (if not to the same extent) in 1984 – fast productivity growth over the period (about 5 percent per year) has only exacerbated the differences.

Thus, on the first criterion of high levels of productivity, registered manufacturing scores spectacularly well.

7.3.2 Domestic convergence

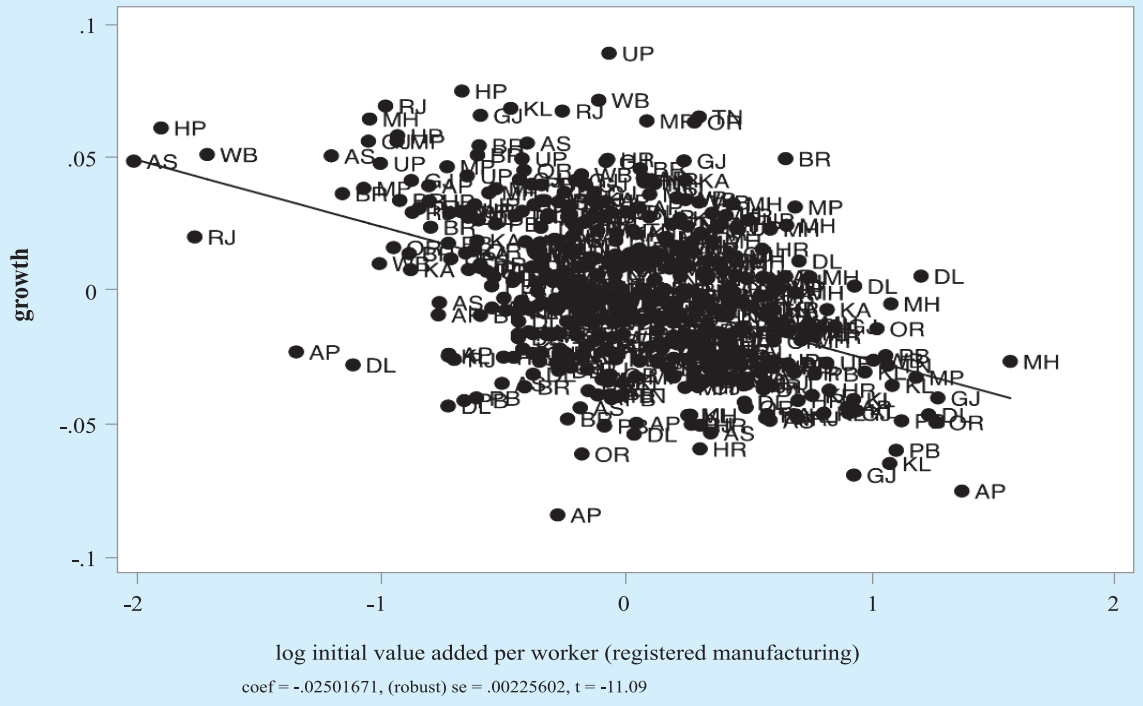
Figure 7.1 provides evidence that registered manufacturing is characterised by unconditional domestic convergence. Here the unit of observation is the State-Industry level, but almost identical results are derived when looking at more aggregated levels (across major states in India)

Table 7.1 : Labor Productivity in the Indian Economy by Sector over Time

	Level (constant 2005 Rs.)		Growth (percent)	
	1984	2010	1984-2010	2000-2010
Services	61,978	213,014	4.9	6.3
Manufacturing	48,817	125,349	3.7	4.2
Registered manufacturing (MOSPI)	117,984	360,442	4.4	5.4
Unregistered manufacturing	28,548	50,312	2.2	1.2
Services Subsectors				
Trade, Hotels, and Restaurants	56,284	144,108	3.7	7.3
Transport, Storage and Communications	68,823	172,058	3.6	4.5
Financial Services and Insurance	198,584	706,297	5.0	-1.6
Real Estate and Business Services, etc	1,012,017	875,073	-0.6	3.2
Public Administration and Defense	41,154	231,109	6.9	7.0
Construction	62,773	95,866	1.6	2.1

Source **: Amirapu and Subarmanian (2015).**

Figure 7.1[4]: Domestic Convergence in Registered Manufacturing - State-Industry level with 3 Digit Industry Fixed Effects, 1981 - 2008.



***Source*: Amirapu and Subarmanian (2015).**

and less aggregated levels (across factories).[5] Broadly a regression coefficient on log of initial productivity of about (-) 2.5 percent suggests that a state that is twice as rich as another has an average growth rate of productivity that is 2.5 percent slower – a considerable amount given that the average growth rate of productivity over the period 1984-2010 was about 4.4 percent.

7.3.3 International Convergence

With respect to registered manufacturing, it seems that states and firms within India are converging to the Indian frontier but that could mean little unless they are also converging to the international manufacturing frontier. Are they?

Rodrik (2013) shows that there is unconditional convergence across countries and sectors in manufacturing. But India is a negative outlier in the relationship in two senses: first, on average, manufacturing sectors in India exhibit labour productivity growth that is 14 percent less than the average country's manufacturing sector. Second, Indian industries converge at a much slower rate than average (0.005 percent)—almost not at all. In contrast, China is a positive outlier, posting faster labour productivity growth than average and converging faster to the global frontier.[6] Registered

[4] Note that the figure is a "partial residual plot": it graphically displays the relationship between two variables while controlling for other variables when appropriate (in this case three-digit industry fixed effects).

[5] Our results are also robust to different (shorter) time periods and different measures of productivity. These results and many others are reported in Amirapu and Subramanian (2015). It also worth noting that unregistered manufacturing does not exhibit unconditional convergence across the states in India.

[6] More formally, when an India dummy and a China dummy are added separately, and each interacted with the convergence coefficient, the coefficient on the India dummy is -.14 (t-statistic of 1.97), and that on the India dummy interacted with the convergence term is .017 (t-statistic of 2.05). The corresponding coefficients for China are .166 (t-statistic of 2.65) and -.011 (t-statistic of 1.4). We are grateful to Dani Rodrik for providing these results.

manufacturing in India has thus not been a strong performer.

7.3.4 Expansion or Pre-mature non-Industrialisation?

It is a stylised fact that the process of development includes stages of industrialisation followed by de-industrialisation: a country first experiences a rising share of resources – especially labour – devoted to the industrial sector, after which the services sector becomes more important, so that the share of employment in the industrial sector declines from its peak. In recent years, however, "de-industrialisation" seems to be taking place prematurely. That is, poor countries seem to be reaching their peak levels of industrialisation at lower levels of industrialisation and income (Rodrik, 2014; Amirapu and Subramanian, 2015).

What about India? The phenomenon of de-industrialisation is particularly salient for India for three reasons. Looming ahead is the demographic bulge, which will disgorge a million youth every month into the economy in search of employment opportunities. Rising labour costs in China create opportunities for low-skilled countries such as India as replacement destinations for investment that is leaving China. And a new government that has assumed power offers the prospect of refashioning India in the image of Gujarat—one of the few manufacturing successes.

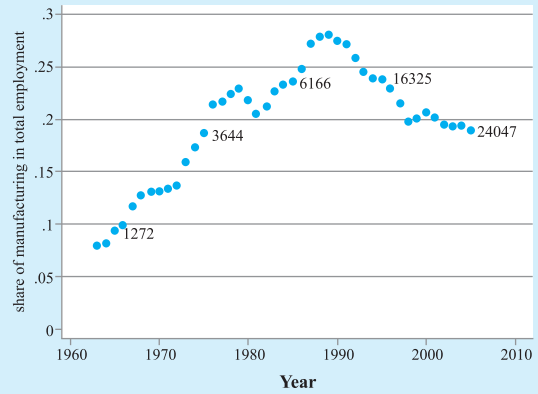
But the sobering fact is that India seems to be de-industrialising too. In fact, to call the Indian phenomenon de-industrialisation is to dignify the Indian experience, which is more aptly referred to as premature non-industrialisation because India never industrialised sufficiently in the first place.

To make the point first consider Figure 7.2, which plots the share of manufacturing in total employment over time for South Korea, a poster child for manufacturing-led growth. South Korea's GDP per capita in 2005 PPP dollars is also shown alongside the series for several years. The figure displays the typical shape: share of employment in manufacturing starts very low at around 5 percent and rises over time to almost 30 percent before starting to decline after a fairly high level of GDP has been reached.

In contrast, Figure 7.3 illustrates the Indian experience. The Figure shows India's share of registered manufacturing in total output and employment over time (on the same axes as the graph for Korea). The general trend is constant with a downward trend over the last few years for which data are available. In other words, the pronounced inverted U shape that characterises the cross-section and Korea is notably absent in India.

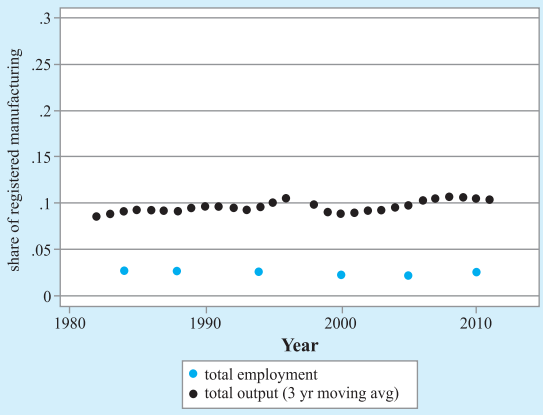
But what has been the counterpart development among Indian states? Tables 7.2A and 7.2B show

Figure 7.2: Share of Manufacturing in Total Employment over Time, 1960-2010: South Korea (GDP per capita in 2005 PPP $ show for select years)



Source: Amirapu and Subarmanian (2015).

Figure 7.3: Share of Registered Manufacturing in Total Output and Employment over Time, 1980-2010: All India



Source: Amirapu and Subarmanian (2015).

the year in which the share of registered manufacturing peaked (in first value added and then employment terms), the peak share of registered manufacturing (in value added or employment), and the per capita GDP associated with peak registered manufacturing levels.

From the tables, a few points are striking. Gujarat has been the only state in which registered manufacturing as a share of GDP surpassed 20 percent and came anywhere close to levels achieved by the major manufacturing successes in East Asia. Even in Maharashtra and Tamil Nadu, manufacturing at its peak accounted for only about 18-19 percent of state GDP. The peak shares in employment terms are even less significant: no major Indian state has achieved more than 6.2 percent of employment from registered manufacturing in the last 30 years, and many major states peaked at less than half that. Even in Gujarat, employment in registered manufacturing has only been about 5 percent of total employment, while annual growth in registered manufacturing employment has been 1.8 percent between 1984 and 2010 (slower than the growth rate of total employment over the period: 2.4 percent).

Second, in nearly all states (with the exception of Himachal Pradesh and Gujarat), registered manufacturing as a share of value added is now declining and, for most states, has been doing so for a long time. The peak share of manufacturing in output for many states was reached in the 1990s (Andhra Pradesh and Tamil Nadu) or even in the

Table 7.2A : Premature Non-Industrialisation among Indian States (by Value Added)

State	Year in which registered manufacturing in value added peaked	Share of registered manufacturing in value added at peak (percent)	NSDP per capita at peak (2005 INR)	GSDP per capita at peak (2005 USD PPP)
Gujarat	2011	22.7	52,291	5,357
Maharashtra	1986	18.9	15,864	1,400
Tamil Nadu	1990	18.1	15,454	1,417
Haryana	2003	17.3	32,869	3,309
Himachal Pradesh	2011	16.4	46,207	4,733
Karnataka	2008	14.7	34,752	3,523
Bihar	1999	13.6	9,215	905
Madhya Pradesh	2008	12.5	18,707	1,897
West Bengal	1982	12.3	9,348	909
Orissa	2009	12.0	22,779	2,353
All India	2008	10.7	30,483	3,091
Punjab	1995	10.5	25,995	2,506
Kerala	1989	10.3	14,418	1,322
Andhra Pradesh	1996	10.0	16,904	1,641
Uttar Pradesh	1996	10.0	11,679	1,134
Assam	1987	10.0	12,904	1,164
Delhi	1994	8.5	39,138	3,742
Rajasthan	2001	8.3	15,816	1,522

***Source*: Amirapu and Subarmanian (2015).**

Table 7.2B : Premature Non-Industrialisation among Indian States (by Employment)

State	Year in which registered manufacturing in value added peaked	Share of registered manufacturing in employment at peak (percent)	NSDP per capita at peak (2005 INR)	GSDP per capita at peak (2005 USD PPP)
Tamil Nadu	2010	6.2	44,033	4,633
Delhi	1988	6.1	31,531	2,989
Haryana	2010	6.1	54,861	5,773
Punjab	2010	5.4	44,611	4,694
Gujarat	1984	5.4	15,167	1,343
Maharashtra	1984	4.8	15,212	1,347
West Bengal	1984	4.7	10,371	919
Himachal Pradesh	2010	3.8	42,998	4,524
Kerala	1994	3.3	18,926	1,809
Karnataka	2010	3.3	36,214	3,811
Andhra Pradesh	2010	2.8	36,228	3,812
All India	1984	2.7	11,800	1,045
Assam	1984	2.5	13,238	1,172
Uttar Pradesh	1988	1.6	9,372	888
Bihar	1988	1.5	4,768	452
Rajasthan	2010	1.4	23,908	2,516
Madhya Pradesh	1994	1.4	13,191	1,261
Orissa	2010	1.4	22,677	2,386

Source **: Amirapu and Subarmanian (2015).**

1980s (Maharashtra). Interestingly, peak *employment* shares seem to be following a slightly different story, with less marked declines observable for most states. Nevertheless, most states have *not* been experiencing secular growth in employment shares over time (the only exceptions are Himachal Pradesh, Tamil Nadu, Haryana and – possibly – Karnataka). Many of the states that do exhibit peak years in 2010 (such as Andhra Pradesh, Rajasthan and Orissa) seem to have employment shares that have been mostly flat, reflecting neither relative growth nor decline.

Third, and this is perhaps the most sobering of facts, manufacturing has even been declining in the poorer states: states that never effectively industrialised (West Bengal and Bihar) have started de-industrialising.

Some comparisons are illuminating. Take India's largest state Uttar Pradesh. It reached its peak share of manufacturing in output at 10 percent of GDP in 1996 at a per capita state domestic product of about $1200 (measured in 2005 purchasing power parity dollars). A country like Indonesia attained a manufacturing peak share of 29 percent at a per capita GDP of $5800. Brazil attained its peak share of 31 percent at a per capita GDP of $7100. So, Uttar Pradesh's maximum level of industrialization was about one-third that in Brazil and Indonesia; and the decline began at 15-20 percent of the income levels of these countries.

Thus far, we have shown that, for all but a few states, Indian manufacturing is certainly not growing and is probably shrinking. One possible

consequence of manufacturing failing to satisfy requirements 2b and 3 is that, in contrast to China, there is no evidence of convergence between states in India in overall per capita GDP. For Chinese provinces, the poorer the initial level of per capita GDP, the faster the subsequent growth, so that poorer provinces start catching up with richer ones. In India, there is no convergence, because poorer states are not likely to grow faster than richer ones on average (Amirapu and Subramanian 2015). Regional disparities have thus persisted within India.

Had manufacturing attracted resources while exhibiting domestic convergence in productivity, the sector would have expanded in poorer states increasing overall levels of income in these states and contributing to a narrowing of the income distribution across India. Instead it seems that manufacturing has failed to be such an escalator of progress.

Several explanations are possible for why manufacturing has not been this escalator in India. They fall under four broad categories: distortions in labour markets; distortions in capital markets; distortions in land markets; and inappropriate specialisation away from India's natural comparative advantage and toward skill intensive activities. Amirapu and Subramanian (2015) provides some evidence in support of the last explanation.

7.3.5 Alignment with Comparative Advantage

As argued earlier, in order for a sector to offer transformational possibilities, it must not only be characterised by high levels and growth rates of productivity, it must also absorb resources from the rest of the economy. But in order to do so, the sector's use of inputs must be aligned with the country's comparative advantage. That will allow the abundant factor of production (usually unskilled

Table 7.3: Average Skill Level by Subsector in the Indian Economy (NSSO 2004-05)

Sector/Subsector	Share of Employees with at least Primary Education	Share of Employees with at least Secondary Education
Agriculture, forestry and fisheries	0.445	0.139
Mining	0.501	0.221
All manufacturing	0.628	0.248
Registered manufacturing (workers in factories with >10 workers)	0.768	0.432
All Services	0.778	0.478
Transportation and communications	0.715	0.330
Wholesale and retail trade	0.721	0.346
Financial services and insurance	0.976	0.836
Real estate and business services	0.935	0.775
Public administration and defense	0.897	0.665
Education	0.963	0.888
Health and social work	0.924	0.767
Electricity, gas and water	0.856	0.558
Construction	0.518	0.144

Source **: Amirapu and Subarmanian (2015).**

labour) to benefit from productivity growth and convergence, and in so doing make growth not only rapid and sustainable but also inclusive. In other words, the dynamic sector must at least initially be relatively unskilled labour intensive. Is this true of India manufacturing? Kochhar et. al. (2006) found that Indian manufacturing was unusually skill labour intensive. Another simple metric for assessing the alignment of dynamism with comparative advantage is the relative skill intensity of manufacturing relative to other sectors. Table 7.3 presents some numbers. From the 2004/5 NSSO Employment and Unemployment Survey, the share of employees with at least primary and secondary education for major sectors (and subsectors) of the Indian economy is computed.

It turns out that registered manufacturing is a sector that *is* relatively skilled labor intensive. As table 7.3 shows, the share of workers with at least secondary education is substantially higher in registered manufacturing than in agriculture, mining or unregistered manufacturing and also greater than in several of the service subsectors. In some ways, this should not be surprising. High labour productivity in this sector (Table 7.1) is at least in part a consequence of higher skills in the work force. What it does suggest, however, is that registered manufacturing does not really satisfy requirement number four. The skill intensity of the sector is not quite aligned with India's comparative advantage.

7.4 The Services Scorecard

The scorecard analysis can be repeated for the services sector in India. But before that is done, it is important to recognise that services in the aggregate is not a useful category of analysis because it is an amalgam of different and disparate species of economic activity, from government services and construction that are non-tradable to finance and business services that largely are tradable; from certain activities that are labour intensive and others such as telecommunications that are highly capital and skill labor intensive. Any meaningful analysis of services must distinguish between different service subsectors—although the degree of disaggregation will of course be determined by data availability.

We work with the six different subsectors shown in Table 7.4 and repeat the analysis undertaken above for registered manufacturing.

7.4.1 Productivity Level

Table 7.4 provides comparative data on the level of productivity for these service subsectors as well

Table 7.4: Growth in Employment Shares of Economy Subsectors, 1984-2010

	Initial Level of Productivity	Employment Shares		Annual Growth (percent)
	1984	1984	2010	1984-2010
Registered Manufacturing	117,984	0.027	0.026	-0.2
Aggregate Services	61,978	0.201	0.219	0.3
Trade, Hotels, and Restaurants	56,284	0.074	0.093	0.9
Transport, Storage and Communications	68,823	0.028	0.038	1.2
Financial Services and Insurance	198,584	0.006	0.007	0.7
Real Estate and Business Services, etc	1,012,017	0.002	0.011	7.1
Public Administration and Defense	41,154	0.030	0.018	-1.9
Construction	62,773	0.031	0.080	3.7

Source **: Amirapu and Subarmanian (2015).**

as for manufacturing (both registered and unregistered). The first point to note is the astounding variation within services, reinforcing the case for disaggregation. In 1984 for example, the level of productivity in the real estate and business services sectors was 25 times as much as in public administration (essentially government) and close to 20 times as much as in retail. The productivity levels in two—financial services and business services—out of six service subsectors exceed that of registered manufacturing.

7.4.2 Domestic convergence

The issue of whether there was unconditional convergence within India for service subsectors over the last 3 decades is now examined. Notably, unconditional domestic convergence is found in nearly all the service subsectors, and across many time horizons (not reported here). In fact, the speed of domestic convergence for most service subsectors is found to be similar to that in registered manufacturing (about 2 percent) and, in some cases, substantially higher. For example, real estate and business services seem to converge at double the rate at which registered manufacturing converges.

7.4.3 International Convergence

Rodrik (2013) provides evidence using UNIDO data that industries in the (organized) manufacturing sector consistently exhibit global convergence in labour productivities, although Indian manufacturing industries converge to the global frontier much more slowly than the average, if at all. What about the service subsectors?

Using data on sectoral productivities from the World Bank's World Development Indicators (WDIs), Ghani and O'Connell (2014) argue that services in the aggregate have also exhibited convergence to a similar or even greater degree than manufacturing – at least for recent time periods (approximately 1990 to 2005). This is an interesting finding, but for this analysis in particular services should be disaggregated as we might well expect convergence behaviour to vary by subsector due to significant differences in sectoral characteristics such as tradability.

Table 7.5 : Unconditional Convergence in Service Subsectors across Countries (1990-2005), regressions include productivity growth against log of initial productivity

Log of initial productivity	Trade, Hotels and Restaurants	Transport, Storage and Communication	Finance, Insurance, and Real Estate	Community, Social and Personal Services	Construction
	(1)	(2)	(3)	(4)	(5)
Trade, Hotels and Restaurants	-0.007 (0.005)				
Transport, Storage and Communication		-0.00 (0.008)			
Finance, Insurance, and Real Estate			-0.031*** ((0.007)		
Community, Social and Personal Services				-0.030*** ((0.008)	
Construction					-0.026*** (0.008)
Constant	0.061 (0.053)	0.105 (0.083)	0.325*** ((0.076)	0.315** (0.094)	0.269*** (0.085)
Observations	27	27	27	9	27

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. *Source:* Amirapu and Subarmanian (2015).

Table 7.5 reports international convergence results by service subsectors over the period 1990 to 2005 using data from the Groningen Growth and Development Centre (GGDC). Although the set of countries in the analysis is severely limited due to data availability,[7] the results are still interesting. We see that some service subsectors (Finance, Insurance, and Real Estate; Community, Social and Personal Services; and Construction) do seem to exhibit strong international convergence, while others (Trade, Hotels and Restaurants; Transport, Storage and Communication) do not. Surprisingly, the set of sectors exhibiting convergence seems to include even some apparently non-tradable sectors, such as construction.

The conclusion thus far seems to be that many– but not all – service subsectors satisfy the requirements of high productivity growth, domestic convergence, and international convergence.

7.4.4 Expansion of Services?

Evidence that the share of output and employment from manufacturing in India had hardly changed in 30 years has already been presented. In the Tables below analogous evidence for services in India – both in aggregate and for particular service subsectors is presented.

In contrast to registered manufacturing – the share of output from aggregate services rose dramatically over the last 30 years, from about 35 percent to more than 50 percent of GDP. The share of aggregate services in employment, in contrast, increased in a far more modest fashion (see Table 7.6). But there is nevertheless a distinct contrast with registered manufacturing. Aggregate services employment grew faster than that in registered manufacturing and a number of service subsectors—transport, real estate and construction—registered substantially faster employment growth. In other words, services are becoming an ever more important source of wealth, and while they have not delivered rapid employment growth, a number of service sub-sectors have generated more rapid employment growth than manufacturing.

7.4.5 Alignment with comparative advantage?

We argued above that, in a low-skilled labour abundant country like India, a sector must make use of this dominant resource in order to offer the greatest possibilities for expansion and structural transformation. We also saw that registered manufacturing was a fairly skill-intensive sector with high average educational attainment.

The same table also shows that services in aggregate are no less skill-intensive: on average, 78 percent of workers in the service sector have at least a primary education (77 percent in registered manufacturing), and 48 percent have at least a secondary education (43 percent in

Table 7.6 : India—Services vs Manufacturing Scorecard

	Feature	Registered Manufacturing	Trade, Hotels, Restaurants	Transport, Storage and Communi-cations	Financial Services and Insurance	Real Estate Business Services, etc.	Construc-tion
1.	High productivity	Yes	No	Not really	Yes	Yes	No
2A.	Unconditional domestic convergence	Yes	Yes	Yes	Yes	Yes	Yes
2B.	Unconditional international convergence	Yes, but not for India	No	No	Yes	Yes	Yes
3.	Converging sector absorbs resources	No	Somewhat	Somewhat	No	Somewhat	Yes
4.	Skill profile matches underlying endowments	Not really	Somewhat	Somewhat	No	No	Yes
5.	Tradable and/or replicable	Yes	No	Somewhat	Yes	Somewhat	No

Source : Amirapu and Subarmanian (2015).

registered manufacturing). Furthermore, a large number of service subsectors – including 1) Banking and Insurance, 2) Real Estate and Business Services, 3) Public Administration, 4) Education, and 5) Health and Social Services – have significantly higher educational attainment (90 percent or more of workers have at least primary education) than registered manufacturing. What this implies is that most service subsectors (precisely the high productivity, high growth subsectors, for the most part), have a limited capacity to make use of India's most abundant resource, unskilled labor. This may explain why the share of employment from services has risen so modestly, even while the share of output from services has grown so spectacularly.

7.5 Summary Scorecard and Conclusions

Table 7.6 below provides a summary scorecard comparing registered manufacturing and selected service subsectors. Before proceeding further, let us make clear a few important points. First, we compare service sectors with only the *registered* (i.e.: formal) manufacturing sector, because unregistered manufacturing is one of the lowest productivity sectors in the Indian economy– apart from agriculture – and so offers little promise for transformation. So, when there is talk on the transformational potential of manufacturing in India the focus must be exclusively on registered manufacturing.

Second, another contribution of this chapter is to offer an alternative way of thinking about transformational sectors beyond the traditional distinction based on manufacturing versus services. We have taken the position of comparing sectors based on their easily observable underlying properties. To be sure, there may be less tangible differences between manufacturing and services that are left out in our analysis.

For example, our present analysis does not consider the extent to which certain sectors (such as registered manufacturing) may be more likely to induce learning spillovers to other sectors of the economy, which may be important. Other missing dimensions include the political one: Dani Rodrik has suggested that manufacturing may play an indirect role in the political development of young nations by providing a forum in which citizens learn to practice compromise in a democratic context through the struggle between labour and capital "on the manufacturing shop floor" (Rodrik, 2013b). Though our analysis leaves out such channels, we believe they are second-order in comparison with the 5 desirable features laid out earlier.

Proceeding to the comparison, there does not seem to be anything distinctive or superior about registered manufacturing when compared with certain other service subsectors. Like manufacturing, several of the service subsectors also exhibit high productivity and convergence – both domestic and international. However, they also share the shortcoming that these sectors are highly skill intensive in their resource requirements, which is out of kilter with the skill profile of the Indian labor force. Their potential to generate widely shared or inclusive growth is thus likely to be limited – and indeed seems to have been so given the lack of expansion observed earlier (and which is recorded in the scorecard).

One sector that markedly stands out from the others in the table below is construction: it appears to exhibit both types of convergence, does not require high education levels and has grown significantly in its resource use over the last three decades. However, the sector is not tradable and in any case is low productivity, so that moving labor resources to the sector does not considerably improve overall welfare.

So, in some ways, the choice for India is not manufacturing versus services but comparative advantage *deifying* (unskilled-intensive) sectors versus comparative advantage *defying* (skill-intensive) sector development. This is both a positive and a policy question.

While India's skill-intensive pattern of development has no doubt been costly, there has been a significant upside. Myron Weiner, among others,

has drawn attention to the disappointing post-Independence performance of the Indian state in delivering education, reflected in very slow improvements in literacy rates, especially amongst women. While the supply of educational services by the state was inadequate, the puzzle arose as to why there was not greater demand for education and hence greater pressure on the state to meet this demand.

One answer to this puzzle is that the private returns to literacy and basic education must have been low. There is now evidence that the increasing opportunities that are spurring economic growth also contribute to raising these returns, leading to a greater demand for educational services—public and private—and hence improvements in educational outcomes (Munshi and Rosenzweig, 2003). This has put pressure on the supply of education. The government's failures to provide good schools are well-known, but growth has changed the picture dramatically, largely because it has increased the returns from education—and hence the demand for it.

Evidence is provided by the work of economists Kartik Muralidharan and Michael Kremer who show that private schools are mushrooming in rural India (many prominently advertising "English Medium") because of teacher absenteeism in public schools. One also hears of companies creating training centers to build skills in the cities (such as the Infosys institute in Mysore) because institutions of higher education are notoriously inadequate. This endogenous increase in human capital could be one of the offsetting benefits of the comparative advantage-defying, skill-intensive growth model.

The policy question is the following. *Insofar as the government retains influence over shaping the pattern of development, should it try to rehabilitate unskilled manufacturing or should it accept that that is difficult to achieve, and create the groundwork for sustaining the skill intensive pattern of growth?* Attempting the former would be a history-defying achievement because there are not many examples of significant reversals of de-industrialisation. A lot would have to change in India—from building the infrastructure and logistics/connectivity that supports unskill-intensive manufacturing to reforming the panoply of laws and regulations—or perhaps addressing corruption in the manner of their enforcement—that may discourage hiring unskilled labor and achieving scale in the formal sector.

Sustaining a skill-intensive pattern on the other hand would require a greater focus on education (and skills development) so that the pattern of development that has been evolving over time does not run into shortages. The cost of this skill intensive model is that one or two generations of those who are currently unskilled will be left behind without the opportunities to advance. But emphasising skills will at least ensure that future generations can take advantage of lost opportunities.

In some ways, the choice confronting India is really about how to make it a Lewisian economy that has unlimited supplies of labor. India can either create the conditions to ensure that its existing unlimited supplies of unskilled labor are utilisable. Or, it can make sure that the currently inelastic supply of skilled labor is made more elastic. Both are major challenges.

What the analysis suggests is that while Make in India, which has occupied all the prominence, is an important goal, the Prime Minister's other goal of "Skilling India" is no less important and perhaps deserves as much attention. Make in India, if successful, would make India a Lewisian economy in relation to unskilled labor. But "Skilling India" has the potential to make India a Lewisian economy with respect to more skilled labor. The future trajectory of Indian economic development could depend on both.

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A National Market for Agricultural Commodities- Some Issues and the Way Forward

08 CHAPTER

8.1 Introduction

Presently, markets in agricultural products are regulated under the Agricultural Produce Market Committee (APMC) Act enacted by State Governments. There are about 2477 principal regulated markets based on geography (the APMCs) and 4843 sub-market yards regulated by the respective APMCs in India. Effectively, India has not one, not 29 but thousands of agricultural markets. This Act notifies agricultural commodities produced in the region such as cereals, pulses, edible oilseed, fruits and vegetables and even chicken, goat, sheep, sugar, fish etc., and provides that first sale in these commodities can be conducted only under the aegis of the APMC through the commission agents licensed by the APMCs set up under the Act. The typical amenities available in or around the APMCs are: auction halls, weigh bridges, godowns, shops for retailers, canteens, roads, lights, drinking water, police station, post-office, bore-wells, warehouse, farmers amenity center, tanks, Water Treatment plant, soil-testing Laboratory, toilet blocks, etc. Various taxes, fees/charges and cess levied on the trades conducted in the Mandis are also notified under the Act.

8.2 APMCs levy multiple fees, of substantial magnitude, that are non-transparent, and hence a source of political power

Tables 8.1-8.3 convey a sense of the magnitudes and multiplicity of fees arising from the operation of the APMCs. They charge a market fee of buyers, and they charge a licensing fee from the commissioning agents who mediate between buyers and farmers. They also charge small licensing fees from a whole range of functionaries (warehousing agents, loading agents etc.). In addition, commissioning agents charge commission fees on transactions between buyers and farmers.

The levies and other market charges imposed by states vary widely. Statutory levies/mandi tax, VAT etc. are a major source of market distortion. Such high level of taxes at the first level of trading have significant cascading effects on the prices as the commodity passes through the supply-chain.

For rice, listed in Table 8.1, these charges can be as high as 14.5 percent in Andhra Pradesh (excluding the state VAT) and close to 10 percent in Odisha and Punjab. For wheat, too, these charges can be quite high (Table 8.2).

Even the model APMC Act (described below) treats the APMC as an arm of the State, and, the market fee, as the tax levied by the State, rather than fee charged for providing services. This is a crucial provision which acts as a major impediment to creating national common market in agricultural commodities. Removal of this provision will pave a way for creating competition and a national common market for agricultural commodities.

Moreover, though the market fee is collected just like a tax, the revenue earned by the APMCs does not go to the State exchequer and hence does not require the approval of State legislature to utilize the funds so collected. Thus APMC operations are hidden from scrutiny.

Table 8.1: Taxes/ Levies/Interest Charges/ Incidentals etc.as % of MSP on procurement of Rice/ Paddy in KMS 2013-14 and price after Tax

		Taxes/ levies/ Interest Charges/ Incidentals etc. (%)	Price after tax over MSP (₹ 1310/ qtl.)
1	Andhra Pradesh*	19.5	1565.45
2	Bihar	6.5	1395.15
3	Chhattisgarh**	9.7	1437.07
4	Gujarat	3.5	1355.85
5	Haryana	11.5	1460.65
6	Jharkhand	3.5	1355.85
7	Karnataka	4	1362.4
8	Madhya Pradesh	4.7	1371.57
9	Maharashtra	3.55	1356.51
10	Odisha***	15.5	1513.05
11	Punjab	14.5	1499.95
12	Rajasthan	3.6	1357.16
13	Uttar Pradesh	9	1427.9
14	Uttarakhand	9	1427.9
15	West Bengal	3	1349.3

* Mkt. Fee=1%, VAT=5%, Driage=1%, RD Cess= 5%, Comm. To society=2.5%, Admin. Charges=2.5%, Custody & Maintenance charges+ Interest Charges=2.5%

** Mandi Fee=2%, Commercial tax=5%, Comm. To society=2.5%, Nirashrit Shulk=0.2%

*** Mkt. Fee=2%, VAT=5%, Driage=1%, Comm. To society=2.5%, Admin. Charges=2.5%, Custody & Maintenance charges+ Interest Charges=2.5%

Source: **FCI, DFPD and States.**

Table 8.2: State-wise Taxes and Levies imposed on sale of wheat by farmers

		Taxes/ Levies/ (as % of MSP) MSP	Price after tax (₹ 1350/qtl.)
1	Andhra Pradesh	5	1418
2	Assam	0	1350
3	Bihar	6	1431
4	Chhattisgarh	2.2	1380
5	Gujarat	0.81	1361
6	Haryana	11.5	1505
8	Jharkhand	3.5	1397
9	Karnataka	0	1350
11	Madhya Pradesh	9.2	1474
12	Maharashtra	0	1350
13	Orissa	5	1418
14	Punjab	14.5	1546
15	Rajasthan	3.6	1399
16	Tamil Nadu	0	1350
17	Uttar Pradesh	8.5	1465
18	Uttarakhand	7.5	1451
19	West Bengal	2.88	1389

* As on 17.01.2014;

Source **: Food Corporation of India (FCI).**

The rate of commission charged by the licensed commission agents is exorbitant, because, unlike direct taxes, which are levied on net income, the commission is charged on the entire value of the produce sold. The license fee charged from various market licensed operators is nominal, but the small number of licences granted creates a premium, which is believed to be paid in cash.

There is a perception that the positions in the market committee (at the state level) and the market board – which supervises the market committee - are occupied by the politically influential. They enjoy a cosy relationship with the licensed commission agents who wield power by exercising monopoly power within the notified area, at times by forming cartels. The resistance to reforming APMCs is perceived to be emanating from these factors.

8.3 Essential Commodities Act, 1955 vs APMC Act

The scope of the Essential Commodities Act (EC Act) is much broader than the APMC Act. It empowers the central and state governments concurrently to control production, supply and distribution of certain commodities, including

Table 8.3 : Details of Five Big APMCs in the Country in Terms of Revenue Realization

Name of APMC	Income (Rs. in crores) for 2013-14	Rate of Market fee	Rate of Commission charge
1 APMC Vashi (Mumbai)	126.00	0.8 % of the value of the produce	-Perishables-(i) Onion – 6.5%(ii) Vegetable- 8%(iii) Fruit-10%Non- Perishables – up to 2.75 % of the value produce
2 APMC Azadpur (Delhi)	90.09	Market fee—— 1 % of the (Fruits and Vegetable Market)	6% of the value of the produce value of the produce
3 Galla Mandi APMC Indore	59.70	Market fee——2 % (Except Orange, Cotton and Banana on which it is 1.0 %) of value of the produce)+Nirashrit Shulk—0.2%	No Commission agent exists
4 APMC, Gultekari (Pune)	47.00	1 % of the value of the produce	-Perishables- 6.0% of the value of the produceNon- Perishables –3.0% of the produce
5. APMC, Yashwantpur	44.00	Market fee ——1.0 % + 0.5 % for revolving fundIn case of dry grapes (kishmish), it is only 0.1 % only	Fruits and Veg.—5.0 % of the value of the produceOthers-2.0% value of the produce

pricing, stock-holding and the period for which the stocks can be kept and to impose duties. The APMC Act on the other hand, controls only the first sale of the agricultural produce. Apart from food-stuffs which are covered under the APMC Act, the commodities covered under the EC Act generally are: drugs, fertilisers, and textiles and coal.

8.4 Model APMC Act

Since these State Acts created fragment markets (2477) for agricultural commodities and curtailed the freedom of farmers to sell their produce other than through the commission agents and other functionaries licensed by the APMCs, the Ministry of Agriculture developed a model APMC Act, 2003 and has been pursuing the state governments for over a decade now to modify their respective Acts along the lines of the Model APMC Act, 2003. The Model APMC Act:- (a) provides for direct sale of farm produce to contract farming sponsors; (b) provides for setting up "Special markets" for "specified agricultural commodities" – mostly perishables; (c) permits private persons, farmers and consumers to establish new markets for agricultural produce in any area; (d) requires a single levy of market fee on the sale of notified agricultural commodities in any market area; (e) replaces licensing with registrations of market functionaries which would allow them to operate in one or more different market areas; (f) provides for the establishment of consumers' and farmers' markets to facilitate direct sale of agricultural produce to consumers; and (g) provides for the creation of marketing infrastructure from the revenue earned by the APMC.

The model APMC Act provides some freedom to the farmers to sell their produce directly to the contract-sponsors or in the market set up by private individuals, consumers or producers. The model APMC Act also increases the competitiveness of the market of agricultural produce by allowing common registration of market intermediaries. Many of the States have partially adopted the provisions of model APMC Acts and amended their APMC Acts. Some of the states have not framed rules to implement the

amended provisions, which indicate hesitancy on the part of state governments to liberalize the statutory compulsion on farmers to sell their produce through APMCs. Some states —— such as Karnataka —— have however adopted changes to create greater competition within state.

8.5 Karnataka model

In Karnataka, 51 of the 155 main market yards and 354 sub-yards have been integrated into a single licensing system. Rashtriya e-market Servies Ltd. (ReMS), a joint venture created by the State government and NCDEX Spot Exchange, offers automated auction and post auction facilities (weighting, invoicing, market fee collection, accounting), assaying facilities in the markets, facilitate warehouse-based sale of produce, facilitate commodity funding, price dissemination by leveraging technology. The wider geographical scope afforded by breaking up fragmented markets has enabled private sector investment in marketing infrastructure.

8.6 Inadequacies of Model APMC Act

The provisions of the Model APMC Act do not go far enough to create a national – or even state-level common market for agricultural commodities. The reason is that the model APMC Act retains the mandatory requirement of the buyers having to pay APMC charges even when the produce is sold directly outside the APMC area, say, to the contract sponsors or in a market set up by private individuals even though no facility provided by the APMC is used. The relevant provision (No.42) in the model APMC Act is:

"**Power to levy market fee "(single point levy)**: Every market shall levy market fee (i) on the sale or purchase of notified agricultural produce, whether brought from within the State or from outside the State into the market area."

Though the model APMC Act bars the APMCs and commission agents from deducting the market fee/commission from the seller, the incidence of these fees/commission falls on the farmers since buyers would discount their bids to the extent of the fees/commission charged by the APMC and the Commission agents.

Though the model APMC Act provides for setting up of markets by private sector, this provision is not adequate to create competition for APMCs even within the State, since the owner of the private market will have to collect the APMC fees/taxes, for and on behalf of the APMC, from the buyers/sellers in addition to the fee that he wants to charge for providing trading platform and other services, such as loading, unloading, grading, weighing etc.

8.7 Alternative ways of creating national market for agricultural commodities

The 2014 budget recognizes the need for setting up a national market and stated that the central government will work closely with the state governments to reorient their respective APMC Acts to provide for the establishment of private market yards/private markets. The budget also announced that the state governments will also be encouraged to develop farmers' markets in towns to enable farmers to sell their produce directly.

More steps may have to be taken and incremental moves may need to be considered to get the states on board. For example, first, it may be possible to get all the states to drop fruits and vegetables from the APMC schedule of regulated commodities; this could be followed by cereals, pulse and oil seeds, and then all remaining commodities.

State governments should also be specifically persuaded to provide policy support for setting up infrastructure, making available land etc. for alternative or special markets in private sector, since the players in the private sector cannot viably compete with the APMCs in which the initial investment was made by the government on land and other infrastructure. In view of the difficulties in attracting domestic capital for setting up marketing infrastructure, particularly, warehousing,

cold storages, reefer vans, laboratories, grading facilities etc. Liberalisation of FDI in retail could create the possibilities for filling in the massive investment and infrastructure deficit which results in supply-chain inefficiencies.

8.8 Using Constitutional provisions to set up a common market

If persuasion fails (and it has been tried for a long time since 2003), it may be necessary to see what the center can do, taking account of the allocation of subjects under the Constitution of India. The Constitution of India does empower the States to enact APMC Acts under some entries in the List II of Seventh Schedule (State List), viz., Entry 14: 'Agriculture …', Entry 26: 'Trade and Commerce within the State ….' And Entry 28: 'Markets and fairs'.

However, the perception that the Constitution will have to be amended if the centre has to play a decisive role in creating a national market remains open. There are provisions/entries in List III of the Seventh Schedule (Concurrent List) in the Constitution which can be used by the Union to enact legislation for setting up a national common market for specified agricultural commodities, viz., Entry 33 which covers trade and commerce and production, supply and distribution of foodstuffs, including edible oilseeds and oils raw cotton, raw jute etc. Entry 42 in the Union List, viz., 'Inter-state Trade and Commerce' also allows a role for the union. Once a law is passed by the Parliament to regulate trading in the specified agricultural commodities, it will override the state APMC laws, paving the way for creating a national common market. But this approach could be seen as heavy-handed on the part of the center and contrary to the new spirit of cooperative federalism.

From Carbon Subsidy to Carbon Tax: India's Green Actions[1]

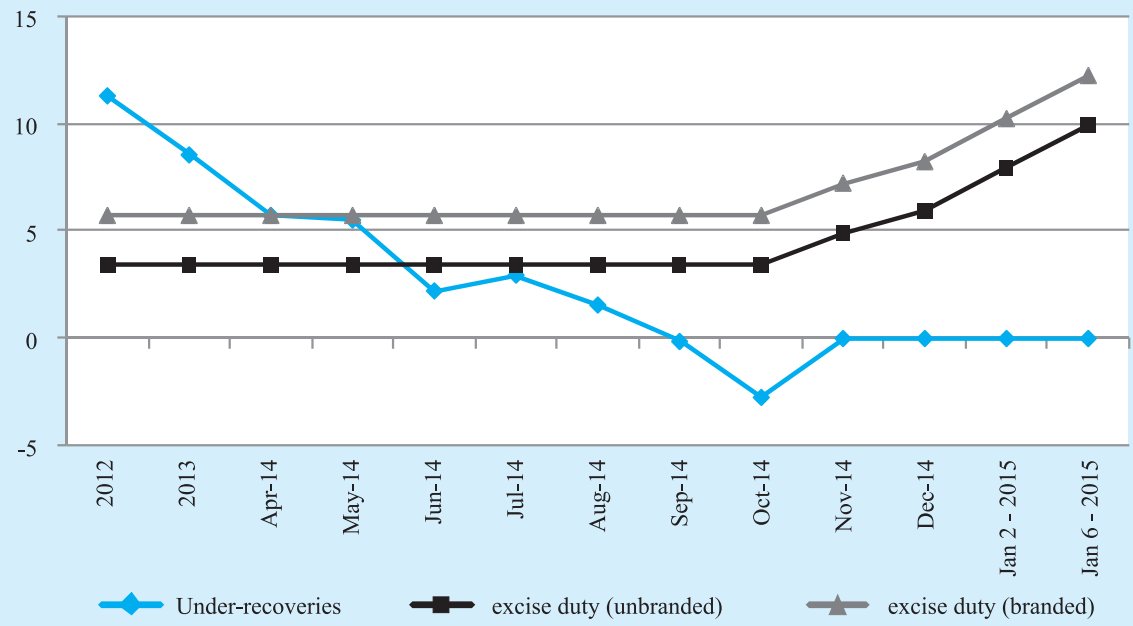
09 CHAPTER

9.1 Introduction

The recent steep decline in international oil prices is seen by many as an opportunity to rationalize the energy prices by getting rid of the distorting subsidies whilst shifting taxes towards carbon use.[2] This will not only be a fiscally prudent measure but also an opportune time to introduce measures such as carbon taxes, which are still the most potent instruments in dealing with the threats of climate change.[3]

While there are a very few countries globally that have reacted or made any efforts in this direction, the recent measures by the Government of India to decontrol diesel prices while at the same time increasing excise duty on petrol and diesel periodically to match the declining global prices

Figure 9.1: Diesel under-recoveries and excise duties, 2012 to 2015 (Rs./ litre)



***Source*: Petroleum Planning & Analysis Cell, MoP&NG.**

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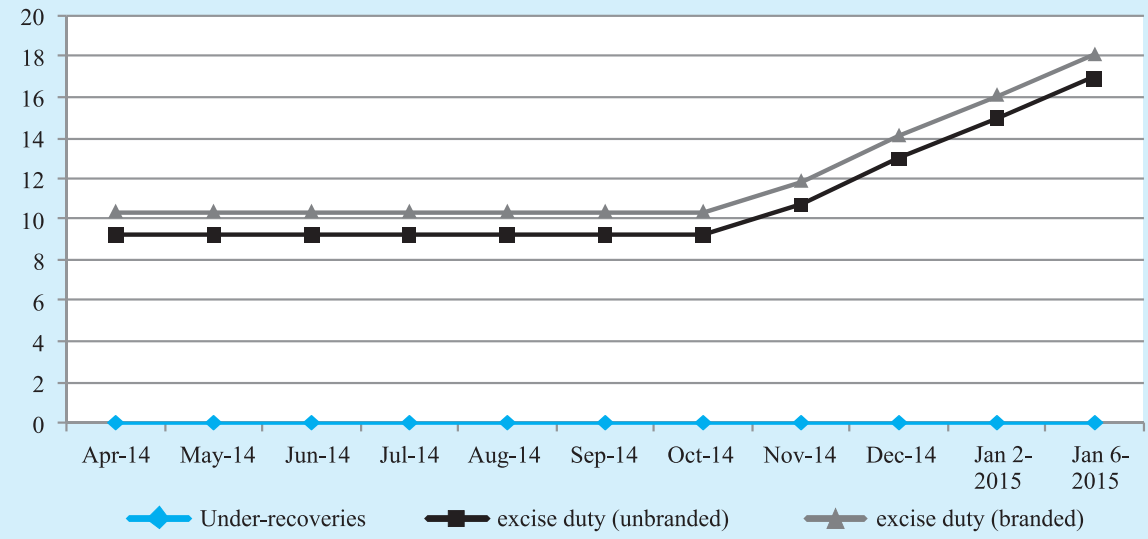
[1] Help of Muthukumara Mani and Fan Zhang, of the Office of the Chief Economist, South Asia Region, World Bank in the preparation of this chapter is gratefully acknowledged.

[2] *"Seize the Day"* The Economist, January 17, 2015.

[3] A carbon tax is a tax on the carbon content of fuels (principally coal, oil, and natural gas) that generate CO2 emissions when burned. The tax would apply at a specific rate per ton of coal, per barrel of oil, or per million cubic feet of gas, with the amounts adjusted to equalize implied taxes on carbon content. The rationale of such a tax is to reduce GHG emissions primarily responsible for climate change.

Figure 9.2: Petrol Under-recoveries and Excise duties, 2014-2015. (Rs./litre)



***Source*: Petroleum Planning & Analysis Cell, MoP&NG.**

reflects a proactive stance in this direction. As Figures 9.1 & 9.2 shows, under-recoveries—a measure of the subsidy arising from lower domestic prices compared to international prices—have been eliminated. And in a series of actions since October 2014, excise duties have been imposed on diesel and petrol. Previously, the coal cess was doubled from ₹ 50 per ton to ₹ 100 per ton, also adding to the set of green actions taken by the government.

9.2 Excise duty on petrol and diesel as an implicit carbon tax

Excise duties on petrol or diesel also act as an implicit carbon tax—by putting an effective price on emissions. For example, more fuel a car burns, and the greater the emissions, the greater the tax paid. There is a price signal to reduce fuel burnt, and hence CO_2 emissions. In addition to serving as a carbon tax, an excise on petrol and diesel may, of course, also price other externalities associated with burning petrol or diesel. This includes congestion costs (from using vehicles), noise and local air pollution (of various forms) which can be deeply damaging for health.[4] Estimated damages from carbon emissions are dwarfed by those from the other unwanted side effects. At the high end of available estimates, climate change impacts are only 7 per cent of the costs associated with congestion and air pollution.[5] One cannot off course understate their role in raising substantial revenues for social redistribution. In many countries the latter reasons have often motivated the taxation of fossil fuels than a carbon tax. In India, the recent change in direction from subsidisation to taxation of fossil fuels is of course related to revenue and macro-economic considerations but they are also consequential in their climate change impact.

[4] Hamilton (2014) suggests that in India, pollution (largely resulting from burning coal and diesel) is perhaps over 6 percent of GDP per annum ((Hamilton, K. 2014. *"Calculating PM2.5 Damages for Top Emitters: A Technical Note."* New Climate Economy background note. http://newclimateeconomy.net).

[5] Proost, Stef, and Kurt Van Dender *"What Long-term Road Transport Future? Trends and Policy Options."* 2011, Review of Environmental Economics and Policy 5(1): 44-65.

One can potentially estimate the carbon tax equivalent of excise duty increases in India and thereby calculate CO_2 emission reduction benefits. This is especially important in the context of global efforts to deal with climate change where India as the third largest emitter of GHG emission is often looked upon to contribute to the efforts by taking on a target.[6]

The carbon tax equivalent of the excise duty and subsidy removal was estimated using standard emission factors from the literature (see Table 9.1).

Utilizing the emission factors in Table 9.1, the carbon tax equivalent of net excise duty (subtracting the amount of under-recoveries from excise duty) for petrol and diesel is presented in Figure 9.3.

The striking feature is that India has moved from a carbon subsidization regime to one of significant carbon taxation regime—from a negative price to a positive price on carbon emissions. And the shift has been large. For example, the effect of the recent actions since October 2014 has increased the carbon tax by nearly US$60 per ton of CO_2 in the case of petrol and nearly US$42 per ton in the case of diesel. In absolute terms, the implicit carbon tax (US$140 for petrol and US$64 for diesel) is substantially above what is now considered a reasonable initial tax on CO_2 emissions of US$25-US$35 per ton (this will not, however, hold for coal cess as described below).[7] The recent actions alone have significantly burnished India's green and climate change credentials.

Table 9.1 : Emission Factors[1]

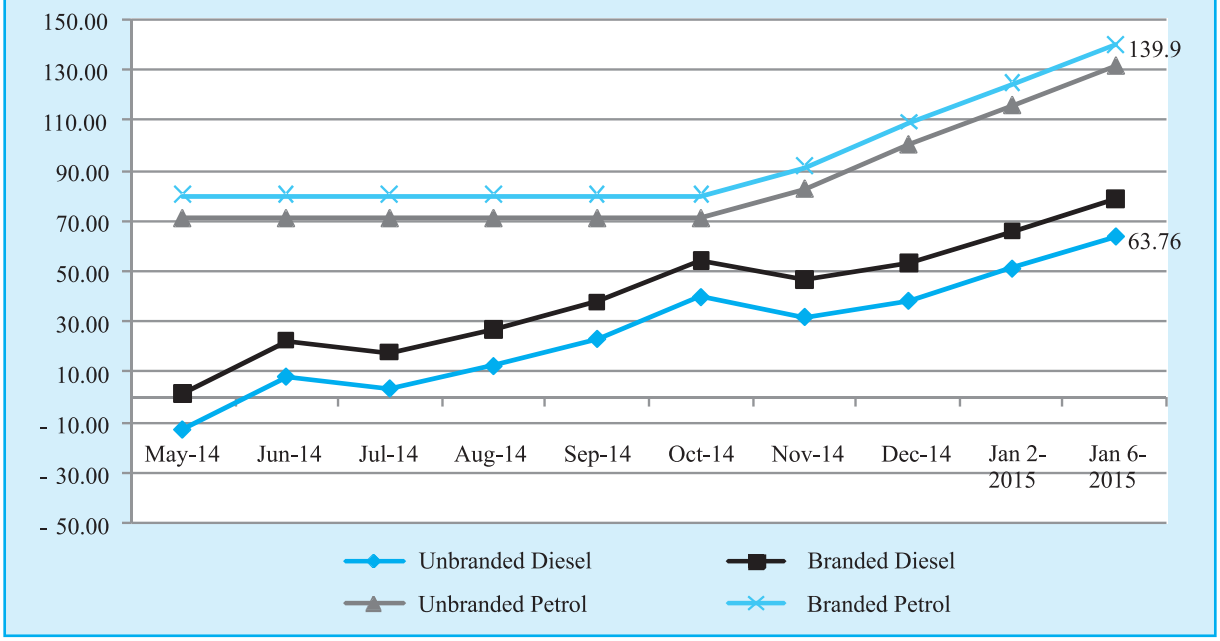
Description	Value	Unit	Source
Carbon emissions factors			
Coal	25.8	tC/TJ	IPCC[2]
Diesel	20.2	tC/TJ	IPCC[2]
Petrol	18.9	tC/TJ	IPCC[2]
Net Caloric Values			
Coal	18.8	TJ/000 t	IEA[3]
Diesel	43.3	TJ/000 t	IPCC[2]
Petrol	44.8	TJ/000 t	IPCC[2]
Oxidation rates			
Solids	100.0	per cent	IPCC[2]
Liquids	100.0	per cent	IPCC[2]
CO2 emissions factors			
Coal	1.782	tCO2 /t	
Diesel	3.210	tCO2 /t	
Petrol	3.105	tCO2 /t	

[1] *Note*: Emission factors of diesel and petro are global averages. Emission factor for coal is adjusted to reflect average heat content of coal in India. 2. 2006 IPCC Guidelines for National Greenhouse Gas Inventories. 3. International Energy Agency (IEA). 2012 Understanding Energy Challenges in India. 4.4. tC: tons of carbon TJ: terajoule, t: ton, tCO2: tons of CO2.

[6] Recently the US and China, the two largest emitters, signed an agreement on climate change whereby China agreed to peak its emissions by 2030 and the US agreed that it would emit 26 percent to 28 percent less carbon in 2025 than it did in 2005. While these efforts are not unprecedented in terms of their effect on the changing climate, nonetheless the signal for cooperation between two largest emitters has made the world look at India's future climate commitments.

[7] There is still a lot of debate in the literature around this number. For example, Stern (2013) suggests that this is an underestimate given the risks and damages from carbon (Stern, N. 2013. "The Structure of Economic Modelling of the Potential Impacts of Climate Change: Grafting Gross Underestimation of Risk onto Already Narrow Science Models" Journal of Economic Literature 51: 838-859).

Figure 9.3: Implicit Carbon Tax From Increasing Excise duty on Petrol and Diesel, May 2014- January, 2015. (US$/tCO2)



It should be noted that a full assessment of the implicit carbon tax involves estimating the gap between the total taxation of diesel and petrol and the average rate of indirect taxation. The final outcomes could be different from those presented in Figure 9.3, and will be different between states given the current system of differentiated state taxation. To some extent, the CO_2 tax estimates represent a lower bound given that states impose high indirect taxes on petroleum products.

9.3 How Does India compare with other countries?

While India has made substantial progress recently in decontrolling price of petrol and diesel and in calibrating excise duty to compensate for the declining world oil prices, it is worthwhile to ask, where does India stand globally and especially with respect to the other countries.

Figure 9.4 compares India with most non-OECD countries and with US and EU as benchmarks. It suggests that while there has been a considerable price increase between 2012 and 2015, there is still room for further reform of petroleum pricing policies.

9.4 CO_2 Emission Reductions from Petrol and Diesel Taxes and Coal Cess

Calculating the CO_2 emission reduction from the measures taken for petrol and diesel suggests that there will be net reduction of 11 million tons of CO_2 emissions in less than a year, more than the entire CO_2 emissions of Luxembourg in 2012, compared to the baseline (see Figure 9.5) or 0.6 percent India's annual emissions.[8]

9.5 Translating Coal Cess into a Carbon Tax

Recently, the Government of India revised its coal cess from ₹ 50 per ton to ₹ 100 per ton. Translating this into a carbon tax equivalent using the emission factor in Table 9.1 suggests that the carbon tax is around US$ 1 per ton (increase from US$ 0.5 per ton in 2014). While this does enable the

[8] The US-China deal is expected to avert 640 billion tons of CO2 by 2030.

Figure 9.4: Comparing Petrol Prices, 2012. (US$/liter)

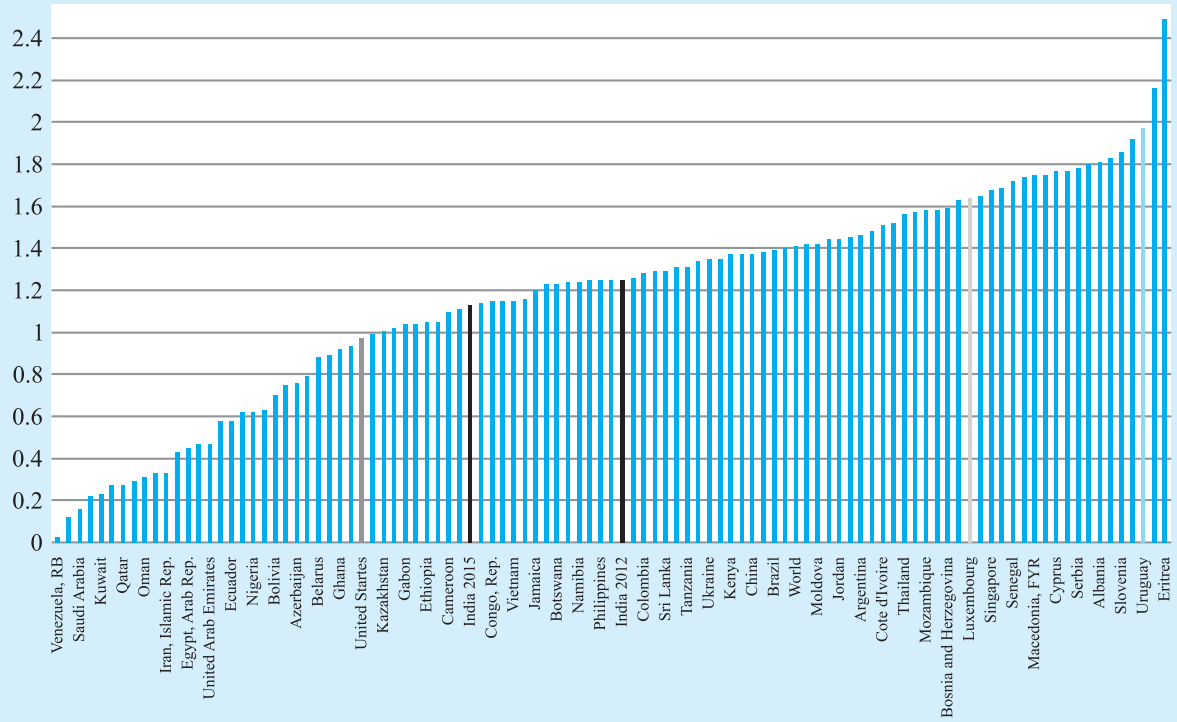
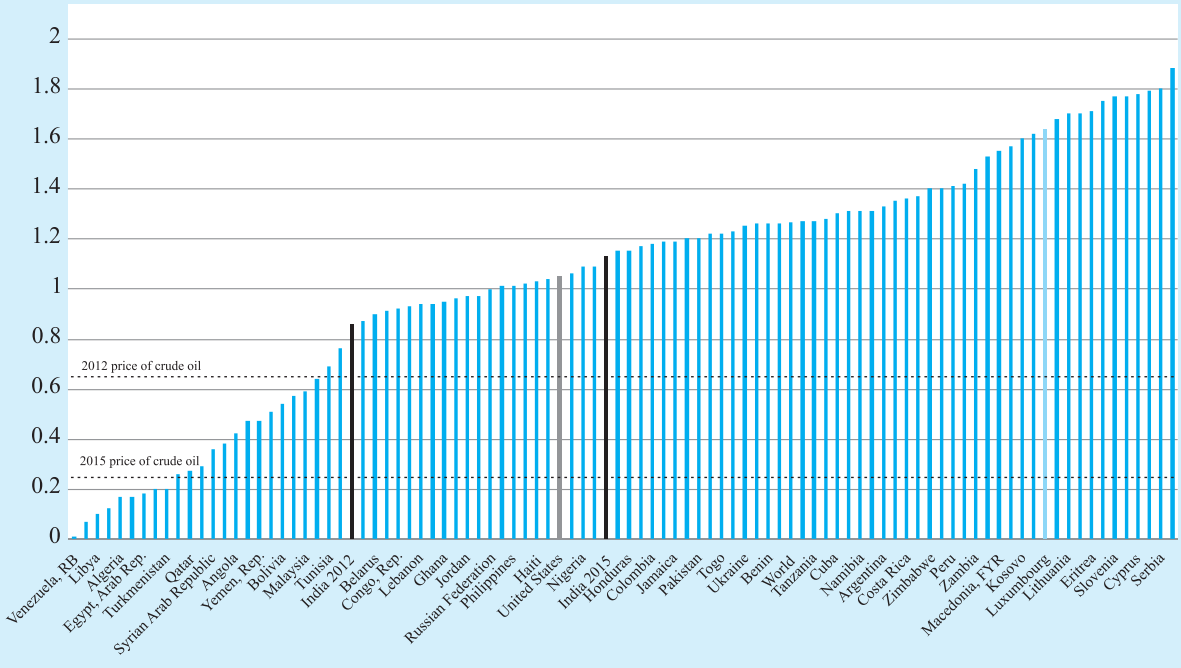
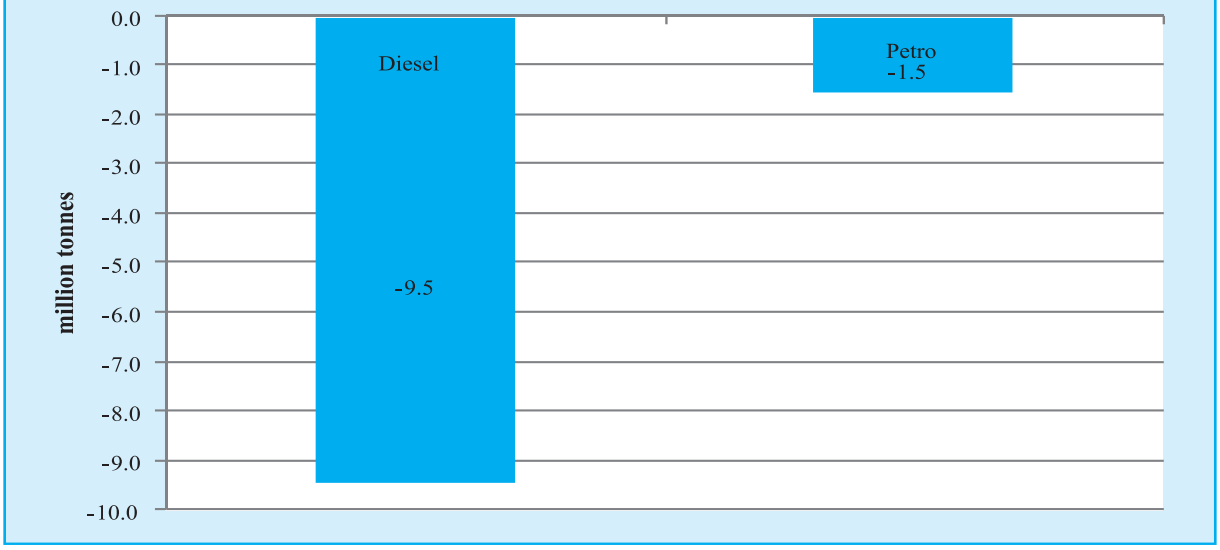


Figure 9.4: Comparing Diesel Prices, 2012. (US$/liter)



Source: **German Agency for International Cooperation (GIZ). Note: 2012 is the most recent year for which the data are available. Yellow line indicates 2012 price in the United States, an international minimum benchmark for a non-subsidized road transport policy. Green line indicates price in Luxembourg, the lowest in the EU15 which could be considered a lower bound for a social price of transport fuel. Red lines are India prices in 2012 and 2015.**

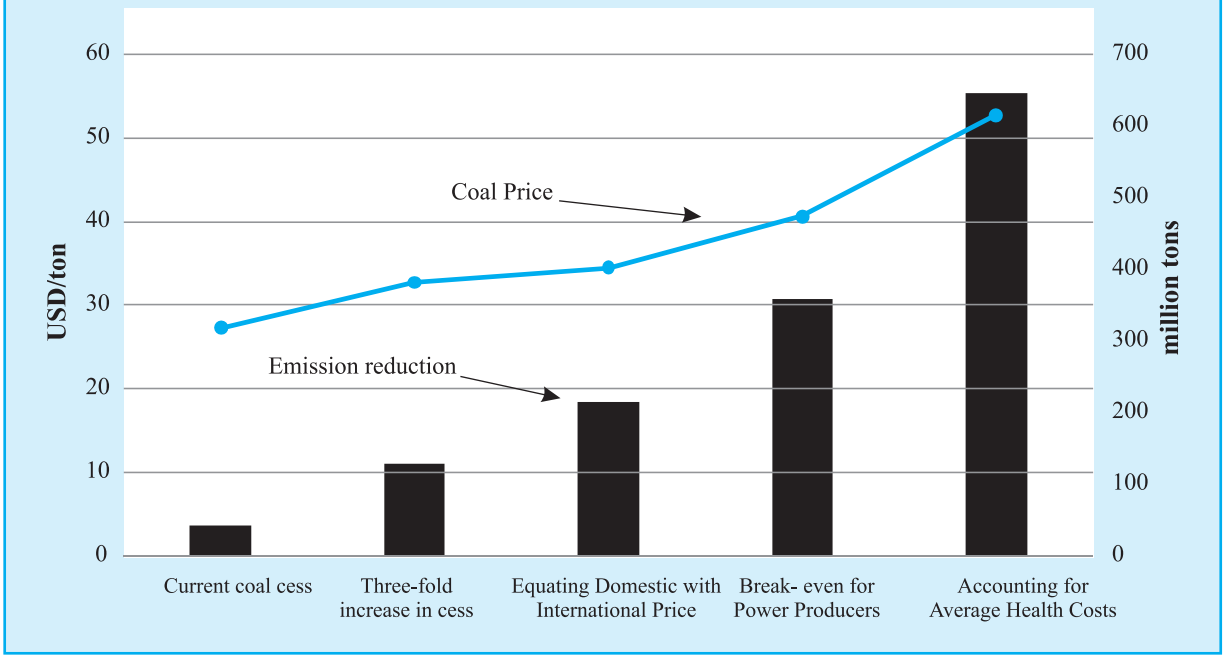
Figure 9.5: CO_2 Emission Reduction from Petrol and Diesel Pricing Measures in 2014



***Source*: World Bank estimates.**

government to mop up significant amount of revenue (₹ 17,000 crore so far), this may not reflect the externalities generated from burning of coal or any suggested global carbon tax. In light of the recent falling global coal prices and contribution of coal to both local and global pollution, there may be room for further rationalisation of coal pricing. Any rationalisation of coal pricing must take account of the implications for power prices and hence access to energy for the poorest in India which is and must remain a fundamental objective of policy.[9]

Figure 9.6: Implications of Alternative Coal Taxation; Coal Price Increase and CO_2 Reduction



***Source*: World Bank estimates.**

[9] This in addition to providing access and empowering people through renewable sources of energy which is also an area of high priority for the Government of India. This will be especially important for serving remote areas with limited access to grid.

Four hypothetical scenarios are the following (Figure 9.6):

a. A three-fold increase in the current cess;

b. An increase in cess that will equalise price of domestic coal with imported coal (adjusting for difference in heat and ash content between domestic and imported coal)[10];

c. An increase in cess necessary to internalise only domestic externalities—mainly the health costs associated with carbon pollution;

d. The maximum possible increase in cess at which the coal-based power producers could still break-even.

Calculations utilizing the emission factors given in Table 9.1 and assuming a (-) 0.5 price elasticity of demand for coal, suggest that a three-fold increase from the current cess would lead to an annual CO_2 emissions reduction of 129 million tons annually or about 7 percent of total annual emissions. To bring domestic prices on par with the international prices would require an increase of cess to US$ 9 per ton or ₹ 498 (a 5-fold increase). Coal price reform of this kind could potentially contribute to annual CO_2 emissions reduction of 214 million tons which is 11 percent of India's annual emissions, or half the entire emissions of Indonesia in 2012 compared to the baseline. This is still within the range of keeping most coal power plants profitable given the current tariff structure.

The health cost of coal for power generation in India is estimated to range from US$ 3.41 per ton to US$ 51.11/ton depending on the value of statistical life.[11] The average number is US$ 27.26 per ton. The health costs of emissions from coal fired power plants include costs associated with premature cardiopulmonary deaths and illnesses from the chronic effects of long-term exposure and the acute effects of short-term exposure. The annual emissions reduction of CO_2 corresponding to incorporating the average health cost to coal price is 644 million tons (33 percent of the total emissions) and the percent of total annual emission reduction corresponding to US$ 3.41 and US$ 51.11 per ton of cess is 4 percent and 61 percent respectively. There will be huge associated health benefits as well.

The maximum that the cess could be increased so that coal-based power producers could still break-even is US$ 15 per ton. This will keep large-scale coal power plants break even and would result in a potential CO_2 emissions reduction of 358 million tons per year, more than the entire CO_2 emissions of France. This is a hypothetical exercise since the reduction in profits of power plants would lead to calls for rationalizing power tariffs which would be highly disruptive.

9.6 Conclusions and key messages

- India has cut subsidies and increased taxes on fossil fuels (petrol and diesel) turning a carbon subsidy regime into one of carbon taxation.
- This has significantly increased petrol and diesel price while reducing annual CO_2 emissions.
- But there is still a long way to go with potential large gains still to be reaped from reform of coal pricing and further reform of petroleum pricing policies.
- On the whole, the move to substantial carbon taxation combined with India's ambitious solar power program suggests that India can make substantial contributions to the forthcoming Paris negotiations on climate change.

[10] In January 2015, while the average international price was around US$ 46/ton, the average domestic price was around US$ 25/ton without adjusting for the heat and ash content.

[11] Cropper. M. S. Gamkhar, K. Malik. A. Limonov, and I. Partridge, "The Health Effects of Coal Electricity Generation in India", 2012, RFF Working Paper.

The Fourteenth Finance Commission (FFC) – Implications for Fiscal Federalism in India?[1]

10 CHAPTER

"I feel more and more that we must function more from below than from the top… too much of centralization means decay at the roots and ultimately a withering of branches, leaves and flowers." -Pandit Jawaharlal Nehru

"We want to promote co-operative federalism in the country. At the same time, we want a competitive element among the states. I call this new form of federalism Co-operative and Competitive Federalism"

- Prime Minister Narendra Modi

10.1 Introduction

The Finance Commission is a Constitutional body formulated under Article 280 of the Indian Constitution. It is constituted every five years by the President of India to review the state of finances of the Union and the States and suggest measures for maintaining a stable and sustainable fiscal environment. It also makes recommendations regarding the devolution of taxes between the Center and the States from the divisible pool which includes all central taxes excluding surcharges and cess which the Centre is constitutionally mandated to share with the States.

The Fourteenth Finance Commission(FFC) was appointed on 2nd January, 2013under the chairmanship of Dr. Y. V. Reddy. In addition to the primary objectives mentioned above, the terms of reference for the commission sought suggestions regarding the principles which would govern the quantum and distribution of grants-in-aid (non-plan grants to states), the measures, if needed, to augment State government finances to supplement the resources of local government and to review the state of the finances, deficit and debt conditions at different levels of government.

10.2 Major Recommendations of FFC

The FFC has submitted its recommendations for the period 2015-16 to 2020-21. They are likely to have major implications for center-state relations, for budgeting by, and the fiscal situation of, the center and the states. Some of the major recommendationsare as follows;

- ***The FFC has radically enhanced the share of the states in the central divisible pool from the current 32 percent to 42 per cent which is the biggest ever increase in vertical tax devolution.*** The last two Finance Commissions viz. Twelfth (period 2005-10) and Thirteenth (period 2010-15) had recommended a state share of 30.5 per cent (increase of 1 percent) and 32 per cent (increase of 1.5 percent), respectively in the central divisible pool.
- The FFC has also proposed a ***new horizontal formula (Table 10.1)*** for the distribution of the states' share in divisible pool among the states. There are changes both in the variables included/excluded as well as the weights assigned to them. Relative to the Thirteenth Finance Commission, the FFC has incorporated two new variables: 2011 population and

[1] A more detailed version of this piece will be available online at finmin.nic.in after the Budget is presented.

Box 10.1 : Finance Commission - Concepts and definitions

Tax Devolution

One of the core tasks of a Finance Commission as stipulated in Article 280 (3) (a) of the Constitution is to make recommendations regarding the distribution between the Union and the states of the net proceeds of taxes. This is the most important task of any Finance Commission, as the share of states in the net proceeds of Union taxes is the predominant channel of resource transfer from the Centre to states.

Divisible Pool

The divisible pool is that portion of gross tax revenue which is distributed between the Centre and the States. The divisible pool consists of all taxes, except surcharges and cess levied for specific purpose, net of collection charges.

Prior to the enactment of the Constitution (Eightieth Amendment) Act, 2000, the sharing of the Union tax revenues with the states was in accordance with the provisions of articles 270 and 272, as they stood then. The eightieth amendment of the Constitution altered the pattern of sharing of Union taxes in a fundamental way. Under this amendment, article 272 was dropped and article 270 was substantially changed. The new article 270 provides for sharing of all the taxes and duties referred to in the Union list, except the taxes and duties referred to in articles 268 and 269, respectively, and surcharges on taxes and duties referred to in article 271 and any cess levied for specific purposes.

Grants-in-aid

Horizontal imbalances are addressed by the Finance Commission through the system of tax devolution and grants-in-aid, the former instrument used more predominantly. Under Article 275 of the Constitution, Finance Commissions are mandated to recommend the principles as well as the quantum of grants to those States which are in need of assistance and that different sums may be fixed for different States. Thus one of the pre-requisites for grants is the assessment of the needs of the States.

The First Commission had laid down five broad principles for determining the eligibility of a State for grants. The first was that the Budget of a State was the starting point for examination of a need. The second was the efforts made by States to realize the potential and the third was that the grants should help in equalizing the standards of basic services across States. Fourthly, any special burden or obligations of national concern, though within the State's sphere, should also be taken into account. Fifthly, grants might be given to further any beneficent service of national interest to less advanced States.

Grants recommended by the Finance Commissions are predominantly in the nature of general purpose grants meeting the difference between the assessed expenditure on the non-plan revenue account of each State and the projected revenue including the share of a State in Central taxes. These are often referred to as 'gap filling grants'. Over the years, the scope of grants to States was extended further to cover special problems. Following the seventy-third and seventy-fourth amendments to the Constitution, Finance Commissions were charged with the additional responsibility of recommending measures to augment the Consolidated Fund of a State to supplement the resources of local bodies. This has resulted in further expansion in the scope of Finance Commission grants. The Tenth Commission was the first Commission to have recommended grants for rural and urban local bodies. Thus, over the years, there has been considerable extension in the scope of grants-in-aid.

Fiscal capacity/Income distance

The income distance criterion was first used by Twelfth FC, measured by per capita GSDP as a proxy for the distance between states in tax capacity. When so proxied, the procedure implicitly applies a single average tax-to-GSDP ratio to determine fiscal capacity distance between states. The Thirteenth FC changed the formula slightly and recommended the use of separate averages for measuring tax capacity, one for general category states (GCS) and another for special category states (SCS).

Fiscal discipline

Fiscal discipline as a criterion for tax devolution was used by Eleventh and Twelfth FC to provide an incentive to states managing their finances prudently. The criterion was continued in the Thirteenth FC as well without any change. The index of fiscal discipline is arrived at by comparing improvements in the ratio of own revenue receipts of a state to its total revenue expenditure relative to the corresponding average across all states.

Table 10.1 : Horizontal Devolution Formula in the 13th and 14th Finance Commissions

Variable	Weights accorded	
	13th	14th
Population (1971)	25	17.5
Population (2011)	0	10
Fiscal capacity/Income distance (**See box-1**)	47.5	50
Area	10	15
Forest Cover	0	7.5
Fiscal discipline (**See box-1**)	17.5	0
Total	100	100

Source: **Reports of 13th and 14th Finance Commission**

forest cover; and excluded the fiscal discipline variable (Box-1).

- Several other types of transfers have been proposed including grants to rural and urban local bodies, a performance grant along with grants for disaster relief and revenue deficit. These transfers total to approximately 5.3 lakh crore for the period 2015-20.[2]
- The FFC has not made any recommendation concerning sector specific-grants unlike the Thirteenth Finance Commission.

10.3 Implications of FFC Recommendations for Fiscal Federalism: A Way Ahead

Based on its recommendations and projections, the FFC has assessed and quantified the implications for the revenues of states. In this analysis the revenue implications are reassessed based on more recent data (for 2014/15) and slightly differing assumptions about GDP growth, tax buoyancy[3] and other fiscal parameters.The estimated benefits (both from tax devolution and FFC grants together), based on certain assumptions related to both FY2014-15and FY2015-16,are shown in Table 10.2. The total increase in FFC transfers in FY2015-16 from FY2014-15 is estimated to be about 2 lakh crores (both from tax devolution and FFC grants). Several points are worth noting.

All states stand to gain from FFC transfers in absolute terms. However, to assess the distributional effects, the increases should be scaled by population, Net State Domestic Product (NSDP) at current market price[4], or by states' own tax revenue receipts[5]. These are shown in columns 4-6 of Table 10.2.The biggest gainers in absolute terms under GCS (Box-2) are Uttar

Box 10.2 : Special Category States (SCS) and General Category States (GCS)

The concept of a special category state was first introduced in 1969 when the Fifth Finance Commission sought to provide certain disadvantaged states with preferential treatment in the form of central assistance and tax breaks. Initially three states **Assam, Nagaland** and **Jammu & Kashmir** were granted special status but since then eight more have been included (**Arunachal Pradesh, Himachal Pradesh, Manipur, Meghalaya, Mizoram, Sikkim, Tripura** and **Uttarakhand**). All other states barring these are treated as General Category States.The rationale for special status is that these states, because of inherent features, have a low resource base and cannot mobilize resources for development. Some of the features required for special status are: (i) **hilly and difficult terrain**; (ii) **low population density or sizeable share of tribal population**; (iii) **strategic location along borders with neighbouring countries**; (iv) **economic and infrastructural backwardness**; and (v) **non-viable nature of state finances**.

[2] Other than tax devolution (vertical and horizontal) which are specified in percentages, other transfers are specified as absolute numbers. Since we use different revenue numbers, we have assumed that these transfers will broadly grow in line with nominal GDP growth.

[3] Tax buoyancy is an indicator to measure efficiency and responsiveness of revenue mobilization in response to growth in the Gross domestic product or National income. It is measured as a ratio of growth in Tax Revenue to the growth in GDP. If the buoyancy value is greater than one then the growth in tax collection would be higher than the growth in GDP growth.

[4] NSDP at current market prices is for the year 2012-13.

[5] Own Tax Revenue is for the year 2011-12.

Table 10.2 : Additional FFC Transfers (in 2015-16 over 2014-15)

State	Category	Benefits from FFC (in ₹ crore)	Benefits Per capita (₹)	Benefits as % of OTR	Benefits as % of NSDP
1	2	3	4	5	6
Andhra Pradesh (united)	GCS	14620	1728	27.4	2.2
Arunachal Pradesh	SCS	5585	40359	1758.1	51.0
Assam	SCS	7295	2338	95.5	5.8
Bihar	GCS	13279	1276	105.3	4.9
Chhattisgarh	GCS	7227	2829	67.5	5.2
Goa	GCS	1107	7591	44.1	3.0
Gujarat	GCS	4551	753	10.3	0.8
Haryana	GCS	1592	628	7.8	0.5
Himachal Pradesh	SCS	8533	12430	207.7	14.6
Jammu & Kashmir	SCS	13970	11140	294.4	22.4
Jharkhand	GCS	6196	1878	89.1	4.8
Karnataka	GCS	8401	1375	18.1	1.8
Kerala	GCS	9508	2846	37.0	3.1
Madhya Pradesh	GCS	15072	2075	55.9	4.5
Maharashtra	GCS	10682	951	12.2	0.9
Manipur	SCS	2130	8286	578.7	19.5
Meghalaya	SCS	1381	4655	198.0	8.6
Mizoram	SCS	2519	22962	1410.1	33.3
Nagaland	SCS	2694	13616	886.5	18.7
Odisha	GCS	6752	1609	50.2	3.2
Punjab	GCS	3457	1246	18.3	1.4
Rajasthan	GCS	6479	945	25.5	1.6
Sikkim	SCS	1010	16543	343.7	10.7
Tamil Nadu	GCS	5973	828	10.0	0.9
Tripura	SCS	1560	4247	181.8	6.9
Uttar Pradesh	GCS	24608	1232	46.8	3.5
Uttarakhand	SCS	1303	1292	23.2	1.4
West Bengal	GCS	16714	1831	67.0	3.0
Total		204198	1715		

Source **: Ministry of Finance.**

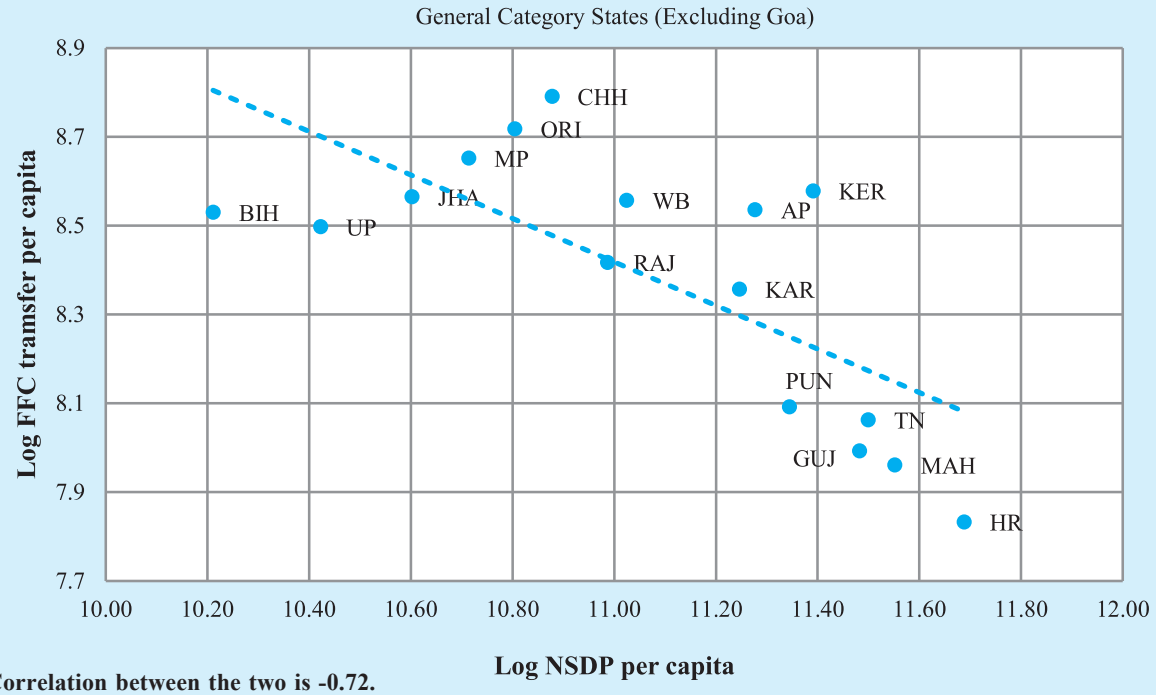
GCS- General Category States; SCS-Special Category States

Pradesh, West Bengal and Madhya Pradesh while for SCS it is Jammu & Kashmir, Himachal Pradesh and Assam. A better measure of impact is benefit per capita. The major gainers in per capita terms turn out to be Kerala, Chhattisgarh and Madhya Pradesh for GCS and Arunachal Pradesh, Mizoram and Sikkim for SCS.

The FFC recommendations are expected ***to add substantial spending capacity*** to states' budgets. The additional spending capacity can better be measure by scaling the benefits either by NSDP at current market price or by states' own tax revenue. In terms of the impact based on NSDP, the benefits of FFC transfers are highest for Chhattisgarh, Bihar and Jharkhand among the GCS and for states like Arunachal Pradesh, Mizoram and Jammu & Kashmir among the SCS. While in terms of states' own tax revenues, the largest gains accrue to GCS of Bihar, Jharkhand and Chhattisgarh and SCS of Arunachal Pradesh, Mizoram and Nagaland.

The FFC transfers have more favorable impact on the states (only among the GCS) which are relatively less developed which is an indication that the FFC transfers are ***progressive*** i.e. states with

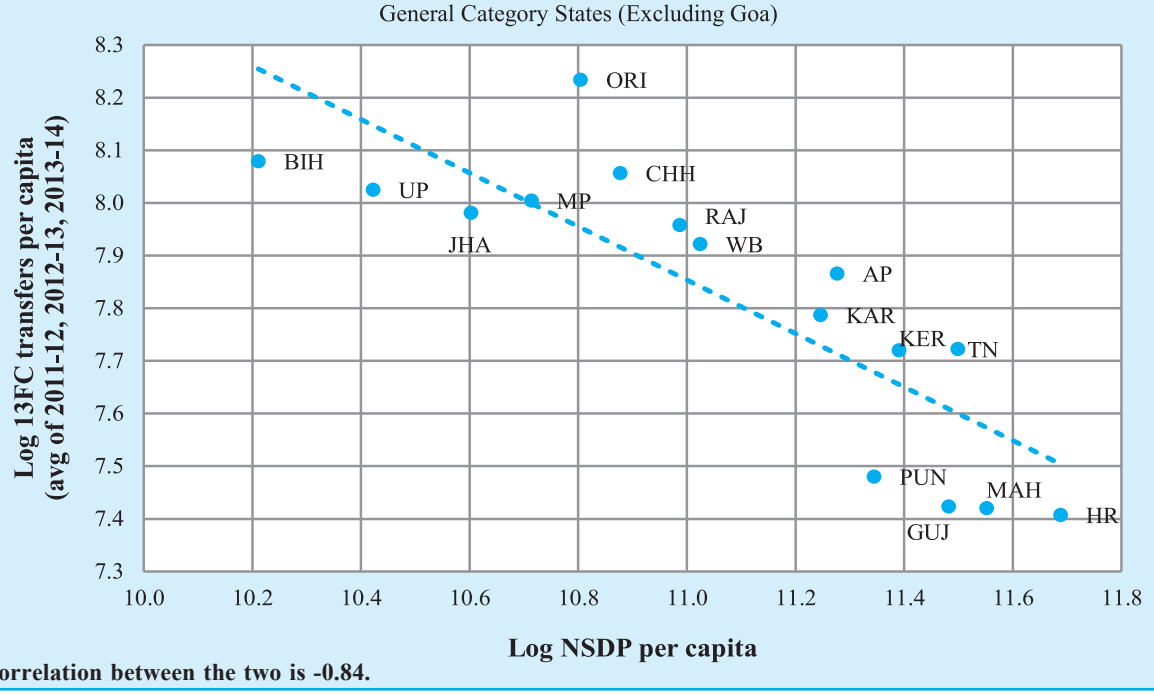
Figure 10.1: FFC transfers per capita and NSDP per capita



Correlation between the two is -0.72.

lower per capita NSDP receive on average much larger transfers per capita (Figure 10.1). The correlation between per capita NSDP and FFC is transfer per capita is -0.72. This indicates that the FFC recommendations do go in the direction of equalizing the income and fiscal disparities between the major states. However, FFC transfers are less progressive compared to the transfers of Thirteenth Finance Commission (TFC). The correlation coefficient between the NSDP per capita and TFC transfers per capita (average of 2011-12, 2012-13 and 2013-14) per capita is-0.84 (Figure 10.2).

Figure 10.2: TFC transfers per capita and NSDP per capita



Correlation between the two is -0.84.

A final interesting finding relates to the decomposition of the resource transfers through tax devolution due to the increase in the divisible pool per se and due to the change in the horizontal devolution formula itself. The significant impact due to increase in the divisible pool is on states like Uttar Pradesh, Bihar, Madhya Pradesh, West Bengal and Andhra Pradesh (United) while states like Arunachal Pradesh, Chhattisgarh, Madhya Pradesh, Karnataka and Jharkhand are the major gainers due to a change in the horizontal devolution formula which now gives greater weight to a state's forest cover (Table 10.3).

10.4 Balancing Fiscal Autonomy and Fiscal Space

The spirit behind the FFC recommendations is to increase the automatic transfers to the states to give them more fiscal autonomy and this is ensured by increasing share of states from 32 to 42 per cent of divisible pool. Assuming the recommendations of FFC were to be implemented as it is, there is concern that fiscal space or fiscal consolidation path of the Centre would be adversely affected. However, to ensure that the Centre's fiscal space is secured, the suggestion is

Table 10.3 : Decomposition of FFC Transfers to States

State	State share in 14th FC	State share in 13th FC	Decomposition of FFC Transfers	
			Due to change in Divisible pool	Due to change in Share
Andhra Pradesh (United)	0.06742	0.06937	107.5	-7.5
Arunachal Pradesh	0.0137	0.00328	24.9	75.1
Assam	0.03311	0.03628	129.0	-29.0
Bihar	0.09665	0.10917	142.8	-42.8
Chhattisgarh	0.0308	0.0247	64.9	35.1
Goa	0.00378	0.00266	53.9	46.1
Gujarat	0.03084	0.03041	96.7	3.3
Haryana	0.01084	0.01048	92.3	7.7
Himachal Pradesh	0.00713	0.00781	128.9	-28.9
Jammu & Kashmir	0.01854	0.01551	69.5	30.5
Jharkhand	0.03139	0.02802	78.2	21.8
Karnataka	0.04713	0.04328	82.7	17.3
Kerala	0.025	0.02341	86.1	13.9
Madhya Pradesh	0.07548	0.0712	87.4	12.6
Maharashtra	0.05521	0.05199	87.1	12.9
Manipur	0.00617	0.00451	56.6	43.4
Meghalaya	0.00642	0.00408	47.7	52.3
Mizoram	0.0046	0.00269	43.7	56.3
Nagaland	0.00498	0.00314	47.3	52.7
Odisha	0.04642	0.04779	107.7	-7.7
Punjab	0.01577	0.01389	76.2	23.8
Rajasthan	0.05495	0.05853	118.4	-18.4
Sikkim	0.00367	0.00239	49.0	51.0
Tamil Nadu	0.04023	0.04969	207.5	-107.5
Tripura	0.00642	0.00511	64.1	35.9
Uttar Pradesh	0.17959	0.19677	129.0	-29.0
Uttarakhand	0.01052	0.0112	118.2	-18.2
West Bengal	0.07324	0.07264	98.0	2.0

Source : **Ministry of Finance and Reports of Finance Commissions.**

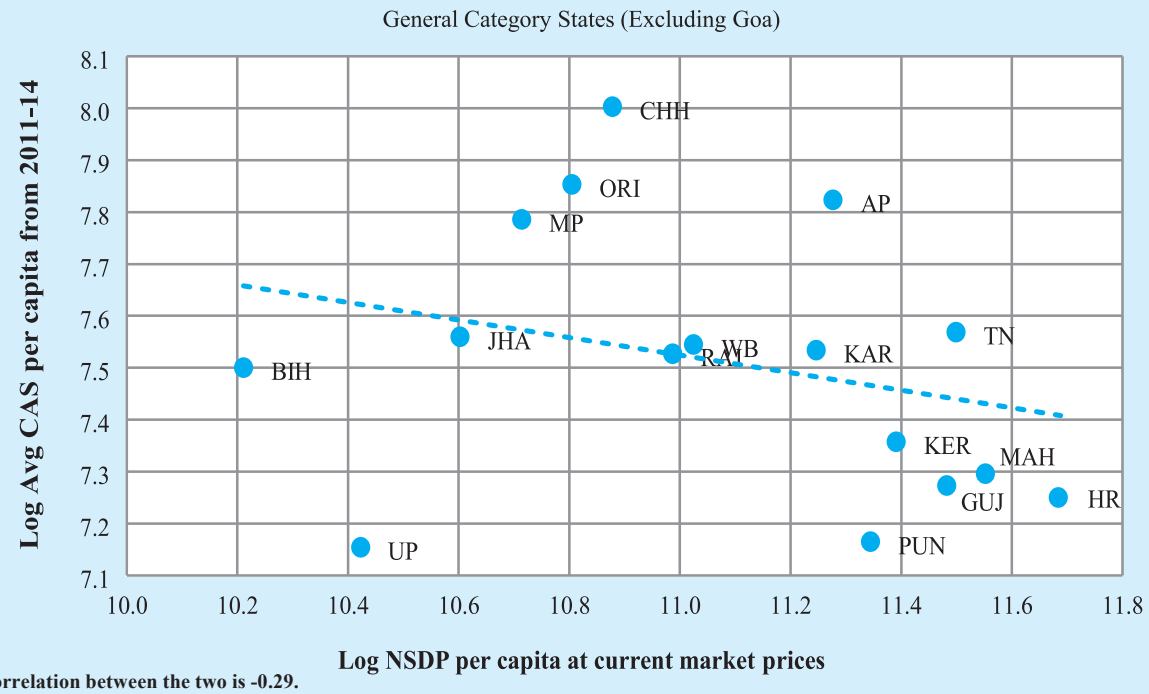
that there will be commensurate reductions in the Central Assistance to States (CAS) known as "plan transfers."

One immediately noteworthy fact is that CAS transfers per capita are only mildly progressive (Figure 10.3): the correlation coefficient with state per capita NSDP is -0.29. This is a consequence of plan transfers moving away from being Gadgil formula-based to being more discretionary in the last few years. Greater central discretion evidently reduced progressivity. A corollary is that implementing the FFC recommendations would increase progressivity because progressive tax transfers would increase and discretionary and less progressive plan transfers would decline.

Balancing the enhanced fiscal autonomy of the states with preserving fiscal space of the Centre entails reduction in CAS transfers. But there are many ways of doing the latter from the totally discretionary to formula-based. Within the latter too there are many options: (i) proportionate cuts across the states in CAS transfers; (ii) ensuring the implementation of legally-backed/mandated schemes[6] and then proportionately cutting the residual; (iii) equal per capita distribution of CAS transfers; (iv) implementing the legally-backed schemes and then distributing the remaining amount in line with the FFC formula for tax devolution; and many more. For simplicity, here we discuss options (i) only. We calculate the net surplus to the states, i.e. the difference between increase in FFC transfers less the reduction in CAS transfers and display the results in Table 10.4.

Table-10.4 is constructed to compare state-wise the increased benefits from FFC and the CAS transfers in 2015-16. The surplus/shortfall[7] shown in column 3 has been obtained by taking the difference between total benefit from FFC and reduction in CAS in 2015-16 over 2014-15. This difference is also shown in columns 4, 5 and 6 in terms of population, NSDP and own tax revenues respectively. Essentially, the

Figure 10.3: Average CAS transfers per capita in 2011-14 & NSDP per capita



Correlation between the two is -0.29.

[6] Legally backed schemes are SSA, MGNREGA, MPLAD, SPA to EAP, PMGSY and others.

[7] The surplus and shortfall are based on certain assumptions regarding the estimation/projection of CAS allocations to states in 2014-15 and 2015-16. The calculation of surplus/shortfall may vary once the actual numbers of CAS allocation for 2014-15 and estimated CAS allocations to states are out.

Table 10.4 : Total Surplus/shortfall after transfer under CAS but preserving the fiscal space for Center

State	CAS over and above legally backed schemes (in ₹ crore)	surplus/short fall after transfer under CAS but preserving the fiscal space for centre			
		Absolute (₹ crore)	Per capita (in ₹)	% of NSDP	% of OTR
Andhra Pradesh(united)	5062	10134	1198	1.5	19.0
Arunachal Pradesh	2555	4572	33038	41.8	1439.2
Assam	5860	4378	1403	3.5	57.3
Bihar	6998	8783	844	3.2	69.6
Chhattisgarh	2673	5258	2058	3.8	49.1
Goa	180	995	6820	2.7	39.6
Gujarat	4179	2454	406	0.4	5.5
Haryana	1509	714	282	0.2	3.5
Himachal Pradesh	3593	6826	9944	11.7	166.2
Jammu & Kashmir	8185	10679	8515	17.1	225.0
Jharkhand	2870	4650	1410	3.6	66.9
Karnataka	4873	5300	867	1.1	11.4
Kerala	2778	7834	2345	2.5	30.5
Madhya Pradesh	7959	10389	1431	3.1	38.5
Maharashtra	5365	7496	667	0.6	8.6
Manipur	2029	1250	4861	11.4	339.5
Meghalaya	1536	661	2229	4.1	94.8
Mizoram	1157	1967	17925	26.0	1100.7
Nagaland	2019	1839	9293	12.7	605.0
Odisha	6826	3497	833	1.7	26.0
Punjab	1820	2478	893	1.0	13.2
Rajasthan	6618	2423	353	0.6	9.5
Sikkim	1415	489	8006	5.2	166.3
Tamil Nadu	2376	2644	366	0.4	4.4
Tripura	2139	458	1246	2.0	53.3
Uttar Pradesh	9110	18716	937	2.7	35.6
Uttarakhand	3014	-48	-48	-0.1	-0.9
West Bengal	8386	11365	1245	2.0	45.6
TOTAL	113081	138198			

Source **: Ministry of Finance.**

numbers in these columns also answer the question of whether the states, if they wanted to, can maintain the same level of spending on the programs financed by the CAS especially the legally-backed schemes, and still have additional resources to finance their own new programs. If they do not want to accept Centrally Sponsored Schemes, all the increase in FFC transfers is new, unencumbered money.

All the GCS gain from FFC transfers net of CAS reduction. The top three gainers in absolute terms under GCSare Uttar Pradesh, West Bengal and Madhya Pradesh while for SCS it is Jammu & Kashmir, Himachal Pradesh and Arunachal Pradesh. The better way of measuring the surplus/ shortfall would be in per capita terms. The major gainers are Goa, Kerala and Chhattisgarh for GCS and Arunachal Pradesh, Mizoram and Himachal Pradesh for SCS.

The surplus/shortfall as per cent of NSDP at current market price are shown in column 5 of table 10.4, the states which add up maximum fiscal resources are Chhattisgarh, Jharkhand and Bihar among the GCS while among the SCS it is Arunachal Pradesh, Mizoram and Jammu & Kashmir. The surplus is going to add significant amount to the states revenue. There are nine states among the GCS which are expected to get more than 25 per cent of their own tax revenue (column 6 of table 10.4)

10.5 Caveats and Conclusion

Some caveats or complications to this exercise must be noted. First, they are sensitive to the assumptions underlying GDP growth, revenue and expenditure estimations/projections for 2014-15 and 2015-16. Secondly, assumptions are also made about CAS amounts in 2014-15 and about reductions in CAS amounts in 2015-16. So, these must be treated as illustrative calculations. For example, another option would simply be to transfer those schemes that are on State list back to the states. Also, estimates have only been presented for the year 2015-16. Thereafter, additional factors such as GST implementation and the next Pay Commission awards will affect projections beyond the coming year.

With these caveats, the main conclusions are that the FFC has made far-reaching changes in tax devolution that will move the country toward greater fiscal federalism, conferring more fiscal autonomy on the states. This will be enhanced by the FFC-induced imperative of having to reduce the scale of other central transfers to the states. In other words, states will now have greater autonomy on the revenue and expenditure fronts. The numbers also suggest that this renewed impulse toward fiscal federalism need not be to the detriment of the center's fiscal capacity. A collateral benefit of moving from CAS to FFC transfers is that overall progressivity will improve.

To be sure, there will be transitional costs entailed by the reduction in CAS transfers. But the scope for dislocation has been minimized because the extra FFC resources will flow precisely to the states that have the largest CAS-financed schemes.

In sum, the far-reaching recommendations of the FFC, along with the creation of the NITI Aayog, will further the Government's vision of cooperative and competitive federalism. The necessary, indeed vital, encompassing of cities and other local bodies within the embrace of cooperative and competitive federalism is the next policy challenge.