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SECTION 1:

THE INDIAN BACKDROP TO FISCAL POLICY

History and Evolution of the FRBM Act: Issues and Challenges*

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Contents

1 Introduction

This paper reviews the history and evolution of the Fiscal Responsibility and Budget Management (FRBM) process in India. Active thinking on institutionalizing fiscal responsibility legislation commenced in the year 2000 when the then Indian Finance Secretary, Dr. EAS Sarma, chaired a ten-member committee to study various aspects of the Centre's fiscal architecture. They prepared a draft fiscal responsibility legislation which was subsequently amended by the parliamentary standing committee on finance. The FRBM Act was then passed by parliament in 2003 and FRBM rules were enacted soon after that.

In this chapter, we take account of observations by successive Finance Commissions on how the FRBM Act and budget management procedures could be better implemented. We evaluate the performance of the FRBM Act both in terms of numerical targets and compliance with procedural rules. Finally, we look at broader issues and challenges going forward that should provide an intellectual backdrop to thinking about FRBM design and implementation. We discuss issues pertinent to the size of the government, the rationale behind the level of fiscal targets, the utility and importance of "the golden rule", the level of the fiscal deficit ceiling, and the scope and definition of escape clauses.

It is worth noting that the issue of fiscal responsibility was on the radar of the architects of the Indian constitution. Thus, Article 292 states *"the executive powers of the Union extends to borrowing upon the security of the Consolidated Fund of India within such limits, if any, as may from time to time be fixed by Parliament by law and to the giving of guarantees with such limits, if any, as may be so fixed".* Speaking in the Constituent Assembly, Dr. BR Ambedkar said, *"from all points of view, this Article is sufficient to cover all contingencies and I have no doubt about it that we hope that Parliament will take this matter seriously and keep on enacting laws so as to limit the borrowing authority of the Union. I go further and say that I not only hope but expect that Parliament will discharge its duties under this Article".*

Since independence, successive Estimate and Public Accounts Committees of Parliament repeatedly urged the government to fix the borrowing limits of the central government. The RBI, especially in the early 1990s, also repeatedly urged the government in its annual reports, to place restrictions on central government deficits and consider a ceiling on public debt. The Ministry of Finance, however, tended to the view that the enactment of law under Article 292 was permissive, not mandatory, and asserted the operational difficulty of fixing fiscal deficit targets given lags in the availability of GDP numbers. This viewpoint changed only in the year 2000 when the urgent need

Figure 1: Liabilities of Centre and State

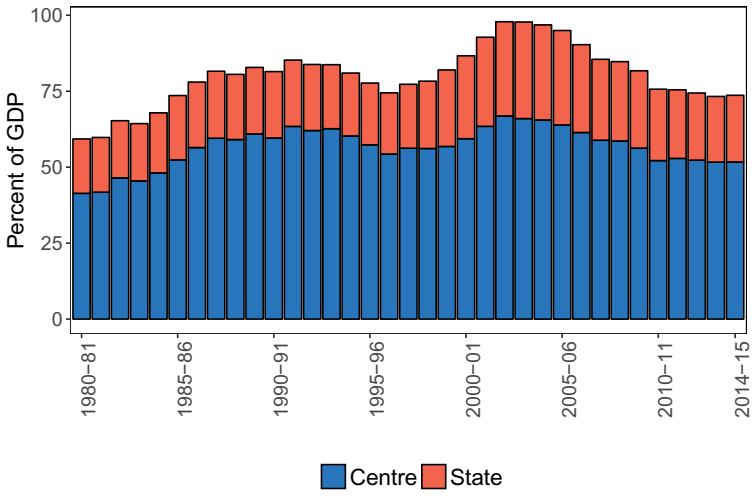


Figure 2: Year-on-Year change in Total Liabilities

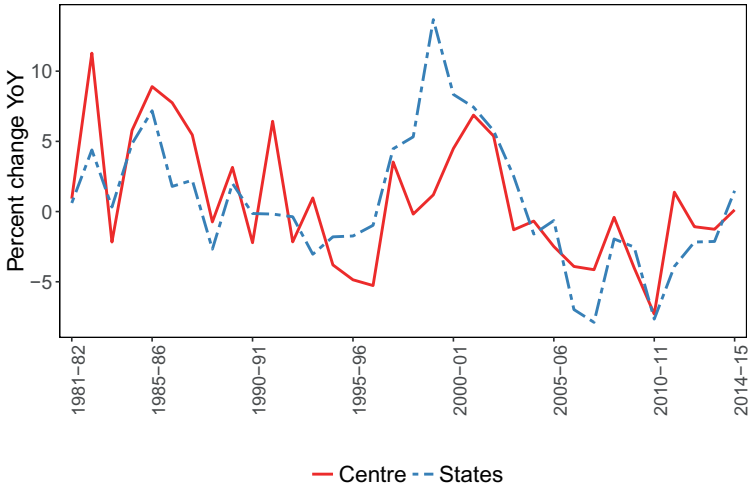
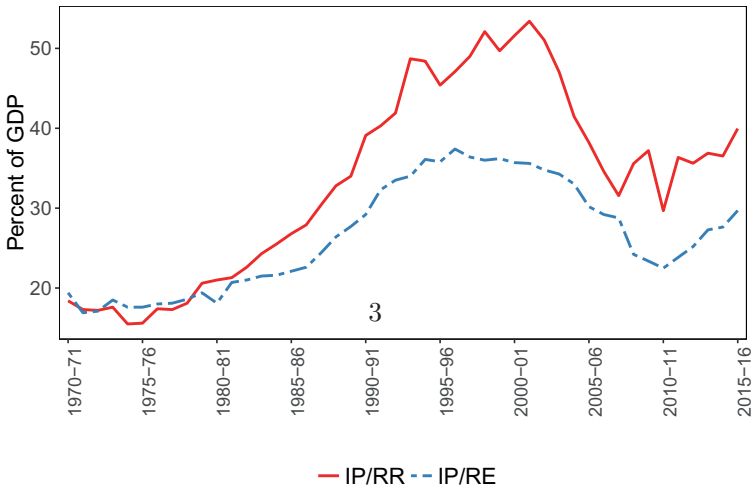


Figure 3: Mounting Interest Burden



to maintain stability and predictability in central government public finances became a part of government policy.

Before proceeding to a detailed examination of the evolution of the FRBM Act, we highlight some long-term trends in general government public finances. From Figure 1, it is clear that general government debt slowly increased from 1980-81 through till 1990-91. Structural reforms brought buoyancy and automatic discipline in the first half of the 1990s, moderating the debt to GDP ratio of the general government. However, from 1996-97, the steep increase in the public debt of both the centre and the states clearly called for institutional correction. As can be seen from Figure 2, this period marked an unprecedented rise in the year-on-year growth of total liabilities, which is normally the vantage from which finance ministries look at this problem. Another source of concern to ministries of finance is the extent to which interest payments consume revenue receipts and form a proportion of total revenue expenditure. As we can see in Figure 3, both these trends were rather alarming in the late 1990s.

There was, therefore, compelling operational evidence that a change in policy stance on the part of the Ministry of Finance was urgently necessary, which led to the commencement of the FRBM process at the level of the then finance secretary.

2 The E.A.S. Sarma Committee (2000)

The deterioration in Central Government finances peaked in the late 1990s, following a number of exogenous shocks to public spending such as unanticipated expenditure on national defence, elections, Odisha's super cyclone, and the residual impact of the Fifth Pay Commission. In 2000-01, the total liabilities of the Union and State Governments stood at 59.3 and 27.3 percent of GDP respectively. Given the persistently deteriorating financial position, the Finance Minister, while presenting the 2000-01 Budget announced several measures that would help "put our fiscal house in order." He emphasized on the need for a roadmap to downsize the Government and design an institutional framework to conduct medium-term fiscal management embodied in a Fiscal Responsibility Act (FRA).

To study the various aspects of the Centre's fiscal architecture and prepare a draft legislation on fiscal responsibility (FRL), a ten-member Committee was set up on January 17th, 2000, with the Finance Secretary, Dr. E.A.S. Sarma as its Chairman. The Committee submitted its recommendations as well as a draft FRL to the Finance Minister on July 4, 2000.

The Committee took a broad approach. Although fiscal responsibility, imposed by prescribing explicit numerical fiscal targets, was an integral part of the proposed legislation, it also stressed on issues of budget management, preparation, presentation, and transparency. The proposed legislation was therefore christened the Fiscal Responsibility and Budget Management Act[1]. This section methodizes the recommendations of the Committee into the two rubrics of fiscal responsibility and budget management principles and discusses these individually.

2.1 Principles of Fiscal Responsibility

The Committee identified three categories of indicators for numerical fiscal targets with specific time frames: (i) deficit, (ii) debt, and (iii) borrowing. Such normative ceilings would also facilitate casting the legislation within the scope of Article 292 of the Constitution.

2.1.1 Deficit Ceilings

Seven deficit indicators were considered[2], but for simplicity and focused attention, the Committee recommended ceilings for only two– fiscal and revenue deficit. It sought to discourage excessive deficit for accumulating capital assets by mandating a progressive reduction in the fiscal deficit by 0.33 percent of GDP at the end of each financial year so as to reduce the fiscal deficit to no more than 3 percent of GDP in five years, ending on March 31st, 2006. The Committee also prescribed the complete elimination of revenue deficit over this period, through annual reductions of 0.5 percent of GDP, and build up an "adequate" revenue surplus after that. This would ensure the observance of the 'golden rule'. In addition to limits on the deficit, the proposed legislation also constrained the Government by limiting guarantees to half percent of GDP in any given financial year.

The Committee did not commission any formal study to determine the suitability or optimality of the level of the fiscal deficit target of 3 percent of GDP. It was also not borrowed from the EU's Maastricht criteria as is commonly believed (Buiter and Patel (2006)). The deficit limit of 3 percent in the Stability and Growth Pact pertains to general government deficit. Comparisons to the FRBM's limit on Central Government deficit are specious.

[1]The name of the proposed legislation was, in part, inspired by the case of New Zealand where issues of budget management were addressed in the Public Finance Act (1989) which preceded the Fiscal Responsibility Act (1994).

[2]These included revenue deficit, monetised deficit, gross fiscal deficit, net fiscal deficit, gross primary deficit, net primary deficit, and the government sector fiscal deficit.

In fact, the FRBM Act's target of 3 percent fiscal deficit, which was adopted by consensus by the Committee, was not based on any formal economic or debt sustainability analysis. It was adopted, as the Committee felt that a 3 percent fiscal deficit will be sufficient to force the government to shed non-productive expenditure, reduce public debt, and create space for investments in productive assets. Subsequently, the Twelfth Finance Commission, and in particular the technical paper by Rangarajan and Srivastava (2004) attempted to rationalise the 3 percent target. Using simple fiscal arithmetic, they surmised that with household savings at 10 percent of GDP and a current account deficit of 1.5 percent of GDP, a combined fiscal deficit of the Centre and the States of 6 percent would be required to ensure investment of 4 percent and 1.5 percent of GDP by the private corporate and public enterprises respectively. The 6 percent general government deficit was apportioned equally between the States and the Centre (See Section 6.2.2 below for details).

2.1.2 Debt Ceiling

For the Union Government, the committee recommended for a debt-to-GDP ratio of 50 percent of GDP in a period of 10 years commencing on April 1, 2001[3].

2.1.3 Borrowing from the Reserve Bank of India

The Committee also considered (i) the regulation of RBI's credit to the Government of India and (ii) freeing the central bank from its public debt management function as essential parts of fiscal responsibility. The first part involved limiting RBI's credit to the Government in order to discourage the latter from resorting to inflation tax. This would prevent the Centre from exploiting the output-inflation trade-off, in the short-run, by pressurising the RBI to extend credit, even if it is at the cost of the central bank's core functions of monetary policy and price stability. The proposed FRBMA proscribed Central Government borrowing from the RBI except through the Ways and Means Advances repayable within the same financial year to meet short-term mismatches between cash receipts and expenditures. The second part involved enhancing the RBI's autonomy by separating its debt management and monetary policy arms and freeing it from the conflict of interest that underlies its multiple functions. However, the proposed FRBMA was silent on this issue.

[3]Debt was defined as the total liabilities of the Government of India, including external debt at current exchange rates at the end of a financial year. The Sarma Committee did not provide any analytical rationale for the 50 percent debt limit.

2.2 Escape Clause for Numerical Targets

To allow for sufficient flexibility in fiscal management in the event of an unforeseen macroeconomic shock, the proposed FRBMA included an escape clause. This allowed the Government to breach the numerical targets on the grounds of unforeseen demands on the finances of the Central Government due to well-defined events: national security and national calamity. It also mandated that the government should immediately submit any such grounds before both Houses of Parliament. Notably, the Bill did not provide for an escape clause for the debt ceiling, possibly because of its long-term time frame.

2.3 Principles of Budget Management

Although today the FRBMA is most commonly associated with its numerical ceilings on fiscal indicators, the initial emphasis of the Sarma Committee was on issues of budget management such as a medium-term outlook to budgeting, transparency and monitoring mechanisms, and accounting reforms rather than prescribing numerical trajectories for deficit indicators. It must be mentioned, however, that two members of the committee- the Controller General of Accounts (CGA) and the representative of the Comptroller and Auditor General of India (CAG) were particularly hostile to this approach. Their status-quoist disposition on matters of budget management stemmed from the view that extant institutions, particularly the Constitution, already address these concerns sufficiently. Indeed, these institutions were against the very idea of legislating a fresh FRA, as ceilings on borrowings could be prescribed under Article 292 of the Constitution.

2.3.1 Accounting Reforms

The Committee recognized that the present cash-based accounting system fails to adequately account for contingent liabilities, liabilities arising out of unpaid bills, and unrealised tax revenues. Moreover, all transactions are reported at their historical values, which do not take into account adjustments due to depreciation, inflation, and exchange rate fluctuations, thereby failing to reflect the true economic and fiscal position of the Government.

Though the Committee took a favourable view towards accrual accounting and greater disclosures of contingent liabilities and saw these matters as essential to fiscal responsibility, the CGA and the representative of the CAG disagreed. They stressed that “accounting reforms should be de-linked from fiscal responsibility legislation” and

felt that the proposed changes in the accounting system were "neither desirable nor feasible at this stage". In particular, they believed that shifting to accrual accounting would entail a full-blown overhaul of the accounting system with complicating implications for the State Governments as they base their accounting practices on the Centre.

Thus, they stressed that such reforms should be separately examined while discussing Article 150 of the Constitution which allows the Government to choose its desired accounting system on the advice of the CAG. Moreover, they stated that the Register of Liabilities which is maintained by each Department and Ministry under the General Financial Rules as well as their extant management information systems (MIS) are sufficient to generate reports on contingent liabilities, liabilities arising out of incomplete projects, and outstanding revenue arrears.

2.3.2 Transparency

The Committee placed particular importance on the openness of the Government about its fiscal plans and projections. It provided for three fiscal policy statements in the proposed FRBM Act. The first was a Medium-Term Fiscal Policy Statement that would contain three-year rolling targets for fiscal indicators. The document would also comment on the sustainability of the balance between revenue receipts and revenue expenditure, as well as on the utilisation of capital receipts for generating productive assets. The second document, the Fiscal Policy Strategy Statement, would delineate the Government's policies on fiscal matters such as taxation, expenditure, market borrowings etc. as well as activities such as guarantees and underwriting that may have indirect, yet significant budgetary implications. The third document was the Macroeconomic Framework and its scope was left open for future consideration.

In addition to these documents, the draft FRBMA also outlined certain measures for transparency. These primarily sought to discourage creative accounting by the Government by requiring it to disclose information in all outstanding contractual liabilities, revenue demands raised but not realised, contingent liabilities etc.

2.3.3 Enforcement Mechanisms and Compliance

The Sarma Committee identified two preconditions for the enforceability of an FRA. These consisted of (i) defining clear triggers that determine what constitutes non-compliance and (ii) conducting intra-year budget monitoring to enable the identification of intra-year triggers and the formulation of intra-year corrective actions.

To bolster the reporting and monitoring of the fiscal conduct of the Government, the Committee made a case for a Fiscal Management Review Committee (FRMC). The primary remit of the FRMC would be to conduct ex-post reviews of government budgets. Additionally, the FRMC may be tasked with intra-year reviews, particularly in light of the trend of unusually large supplementary grants that induce large differences between budget estimates, revised estimates, and actuals, and thus, undermine the budget-making process itself.

However, similar to its views on accounting reforms, the CAG held that the existence of Parliamentary and Constitutional institutions such as the Public Accounts Committee, the Estimates Committee, and the CAG itself, obviate the need for a separate FRMC. In fact, it went so far as to state that the setting up of the FMRC will go against the basic structure of the Constitution and also *"encroach upon the prerogative of the Finance Minister... to inform and explain to the Parliament the conduct of fiscal policies and budget management"*. It felt that rather than duplicating the work of these institutions, the Government should ensure effective action in cognizance of the periodic recommendations by these institutions, e.g. the various Audit Reports of the CAG that comment on the government's fiscal performance, particularly the Union Civil Audit. Moreover, the CAG noted that the constitution of an FMRC may not be considered by the Committee as *"international experience in the form of Fiscal Management Review Committees to ensure compliance with fiscal responsibility legislation was also not examined during the deliberations of the Committee"*. Lastly, the CAG claimed that no such institution exists in the few democratic countries that have enacted FRAs and were discussed by the Sarma Committee even though the Sarma Committee did indeed discuss several such countries, e.g. Japan, Germany, Netherlands, and the United States[4].

The Sarma Committee's final view was that an FMRC would "supplement rather than supplant" existing institutions and hence improve the Government's compliance with the FRBMA. Despite the CAG's dissent, it was included in the draft FRBMA, but its inclusion was short-lived.

The draft legislation recommended by the Sarma Committee went through three notable amendments by the Union Cabinet before being tabled in the Lok Sabha on December 20th, 2000. First, the cabinet reduced the fiscal deficit target from 3 percent to 2 percent of GDP which consequently required the Government to reduce its fiscal deficit by 0.5 percent of GDP per year as opposed to the earlier annual reduction of 0.33 percent. Second, the amended Bill deleted all references pertaining to the Fiscal Management Review Committee. Third, in addition to the three annual FRBM Statements outlined by the Sarma Committee, the final Bill additionally required the Finance Minister to

[4]See Annexure 1 of the Sarma Committee Report (2000) and Debrun and Kinda (2014).

conduct quarterly reviews of receipts and expenditure and place the same before the Parliament. These intra-year reviews would trigger sequestration of expenditure by the Government in the event of intra-year shortfalls of revenues or an excess of expenditure[5]. The FRBM Bill was subsequently referred to the Standing Committee on Finance on July 24, 2000.

3 The Report of the Standing Committee on Finance on the FRBM Bill (2000) and the shaping of the FRBM Act (2003)

The Standing Committee on Finance deliberated on the FRBM Bill for 16 months and its recommendations fundamentally altered two key features of the Bill. After accepting both of these recommendations, the Parliament passed the FRBM Act on August 23, 2003. First, The Standing Committee was not in favour of statutory numerical ceilings on key fiscal indicators as it felt that they imposed undue rigidity on the functioning of the Government and may further reduce allocations for development and poverty alleviation. Moreover, it was also concerned with the possibility of litigation on account of non-compliance with the provisions of the Act. It held that economic decision making should not become the subject matter of judicial scrutiny[6]. It thus recommended the deletion of the numerical ceilings on revenue and fiscal deficit, debt, and guarantees and relegated these to the associated rules that the Central Government is empowered to formulate under Clause 8 of the Bill. All of these recommendations, except one, were reflected in final Act. The exception was that of retaining the target of the elimination of revenue deficit in the Act itself. Its annual reduction path, however, was relegated to the FRBM rules.

Second, the Standing Committee felt that the definition of the escape clause in the FRBM Bill was too restrictive. The Bill provided for infractions of the numerical ceilings on the grounds of national calamities and natural disasters. However, the Committee felt that these may not be the only exigent circumstances that may require the Government to spend beyond the FRBM-prescribed limits and that the escape clause should be more flexible. The FRBM Bill was subsequently amended to reflect the Committee's

[5]This clause did not apply to expenditure charged on the Consolidated Fund of India under Clause (3) of Article 112 of the Constitution. This mainly includes emoluments and allowances of the President and other constitutional offices.

[6]In this respect, the Standing Committee sought the opinion of the Law Secretary, who stated that though the possibility of such litigation cannot be ruled out, it is highly unlikely given the provisions of sub-clause (3) of clause 7 of the FRBM Bill, which gives Parliament the control, supervision and monitoring of any deviations from the numerical targets stated in the Act.

concerns. The scope of the escape clause was broadened to allow for the numerical ceilings to be breached *"on the grounds of national security, national calamity,* ***or such other exceptional grounds as the Central Government may specify****' [emphasis added].*

The departures between the Sarma Committee's draft FRBM Bill and the FRBM Act passed by Parliament in 2003 reveals that FRBM Act was weakened in two important dimensions. First, the FRBM Act lacked the strong legislative oversight provided for in the Sarma Committee's Bill. As stated earlier, the Sarma Committee felt that without numerical ceilings in the Act, the legislation would lack credibility. The relegation of the targets for fiscal deficit, debt, and guarantees, from the Act to the FRBM rules, made them potentially vulnerable to political vicissitudes. Stripped of their legal backing, these targets could now be modified merely by passing a notification in the Gazette of India. The next section discusses the impact of this amendment.

Second, the amendment in the definition of the escape clause (first proviso to Section (4) of the Bill) was a significant blow to the credibility of the FRBM Act. One of the key lessons from the international experience with fiscal rules is that a vague and loosely defined escape clause may render the rule ineffective[7]. Good escape clauses should specify only a limited number of clearly defined and measurable circumstances that may be used as grounds for breaching the fiscal rules. The proviso in the final FRBM Act, however, left it open for the Central Government to specify any such exceptional grounds. This latitude afforded to the Government was exercised by it in 2008-09 when the FRBM targets were overshot. The final FRBM Act also differed from the original Bill in that the escape clause (first proviso of Section 4 (2)) was also extended to Section 5 (1) of the Act which stated that the Central Government shall not borrow from the Reserve Bank.

4 Observations by Successive Finance Commissions

Finance Commissions (FC) routinely undertake a review of the finances of the state and central governments. In doing so, the past three FCs have commented at length on the Central and State fiscal responsibility legislation. This section details the observations of successive FCs viz. the Centre's FRBM Act (for a discussion on FC recommendations on State fiscal responsibility legislation, see Roy and Kotia (2016)).

While welcoming implementation of the FRBM Act by the Central Government, the

[7] See for instance Kopits (2001) and Schaechter et al. (2012).

12th FC noted that it is vital that the revenue and fiscal deficit targets of the Act and the Rules are not modified and that the Centre sets an example for the States. The terms of reference of the Thirteenth FC required it to review the fiscal consolidation roadmap of the general government. In this context, the 13th FC made several observations and recommendations about the Centre's FRBM Act.

First, it recommended making the FRBM process more transparent and comprehensive. It noted that the annual nature of the extant budget process is not conducive for the effective implementation of a fiscal responsibility legislation such as the FRBM Act. It recommended that the central government revise its medium-term fiscal policy statement to include a more detailed Medium Term Fiscal Plan (MTFP) with a detailed break-up of the rolling targets for various revenue and expenditure heads. To enhance transparency, the Commission reported that some stakeholders such as the RBI, the Planning Commission, and the States pointed out that the practice of off-budget borrowing by the Centre is a violation of the FRBM Act in that such borrowings are not captured by the revenue or fiscal deficits reported in the Union Budget. In this regard, the 13th FC recommended that in addition to the ceiling of 0.5 percent of GDP on the flow of guarantees, the FRBM Act must also prescribe a ceiling for the stock of guarantees at five percent of GDP. Furthermore, details of contingent liabilities, especially those arising out of stipulated annuity payments for public-private partnerships, should be published in the Union Budget.

Second, the Commission emphasized on the need to make the FRBM Act better suited to adapt to exogenous shocks and in doing so, achieve its core function of macroeconomic stabilisation. In this regard it recommended that (1) the MTFP must provide details of the values of the parameters underlying revenue and expenditure projections and thus facilitating evidence-based policy; (2) the escape clause should be tightened so as to allow relaxations of FRBM targets only in times of specific exogenous shocks such as agro-climatic events, global recession, oil price fluctuations etc; (3) the cost of a fiscal stimulus during a slowdown should be borne by the Centre and not the States. Third, the 13th FC recommended the setting up of an independent Committee to review and monitor the implementation of the FRBM Act.

In a departure from the past, the Fourteenth Finance Commission was explicitly required to make suggestions to amend existing FRBM Acts currently in force by the Centre and States. In its review, the 14th FC made three important observations. First, it recommended doing away with the concept of effective revenue deficit. It stated that *"The artificial carving out of the revenue account deficit into effective revenue deficit to bring out that portion of grants which is intended to create capital asset at the recipient level leads to an accounting problem and raises the moral hazard issue of creative bud-*

geting". It thus recommended that the Union Government make an amendment to the FRBM Act and omit the definition of effective revenue deficit from 1st April 2015.

Second, like its predecessor, the 14th FC recommended that an independent fiscal council should be established to undertake an ex-ante assessment of the fiscal policy implications of budget proposals and their consistency with fiscal policy and Rules. Finally, the 14th FC recommended that Union Government may replace the existing FRBM Act by a Debt Ceiling and Fiscal Responsibility Legislation, specifically invoking Article 292 in its preamble. This would enhance the law's legitimacy and sanctity.

5 Evaluating the Performance of the FRBM Act

Given the above background, we now discuss the working and implementation of the FRBM Act over the past 12 years. Although the FRBM Act received the assent of the President on August 26, 2003, it was only notified by the newly elected UPA government on July 5th, 2004[8]. The FRBM rules as well as the report of the Kelkar Task Force, both published in July 2004 guided the implementation of the Act. The Government assimilated the numerical and procedural provisions of the law in the budget process in 2004-05. There were two aspects of this integration. First, the Government's fiscal consolidation strategy was now anchored by FRBMA's numerical targets on fiscal and revenue deficits, guarantees, and the accretion of additional liabilities. Second, three additional documents, a medium-term fiscal policy statement, a fiscal policy strategy statement, and a macroeconomic framework statement, were presented along with the Union Budget every year. In 2012 a medium-term expenditure framework was also added to this list.

5.1 Numerical Targets

Though the FRBM Act presently prescribes only three numerical targets, namely for fiscal, revenue, and effective revenue deficit, the associated FRBM rules also specify an initial annual limit on debt accumulation and a limit on the accretion of guarantees. The compliance with the deficit targets can be assessed in three phases as follows.

[8]It is interesting that in its short history, the FRBM Act saw four Finance Ministers. The FRBM Bill was introduced by Yashwant Sinha in 2000. The Act was passed during the tenure of Jaswant Singh. It was subsequently notified by P Chidambram, and its suspension in 2008-09 was at the hands of Pranab Mukherjee.

1. **FRBM I:** 2004-05 to 2007-08
2. **Suspension:** 2008-09 to 2012-13
3. **FRBM II:** 2013-14 to present

5.1.1 FRBM I

Figures 4 and 5 show the central government's compliance with the deficit targets. For fiscal deficit, the FRBM rules had prescribed a final target of 3 percent of GDP that was to be achieved by 31st March 2009 through annual reductions of 0.3 percent of GDP[9]. In the first phase of implementation, the Government did well to adhere to the prescribed path of consolidation. The fiscal deficit declined from 4.34 percent in 2003-04 to 2.54 percent of GDP in 2007-08, achieving the target of 3 percent of GDP one year in advance. However, the Global Financial Crisis (GFC) in Q3 2008, as well as the impending 2009 general elections caused severe fiscal disturbances. Though the budgeted fiscal deficit for 2008-09 was 2.5 percent of GDP, the revised estimate published in the interim budget of 2009-10 was 6 percent of GDP[10], marking a significant deviation from the FRBM roadmap. Announcing the temporary suspension (which would eventually extend to as long as five years) of the deficit targets in the FRBM Act, the then Finance Minister, Pranab Mukherjee, in his 2009-10 (Interim) budget speech stated that *"Extraordinary economic circumstances merit extraordinary measures. Now is the time for such measures. Our Government decided to relax the FRBM targets, in order to provide much-needed demand boost to counter the situation created by the global financial meltdown".*

Subsequently, after the 2009 general elections, the Finance Minister, in his 2009-10 (final) budget speech, attributed the entire difference of Rs. 1,86,000 crores (3.5 percent of GDP) between the fiscal deficits of 2007-08 and 2008-09 to the 'fiscal stimulus' provided to buttress the GFC. However, this statement was inaccurate for two reasons. First, as documented in detail by Buiter and Patel (2010) and Simone and Topalova (2009), expenditure slippages had started well before the financial crisis hit the global economy in the third quarter of 2008-09, possibly in anticipation of the upcoming 2009 general elections. These infractions primarily consisted of populist spending policies on account of a farm debt waiver, the abrupt expansion of the MNREGA from 200 to over 600 districts, large subsidies on account of oil, food, and fertilizers, and the

[9]Originally the deadline for all targets was 2008, it was later postponed to 2009 by an amendment to the FRBM Act.

[10]Mid-Term Fiscal Policy Statement, Union Budget, Government of India, 2008-09 and 2009-10 (Interim).

Figure 4: FRBM Compliance:Fiscal Deficit

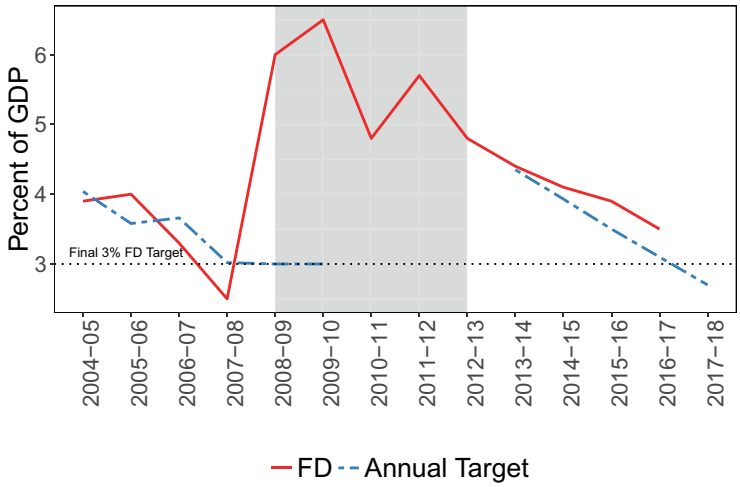


Figure 5: FRBM Compliance:Revenue Deficit

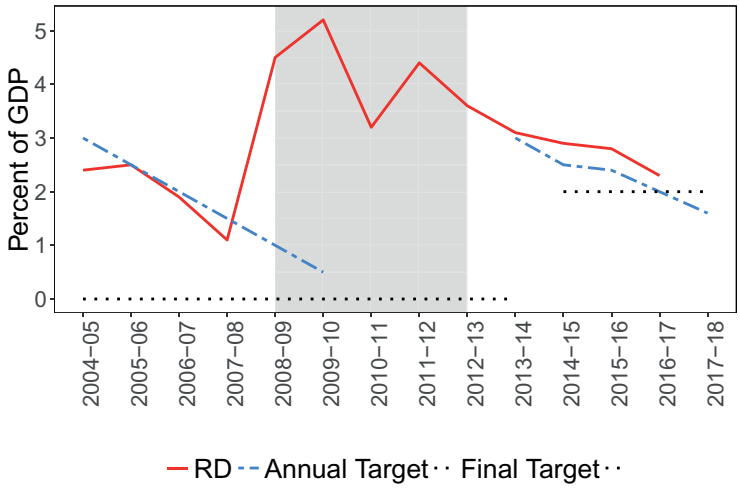
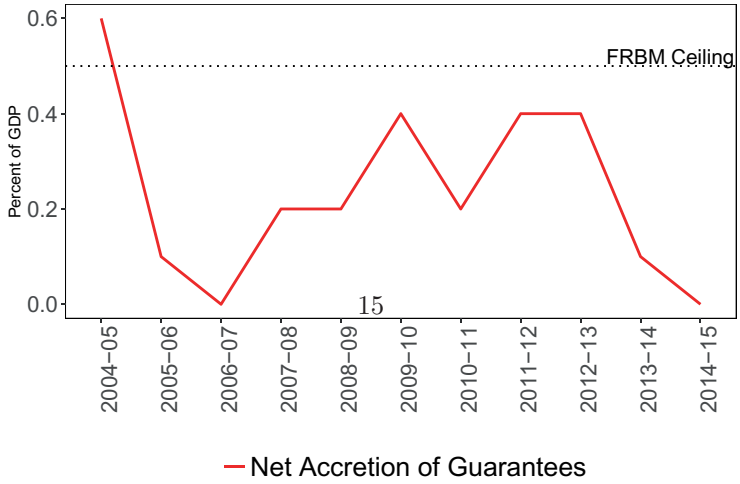


Figure 6: FRBM Compliance:Guarantees



implementation of the recommendations of the 6th Pay Commission. Thus, a significant part of the fiscal deterioration may be attributable to the election cycle in addition to the economic cycle.

Second, the figure of 3.5 percent of GDP understated the magnitude of the deterioration in the fiscal deficit between 2008-09 and 2009-10. As the Finance Ministe, himself stated in his 2010-11 budget speech, the Centre's fiscal deficit in 2008-09, inclusive of the off-budget expenditures of oil and fertilizer bonds was, in fact, 7.8 percent, rather than the budgeted 6 percent of GDP. This meant that the total deterioration in the fiscal deficit in 2008-09 alone was a dramatic 5.3 percent of GDP. Sadly, 2008-09 was not an anomalous year. Buiter and Patel (2010) estimate that off-budget bonds issued in 2006-07 added up to as much as 1.5 percent of GDP. Since such bonds were off-budget, the true measure of fiscal deficit in 2006-07 was 4.8 percent of GDP rather than the budgeted 3.3 percent. Indeed, this leads them to the gloomy conclusion that *"It should be apparent that after 2004-05, not only has there been no fiscal consolidation once off-budget expenditure is included, but indicators have mostly deteriorated."*

For revenue deficit, the FRBM rules had prescribed a final target of nil that was to be achieved by 31st March, 2009 through annual reductions of 0.5 percent of GDP. Oddly enough, given that the revenue deficit in 2003-04 was 3.5 percent of GDP, the prescribed roadmap was inadequate to eliminate the revenue deficit by the said deadline. Notwithstanding this aberration, the annual reductions in revenue deficit complied with the target of 0.5 percent in all but one year in the first phase. In 2005-06, the additional fiscal burden due to the recommendations of the Twelfth Finance Commission caused the government to fall short of meeting the annual reduction of 0.5 percent in the revenue deficit that year[11]. As required by the FRBM Act, the Finance Minister explained this deviation in parliament. Like fiscal deficit, however, revenue deficit also ballooned considerably in 2008-09, from the budgeted 1 percent to the revised 4.4 percent of GDP. Accounting for the off-budget bonds brought the number to an unprecedented 6.3 percent of GDP (Buiter and Patel (2010)).

As Figure 6 illustrates, the limit on the accretion of guarantees was comfortably met in most years across the three phases of the FRBM Act.

Notwithstanding the off-budget borrowings by the central government during the

[11]This deviation was stated by the Finance Minister in a statement to Parliament as required by Section 7 of the FRBM Act. The Finance Minister stated that the reason for this one-time breach of the FRBM annual reduction targets is due to the fact that the TFC recommendations do not fully factor in the expenditure commitments of the Central Government arising out of the National Common Minimum Programme. However, he assured the House of the Government's commitment to adhere to the target of elimination of revenue deficit by 2008-09.

first phase of the FRBM Act, several studies have attributed the fiscal consolidation in this period to high GDP growth and tax buoyancy. Simone and Topalova (2009) estimate that two-thirds of the fiscal adjustment in this period was due to revenue gains. Dholakia et al. (2011) and the 2009 Review of the Economy, published by the Economic Advisory Council to the Prime Minister state that much of the improvements in the financial position of the central government arose due to revenue buoyancy. The basis of these claims lay in the unprecedented growth in GDP that translated into sharp increases in tax receipts.

Phase I of the FRBM Act was indeed a very conducive period for fiscal consolidation. Figure 7 shows that nominal GDP grew sharply and consistently in the pre-crisis noughties. Consequently, the nominal year-on-year growth rate of both direct and indirect central taxes (net of transfers to States) also grew consistently since 2001-02. These dynamics translated into a considerable rise in the net central tax to GDP ratio, particularly the net central direct tax to GDP ratio, which more than doubled between 2001-02 and 2007-08 (see Figure 8). However, as seen in Figure 9, even the expenditure to GDP ratio declined in this period. Furthermore, the decomposition of the annual change in the fiscal deficit reveals more nuanced characteristics of the fiscal consolidation in Phase I.

To re-evaluate the claims of revenue dependency of the fiscal correction during Phase I, Figure 10 decomposes the annual movements in the fiscal deficit into changes in total revenue and total expenditure. It decomposes the year-on-year change in the fiscal deficit as follows.

$$\Delta\left(\frac{FD_t}{GDP_t}\right) = \Delta\left(\frac{Exp_t}{GDP_t}\right) - \Delta\left(\frac{Rev_t}{GDP_t}\right)$$

In panel (a) for example, both the revenue to GDP as well as the expenditure to GDP ratios fell in 2004-05. A fall in revenues exerts an upward, and a fall in expenditures exerts a downward pressure on the deficit. For instance, the drop in the fiscal deficit to GDP ratio of 0.46 percent in 2004-05 is due to the fact that the decline in revenues (0.77 percent) was less than the decline in expenditures (-1.23 percent). Figure 10 (b) on the other hand reports the proportional contributions of revenue and expenditure to the dynamics of fiscal deficit. It shows the percent that each component contributes to changes in the fiscal deficit in each year. In 2004-05, about 62 percent of the total change in the fiscal deficit was due to lower expenditures whereas falling revenues contributed the residual 38 percent. Analogously, Figures 10 (c) and 10 (d) calculate the nominal and proportional contributions of components of revenue and expenditure.

Figure 7: Year-on-Year Growth Rate of Nominal GDP

Figure 8: Central Government Tax Collection Net of Devolution to States

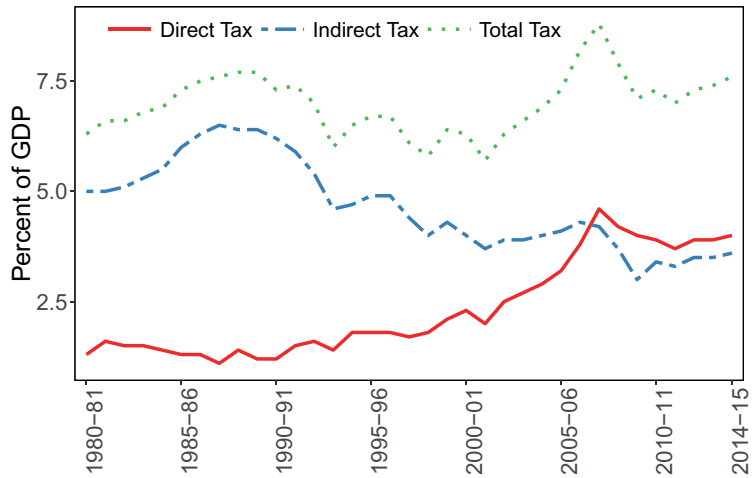


Figure 9: Expenditure-GDP Ratios

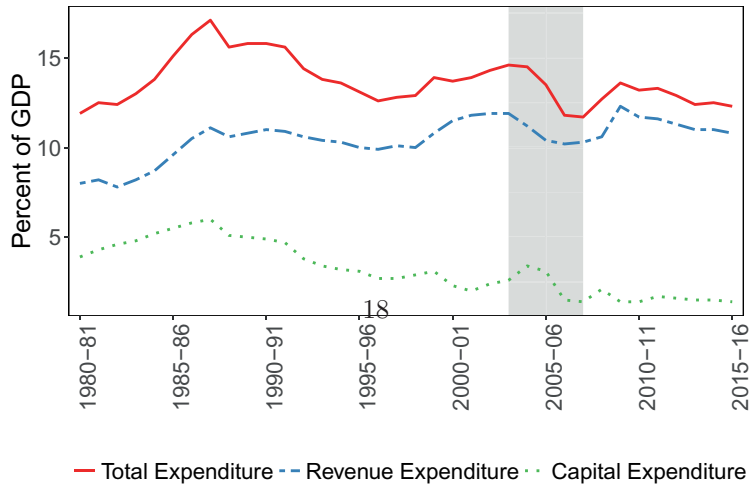


Figure 10: Decomposition of the Fiscal Deficit

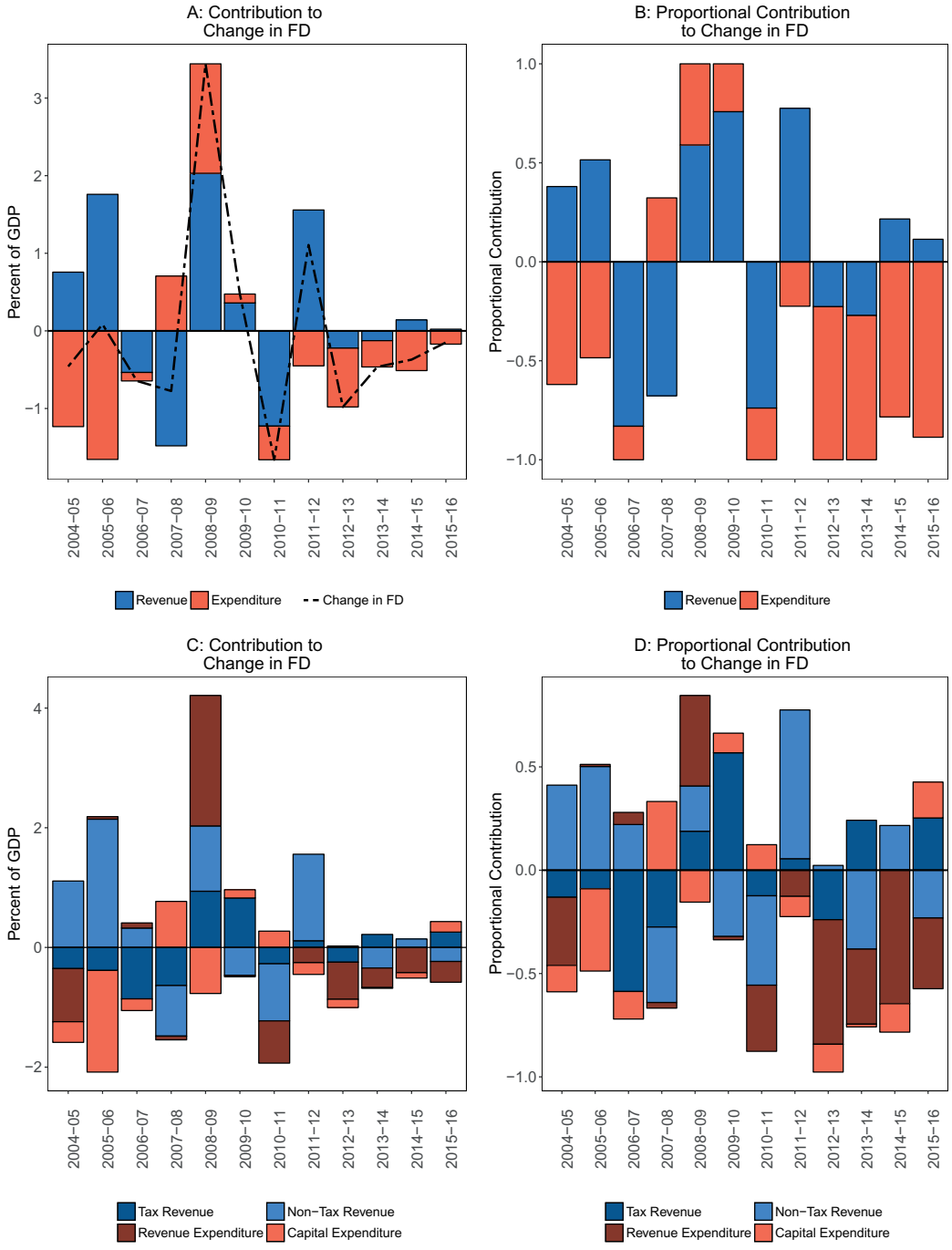
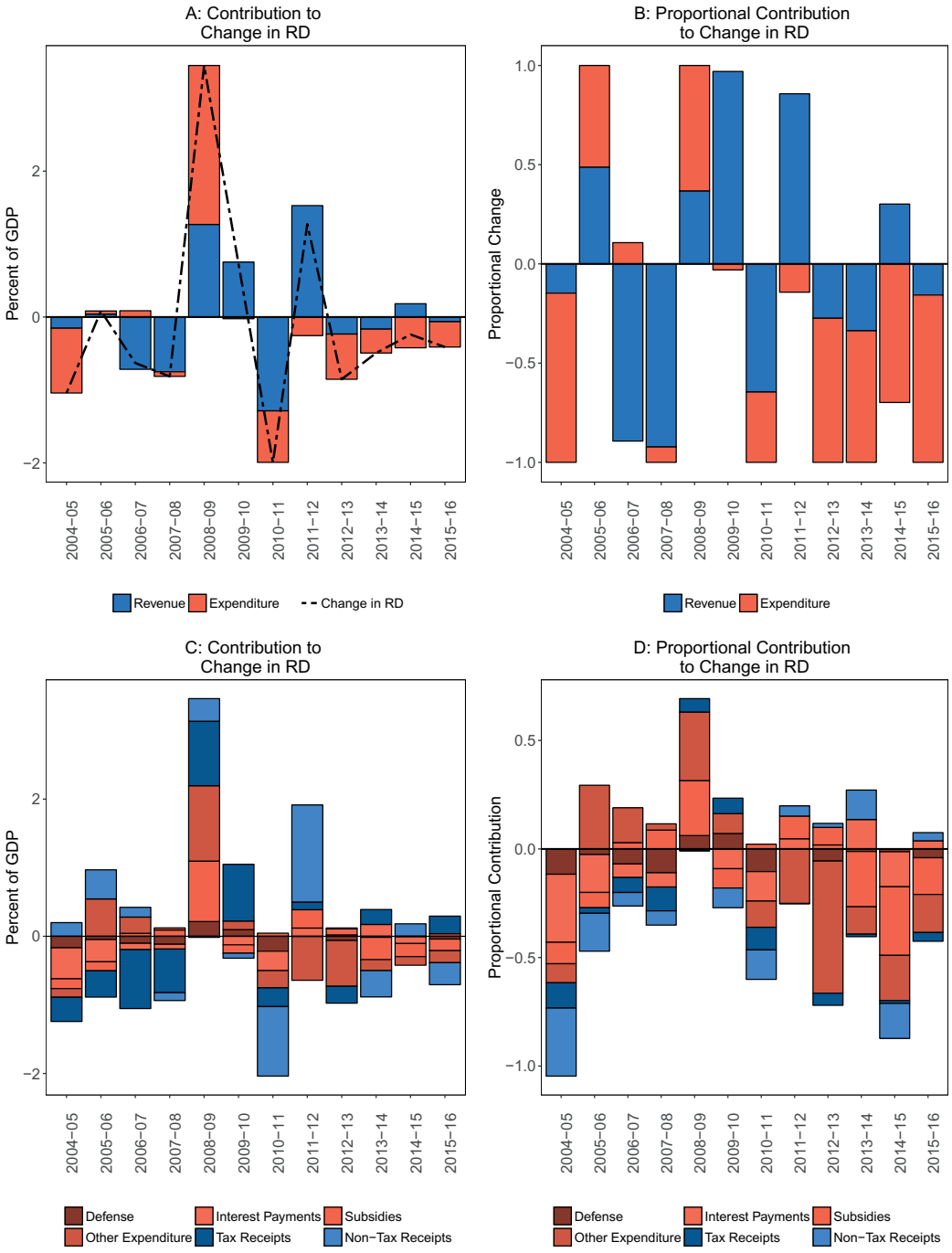


Figure 11: Decomposition of the Revenue Deficit



In the first two years after the implementation of the FRBM Act, revenues declined as a percent of GDP, and the entire reduction in the fiscal deficit of 0.46 and 0 percent of GDP in 2004-05 and 2005-06 respectively, was due to an even greater decline in the expenditure-GDP ratio. In the following two years, however, the revenue to GDP ratio grew considerably, aiding the decline in the fiscal deficit of 0.65 and 0.77 percent of GDP respectively. Therefore, during the four-year period of the initial implementation of the FRBM Act, it was a fairly even mix of revenue buoyancy and expenditure curtailment that led to fiscal consolidation.

Panel 10 (b) reveals that the positive impact of the rising tax revenues to GDP ratio throughout the first phase was overshadowed by a considerable decline in non-tax revenue to GDP ratio, particularly in 2004-05 and 2005-06[12]. These years also saw a decline in the expenditure-GDP ratio with both revenue and capital expenditure falling as a percent of GDP in 2004-05 and 2005-06. A similar picture emerges for the revenue deficit (see Figure 11).

A more wide-ranging analysis of the Government's compliance with the numerical provisions of the FRBM Act can be conducted by comparing ex-post fiscal outcomes to the projections made by the Task force to implement the FRBM Act, constituted in 2004, with Dr. Vijay Kelkar as its Chairman. The Task Force drew a medium-term fiscal plan for the period of 2005-06 to 2008-09. The plan had two parts. The first involved making a set of 'baseline' projections, whereby a detailed medium-term (3-year) forecasting effort was undertaken. The baseline projections assumed that the coming 3-year period will be similar to recent years in terms of progress on policy administration. The next step consisted of devising policy proposals which close the gaps (if any) between the baseline projections and the requirements of the FRBM Act. The Task Force had cast such proposals for tax and expenditure reforms in a macroeconomic perspective that could help devise the most effective trajectory to meet FRBM targets[13].

[12]Interest receipts from the States had gone down considerably due to the introduction of the Debt Swap Scheme by the Government of India to supplement efforts of the States towards fiscal consolidation. Interest receipts declined further due to the recommendations of the Twelfth Finance Commission that enabled States to reschedule outstanding Central Loans under the condition that they enact Fiscal Responsibility Legislation (See the Receipts Budget 2005-06 and 2006-07 for details).

[13]The Task force delved into a detailed strategy for tax reforms with the aims of widening the tax base, enhancing the equity of the tax system, and exploring a shift to consumption taxes to increase efficiency. Its major proposals in this regard were:

1. To Introduce a Goods and Services Tax at both the level of the Centre and the States. It stressed on the need for the Centre and the States to come to an agreement on this fundamental issue.
2. To reach ASEAN rates of customs, and to have the minimal rate dispersion. Towards this, the Task Force proposed a shift to a three-rate structure consisting of 5 per cent, 8 per cent and 10 per cent.
3. To simplify and remove exemptions, rationalise incentives for savings and to broaden the base of income tax.

Figure 12 compares the actual performance of revenue and expenditure with those that the Task Force projected for the period 2004-05 to 2008-09. The projections are based on the assumption of the implementation of the tax and expenditure reforms recommended by the task force. Not surprisingly, the actual tax revenues during this period were substantially lower than the projections, as many of the proposed tax reforms could not be implemented in time. Revenue expenditure as a percent of GDP was more or less in line with the projections until it rose sharply by over two percentage points during the crisis. Interestingly, for most of this period, capital expenditure remained far lower than the levels projected by the Task Force.

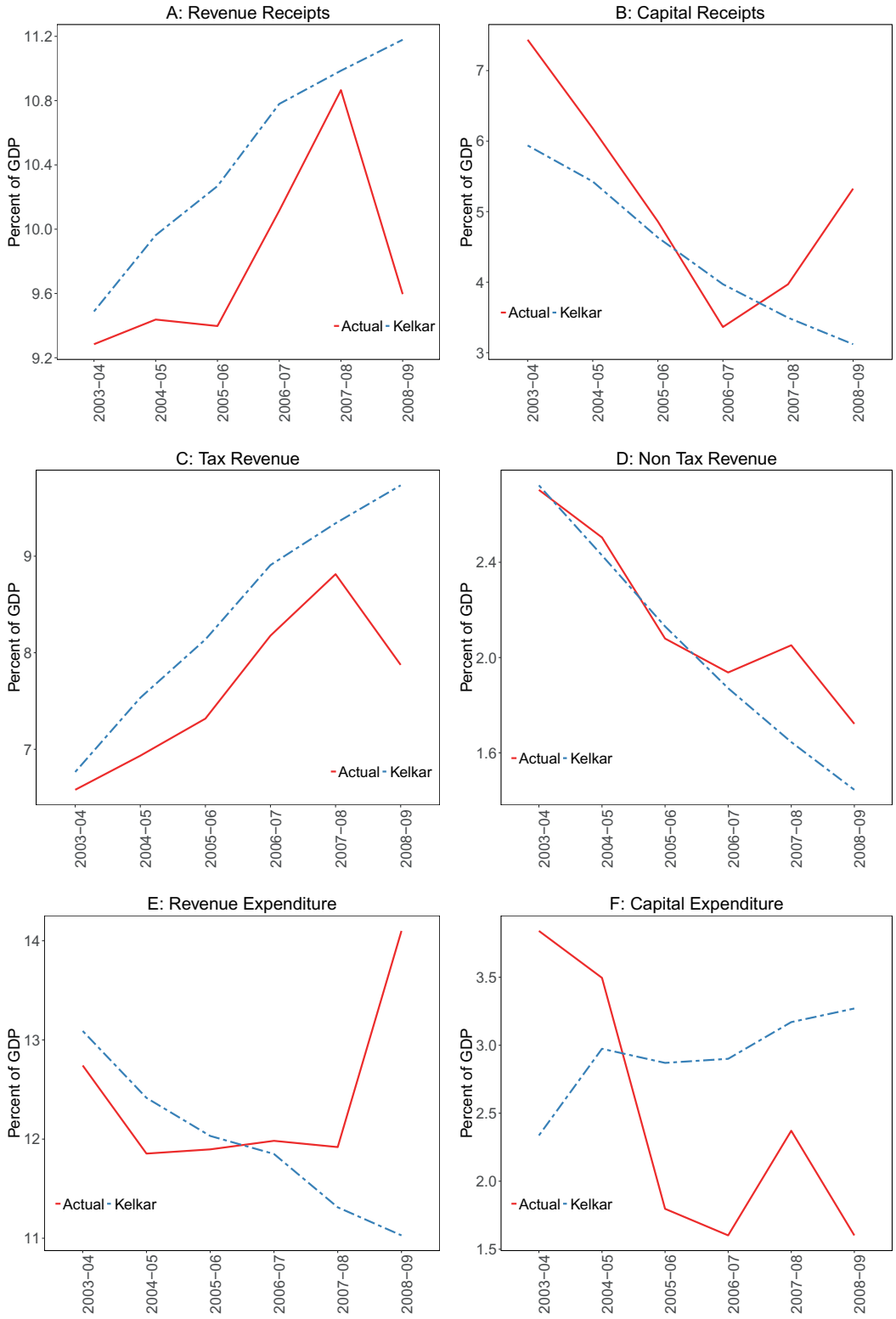
5.1.2 The Suspension Phase

We now discuss the suspension phase of the FRBM Act from 2008-09 to 2012-13. As discussed above, due to the ill-fated synchronization of the election and economic cycles towards the end of Phase I, the fiscal indicators of the Government deteriorated dramatically on account of populist spending as well as the three economic stimuli that was injected in 2008-09 and 2009-10. Figure 10 (a) shows that the ratios of revenue and expenditure to GDP simultaneously deteriorated for two consecutive years. On the expenditure side, capital expenditure to GDP ratio decreased by 0.76 percent but was overshadowed by the stupendous rise of over 2 percent in the revenue expenditure to GDP ratio. On the revenue side, the ratios of tax and non-tax revenue to GDP fell by equal proportions. It is noteworthy, however, that though the FRBM Act was brought back only in 2013, the proliferation in revenue expenditure had been curtailed since as early as 2009-10. Figure 11 shows that the revenue expenditure to GDP ratio has declined in each year since the infractions of 2008-09, primarily on account of lower subsidy bills and other non-defence revenue expenditures.

Unlike international best practice, neither the escape clause (the first proviso to Section 4 of the FRBM Act) of the FRBM Act nor the associated FRBM Rules mandate a clearly defined correction path that would facilitate fiscal consolidation following a breach in the adherence to the numerical targets. This was reflected in the following, rather vague statement by the Finance Minister, in his 2009-10 budget speech: *"I in-*

4. To carry out three reforms in the corporate income tax:
    - Bring the depreciation rates into alignment with the low inflation rates and low interest rates which now prevail in India.
    - Remove the structure of exemptions in the light of the reduction in tax rates over the last two decades.
    - Close the gap between the peak rate for personal income tax and the corporate tax rate.

Figure 12: Kelkar Task Force Projections vs. Actuals



tend to... return to the FRBM target for fiscal deficit at the earliest and as soon as the negative effects of the global crisis on the Indian economy have been overcome." Therefore, amidst considerable uncertainty about the government's plans of returning to the FRBMA roadmap, the two deficit rules remained in abeyance for five years.

5.1.3 FRBM II

It was not until the budget speech of 2012-13 that Finance Minister Pranab Mukherjee announced his intention to re-operationalize the FRBM Act. The Finance Act, 2012 introduced several amendments to the Act. A new target of zero "effective revenue deficit" was introduced, that sought to eliminate revenue deficit excluding grants for the creation of capital assets by 2015. Consequently, the target for revenue deficit was raised to 2 percent of GDP. The amendment also announced that a new statement called the medium-term expenditure framework would publish three-year rolling target for expenditure indicators. Moreover, to enhance the monitoring and enforcement of the law, an amendment to Section 7 empowered the Central Government to entrust the Comptroller and Auditor General of India to conduct periodic reviews of the implementation of the legislation.

However, in his second budget, to create fiscal space for public expenditure, Finance Minister Arun Jaitley amended the Act yet again, further postponing the deadlines for meeting the numerical targets from 2015 to 2018. The Government is presently on track to meeting its fiscal targets by 31st March, 2018. However, for the first time in over five years, the Government of India has resorted to off-budget borrowings in the 2016-17 budget. The rationale provided for such borrowing is to *"give a further boost to public investment in Infrastructure".* As Table 1 details, a total of Rs. 31,300 crores have been mobilized through the issuance of bonds by public sector enterprises under selected ministries[14]. As discussed in previous sections, the mobilization of such off-budget resources undermines the numerical targets in the FRBM Act and should be discouraged.

5.2 Compliance with Procedural Rules

Apart from adherence to numerical fiscal targets, we assess the FRBM Act's compliance viz. the various procedural rules provided under the Act. By procedural rules, we mean explicit measures to improve the monitoring and enforcement of the Act. We discuss two

[14]See Union Budget 2016-17, Expenditure Budget Volume I, pg. 44-45 for details.

Table 1: Off-Budget Borrowings in the 2016-17 Budget (Rs. Crores)

Ministry	Agency	Amount
Power	Power Finance Corporation/Rural Electrification Corporation	5000
New and Renewable Energy	Indian Renewable Energy Development Agency	4000
Road Transport & Highways	National Highway Authority of India	15000
Shipping	Inland Water Transport Corporation of India	1000
Agriculture	National Bank for Agriculture and Rural Development	6300
Total		**31300**

such measures, (1) the statutory basis for the legislation and (2) measures to enhance transparency.

5.2.1 Statutory Basis

The repeated amendments to the FRBM Act are a cause of concern. Medium and long-term compliance and credibility is difficult to achieve if the Government can repeatedly postpone its fiscal targets without sufficient cost. To understand the lacunae in the legal support for the numerical targets, we assess the non-compliance of the FRBMA targets at a procedural level. This approach requires segmenting the numerical ceilings into three parts, namely (1) the level of the target, (2) the deadline by which the target has to be achieved, and (3) annual reduction in the deficit indicators that the law specifies (see tables 2 and 3).

Table 2: Legal Basis of Attributes of Numerical Rules

Rule	Level of Target	Deadline	Annual Reduction
Fiscal Deficit	Rules	Act	Rules
Revenue Deficit	Act	Act	Rules
Guarantees	Rules	-	Rules

Table 3: Specifics of the Numerical Rules

Rule	Level of Target	Deadline	Annual Reduction
Fiscal Deficit	3%	31st March, 2008	0.30%
Revenue Deficit	Nil	31st March, 2008	0.50%
Guarantees	0.5% each year	-	-

Note: As stated in previous sections, the specifics of the numerical rules were amended several times. This table reflects the provisions of the original FRBM Act, 2003.

In the original Bill, all the three attributes were a part of the legislation in that they

were specified under specific sections of the FRBM Bill. However, as discussed above, the Standing Committee on Finance relegated the level of the fiscal deficit target as well as magnitude of the annual reductions in the fiscal and revenue deficits to the associated FRBM rules. Many experts (see Lahiri (2015) for instance) advocate for bringing the fiscal targets back into the Act as a means to achieve better compliance. However, the experience of the implementation of the FRBM Act in the past 12 years reveals that this may be far from a panacea.

It is crucial to note that though the level of the targets, as well as the annual reduction path, may have been relegated to the rules, the deadlines by which the final targets are to be met have remained a part of the Act itself. Thus, any deviation from the FRBM roadmap that will postpone the achievement of the deficit targets *necessitates an amendment to the Act*. Such a deviation cannot be managed merely by amending the FRBM rules.

Consider the possible ways in which the central government may wriggle out of its ex-ante commitment to the FRBM roadmap.

1. It may make use of the liberally-defined proviso (escape clause) to Section 4 of the Act that prescribes fiscal and revenue deficit limits. The Finance Minister Pranab Mukherjee resorted to this method in 2009-10.
2. It may change the level of the targets itself by amending the FRBM rules. This does not require an amendment to the Act as the targets are specified only in the rules.
3. It may amend the Act and postpone the deadline by which it is required to meet the level of the said targets.

It is pertinent to note that option two has *never* been exercised and is unlikely to be exercised in future. During FRBM I and II phases, the government has always resorted to option 3, that requires an amendment to the Act. To claim that FRBMA has lacked compliance because its flesh was relegated to the rules is suspect, as none of the delays in FRBMA targets were effected by amending the rules in the first place[15]. Thus, the requirement of amending the Act hardly constrains the conduct of Government. In fact, given the populist trends prevalent today, it is hard to think that any political party would protest an expansion of the government budget, beyond the FRBM roadmap.

[15]The sole exception to this trend was the change in the annual target paths of fiscal and revenue deficit in 2015. However, even this change was preceded by an amendment to the Act in the same year.

Therefore, moving the level of the target or the annual reduction paths from the associated rules back to the Act is not likely to raise the cost of reneging on an ex-ante budget commitment.

5.2.2 Enhancing Transparency

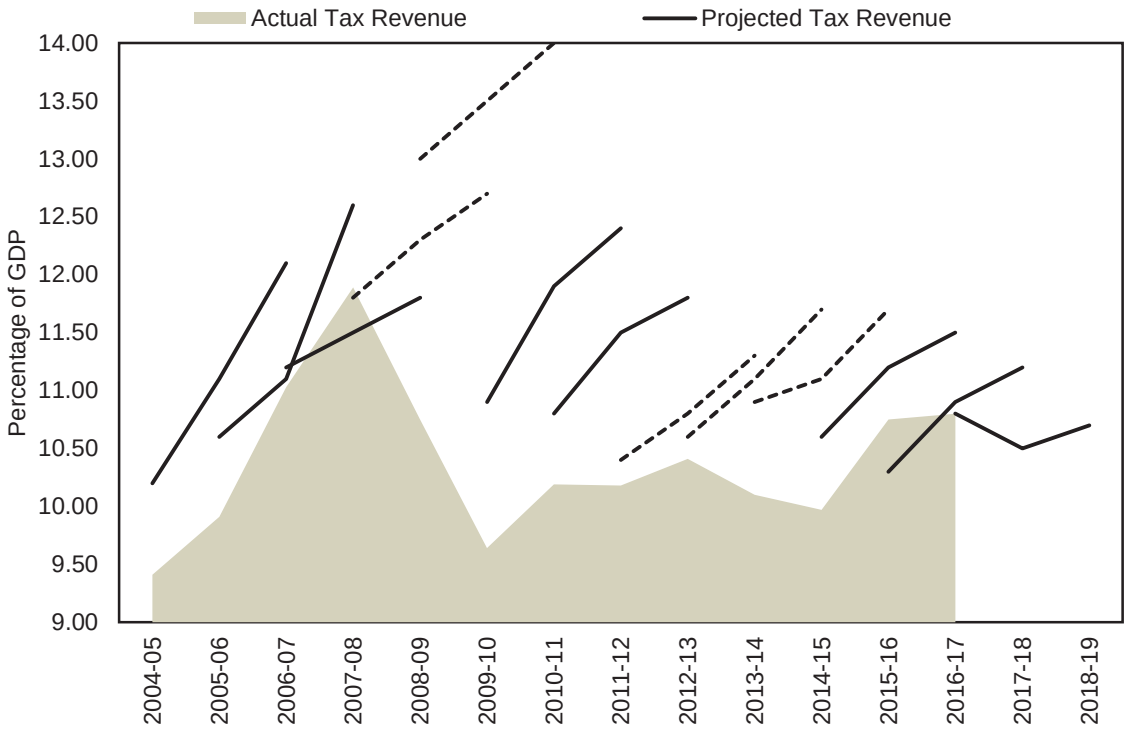
The improvement of budget management practices was of first importance to the framers of the FRBM Bill. Increasing the transparency of the budget-making process was regarded as a crucial step towards this endeavour. The aim was to make budget projections more accurate so that they reflect the true current financial position of the Union. Furthermore, relevant budget documents would provide explicit details of the underlying assumptions behind such projections. This additional clarity would then enhance the reputation cost of making over-optimistic assumptions that lead to unrealistic projections.

Section 2.3.2 above talks about specific FRBM provisions in this regard. Did they work? To answer this question, we study one such provision in the FRBM Act, namely the Medium Term Fiscal Policy Statement (MTFP). The MTFP statement publishes three-year rolling targets for five indicators. These include fiscal deficit, revenue deficit, effective revenue deficit, debt to GDP ratio, and gross tax revenue. For e.g. the 2010 MTFP statement lays out the Budget Estimates for 2010 and makes projections for 2011 and 2012. Thus, for each year, we have three data points. For 2012, for instance, we have a projection from 2010 (we call this T2), a projection from 2011 (we call this T1) and a BE estimate from 2012 itself. For each year starting from 2006-07, which is the first year for which T2, T1, and BE are available, Figure 13 plots the discrepancy between the three data points for each year. We find that RD and FD are underestimated in all the years. Tax revenues are always overestimated and almost never underestimated. Debt is also usually underestimated, but the projections are more accurate than those for the deficit indicators.

Figure 14 presents another way to look at the same data for tax revenues. It plots the rolling targets for tax revenue in each year. These are the upward sloping line segments, indicating that the MTFP Statement has *always* predicted that tax revenues will rise as a share of GDP. This is true even for the crisis years. The shaded area charts the actual evolution of the gross tax to GDP ratio, which presents a more sobering outlook. Comparing the actual data to the projections reveals that *even when the tax to GDP ratio was, in fact, falling (the shaded area corresponding to the dashed target lines), the MTPF continued to project that they would rise in successive years.* This is not just a matter of committing an error in forecasting; the MTFP statement seems to be erring

even on assessing the *direction of the trajectory* of tax revenues.

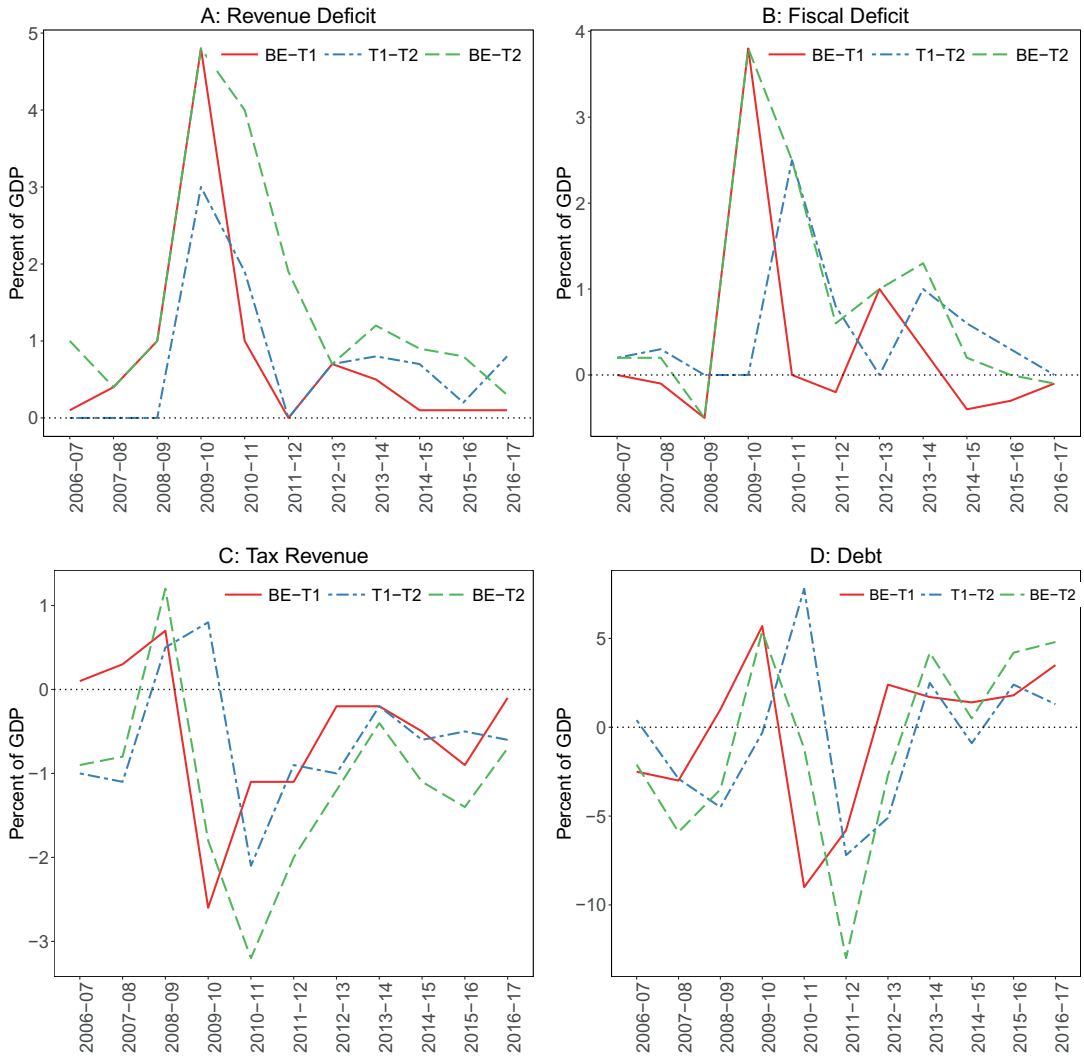
Figure 14: Direction of the Trajectory of Tax Revenues



6 Issues and Challenges

In this section, we look at important issues that are pertinent to the FRBM Act but have received little attention in recent academic or policy literature in India. First, we study the FRBM Act as ultimately imposing a restriction on the total size of the general government by limiting the extent and nature of government borrowing. It would be an egregious error to assume that the government could simply increase its total size by increasing the tax-GDP ratio as long as borrowing limits were fixed. If there is a consensus on the overall medium-term size of the government, then an increase in the tax-GDP ratio could be deployed to expand its fiscal space, however, if the size of the general government equals or exceeds the desired level, then, an increase in the tax to GDP ratio should be used to reduce debt. In an emerging economy, this is an important medium-term question.

Figure 13: Medium Term Fiscal Statement: Forecast Errors



Second, we study the rationale behind the 'Golden Rule' and the evolution of India's revenue expenditure and deficit. The golden rule states that governments should not borrow to consume in the medium-term. This is at the heart of the existing restrictions placed on the revenue deficit. It is important to examine the evolution of this aggregate and its implication for fiscal responsibility.

Third, we assess the rationale behind the level of the numerical targets in the FRBM Act. In setting fiscal deficit ceilings, it is important to understand the theoretical basis for such ceilings, and this is of particular interest in India where the 12th FC has used a savings based analysis to inform its recommendations in this regard. Finally, since the FRBM process involves a discussion of escape clauses, it is important to list the broad principles underlying such clauses and their application in other countries.

6.1 The Size of the Government

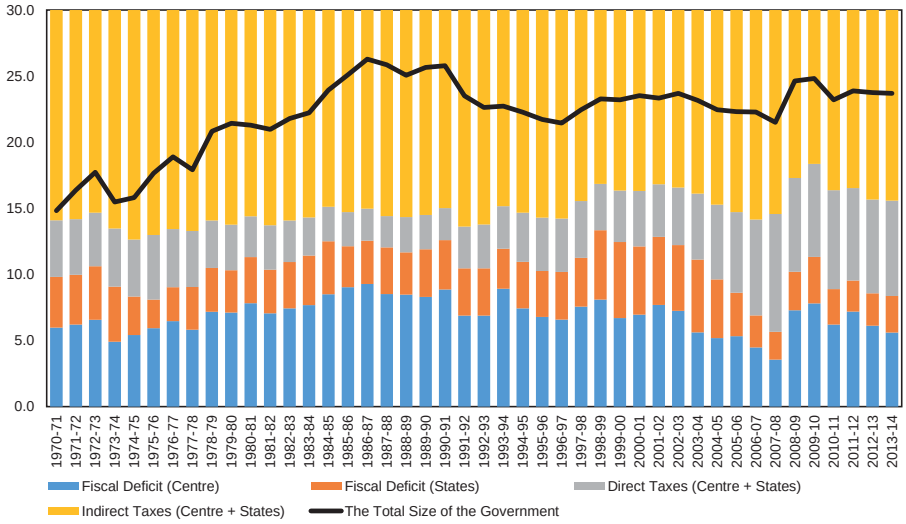
I sit on a man's back, choking him and making him carry me, and yet assure myself and others that I am very sorry for him and wish to lighten his load by all possible means – except by getting off his back.
– Leo Tolstoy

What is the proper size of the government? What are the causes and economic consequences of a growing government? These questions have long been the focus of public choice theorists and practitioners. In this section, we trace the evolution of the size of the government in India and compare it with that in the rest of the world.

We define the size of the government as the sum of the total tax revenues collected by the States and the Centre and the general government net lending. Figure 15 shows the evolution of the size of the government as well as its decomposition for the Indian economy. It rose almost uninterrupted from about 16 percent in 1970-71 to over 25 percent of GDP in the late 1980s and early 1990s. This was followed by a slight moderation in the 1990s, led primarily by a modest reduction in the Centre's fiscal deficit as well as excise tax collections by the Centre and States. The crisis years stand out, with a sudden increase in the size of the government. The modest fall in direct and indirect tax collections was overshadowed by the sharp rise in the combined fiscal deficit which more than doubled from 4.1 percent in 2007-08 to 8.4 percent of GDP in 2008-09.

The data suggests that the general government accounts for almost a quarter of the GDP. Is this just right, too small or too big? This important policy question has been long ignored. A policy stance on this matter must appreciate the economic consequences of the growth of government. The first of these is the impact of government activity

Figure 15: The Size of the Government (percent of GDP)



on the overall productivity of the economy. Public investment in health, education, and physical infrastructure can increase the productivity of the factors of production. However, government activity can also have detrimental effects. First, higher taxes might induce lower work effort and savings by households and firms. Second, it may crowd out private sector investment and production[16]. These considerations suggest an inverted-U relationship between government activity and economic productivity– government activity augments the productivity of the economy at low levels, but as it rises, the marginal increase in productivity declines until it ultimately turns negative at very high levels of government activity. Olson, Sarna, and Swamy (2000) show for a sample of developing countries that both the size of the government and the quality of its institutions matter. This is pertinent in the Indian context as the "capacity of the State" has often been brought into question.

The second consequence of the size of the government is the welfare cost of taxation. Commodity taxes distort an agent's pattern of consumption and income taxes distort an agent's choice between labour and leisure. It is well known that the welfare losses that arise as a result of these distortions can become relatively large when the government attempts to maximize its revenue from taxation, and are a rising function of the market power enjoyed by the firms who bear the tax. Browning (1987) estimates the marginal welfare loss of income tax in the United States at 32 to 47 percent.

[16]For further discussion and references to the literature, see Hansson and Henrekson (1994).

Of course, fiscal policy must take cognizance of the size of the government. At the same time, as Chowdhury and Islam (2010) point out in the case of optimal debt, policy makers should guard against succumbing to the allure of the seeming accuracy of estimates of the 'optimal' size of the government. As in the case of optimal debt, comparing the size the government of different countries provides a reasonable back-of the-envelope benchmark

Figure 16 plots the size of the government of over 80 countries as well as the average of a number of country groups. The data represents 5-year averages. For example, the data for 1995 is the average for the period 1990-95 for each county or grouping. The first thing to note is that advanced countries have much larger governments (see the points for EU, advanced economies (AEs) and the G7). The emerging markets (EMs) and most low-income groups tend to have smaller governments. India has the smallest government amongst the BRIC countries. In this background, it is important to enunciate a clear policy stance on this crucial issue.

6.2 The Rationale Behind the Level of Fiscal Targets

What is the appropriate level of fiscal targets that the FRBM Act should prescribe? We discuss this and related questions in this section, focusing on the two FRBM fiscal indicators, i.e. revenue and fiscal deficit.

6.2.1 The Golden Rule

In the case of the revenue deficit, the "golden rule" prescribes that revenue or current budget should be in balance or in surplus. This is particularly challenging to achieve given that a large proportion of revenue expenditure goes into servicing the existing debt stock, and therefore rigid in the short run.

Furthermore, revenue expenditures such as wages and subsidies are politically difficult to curtail. The E.A.S. Sarma Committee consequently stressed that without the Golden Rule, fiscal consolidation might lead to a disproportionately large compression of capital assets. Thus, the golden rule was seen as a means of maintaining the "quality of fiscal correction"[17].

[17] See page 9 of the Report of the Committee on Fiscal Responsibility Legislation, Ministry of Finance, Department of Economic Affairs.

Figure 16: The Size of the Government: International Comparison

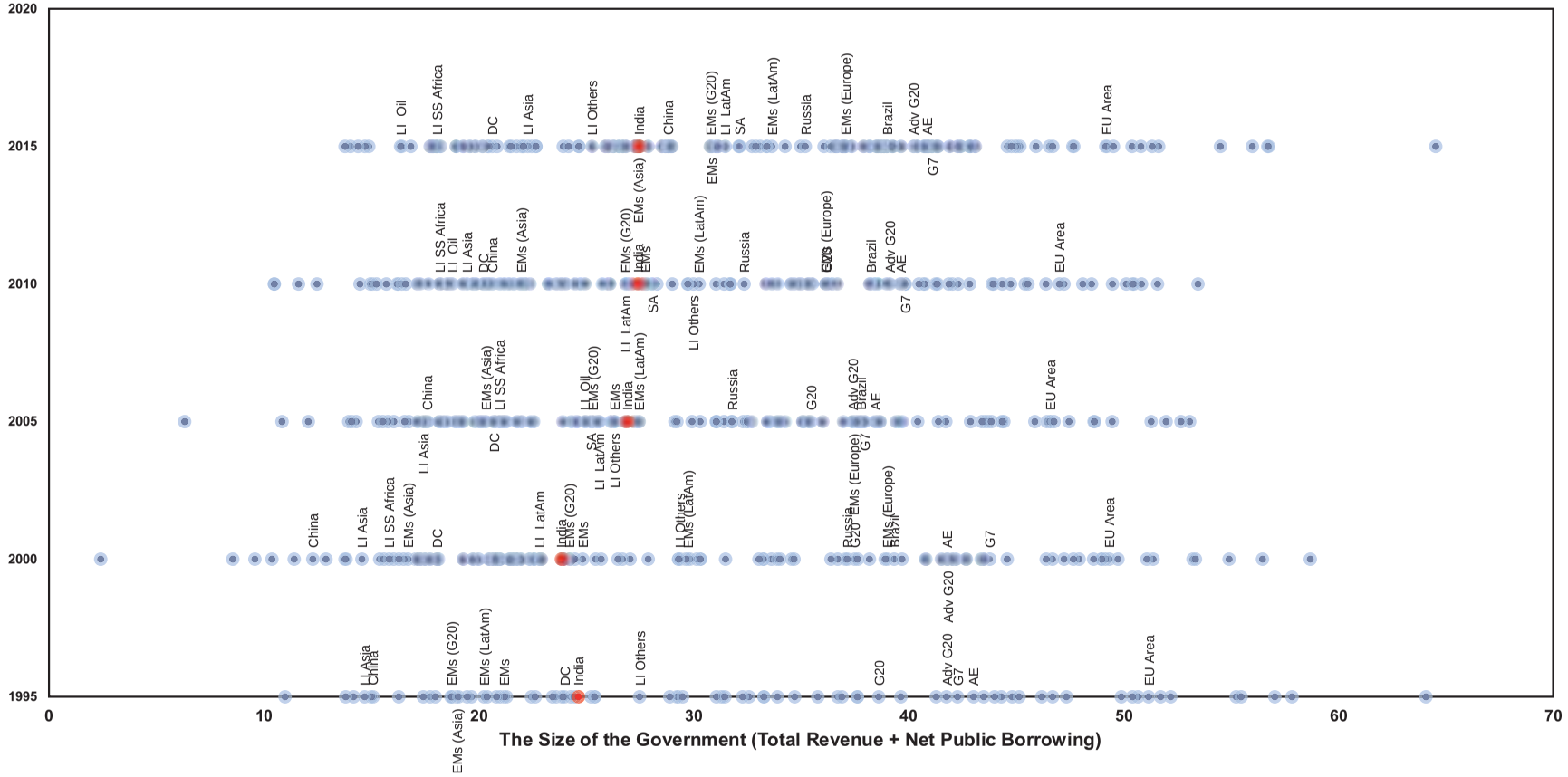


Figure 17 shows that persistent revenue deficit is a relatively recent phenomenon. The Centre's revenue account was in surplus or balanced till the late 1970s. Since the 1980s however, the Centre's revenue account has consistently been in deficit, reaching a high of over 5.5 percent of GDP in the late 1990s. The early 2000s saw a sharp fall in the revenue deficit of the centre owing largely to the implementation of the FRBM Act and a favourable growth environment. This, however, was completely reversed following the financial crisis. A gradual correction is under way at present. A similar pattern is observed for the States. Notably, however, unlike the Centre, the states as a whole now meet the golden rule.

Figure 18 reveals that this deterioration in the combined revenue account was in large part due to significant expenditure slippages. In the two decades following the mid-1970s, there were very few years in which the combined revenue expenditure as a percent of GDP declined. In fact, for almost half of this period, it rose by more than 0.5 percent of GDP, year on year. Thus, revenue expenditure as a percent of GDP has almost doubled in the past four decades. This is primarily on account of interest payments which rose from 1.26 percent of GDP in 1970-71 to as high as 4.64 percent of GDP in 2002-03. Subsidies have also added to the burden, particularly in the last decade (see Figure 19).

In 2012, the FRBM Act was amended to include a ceiling for a newfangled fiscal indicator, namely the 'effective revenue deficit' (ERD). ERD is defined as the difference between the revenue deficit and grants for the creation of capital assets. These grants refer to the grants-in-aid extended by the Centre to any entity that may be categorized as a 'scheme implementing agency' (i.e. a State government or local autonomous bodies) specifically for the creation of capital assets that would be owned directly by them. The amendment also made provisions for the inclusion of the detailed break-up of grants for the creation of capital assets in the Medium-Term Expenditure Framework Statement to keep within the transparency clauses of the Act. The amendment prescribed the elimination of the effective revenue deficit while the target for revenue deficit was raised to 2 percent of the GDP.

ERD has been controversial. For instance, in its report, the Fourteenth Finance Commission held that *"The artificial carving out of the revenue account deficit into effective revenue deficit to bring out that portion of grants which is intended to create capital asset at the recipient level leads to an accounting problem and raises the moral hazard issue of creative budgeting".* Lahiri (2015) raises similar concerns. Others have also criticized the inadequate fiscal reporting of the assets expected to be created by the scheme implementing agencies, raising concerns of creative budgeting and window-dressing.

Figure 17: Revenue Deficit as Percent of GDP

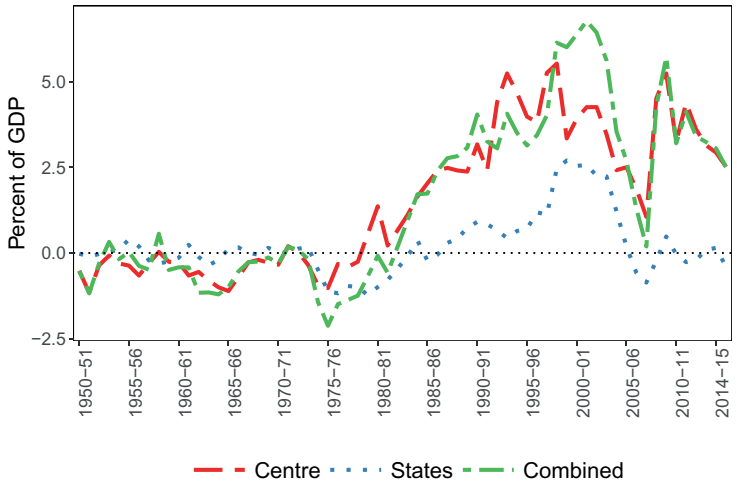


Figure 18: Decomposition of the Y-o-Y percent Change in the Combined Revenue Deficit of the States and the Centre

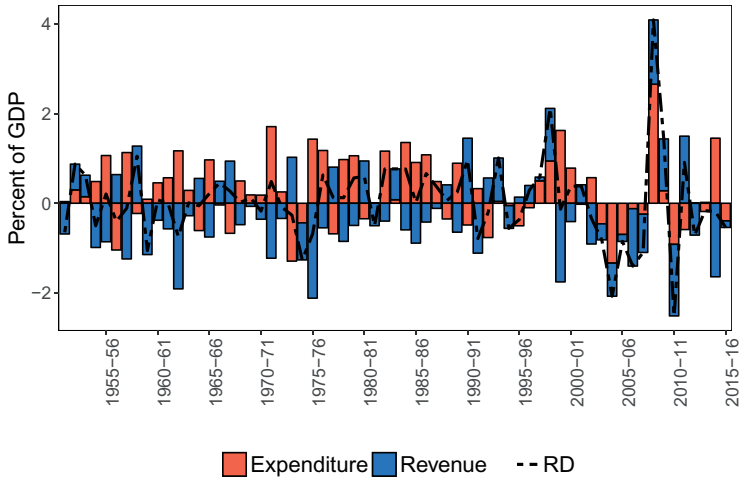
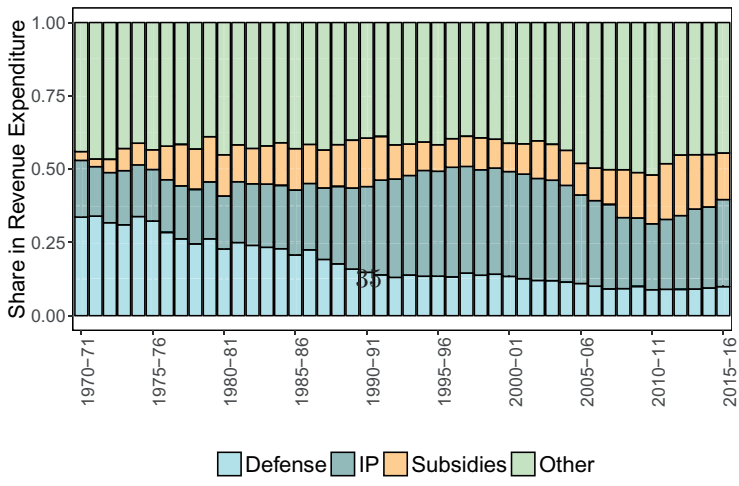


Figure 19: Revenue Expenditure and its Decomposition



In this background, the concept of an ERD, which is at odds with the principle of the golden rule must be reassessed. The Centre must lay out a road map for the elimination of its revenue deficit or at least specify the maximum revenue deficit over the medium term.

6.2.2 The Level of the Fiscal Deficit Ceiling

Arriving at the appropriate level of the fiscal deficit target calls for a more involved analysis. As the previous sections illustrate, the extant 3 percent ceiling on the fiscal deficit was more a product of subjective assessment by the Sarma Committee than any formal analysis of budget arithmetic. However, the literature does identify formal methods that may be used to arrive at the level of fiscal rules. We discuss two of these below.

1. **The Arithmetic of Fiscal Rules à la Kopits (2001)**

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Kopits (2001a) arrives at operational targets of fiscal deficit (overall balance) that are consistent with a gradual reduction in the public debt to a prudent level within a given number of years. At the same time, these targets are sufficiently flexible and accommodate automatic stabilizers.

The inter-temporal budget constraint can be expressed as

$$d_t = \left(\frac{1+i}{1+g}\right) d_{t-1} - b_t$$

where d is the stock of public sector debt as percent of GDP, i is average nominal interest rate on public debt, g is nominal GDP growth rate, and b is primary budget surplus as percent of GDP.

A country may, for instance, want to reduce its public debt over a period of time (say n years), so that

$$d^*_{t+n} < d_t \tag{1}$$

This medium term goal is met within a period of n years by annual reductions of x in the debt to GDP ratio, and operationalised by means of a rule for primary surplus

$$b_t^* = \underbrace{(i-g)d_{t-1}}_{\text{Debt Servicing}} + x \tag{2}$$

This operational target can be defined in reference to trend growth.

$$b_t^* = \underbrace{r_t(1+\alpha GAP_t)}_{\text{Revenue Cyclicality}} - \underbrace{c_t(1-\beta GAP_t)}_{\text{Expenditure Cyclicality}} + k_t \tag{3}$$

where r = government revenue, c = primary current expenditure, k = capital expenditure, α and β are revenue and expenditure elasticities with respect to output gap. GAP is the difference between trend GDP and actual GDP.

Thus, when output is below potential (i.e. $GAP_t > 0$), the rule allows for the primary surplus to be smaller than the target primary surplus, i.e. $b_t < b_t^*$. Whereas, when output is above potential (i.e. $GAP_t < 0$), it is required that $b_t \geqslant b_t^*$. Note that *ceteris paribus*, if GDP growth is above (below) trend then d_t will fall (rise) and remain unchanged if the economy is on its trend growth path. Rule (2) implies that if the target reduction in the debt ratio is set equal to the growth rate ($x = gd_{t-1}$) we get

$$b_t^* = id_{t-1} \tag{4}$$

i.e, the primary surplus equals the interest payments on debt, which implies overall balance (i.e., a fiscal deficit of nil).

The above budget arithmetic was used in setting the general government fiscal targets in the Stability and Growth Pact in the EU. Kopits (2001b) notes that a 1 percent decline in output is estimated to result, on average, in a 0.6 percent budget deficit in the EU. Therefore, the 3 percent deficit reference value under EMU is consistent with a 5 percent below-trend deviation in GDP. However, a waiver from the reference value can be invoked in the event of a 2 percent contraction in GDP– which provides for a sufficient margin from potential growth of about 2 percent for most EU members.

2. **Savings Arithmetic à la Rangarajan and Srivastava (2004)**

Using standard equations of debt dynamics, Rangarajan and Srivastava derive the following conditions for the stabilization of debt and fiscal deficit respectively[18].

$$b^* = p\left(\frac{1+g}{g-i}\right) \tag{5}$$

$$f^* = \left(\frac{p \cdot g}{g-i}\right) \tag{6}$$

where b^* denotes the long-term equilibrium value of the debt to GDP ratio, p is the primary deficit to GDP ratio, g denotes nominal GDP growth rate and f^* is the long-term equilibrium value of the fiscal deficit to GDP ratio. Using 5 and 6 they arrive at

$$b^* = f^* \frac{(1+g)}{g} \tag{7}$$

Given the fiscal deficit ceiling of 3 percent in the FRBM Act, they derive the following implications from the above formulations. First, the debt to GDP ratio will eventually stabilize at 28 percent. Moreover, a primary deficit may be sustained as long as nominal GDP growth out-paces the nominal interest rate. In particular, if nominal growth and interest rates are assumed at 12 and 7 percent respectively, then a primary deficit of 1.25 percent of GDP is consistent with equation (7).

The Twelfth Finance Commission used this analysis to recommend a combined fiscal deficit of the Centre and States of 6 percent of GDP. Given that household savings are of the order of 10 percent of GDP and assuming a current account deficit of 1.5 percent of GDP, the Commission held that a 6 percent combined fiscal deficit would be adequate to provide an absorption of 4 percent of savings by the private corporate sector and 1.5 percent by non-departmental public enterprises. Equation 5 implies that a combined fiscal deficit of 6 percent would imply that overall debt on the combined account would stabilise at 56 percent of GDP.

[18]See the Report of the Twelfth Finance Commission, pp 69-71, Section IV of Rangarajan and Srivastava (2004) for details.

6.3 Well Defined Escape Clauses

Numerical fiscal rules are not a panacea in themselves. They must be complemented with a set of procedural rules as well as measures to enhance transparency in the Government's fiscal conduct. Strengthening of these supporting fiscal frameworks is important to ensure the monitoring and enforcement of such rules. One key feature of this supporting framework is that of having a well-defined escape clause that may allow the government to breach targets in the event of some unforeseen macroeconomic shock such as a natural disaster or economic recession. Thus, escape clauses help provide flexibility in a strictly rules-based fiscal architecture.

Some of the broad principles that should go behind the design and construct of escape clauses are:

1. **Limited applicability:** The range of factors for which exercising an escape clause will be permitted should be limited. Therefore, escape clauses should be applicable only in the event of rare occurrences that would justify flouting the set numerical targets.
2. **Clearly specified:** The guidelines that define the events for which exercising an escape clause is to be permitted should be clearly enunciated and there should not be any room for interpretation. This will protect from escape clauses being implemented in order to justify a deficit bias.
3. **Post-deviation correction mechanisms:** The path back to fiscal consolidation must be clearly defined once an escape clause has been enacted. The treatment of the accumulated deviation, for example, higher public debt or a larger fiscal deficit must be enunciated in well defined correction mechanisms.

In order for escape clauses to be effective, however, they need to be well-specified. This is difficult because if potential trigger events were explicitly defined, it would dilute the idea of attaching flexibility to rules and likely suffer from the problem of exclusion. However, nebulous definitions create room for interpretations. For example, pre-2009 German fiscal rules allowed for deviations from the consolidation path in case of "a disturbance of the macroeconomic equilibrium", which was frequently used to justify exceeding the deficit ceiling. In India, the escape clause allows for deviations in case exceptional circumstances "as the government may specify". The Swiss and Spanish fiscal rules mention "exceptional circumstances" are adequate to adopt escape clauses usually justified by events such as natural disasters or recessions etc. In Switzerland the

event has to be approved by a super-majority in the Parliament. Both countries are, however, equipped with a medium term correction plan within their fiscal framework in case escape clauses are adopted.

Botswana, Chile and Norway have had notable success with resource fund implementation. However, many countries such as Mongolia, Nigeria, Ecuador, Chad and Papua New Guinea faltered because of weak enforcement. Therefore, it is imperative that rules be defined clearly such that loopholes cannot be exploited to breach targets and justify suspension. In most of these resource rich countries, fiscal rules are linked to non-resource fiscal behavior. But they are usually coupled with nebulously defined escape clauses. This allows governments to suspend rules and breach limits. Institutional weaknesses also highlight the problem of lacklustre enforcement mechanisms.

In this context, of particular importance is the flexibility that the escape clause affords over the cycle of commodity process. Emerging Economies often experience procyclical foreign capital inflows. This creates vulnerability in the domestic markets. In order to cushion from such exogenous blows, several EMEs have well specified fiscal rules with respect to windfall gain/loss because of swings in commodity prices in international markets. Table 4 gives a snapshot of escape clauses in different countries that are calibrated, in different forms, to the volatility in commodity prices. Though the country discussed are all commodity-exporters, similar escape clauses could be a useful tool for commodity-importers such as India.

Table 4: Escape Clauses Calibrated to Commodity Prices

Country	Escape Clause	Description of Rules
Cameroon, Central African Republic, Chad, Congo, Equatorial Guinea, Gabon	No	Supranational rules as adopted by CEMAC. Oil revenue is replaced with its three year moving average while calculating basic structural fiscal balance. They also specify that non-oil fiscal balance in per cent of non-oil GDP should be in balance or surplus.
Ecuador	No	BBR (2003-09) annual reduction in non-oil deficit until a balanced budget is achieved
Mexico	Yes. If non-oil revenues are below their potential due to a negative output gap, there can be a deficit equivalent to the shortfall. (2006)	BBR (since 2006): Balanced budget on a cash basis established in the FRL. It applies to the federal public sector which includes the central government, social security, and key public enterprises (e.g., the oil company PEMEX and the electricity company CFE). It includes a reference price for oil that is set by a formula and also a system of four stabilization funds, including an oil stabilization fund. Starting with the 2009 fiscal year, the definition was changed to exclude the investment outlays of the state-owned oil company Pemex from the balanced-budget rule. This change reflects general reforms aimed at boosting investment in oil projects and the inclusion of all Pemex's investment projects as budgetary investment. The escape clause was used in 2010, 2011 and 2012. The 2006 Law includes sanctions for non-compliance. An escape clause establishes that under exceptional circumstances there can be a deficit envisaged in the budget. The escape clause was used in 2010, 2011 and 2012.
Russia	Yes (2013,14)	National rules: ER (effective from 2013): Parliament adopted in mid-December 2012 a new oil-price based fiscal rule. The rule sets a ceiling on expenditures (oil revenue at the "base" oil price, plus all non-oil revenues, plus a net borrowing limit of 1 per cent of GDP). Oil revenues above the base oil price need to be saved in the Reserve Fund until it reaches 7 per cent of GDP (though there are some allowable exceptions to this under the law).
	NA	Once the Reserve Fund reaches this threshold, at least half of excess oil revenues should go to the National Wealth Fund, while the remaining resources would be channelled to the budget to finance infrastructure and other priority projects. Starting in 2013, the rule will use a 5-year backward-looking average of oil prices as the base, which will gradually increase to a 10-year average by 2018, to avoid abruptly moving to a very low base oil price.
		BBR (2007-09): The BBR was approved in 2007 and became effective in 2008. Under the BBR, Russia's legal fiscal framework relied on the non-oil balance as a key fiscal indicator. The budget included a long-term non-oil deficit target of 4.7 per cent of GDP. This was suspended in April 2009 as a result of the global financial crisis, and formally abolished in 2012.

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The Dilemma of Informality

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The Dilemma of Informality

1 Introduction

Today, India is counted among the most important emerging economies of the world but employment conditions in the country remain poor. Labour markets in India can best be characterized by their dualistic structure with the prevalence of an organized sector which coexists with a large "unorganized sector". Of the 474 million workers in 2011-12, about 371 million or 78.5% were estimated to be working in the unorganized sector. On the other hand, 101 million workers were estimated to be working in the organized sector and 68.1 million of these were engaged in the informal category of employment. In this way, informal workers accounted for about 92% of India's total workforce in 2011-12. Estimates from previous Employment Unemployment Surveys (2004-05) indicate that informal employment is a persistent problem in India, and has in fact increased over the period from 2004-05 to 2011-12. As can be seen from Table 1, while employment in the unorganized sector declined by 2 million, the organized sector witnessed a dramatic increase of 37 million in informal employment leading to an overall increase in total number of informal workers. Thus, despite witnessing a decade of rapid economic growth averaging 8.5%, there are still 430.5 million workers holding informal jobs in India today.

Table 1: Sector-wise distribution of workers by organised - unorganised enterprises and formal informal employment (figures in millions)

Sectors	Organised		Unorganised		Total	
	Formal	Informal	Formal	Informal	Formal	Informal
			2004-05			
Agriculture	0.2	4.1	0.1	264.2	0.3	268.2
Manufacturing	5.0	10.3	0.6	38.0	5.6	48.3
Non-Manufacturing	2.0	7.2	0.1	20.1	2.1	27.3
Services	19.5	10.0	1.1	76.8	20.6	86.7
Total	26.7	31.5	1.9	399.0	28.6	430.5
			2011-12			
Agriculture	0.5	17.7	0.1	213.6	0.6	231.3
Manufacturing	6.1	14.6	0.4	38.7	6.5	53.3
Non-Manufacturing	2.7	19.7	0.3	32.7	2.9	52.3
Services	24.2	16.1	1.2	85.8	25.4	101.9
Total	33.5	68.1	1.9	370.8	35.4	438.9

Source: NSS Employment Unemployment Survey (2004-05 and 2011-12)

Informality represents a drag on the productivity and competitiveness of the economy. The quality of informal employment falls well below that of formal employment and deteriorates the quality of average employment in the economy. Informal workers not only draw lower wages than formal workers, but also remain outside the purview of various social protection schemes floated by the state. With little job security and limited access to safety nets, most of the informally employed remain vulnerable to shocks such as illness and loss of income.

Furthermore, the high levels of informality, particularly in the organized sector have led to a new regime of labour capital relations in which labour has lost much of the hard won bargaining power that has resulted from years of struggle. The prevalence of large numbers of working poor and the increasing disconnect between employment and poverty status in India is largely attributable to the dominance of informal employment in the economy. Unsurprisingly, we witness the existence of a strong correlation between informality and poverty in India (National Commission for Enterprises in the Unorganized Sector, NCEUS, 2009).

The importance of creating more "good jobs" i.e. formal sector jobs for inclusive growth can therefore not be undermined. However, given the sheer numbers of informally employed, we cannot afford to neglect this sector. The dilemma of informality lies in the fact that even though workers engaged in this sector are worse off than those in the formal sector , it needs to be credited with creating jobs and keeping unemployment low. We cannot afford to wish away the existence of this sector. We need to confront the reality that the informal economy is increasingly the norm, not the exception and that informal workers are not the "marginal" or "temporary" entities depicted in early development theories (Chen, 2007). Rather, they are – and have always been – central to the sustenance of modern economies. This paper therefore focuses its analysis on discussing and analyzing the informal economy.

The structure of the paper is as follows. Section 2 reviews the key stylized facts on the unorganized sector in India, including the nature of enterprises, their size, spread and scope, and the magnitude and nature of employment in this sector. Understanding the various dimensions of the informal economy is critical for the policy debate to rest on strong conceptual foundations. Section 3 examines the growth status of enterprises along the entire 'continuum' of the informal sector, from OAMEs to establishments, the determinants of their growth status and the role of government assistance and state level factors in creating an enabling environment for informal enterprises to flourish. The discussion in section 4 centres on the lack of social security for India's unorganised workforce in the context of existing schemes and the Unorganised Sector Workers' Social Security Act (2008). Section 5 presents the conclusions outlining the role of a multipronged approach to improve the conditions of the informal sector.

The main findings of the paper are as follows. There exists a significant productivity and wage differential between the organized and unorganized sector. Labour productivity and wages in the organized sector are roughly 16.9 and 7 times respectively those in the unorganized sector. These disparities lead to large labour market inequalities, which are further accentuated by limited or no social protection to informal workers. Further, even within the unorganized sector there exists significant heterogeneity. The landscape is marked by the dominance of Own Account Manufacturing Enterprises (OAMEs), which employ family labour. These account for 84% of all unorganized enterprises and 60% of total unorganized employment. Importantly, they pay lower wages and have lower producitivity as compared to non household enterprises/establishments (which employ at least one hired labourer). This suggests that not only are there significant welfare gains to be made from

transitioning from the unorganized to organized sector, but also within the unorganized sector from OAMEs to establishments. The lack or absence of such upward transitions deters the growth of aggregate productivity in the economy. This also implies that policy should not focus solely on trying to reduce the size of the informal economy and shifting workers to the formal sector, but also enhancing growth in the informal sector. Growth in the informal sector will result in an improvement in labour productivity and quality of informal employment. This is particularly pertinent given the persistence of informality and the fact that most unorganized enterprises, OAMEs in particular, report their growth status as stagnant. Firms in the unorganized sector have continued their existence for years, without much growth or expansion. Dualism in India's labour markets coexists with dualism in the level of social security available to formal and informal workers. The absence of social security cover for informal workers in India is indeed significant, with statutorily provided social security covering just 8% of the total workforce. While such statistics reinforce the need to relocate over 90% of India's unprotected workforce to the formal sector, this is not something which can be accomplished proximately. Therefore, there is an urgent need to bring 'formalisation to the poor in the informal sector' (Raj & Sen, 2016). This entails ensuring higher wages, job protection and a universal social protection floor for unorganized workers. This assumes even greater significance in the backdrop of the increasing informalisation (via contractualisation and casualization) of the workforce in the organized sector.

Before proceeding, it is important to mention that there are several theoretical perspectives on the informal sector. Significant amongst these is the dual economy approach (Lewis, 1954; Harris and Todaro,1970), which is the dominant conceptual framework for understanding the informal economy. According to this perspective, formal and informal firms are fundamentally different. Productive formal entrepreneurs pay taxes and bear the cost of government regulation to reach new customers, raise capital, and access public goods. These entrepreneurs are often educated and find it more profitable to run bigger formal firms rather than the smaller informal ones. In contrast, informal entrepreneurs are typically uneducated and unproductive, and they run small businesses producing low-quality products for low-income customers using little capital and adding little value. An important prediction of this view is that the informal sector will shrink as the economy develops and the formal sector grows. Therefore, informality is simply a reflection of underdevelopment. On the other hand, the structuralist (or neo-Marxian) approach does not recognize the informal sector as a separate entity in the process of economic development and the sector is often seen to be a part of the larger pre-capitalist sector. The informal sector is seen to provide an 'economic space in which workers engage in economic activities in ways that are very different from the capitalist organization of production. In particular, the prevalent form of labour in the informal sector is self-employment, which is different from the usual wage-based employment resting on the alienation of labour from capital' (Sanyal & Bhattacharya, 2009: 35). This view stresses the linkages between the formal and informal economies and underscores that the latter is subsumed and exploited by the former. In this view, globalization and economic growth may themselves be a cause of informalisation as 'formal registered entities are restructured through process specialization, subcontracting, and job-working, in an effort to reduce costs in economic sectors under competitive pressure (Harriss-

White, 2010, 176). The legalist approach perceives the informal economy as an untapped reservoir of entrepreneurial energy, held back by government regulations (La Porta &Shliefer, 2014). It argues that it is the rigid rules and regulations of operating in the formal sector which create an additional burden on entrepreneurs forcing them to bypass formal rules and regulations by operating in the formal sector. Cross country studies have shown that countries with more burdensome entry regulations have larger informal sectors (Djankov et al. 2002).

Contrary to the predictions of the Lewis model, despite robust economic growth, the extent and importance of the traditional unorganized sector in India has persisted, and not been absorbed by the "modern sector". Employment data for India indicates that high growth by itself has not ensured an absolute decline in the number of people engaged in informal jobs. We do find some informal firms to be engaged in subcontracting relationships with other firms which tend to be exploitative in nature. However, the structuralist view is not unambiguously supported by the data analysis in this study. The presence of productive establishments (hiring more than 10 workers, which should be under the scope of the Factories Act) in the informal sector is suggestive of the fact that these firms are functioning in the informal sector to evade government regulations. However, the focus of this paper is not on the causes or driving force of the persistence of informality, but instead on how to improve informality by reducing the decent work deficits faced by informal workers along with increasing their productivity, wages, making their earnings more secure and providing a basic social protection floor.

2 Key Stylized Facts on India's Informal Sector

It is widely believed that the lack of reliable statistics on the size, distribution, nature and conditions of employment in the informal sector has been an obstacle in providing a comprehensive understanding of this sector, leading to its neglect in development planning. Given the increasing significance of this sector, its pervasive role in the economy and in the livelihoods of the people and its interlinkages with the formal sector, it is imperative to improve the information base of the sector. Using unit level data from two quinquennial surveys conducted by the NSSO, one on informal manufacturing enterprises and another on employment and unemployment, we outline the key stylized facts on the informal sector.

Before doing so, however, we need to understand the distinction between the "organized" and the "unorganized" sectors in Indian manufacturing, which is often used interchangeably with the distinction between "formality" and "informality". India's Factories Act of 1948 requires all manufacturing enterprises with 10 or more workers (20 or more workers if the enterprise does not use electricity) to register with the authorities and to implement certain health, safety and other regulations. The registration then provides a count of such enterprises, and can be used as a measure of the size of the "organized" (or formal) sector in manufacturing. However, there are criticisms of such an enterprise based perspective. Most recently, there have been arguments to extend the definition of the informal sector to include not only certain types of enterprises but also certain types of workers as well. To quote Chen (2006, p76), the object is to: "…extend the focus to include not only enterprises that are not legally

regulated but also employment relationships that are not legally regulated or protected." In brief, the definition of the 'informal economy' needs to focus on the nature of employment in addition to the characteristics of enterprises.

An alternative, worker based, perspective is to ask if a worker has or does not have employer provided security of different types. Recent approaches to informality have adopted this broader definition. For example, NCEUS states the broadening as follows: "The informal sector consists of all unincorporated private enterprises owned by individuals or households engaged in the sale and production of goods and services operated on a proprietary or partnership basis and with less than ten total workers…Informal workers consist of those working in the informal sector or households, excluding regular workers with social security benefits by the employers, and the workers in the formal sector without any employment and social security benefits provided by the employers." (NCEUS, 2008, p. 2). The call for a broader definition reflects the need to integrate the real world dynamics in labor markets today; more specifically, to incorporate the whole of informality—including both production and employment relations. Combining data from enterprise and employment surveys allows us to examine trends in informality through both these lenses. Importantly, it enables us to understand the various dimensions of informality in a way that informs policy.

2.1 Key Trends from Enterprise Surveys

The 'Survey on Unincorporated Non-Agricultural Enterprises (Excluding Construction) July-June 2010-11, NSS 67th Round' was an exclusive enterprise survey covering unincorporated non-agricultural enterprises (manufacturing, trade and other services, excluding construction). This survey covered firms in the unorganized sector and examined informality from an enterprise based perspective. Informal firms have typically been classified into three categories in this survey (a) *own-account manufacturing enterprises* (OAMEs) i.e. those that operate without any hired worker employed on a fairly regular basis, (b) *non-directory manufacturing establishments* (NDMEs) i.e. those that employ fewer than six workers (household and hired workers taken together), and (c) *directory manufacturing establishments* (DMEs) i.e. those that employ a total of six or more household members and hired workers. For estimation purposes, the NSS 67th Round (2010-11) subsumed the last two categories into one category referred to as establishments. Given that this is a quinquennial survey, this is the most recent year for which the survey data is available. It is important to mention here that enterprise surveys prior to 2010-11 focused only on informal manufacturing enterprises. Any intertemporal comparisons over the last decade are therefore restricted only to the manufacturing sector.

a) Differences between the Organised and Unorganised Sector

Employment in unorganized enterprises in the manufacturing sector stood at 37.1 million in 2000-01 and declined to 34.3 million in 2010-11. This resulted in a 9 percentage point decline in the share of unorganised sector in total employment (from 82.7% to 73.8%), a positive step indeed. Despite this decline, unorganized enterprises continued to account for a disproportionately large share of employment. The increase in organized sector employment

from 7.7 million to 12.2 million was accompanied by a disturbing trend, that of the increasing informalisation of the workforce in the organised sector. The last decade witnessed a sharp increase in the share of contract workers at the expense of regular employment in the organized manufacturing sector. The share of contract workers in total employment in the organized manufacturing sector rose from 15.7% in 2000-01 to 26.47% in 2010-11, while that of directly employed workers fell from 61.12% to 51.53% in the same period. More significantly, the increase in contract workers accounted for about 47% of the total increase in employment in the organized manufacturing sector over the last decade. The increasing use of such workers who are hired on short term contracts and can be shed easily reflects a serious deterioration in the quality of jobs as not only are they paid lower wages than permanent workers, but also do not enjoy social security cover. Importantly, this trend has raised a question mark on the sustainability of employment growth.

Table 2: Total Employment, Enterprise, GVA, Wages and Labour Productivity in Unorganised and Organised Sector (Manufacturing)

		Enterprises	Employment (in millions)	Real GVA (in billions)	Real Wages to workers	Labour Productivity
2000-01	**Unorganised Sector**	17025906	37.1	436.0	2324.1	11750.1
	Organised Sector	160786	7.7	1565.3	26670.16	263862
2010-11	**Unorganised Sector**	16917898	34.3	738.7	3846.5	21512.1
	Organised Sector	193250	12.7	3479.3	27005.02	364958.3

Note: Labour productivity is calculated as real GVA per worker. GVA and wages deflated to 1993-94 prices.

Source: Calculations from ASI & NSS unit level data (2000-01 and 2010-11)

Although, the unorganized sector dwarfs the organized sector in terms of employment, unsurprisingly it is the organized sector which accounts for a much larger share of GVA. The share of the organised sector in total economic activity (captured by GVA) fluctuated around 80% over the decade. In terms of enterprises, though, the unorganized sector accounted for over 97% of all enterprises in the manufacturing sector.

The persistence of informality is a concern for multiple reasons. Significant amongst these is the wage and productivity differential between the organised and unorganized sector. As can be seen from Table 2, wages in the organised sector were 7.02 times those of wages in the unorganized sector in 2010-11, while the corresponding ratio for productivity was 16.9 times. This enormous differential suggests that the dualism has important welfare implications and there are significant gains to be made from transitioning from the unorganized to organised sector. What is noteworthy in this context is that the over the last decade, the wage and productivity differentials between the two sectors have indeed declined significantly. In 2000-01, the wage and productivity differentials stood at 11.4 times and 22.4 times respectively.

Importantly, the unorganized sector witnessed strong growth during this period. GVA in the unorganised sector grew by 5.41%. Wages and labour productivity also increased commensurately (at 5.17% and 6.23% respectively), suggesting that growth in the unorganized sector was accompanied by an improvement in wages and labour productivity. This is significant as it suggests that as growth occurs in the informal sector, output per worker increases as do wages. Given the apparent staying power of informality, this is important from a policy perspective as it indicates that while the transition from unorganized to organised sector is important, it is also important that policy focuses on ensuring growth of output and therefore labour productivity and wages in the informal sector.

Significantly, the phenomenon of "dualism" is also witnessed across industry groups. Table 3 reports the employment in the organised and unorganized sector separately over the last decade. We find that the manufacture of food products and beverages, textiles, wearing apparel and wood and wood products accounted for 60% of total unorganized employment in 2010-11[1]. Further, we observe that over the last decade, the share of unorganized employment in total employment declined across all industries, barring two industry groups where it remained roughly stable. In absolute terms, though, employment in the unorganized sector increased across seven industry groups. Significant amongst these is the wearing apparel industry which recorded the highest increase in unorganized employment of 1.84 million. Two industries which witnessed a very large decline in employment in unorganized sector employment are manufacture of food products and beverages and manufacture of wood and wood products. The decline was so overwhelmingly large, that despite there being an increase in the organized sector employment, the total employment in both these industries declined substantially. This indicates the importance of the unorganized sector for employment generation, in spite of it generating poorer quality jobs as compared to the organised sector. Further, we find that a disproportionately large share of unorganized employment was concentrated in labour intensive activities. We look at labour and capital intensive industries separately, and find that total employment (organized and unorganized sector) in labour intensive industries declined by 0.78 million. This decline was driven by the fall in the unorganized sector employment within these industries (from 28.02 million to 25.56 million), which overwhelmed the effect of the increase in the organized sector employment (from 3.16 million to 4.84 million). On the other hand, in capital intensive industries, total employment increased by 1.94 million. Predictably this increase was largely driven by the increase in organized sector employment (from 2.53 million to 4.41 million).

[1] These industries along with the manufacture of tobacco products accounted for 75% of all unorganized enterprises in 2010-11.

Table 3: Total employment across industry groups by organized and unorganized sector (in millions)

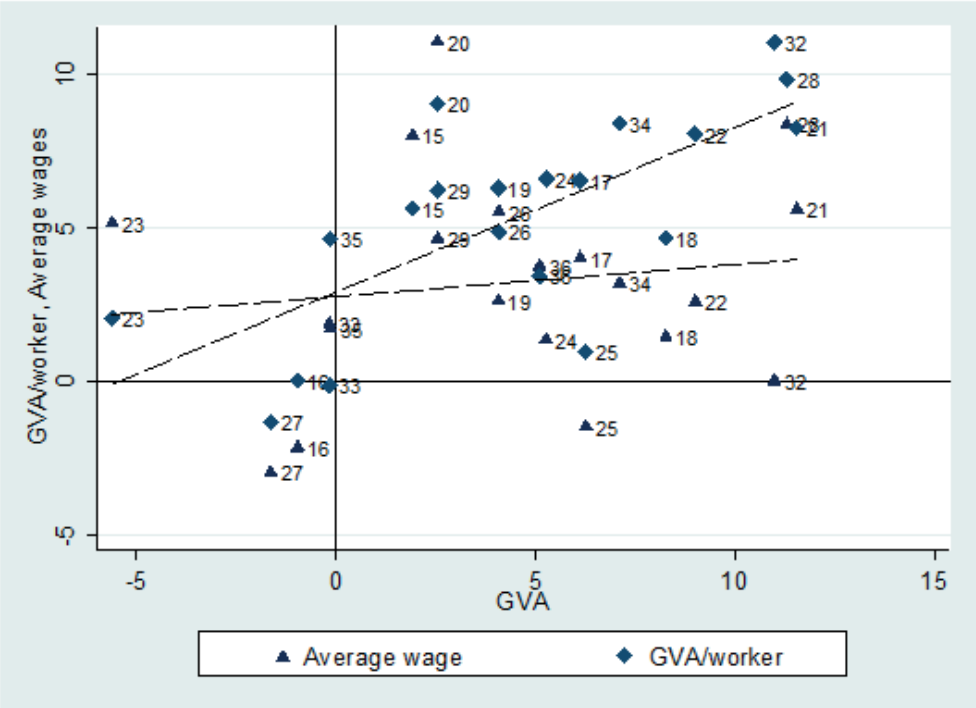
	2000-01			2010-11		
Manufacturing Industries (NIC 2004, 2 digit)	**Unorganised**	**Organised**	**Total**	**Unorganised**	**Organised**	**Total**
Food products and beverages	6.83	1.32	8.14	4.79	1.57	6.35
Tobacco products	3.41	0.48	3.89	3.08	0.4	3.48
Textiles	6.16	1.28	7.44	5.95	1.68	7.64
Wearing apparel; dressing and dyeing of fur	4.57	0.33	4.9	6.41	0.64	7.05
Tanning and dressing of leather; luggage, handbags, saddler, harness and footwear	0.4	0.14	0.54	0.32	0.29	0.62
Wood and of products of wood and cork, except furniture; articles of straw and plaiting materials	5.21	0.05	5.26	2.83	0.08	2.91
Paper and paper products	0.25	0.18	0.43	0.34	0.21	0.56
Publishing, printing and reproduction of recorded media	0.48	0.12	0.6	0.53	0.18	0.7
Coke, refined petroleum products and nuclear fuel	0.02	0.07	0.09	0.01	0.11	0.12
Chemicals and chemical products	0.57	0.8	1.37	0.5	1.11	1.61
Rubber and plastics products	0.33	0.25	0.59	0.56	0.51	1.07
Other non-metallic mineral products	3.03	0.44	3.47	2.8	0.92	3.72
Basic metals	0.13	0.56	0.69	0.13	1.01	1.13
Fabricated metal products, except machinery and equipment	1.59	0.29	1.88	1.82	0.65	2.47
Machinery and equipment n.e.c.	0.49	0.42	0.92	0.35	0.74	1.09
Office, accounting and computing machinery	0	0.02	0.02	0.01	0.02	0.03
Electrical machinery and apparatus n.e.c.	0.25	0.23	0.49	0.09	0.47	0.57
Radio, television and communication equipment and apparatus	0.04	0.11	0.15	0.04	0.16	0.2
Medical, precision and optical instruments, watches and clocks	0.03	0.06	0.1	0.03	0.08	0.11
Motor vehicles, trailers and semi-trailers	0.11	0.26	0.37	0.1	0.72	0.81
Other transport equipment	0.06	0.18	0.25	0.04	0.26	0.3
Furniture; manufacturing n.e.c.	2.99	0.12	3.11	3.52	0.29	3.81
Labour Intensive Industries	28.02	3.16	31.19	25.56	4.85	30.41
Capital Intensive Industries	1.75	2.54	4.28	1.8	4.42	6.22

Source: Calculations from ASI & NSS unit level data (2000-01 and 2010-11)

We also find that industries which witnessed higher GVA growth witnessed a higher wage and productivity growth (Figure 1). Among industrial groups, informal firms in the following industries recorded a high growth of GVA accompanied with a high growth in wages and labour productivity-manufacture of textiles, paper and paper products, fabricated metal

products (except machinery and equipment) and motor vehicles, trailers and semi-trailers. This further reinforces the importance of raising output and GVA within the unorganized sector.

Figure 1: Scatter plot of growth of GVA and growth of wages and labour productivity



Source: Calculations from ASI & NSS unit level data (2000-01 and 2010-11)

At the state level too, the manufacturing sector is marked by the existence of a large unorganized sector which co-exists with a small organised sector. Over the decade, the share of the unorganized sector has fallen vis-à-vis employment in every state barring Gujarat, while in terms of GVA, the share of the unorganized sector has fallen in every state except Gujarat and Karnataka. Despite the overall decline, it is noteworthy that in some of India's largest states like Bihar, Uttar Pradesh, Odisha and West Bengal over 80% of manufacturing employment is in the unorganized sector. In terms of GVA, the states of Madhya Pradesh, Haryana and Gujarat have less than 15% of their GVA originating from the unorganized sector.

Table 4 : Share of unorganised sector in states' manufacturing activity (in percentage)

	2000-2001		2010-2011	
State	**Employment**	**Real GVA**	**Employment**	**Real GVA**
Andhra Pradesh	79.27	22.67	71.81	20.29
Assam	81.94	31.86	72.89	31.00
Bihar	91.41	32.64	82.68	18.56
Gujarat	67.77	13.89	71.84	18.55
Haryana	58.84	10.26	44.88	9.36
Himachal Pradesh	79.64	16.08	49.76	4.05
Karnataka	81.70	19.27	66.58	14.61
Kerala	77.37	30.20	72.65	40.04
Madhya Pradesh	85.84	13.28	79.45	13.52
Maharashtra	72.62	14.45	66.16	13.06
Odisha	94.58	25.57	82.10	13.84
Punjab	68.12	24.51	54.78	14.87
Rajasthan	83.49	23.33	74.40	24.64
Tamil Nadu	75.88	20.64	64.73	17.97
Uttar Pradesh	90.90	30.13	83.24	15.12
West Bengal	91.45	43.76	89.36	39.40

Source: Calculations from ASI & NSS unit level data (2000-01 and 2010-11)

b) Heterogeneiety within the unorganized sector

In this section, we analyse the heterogeneities within the unorganized sector. As mentioned previously, the unorganized sector comprises of two kinds of enterprises namely OAMEs and establishments, and it is critical to make a distinction between the two. OAMEs are household firms, where a single family owns and manages the firm, as well as provides labour. Establishments on the other hand, are non-household enterprises which can draw on specialized workers with more skills and training than what may be available in the family. Moreover, they can grow larger in size and reap economies of scale (though limited for a firm size in the informal sector) and hence become relatively more productive. This is reflected in the fact that the annual GVA per enterprise of manufacturing enterprises outside household premises was found to be about 5 times that of those enterprises located within household premises (largely OAMEs) in 2010-11. Further, as can be seen from Table 5, wages per hired worker are 1.4 times higher in establishments compared to OAMES, while the similar ratio for productivity is 2.6 times. In fact, the lower productivity of OAMEs pulls down the overall productivity of the informal manufacturing sector. The existence of wage and productivity differentials between OAMES and establishments suggests that there are welfare gains to be made from transitioning from OAMEs to establishments.

Table 5: Annual wage / hired worker and GVA / worker by enterprise type for unorganized manufacturing (2010-11, in Rs.)

	Annual wage/ hired worker*			GVA/ worker		
	Rural	Urban	All	Rural	Urban	All
OAME	29211.0	33455.6	31431.4	21984.7	35447.1	26844.7
Establishment	31433.6	47385.0	41386.1	51412.8	81650.8	70072.5

Note: * Based on only those enterprises where at least one hired worker was reported

Source: Calculations from NSS unit level data (2010-11)

Besides, the differences in wage and labour productivity across enterprise types, we find important differences in the distribution of GVA by types of factor income. We find the proportion of GVA accruing to emoluments for OAMEs was miniscule at 0.70%, while that accruing to net surplus (consumed by owner) was an overwhelming 94.92%. On the other hand, for establishments the comparable proportions were 37.43% and 55.08% respectively, reinforcing the fact that they were more important from an employment creating perspective. Interestingly, the percentage of GVA accruing to rents and interests did not vary significantly across OAMEs and Establishments.

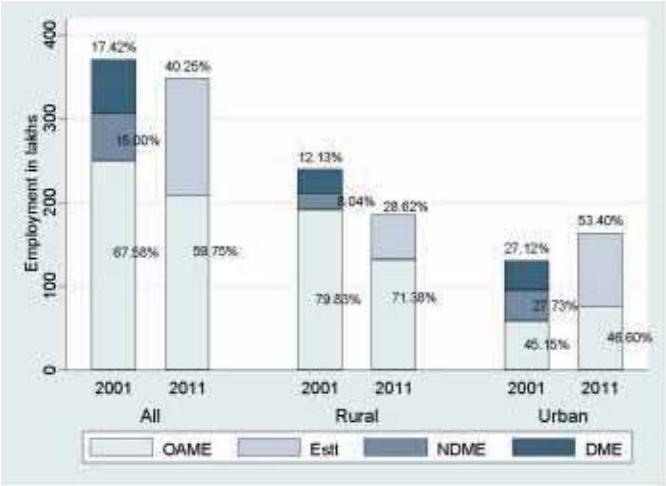
Table 6: Percentage distribution of GVA by type of factor income in unorganized manufacturing enterprises (rural + urban, 2010-11)

Enterprise type	Emoluments	Rents payable	Interest payable	Net surplus
OAME	0.82	2.97	0.49	95.72
Establishment	45.57	4.02	2.52	47.89
All	29.31	3.64	1.78	65.27

Source: Calculations from NSS published statistics (2010-11)

An examination of the distribution of workers across enterprises highlights the dominance of OAMEs in the employment distribution (Figure 2). In 2010-11, 59.7% of total employment in the unorganized manufacturing enterprises was in OAMEs. In 2000-01, this figure was higher at 67.5%, suggesting an erosion in the importance of OAMEs over the decade. The share of employment in establishments, on the other hand, increased from 32.4% to 40.2% over this period. Despite this improvement, the landscape of the unorganized sector is still largely dominated by OAMEs. OAMEs account for a relatively larger share of employment in rural areas as compared to urban areas. Over the last decade, OAMEs have accounted for over 70% of employment in rural areas, as compared to urban areas where their share has fluctuated between 45 and 50%.

Figure 2: Distribution of Employment by Enterprise Type in Unorganised Manufacturing



Source: Calculations from NSS unit level data (2000-01 and 2010-11)

An examination of the distribution of enterprises further reinforces the ubiquity of OAMEs. As can be seen from Table 7, the number of OAMEs far outstrips the number of establishments. Importantly, the proliferation of OAMES is a phenomenon we have witnessed over the decade (in both the 2010-11 and 2000-01 data). In the absence of panel data (which would enable us to examine how given enterprises evolved in size), the preponderance of OAMEs reflects that they are unable/incapable of expanding and making a transition from an OAME to a more productive establishment and/or they choose to remain small. The proliferation of OAMEs coupled with the fact that they account for a disproportionately large share of employment in the unorganized sector is a cause for concern as it suggests that within the unorganized sector, most workers are trapped in very low paying and low productivity jobs.

Table 7: Estimated number of enterprises by enterprise type (in millions)

	Rural				Urban				All			
	OAME	**Establishments**		**All**	**OAME**	**Establishments**		**All**	**OAME**	**Establishment**		**All**
2010-11	9.14	0.98		10.12	5.29	1.80		7.10	14.43	2.78		17.21
	OAME	**NDME**	**DME**	**All**	**OAME**	**NDME**	**DME**	**All**	**OAME**	**NDME**	**DME**	**All**
2000-01	11.06	0.63	0.25	11.93	3.61	1.08	0.40	5.09	14.67	1.71	0.65	17.02

Source: Calculations from NSS unit level data (2000-01 and 2010-11)

It is also worth noting that OAMEs appear to be clustered in a few states and industries. Uttar Pradesh and West Bengal together accounted for about 40% of all OAMEs in the country in

2010-11. Tamil Nadu and Maharashtra, on the other hand, accounted for the highest share of establishments (11% each) across the country. In terms of industrial concentration, as seen in the preceding section, the manufacture of wearing apparel stands out. It accounted for 26.52% of all OAMEs in the manufacturing sector, while its share in total establishments was lower at 17.76% . Manufacture of textiles accounted for 15.74% of all of OAMEs and 13.30% of all establishments. Manufacture of tobacco products accounted for 15.41% of OAMEs, but a paltry 0.9% of total establishments. Another industry accounting for a large share of establishments (16.10%) was manufacture of food products. The corresponding proportion for OAMEs was lower at 11%.

Finally, we examine additional characteristics of unorganized enterprises, which capture other dimensions of informality. We find that 95% of unincorporated manufacturing enterprises in 2010-11 did not maintain any sort of accounts. The proportion was even higher at 98.2% for OAMEs. For establishments, this proportion stood at 77.4%, indicating that relative to OAMES, a higher proportion of establishments maintain accounts. It showed a very slight improvement, when compared to 2000-01, when 98.4% of enterprises did not maintain any accounts.

Table 8: Percentage of manufacturing enterprises not maintaining accounts, separately by sector and type of enterprises

	Rural				Urban				All			
	OAME	**Establishments**		**All**	**OAME**	**Establishments**		**All**	**OAME**	**Establishment**		**All**
2010-11	98.7	83.8		97.3	97.4	73.9		91.5	98.2	77.4		94.9
	OAME	**NDME**	**DME**	**All**	**OAME**	**NDME**	**DME**	**All**	**OAME**	**NDME**	**DME**	**All**
2000-01	99.5	97.2	88.9	99.1	99.2	94.2	81.8	96.7	99.4	95.3	84.5	98.4

Source: Calculations from NSS published statistics (2010-11)

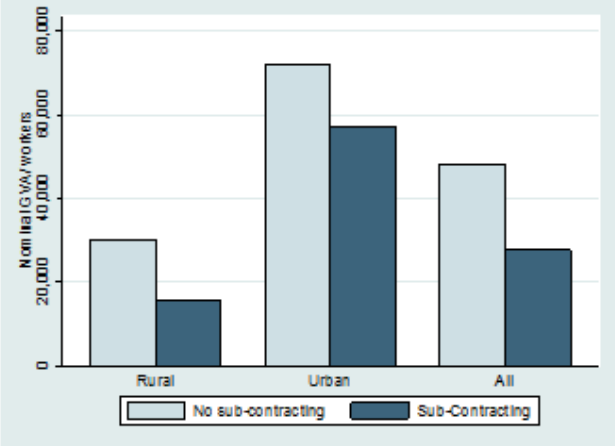
Further, the NSSO survey asks firms in the informal sector whether they are engaged in any subcontracting activity. Table 9 shows that about 20% of manufacturing enterprises reported to be engaged in a subcontracting relationship with formal sector firms. About 24% manufacturing enterprises in rural areas and 16% manufacturing enterprises in urban areas had worked on contract basis. In general, OAMEs in the manufacturing sector were more likely to be engaged in such a relationship compared to establishments. Further, Figure 3 reflects that labour productivity was lower in firms in a subcontracting relationship as compared to those which were not. This is reflective of the exploitative nature of this relationship based on the asymmetric bargaining power with formal firms, and the fact that it was not particularly gainful for informal firms.

Table 9: Percentage of manufacturing enterprises working on contract

	Rural			Urban			All		
	OAME	Establishments		OAME	Establishments		OAME	Establishment	
2010-11	25.2	11.9		17.7	10.7		22.5	11.1	
	OAME	NDME	DME	OAME	NDME	DME	OAME	NDME	DME
2000-01	28.0	21.5	21.8	38.8	33.2	42.6	30.7	28.9	34.7

Source: Calculations from NSS published statistics (2010-11)

Figure 3: Productivity differentials between unorganized manufacturing firms in a sub-contracting relationship and those which are not (2010-11)



Source: Calculations from NSS unit level data (2010-11)

Before concluding this section, we examine the distribution of enterprises, employment and GVA across firms of different sizes (Table 10).We find that while a disproportionately large share of firms hire less than five workers, there are roughly 256660 firms which hire more than 10 workers in 2010-11. These firms account for 13.2% of total employment in the unorganized sector and about 20% of total GVA. The presence of such firms (typically NDMEs or DMEs), which should be under the ambit of government regulations such as the Factories Act suggests that they are operating in the unorganized sector to evade regulations. Easing of registration procedures would perhaps be beneficial for such firms encouraging transition to the formal sector.

Table 10: Share of enterprises, employment and GVA across firms of different size (2010-11)

Firm Size	Enterprises	Employment	GVA
0-4 workers	93.61	71.86	56.78
5-9 workers	4.87	14.95	23.71
10+ workers	1.52	13.19	19.51

Source: Calculations from NSS unit level data (2010-11)

2.2 Key Trends from Employment Unemployment Survey

NSS's most recent 'Employment and Unemployment Survey, July-June 2011-12, NSS 68th round' provides data on the informal sector and conditions of employment in India, which allow us to study informality from a worker based perspective. It presents estimates of usual status workforce in the AGEGC (agriculture sector excluding growing of crops, plant propagation, combined production of crops and animals without a specialized production of crops or animals) and non-agriculture sectors corresponding to various characteristics of enterprises, with special reference to the informal sector. The informal sector was defined to include proprietary and partnership enterprises (excluding those run by non-corporate entities such as cooperatives, trusts and non-profit institutions) in the non-agricultural and AGEGC sectors.

The EUS (2011-12) estimated that the non-agriculture and AGEGC sectors engaged 55% of the workers in India[2]. Using the above mentioned definition of informality, it was projected that about 72.4% of workers in AGEGC and non-agriculture sectors were employed in the informal sector. In the previous survey (2004-05), 77.5% of the workers in AGEGC and non-agriculture sectors were employed in the informal sector- a 5 percentage point decline over this seven year time period. The decline was greater in rural areas at 6 percentage point as compared to urban areas where it was 3 percentage point.

Table 11: Share of workers engaged in proprietary and partnership (P&P) enterprises among workers engaged in AGEGC and non agricultural sectors (in percentage)

		2004-05	2011-12
	Category of workers	**Proprietary and Partnership**	**Proprietary and Partnership**
Rural	Male	79.2	76.2
	Female	86.4	72.7
	Person	81.6	75.2
Urban	Male	73.9	70.4
	Female	65.4	63.6
	Person	72.2	69.1
Rural + Urban	Male	76.7	73.4
	Female	79.7	69.2
	Person	77.5	72.4

Source: NSS EUS published statistics (2011-12)

On examining the distribution of workers in the informal sector by status in employment, we find that self-employed account for the largest share of informal sector workers. In rural areas, the proportions of self-employed, regular wage/salaried employees and casual labourers were about 57%, 11% and 32% respectively. On the other hand, in the urban areas, the proportions of self-employed, regular wage/salaried employees and casual labourers were about 58%, 27% and 16%, respectively. The lower wages received by informal workers are

[2] The proportion was about 41% in rural areas and about 95% in urban areas.

evident from the fact that the average daily earnings of a salaried employee in the informal sector (proprietary and partnership enterprises) was about Rs 225, while the average daily earnings of this category of workers in the AGEGC and non-agriculture sectors was significantly higher at about Rs 401. Also, the average salary earnings of a salaried employee was higher for males than for females irrespective of the types of enterprise in which they worked (Table 11). There also exists a significant gap in earnings within the informal sector with casual labourers receiving lower wages than salaried employees. It is observed that for salaried employees, the most prevalent method of receipt of payment was regular monthly salary whereas for casual labourers it was daily payment. Among salaried employees in the AGEGC and non-agricultural sectors, 91% received a regular monthly salary[3], while among casual labourers, 56% received daily payment[4] (Table 12).

Table 12: Average wage and salary earnings (Rs.) per day received by employees according to usual status engaged in AGEGC and non-agricultural sectors that had same status in employment in current daily status during 2011-12

	Rural + Urban								
Categories of employees	**Regular wage / salaried employees**			**Casual labourers**			**All employees**		
	P&P	**Empl. Hhs.**	**All**	**P&P**	**Empl. Hhs.**	**All**	**P&P**	**Empl. Hhs.**	**All**
Male	233.03	194.97	421.58	164.34	152.50	161.04	201.19	185.99	333.26
Female	171.51	95.18	315.45	114.80	89.44	109.88	148.47	94.32	267.34
Person	224.82	126.92	401.30	158.95	115.64	154.72	194.74	125.00	322.10

Note: P&P: proprietary and partnership; Empl. Hhs.: employer's households

Source: NSS EUS published statistics (2011-12)

In order to get an idea about the volume of informal employment in the country, we also analyse information on the different conditions of employment of the various employee categories. This includes whether there was any written contract or agreement with the employer regarding the duration of the job, whether employees were eligible for the paid leave[5] and whether employees were covered under different types of social security benefits. In the AGEGC and non-agriculture sector, the proportion of employees without written job contract increased from 74% in 2004-05 to 79% in 2011-12 (Table 13). It has been observed that as compared to countries at a similar level of development, India's very low usage of written contract for its non agricultural employees stands out. This figure is in fact higher than that for countries such as Pakistan, Ghana and South Africa, whose share of employment in the informal sector is close to that of India's (Economic Survey, 2014-15). This suggests the significant pervasiveness of informal working arrangements within the formal sector, reflected in the contractualisation of the workforce. The proportion of employees who are not eligible for paid leave has increased over the years from 66% in 2004-05 to 71% in 2011-12.

3 The proportion was 89% in rural areas and 92% in urban areas

4 The proportion was 58% in rural areas and 49% in the urban areas.

5 For the purpose of survey, paid leave included the cases of leave during sickness, maternity or such leaves as the employee was eligible to take without loss of pay as per the conditions of employment.

The proportion of employees who had neither written job contract nor were eligible for paid leave increased from 63% in to 2004-05 to 68% in 2011-12. This reflects a rise in informal work arrangements which increase a worker's vulnerability to exploitation.

In terms of social security benefits, the survey considered different types of benefits (Provident Fund (PF) scheme, gratuity, health care and maternity benefits). In 2011-12, among the employees in the AGEGC and non-agriculture sectors, 72% were not eligible for any social security benefits.[6] As expected, among the casual labourers a much higher proportion were outside the social security net but even for the regular wage/salaried employees, the proportion of workers left out of the coverage of the social security benefits was substantial. While 93% per cent of the casual labourers in the AGEGC and non-agriculture sectors were not covered under any of the specified social security benefits, the proportion amongst the salaried employees was lower at 56%.

Table 13: Share of employees not eligible for any social security benefit* among employees (ps+ss) in AGEGC and non-agriculture sectors for different statuses in employment during NSS 61st (2004-05) and 68th (2011-12) rounds-All India (in percentage)

	Status of Employment								
	Regular wage/salaried			Casual labour			All employees		
	Industry groups/ divisions								
	AGEGC	Non-agriculture	AGEGC and non-agriculture	AGEGC	Non-agriculture	AGEGC and non-agriculture	AGEGC	Non-agriculture	AGEGC and non-agriculture
				2004-05					
				Rural + Urban					
Male	72.6	53.2	53.5	87.9	96	95.6	83.4	69.9	70.3
Female	63.6	60	60	93.2	96.4	96.1	91.3	73.1	73.7
Person	72	54.5	54.7	89.5	96.1	95.7	85.3	70.5	709
				2011-12					
				Rural + Urban					
Male	61	54.7	54.7	86.3	93.5	93.3	81.6	71.5	71.8
Female	78.6	58.7	58.7	87.4	94	93.4	87.2	73.7	743
Person	61.7	55.4	55.5	86.7	93.6	93.3	83.5	72	72.2

Note: * For the purpose of the survey, the social security benefits considered were PF/ pension, gratuity, health care and maternity benefit. 1. Industry groups/ divisions (NIC-2008): AGEGC: 014, 016, 017, 02, 03; non-agriculture:05-99.

Source: NSS EUS published statistics (2011-12)

3 Helping Firms in the Informal Sector Flourish

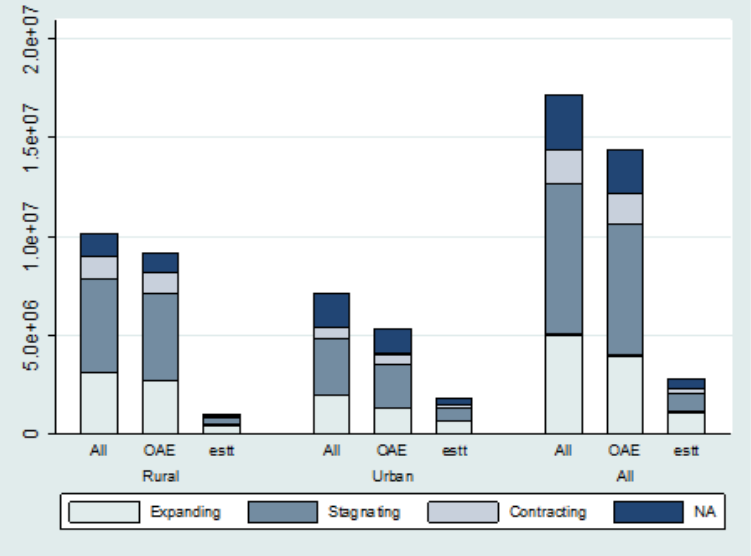
In addition to its lower productivity and efficiency, another important concern vis-a-vis the unorganized sector is that informal firms have stagnated. The NSS enterprise surveys provide

[6] The proportion was about 80% in rural areas and about 64% in urban areas.

information on the growth status of the enterprise i.e. the overall performance and sustainability of that enterprise over a period of time[7]. In 2010-11, 44.6% of unincorporated manufacturing enterprises reported their status as stagnant, while 29.1% reported it to be expanding. Importantly, in 2000-01, the percentage of manufacturing enterprises reporting their status as stagnant was higher at 63.4%, while the percentage reporting it as expanding was lower at 15.6%, suggesting an improvement in the performance of the informal sector. Importantly across both years, we find that the proportion of firms reporting their status as stagnant is higher among OAMEs as compared to establishments. In 2010-11, 46.4% of OAMEs reported their status as stagnant and 27.4% reported their status as expanding. For establishments on the other hand, the proportion reporting their share as expanding and stagnant was 37.81% and 35.13% respectively. This reaffirms the more dynamic nature of establishments as compared to OAMEs.

It is also worth noting that over 40% of the enterprises which reported their current status as 'expanding' were in the following manufacturing industries- manufacture of beverages; tobacco products; coke and refined petroleum products; pharmaceuticals, medicinal chemical and botanical products; and other transport equipment. At the state level too, there are some disparities- Chattisgarh, Haryana, Tamil Nadu and Bihar accounted for 40% of manufacturing enterprises reporting their status as expanding.

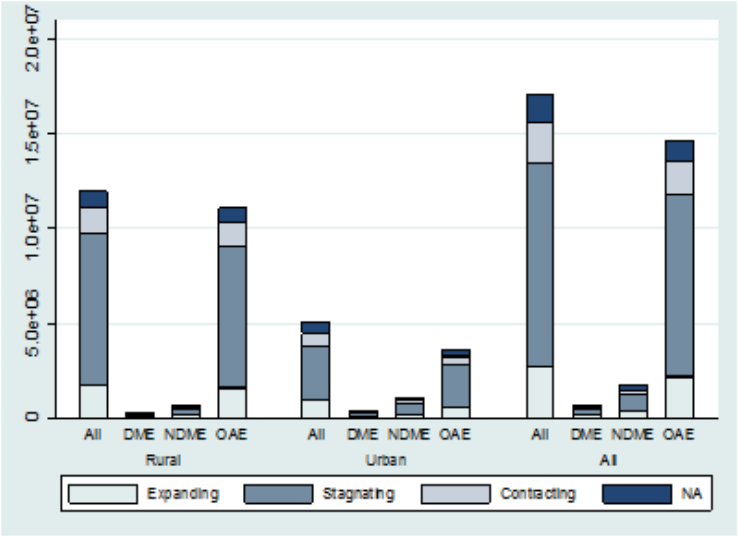
Figure 4 (a): Distribution of unorganised manufacturing enterprises by growth status (2010-11)



Source: Calculations from NSS unit level data (2000-01 and 2010-11)

[7]The growth status of enterprises was calculated on basis of its performance over last three years of operations.

Figure 4 (b): Distribution of unorganized manufacturing enterprises by growth status (2000-01)



Source: Calculations from NSS unit level data (2000-01 and 2010-11)

Understanding the drivers of enterprise growth is critical for accelerating growth in these informal enterprises. Therefore, we attempt to examine the determinants of an enterprise's growth status using the following equation:

$$growth\ status_{fis} = \propto_0 + \sum_{k>1} \propto_k X'_{fis} + \sum_{m>1} \beta_m Z'_s + \gamma Dummy(Labour\ Intensive) + \varepsilon_{fis}$$

The dependent variable '*growth status'* is a dummy variable indicating whether the growth status of the enterprise is 'expanding'. The subscript '*fis*' corresponds to firm *f* in industry *i* in state *s*. *X* is a vector of firm specific characteristics obtained from the unit level data for the informal manufacturing sector from the NSSO Unincorporated Establishment Survey (2011). This includes whether the firm is an OAME or establishment, whether the firm maintains accounts, whether the firm is registered under any Act/ Authority, whether the firm is undertaking work on contract basis, whether the firm receives any assistance from the government (such as financial loans, subsidies, machinery, training, marketing and procurement of raw materials), whether the firm reported to be facing any problem in the last one year of its operation and the nature of the problem. *Z* is a vector of state specific controls such as gross primary enrollment ratio and road density. We use logit models to estimate the effect of these variables on the growth status of the enterprise and the results are reported in Tables 14 and 15.

Across all specifications, we find the coefficient on sector to be negative and significant, suggesting that firms located in urban areas are less likely to be expanding. Being an establishment increases the likelihood of expanding by 4 to 11 percentage points as compared to being an OAME. Further, we find that firms which maintained accounts, firms which are

registered under any act and firms which are under contract are more likely to be expanding. It may well be the case that firms registered under any act/authority and those maintaining accounts can access and secure financial resources easily, increasing the likelihood of expanding. Interestingly, there is a positive relationship between firm age and expansion. A 1% increase in the age of the firm increases the probability of its expansion by 12-16 percentage points.

Table 14: Average marginal effects obtained from logit estimates

	(1)	(2)	(3)	(4)
Sector = urban (d)	-0.02***	-0.02***	-0.05***	-0.05***
	(0.00)	(0.00)	(0.01)	(0.01)
Enterprise type = Establishment (d)	0.11***	0.10***	0.05***	0.04***
	(0.00)	(0.00)	(0.01)	(0.01)
If accounts maintained (d)	0.05***	0.06***	0.11***	0.11***
	(0.00)	(0.00)	(0.01)	(0.01)
Any problem faced in last one year (d)	0.11***	0.12***	0.06***	0.07***
	(0.00)	(0.00)	(0.01)	(0.01)
Any assistance from government (d)	0.02***	0.03***		
	(0.01)	(0.01)		
If unit is registered (d)	0.04***	0.05***	0.04***	0.04***
	(0.00)	(0.00)	(0.01)	(0.01)
If unit supplies to a single parent plant (d)	0.01	0.01	0.06	0.06
	(0.01)	(0.01)	(0.04)	(0.04)
ln(Age of firm)	0.12***	0.12***	0.16***	0.16***
	(0.00)	(0.00)	(0.01)	(0.01)
Labour intensive (d)	-0.03***	-0.03***	-0.12***	-0.12***
	(0.00)	(0.00)	(0.01)	(0.01)
ln(Gross primary enrollment ratio)		0.22***		0.22***
		(0.01)		(0.04)
ln(Road density)		0.00***		0.05***
		(0.00)		(0.01)
Government assistance received: financial loans (d)			0.07***	0.06***
			(0.02)	(0.02)
Government assistance received: subsidy (d)			0.06***	0.05**
			(0.02)	(0.02)
Government assistance received: machinery (d)			0.10***	0.10***
			(0.03)	(0.03)
Government assistance received: training (d)			0.12***	0.10***
			(0.03)	(0.03)
Government assistance received: marketing (d)			0.00	0.00
			(0.05)	(0.05)
Government assistance received: raw material (d)			-0.08	-0.09*
			(0.05)	(0.05)
Government assistance received: others (d)			0.11***	0.09***
			(0.03)	(0.03)
N	296870	296870	6150	6150
Pseudo R2	0.0661	0.0700	0.0987	0.1040
Ll	-180850.04	-180099.20	-3732.85	-3711.19

Note: Standard errors are given parentheses; (d) is a dummy variable which takes values from 0 if no to 1 if yes

Source: Calculations based on NSS unit level data (2010-11)

We also find a positive relationship between receiving government assistance and the prospect of expanding. Significantly, the probability of expanding increases by 2 percentage points when the firm received any assistance from the government. Next, we examine the nature of government assistance which specifically increased the probability of expanding (Columns 3 and 4). We find that receiving a financial loan increased the likelihood of a firm expanding by 6-7 percentage points. Receiving subsidies too increased the firm's chance of expanding by 5-6 percentage points. Importantly, government assistance received in the form of machinery/equipment and marketing increased the likelihood of expanding by 10-12 percentage points.

Further, we find that firms not reporting any problem faced in the last one year have a greater likelihood of expanding. We also specifically examine the nature of problems which diminished the probability of a firm's expansion. Here, the problem of shrinking/fall of demand stands out. Firms reporting this problem had a 30 percentage point lower likelihood of expanding. Firms reporting problems of raw material shortage and expensive credit had a 4-6 percentage point lower probability of expanding. And firms reporting erratic power supply as a problem had a 2 percentage point lesser chance of expanding.

We also introduce state level variables and as expected, find that as the gross primary enrollment ratio of the state in which the firm is located increases by 1%, the likelihood of its expansion increases by about 22 percentage points. The positive effect of education suggests that it has a crucial role to play in firm expansion. The effect of road density on firm expansion is found to be negligible, though.

Table 15: Average marginal effects obtained from logit estimates

	(1)	(2)
Sector = urban (d)	-0.02***	-0.02***
	(0.00)	(0.00)
Enterprise type = Establishment (d)	0.09***	0.09***
	(0.00)	(0.00)
If accounts maintained (d)	0.05***	0.06***
	(0.00)	(0.00)
Any assistance from government (d)	0.01**	0.02***
	(0.01)	(0.01)
If unit is registered (d)	0.05***	0.05***
	(0.00)	(0.00)
If unit supplies to a single parent plant (d)	0.01	0.01
	(0.01)	(0.01)
ln(Age of firm)	0.13***	0.12***
	(0.00)	(0.00)
Labour intensive (d)	-0.03***	-0.03***
	(0.00)	(0.00)
ln(Gross primary enrollment ratio)		0.19***
		(0.00)
ln(Road density)		-0.00
		(0.00)
Major problem: erratic power supply (d)	-0.02***	-0.02***
	(0.00)	(0.00)
Major problem: raw material shortage (d)	-0.04***	-0.06***
	(0.01)	(0.01)
Major problem: demand shrinkage (d)	-0.30***	-0.30***
	(0.00)	(0.00)
Major problem: expensive credit (d)	-0.04***	-0.05***
	(0.00)	(0.00)
Major problem: non-recovery of financial dues (d)	0.01***	0.00
	(0.00)	(0.00)
Major problem: labour disputes and related problems (d)	-0.01***	-0.01**
	(0.00)	(0.00)
Major problem: raw material shortage (d)	-0.03***	-0.04***
	(0.01)	(0.01)
Major problem: others (d)	-0.06***	-0.07***
	(0.00)	(0.00)
N	317682	317682
Pseudo R2	0.0826	0.0873
Ll	-190298.31	-189332.43

Note: Standard errors are given parentheses; (d) is a dummy variable which takes values from 0 if no to 1 if yes

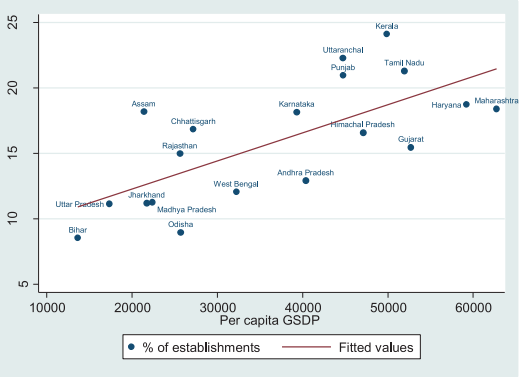
Source: Calculations based on NSS unit level data (2010-11)

In addition to examining the growth status of enterprises, which reflects that a fairly small share of enterprises are expanding, the preponderance of OAMEs in the enterprise distribution over time reflects that these household enterprises are not expanding, employing outside workers and making the transition from low productivity household enterprises to establishments. In the absence of panel data, tracking the growth of an enterprise over time, we are unable to undertake a firm life cycle study and identify what factors affect firm transition from OAMEs to establishment. Therefore, we attempt a simpler exercise wherein we examine the distribution of unorganised enterprises across states of India and examine how this distribution varies across states depending on their characteristics.

The existence of significant state level heterogeniety in the informal sector where states such as Kerala, Tamil Nadu, Haryana and Uttarakhand having a higher proportion of establishments as compared to states such as Bihar, Madhya Pradesh and Odisha where OAMEs have a much larger share provides a fertile ground to analyse what underlying state parameters can provide an enabling environment for informal firms to grow and expand. The intuition for this exercise is as follows: states which have a higher presence of establishments, which are more productive and on average generate greater employment as compared to OAMEs are reflective of a thriving /better performing informal sector. To begin with, we find that more developed states (i.e. those with a higher per capita gross state domestic product) have a higher presence of establishments (Figure 5a). Further, we examine the relationship between the presence of establishments and state level differences in infrastructure variables, captured by the transmission and distribution (T& D) losses of state level electricity boards (as a fraction of generating capacity). Following Kochhar et al (2006), we use this variable as a joint measure of infrastructure capability and state policies affecting the quality of infrastructure and business environment[8]. We find that states with higher T&D losses have a lower presence of establishments (Figure 5b). We also study whether establishments have a higher presence in states that are more financially developed (captured by the average credit deposit ratio in the state). Figure 5c indicates the presence of an unconditional positive relationship between the level of financial development and presence of establishments. We repeat the same exercise using the literacy level of the state and find the relationship to be a positive one (Figure 5d). A more educated state appears to have high share of establishments. This is perhaps a reflection of the fact that OAMEs are run by the poorly educated. Thus, state characteristics matter- be it the level of financial development, availability of power and education level of the state population. In their study, Raj and Sen (2013) also found that district characteristics matter – firms in districts with low levels of human capital and social disadvantage were less likely to make a transition from OAMEs to establishments.

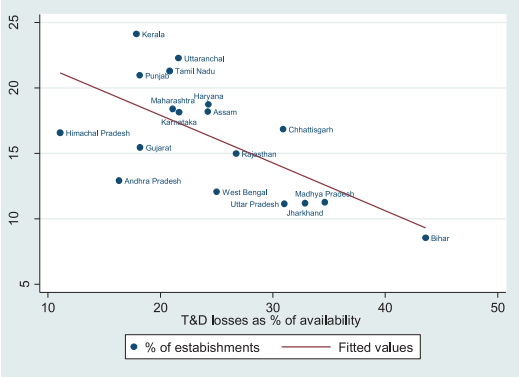
[8] T& D losses refer to power that is generated but not paid for. This is because some of it is lost along power lines naturally in the process of transmission and distribution, while some of it is stolen. In areas where T&D losses are high, the quality of power, as reflected in the voltage as well as reliability, is low. Thus T&D losses are not directly related to capacity, but are determined by state-level political decisions. Therefore, they reflect the quality of both infrastructure and institutions.

Figure 5a: Scatter plot of proportion of establishments to per capita GSDP



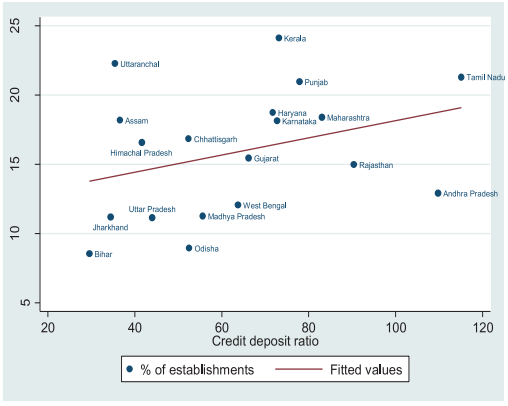
Source: Calculations based on NSS published statistics (2010-11)

Figure 5b: Scatter plot of proportion of establishments to T&D losses (power)



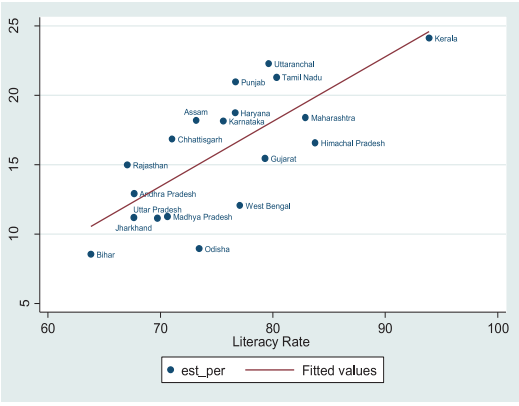
Source: Calculations based on NSS published statistics (2010-11)

Figure 5c: Scatter plot of proportion of establishments to credit deposit ratio



Source: Calculations based on NSS published statistics (2010-11)

Figure 5d: Scatter plot of proportion of establishments to literacy rate



Source: Calculations based on NSS published statistics (2010-11)

While state and firm characteristics matter, concerted government action is also needed to accelerate growth in the informal sector. In this context, it is important to mention the Growth Pole Programme, an initiative of the NCEUS which attempts to comprehensively address the informational, technological and credit-related gaps that have prevented the development and expansion of unorganised enterprises in the country. The Growth Pole concept builds on the cluster development approach, whereby small enterprises are organized into clusters that specialize in specific products or services within an industry. By agglomerating into clusters that specialize in the production of specific goods, clusters can tap into external economies of scale, thereby boosting competitiveness. Over the last several years, the government has devised a large set of schemes that provide subsidies, skill development, credit guarantee, marketing assistance and so on. The concept of Growth Poles focuses on supporting such

existing government schemes and improving the overall physical and social infrastructure, thereby enhancing working conditions, productivity and employment within the clusters.

As can be seen from Table 16, all the six projects under the Growth Pole Program show an increase in the average monthly income per person, with the highest increment being 230% in the Chamoli Project and the lowest being 69% in the Sikandra Project. The average growth in monthly income per person comes out to 145% over a period of five years. There is also significant growth in productivity, with the highest being 71% in the Howrah Project and the lowest being 8% in the Champa Project. Thus, the average increase in productivity is estimated at 46% over a period of five years. Further, the projects have yielded a significant contribution to GDP, ranging from Rs. 69 crores to Rs. 387 crores per annum, thus averaging Rs. 320 crores per annum across all projects, over a period of five years. The projects have also delivered several social benefits to the growth pole regions in terms of improved work force participation arising out of skill development, reduced disguised unemployment, migration of workers from low wage areas to the growth pole areas, improvement in literacy, health conditions, increased market size and improved infrastructure.

Table 16: Employment, Income and Productivity Gains under Growth Pole Projects

Name of the Project	Existing employment	Employment after GP intervention	Existing monthly income per person(in Rs)	Monthly income per person (in Rs) after GP Intervention	Productivity increase after GP intervention (in %)	Additional contribution to GDP in the project area (After 5 years)
Sikandra, Rajasthan	16900	38300	2339	3937	60	Rs. 211 crores per annum
Chamoli, Uttarakhand	10,000	31517	2083	6835	50	Rs. 178 crores per annum
Kollam, Kerala	236139	32212	2333	4135	30	Rs. 69 crores per annum
Champa, Chhattisgarh	13495	53684	1652 (Artisan activities)	4770	25	Rs. 922 crores per annum
			33000 (rice milling)	1,00,000	8	
Howrah, West Bengal	113203	74975	271	880	71	Rs. 387 crores per annum
South-West Kamrup, Assam	63600	24608	1263	3824	39	Rs. 157 crores per annum

Source: National Commission for Enterprises in the Unorganized Sector, 2009

Further, given that inadequate access to credit has stymied the growth of unorganized enterprises, the government launched the Pradhan Mantri MUDRA (Micro Units Development & Refinance Agency) Yojana to provide funding to the non-corporate, non-

farm sector income generating activities of micro and small enterprises whose credit needs are below ₹10 Lakh. Under the aegis of the MUDRA Yojana, three products ('Shishu', 'Kishore' and 'Tarun') were designed as per the stage of growth and funding needs of the beneficiary micro unit. All Non-Corporate Small Business Segment (NCSBS) comprising of proprietorship or partnership firms running as small manufacturing units, service sector units, shopkeepers, fruits/vegetable vendors, truck operators, food-service units, repair shops, machine operators, small industries, food processors and others in rural and urban areas, were eligible for assistance under MUDRA. Given that despite the existence of a plethora of schemes, the unorganized sector had no access to formal credit, the MUDRA Yojana is a significant step towards establishing small businesses as a source of employment in India. Through products such as credit guarantees, which obviate the need for collateral, entrepreneurs in the informal sector would be able to obtain loans more easily. Estimates suggest that the total amount of loans disbursed under the MUDRA programme, which was launched in April 2015, crossed Rs 1.25 trillion as of March 2016[9]. These disbursements have been done in the space of less than a year. If such rates of growth were to be maintained, they would constitute a sizeable chunk of total non-farm credit in the economy. Out of 32.7 million borrowers, 30.3 million borrowers were in the Shishu category. While it is too early to evaluate the success of the scheme, it is important to ensure that the scheme does not create perverse incentives for beneficiaries to remain micro and small, but instead enables them to grow out of their sizes at birth. A related concern is that the Indian Government may not be in the financial position to continuously inject liquidity into the MUDRA Bank, on account of various subsidies and programmes in other sectors the Government is obligated to fund.

4 Providing Social Security to Unorganised Sector Workers

The dichotomy in the level of social security available to formal and informal workers is particularly striking in India. Most of India's statutorily provided social security covers only the formally employed in the organised sector, which account for around 8% of the total workforce. The formal social-security system in India has evolved since 1947 (Asher 2003), with the aim of primarily protecting organised sector workers. Various acts have been introduced to attend to various social security and welfare needs of organised workers. These include the Workmen's Compensation Act 1923, the Industrial Disputes Act 1947, the Employee's State Insurance Act 1948, the Minimum Wages Act 1948, the Employees Provident Fund and Miscellaneous Provision Act 1952 and several others. Importantly, the proportion of workers covered by labour regulations such as the Factories Act and Chapter V-B of IDA, to which much of the dismal performance of industrial employment has been attributed, is as low as 2.45% and 1.8% of the total workforce respectively. The relatively high degree of protection given to very few workers in the organized sector has created a false image of excessive rigidity in the labour market, thus concealing the fact that over 90% of the workforce in the unorganized sector escapes this perceived rigidity and is left unprotected against any contingencies and arbitrary actions of employers, where there are no

[9] As a percentage of banking sector exposure to the non-financial sectors of the economy, Rs.1.25 trillion constitutes approximately 1.7%.

regulations for decent conditions of work and no provision for social security of any kind for workers.

The lack of a comprehensive legislation to provide social security to informal workers is a severe lacuna which has sought to be addressed over several decades, albeit unsuccessfully. The Unorganised Workers' Social Security Act (UWSSA, 2008), which originated from the recommendations of the National Commission for Enterprises in the Unorganized Sector (NCEUS,2007) was an important step in this direction. The NCEUS in its recommendations had espoused the idea of a universal (that is, one covering all unorganized workers) national minimum social security framework, which would encompass three types of social security cover (i) health cover to take care of illness of the workers and members of the family and maternity benefit to the spouse or self; (ii) accident or death of the registered workers; and (iii) old age pension for those belonging to poor households and provident funds to those falling outside this segment. The UWSSA listed ten social security schemes for unorganized workers and provided for the inclusion of more such schemes from time to time. The ten schemes included the: (i) Indira Gandhi National Old Age Pension Scheme, (ii) National Family Benefit Scheme, (iii) Janani Suraksha Yojana, (iv) Handloom Weavers' Comprehensive Welfare Scheme, (v) Handicraft Artisans' Comprehensive Welfare Scheme, (vi) Pension to Master Craftspersons, (vii) National Scheme for Welfare of Fishermen and Training and Extension, (viii) Janashree Bima Yojana, (ix) Aam Aadmi Bima Yojana (AABY), or Life Insurance Scheme for Common People, and (x) Rashtriya Swasthya Bima Yojana (National Health Insurance Scheme). The first eight of these ten schemes have been in existence for a while, whereas the last two were announced a few months before the act was passed[10]. Realizing the critical deficiency in the database relating to unorganized workers and the need for such information for proper monitoring, the act prescribed record-keeping functions by the District Administration with the help of the District Panchayats in rural areas and urban local bodies in urban areas.

A critical shortcoming of the Act was that except the schemes for handloom weavers, handicraft artisans, fishermen and landless labour households, the eligibility of all the other schemes was based not on the unorganized/ informal work status of the person but on whether those concerned belong to below poverty line (BPL) households. Thus, the main programs under the Act ended up being confined to BPL households. This raises the question of why such an Act was required when these schemes already existed for BPL workers. The act did not make it mandatory for the incumbent or future governments to introduce any new

[10] The act also provided for a National Social Security Board which was empowered to recommend to the central government suitable schemes for different sections of the unorganized workers, monitor implementation of schemes, and advise the central government on matters relating to the administration of the Act. The board was set up under the chairmanship of the Union Minister for Labour and Employment. It included representatives of unorganized workers and employers of unorganized workers as well as persons belonging to the Scheduled Castes (SCs), Scheduled Tribes (STs), other minorities and women. There was also provision for the constitution of similar Boards at the State level. Provisions were also made for the setting up of Workers' Facilitation Centres to disseminate information on social security schemes available to them and to facilitate the registration of workers by the district administration and enrolment of unorganized workers.

schemes for unorganized workers. In fact by dividing the unorganised workers into BPL and non-BPL categories, large numbers of vulnerable workers and their families in the unorganized sector, who live perilously just above the poverty line, were excluded from the scope of these schemes. The fact that the process of identifying BPL households in India has been a deeply contentious one further exacerbates the limitations of this Act. Any real progress in protecting unorganized workers can only be made by removing the distinction between BPL and non BPL, and providing all workers with the national minimum social security cover.

A critical question that then arises is – can India afford to have such an assured universal social minimum? Of course, this question can alternatively be turned to ask how a country that is poised to emerge as the fastest growing economy in the world can afford not to provide a minimum social security cover to workers in the unorganized sector, who account for an overwhelming 92% of its workforce. Estimates from the ILO's World Social Security Report (2012) indicate that public protection social security expenditure for India stood at 2.39% of GDP in 2012-13. Importantly, as can be seen from Table 17, India's average social protection expenditure has consistently been less than half the average ratio for all middle income countries. Figure 6 reinforces India's woefully inadequate spending on public social protection expenditure. This is despite the fact that India has a plethora of social protection schemes, both at the Central and State levels, which cater to different segments of the population[11]. The total expenditure by the government of India on six of the major social protection related sectors (elementary education, health and family welfare, labour and labour welfare, social security and welfare and rural development) increased from 1.06% of GDP in 1995-96 to 1.35% in 2005-06 and stood at 1.75% per cent of GDP in 2010-11. The states spend almost twice as much as the central government on these sectors but their expenditure (as % of GDP) has not changed much over the last decade. Together, the central and state government expenditure on the above-mentioned six sectors have increased by a meagre 0.83% of GDP between 1995-96 and 2011-12.

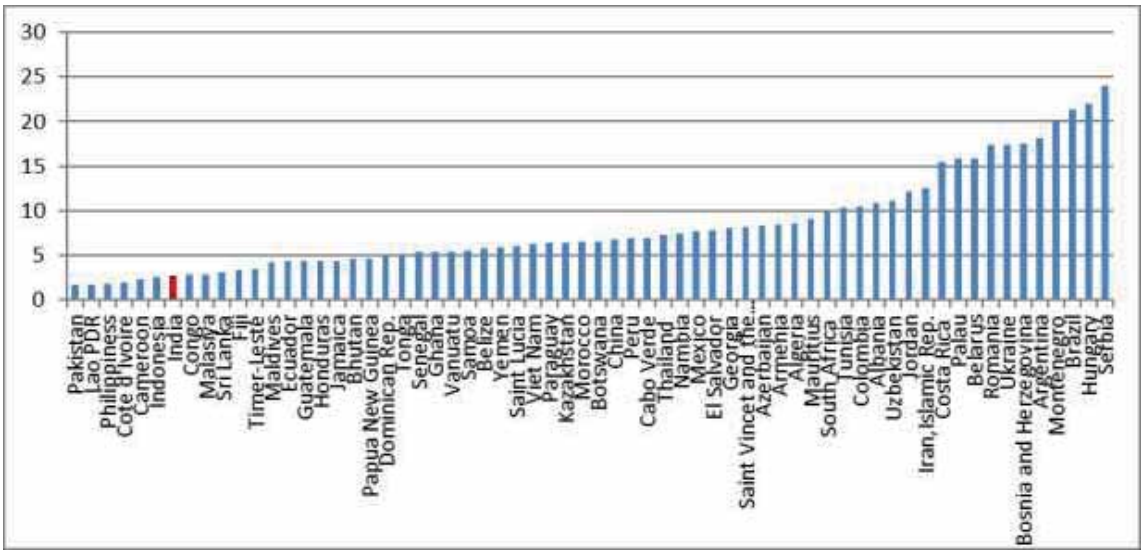
Table 17 : Public Social Protection Expenditure (as a percentage of GDP)

Year	India	Middle Income Countries
1990-91	1.73	5.56
1995-96	1.55	6.10
2000-01	1.61	6.57
2005-06	1.54	7.40
2007-08	1.87	7.73
2009-10	2.59	8.81
2010-11	2.64	8.22
2012-13	2.39	***

Source: World Social Protection Report, ILO (2014-15)

[11] The ambit of these schemes is quite large, covering basic education and health, employment creation and promotion, workers' social security, food and nutrition security, and social pensions. Some of these programmes are now supported legally.

Figure 6: Share of social protection in GDP in middle income countries (2010-11)



Source: World Social Protection Report, ILO (2014-15)

Table 18 outlines the eligibility and expenditure on various central government schemes for social protection of informal sectors. It is worth noting that not only are the amounts spent by the government on the provision of social security benefits insufficient, but they are also extremely scattered (Sulzer, 2004). Restructuring many of these schemes is imperative, given both their inadequate coverage and provisions (Details on these schemes are reported in the Appendix). For instance in the context of National Social Assistance Programme (NSAP)[12], the Task Force (Ministry of Rural Development) recommended not only increasing the pension amount but also a switch to near-universal pensions by applying select exclusion criteria. Expenditure on Indira Gandhi National Old Age Pension Scheme (IGNOAPS) in 2015-16 was Rs 5145.5 crores and back of the envelope calculations suggest that if the scheme had been extended (in its present form of Rs 200 a month) to cover all 430 million unorganized workers, the budgetary requirement would have been Rs 8885.52 crores (.065% of GDP), an increase of only 0.027 percentage points of GDP. Similiarly, the one-time entitlement of Rs 20,000 under National Family Benefit Scheme (NFBS) is grossly inadequate. As an alternative, they could be paid Rs. 20,000 per month under NFBS for one full year. In 2015-16, expenditure on the Rashtriya Swasthya Bima Yojana (RSBY) was Rs. 595 crores, and if the scheme were to be extended to unorganized workers, in its existing form it would have cost approximately Rs 6199.20 crores(0.046% of GDP)[13]. These figures reflect that the amounts needed to extend social protection programs to all unorganized workers are not very large, and given the existing low levels, this is indeed imperative.

[12] NSAP was a welfare programme meant for providing pensions to the aged, widows and disabled persons, and BPL households in the case of death of the primary breadwinner. It was launched in 1995

[13] It is important to remember though that while insurance is integral for social health protection, it is not a substitute for public investment in health and publicly run health systems. Currently, India's public spending on health is one of the least in the whole world and there is an urgent need to step up public investment in health.

Table 18: Expenditure on select central government schemes for social protection of informal sector workers

	Scheme	Eligibility and Entitlement	Gross Expenditure incurred in 2015-16 (in Rs. Crores); (Expenditure as % of GDP)
National Social Assistance Programme (NSAP)	Indira Gandhi National Old Age Pension Scheme (IGNOAPS)	BPL persons, above 60 years of age; Rs. 200/month	5145.4 (0.0379)
	Indira Gandhi National Widow Pension Scheme (IGNWPS)	BPL widows between 40 and 79 years of age; Rs. 300/month	1979.03 (0.0146)
	Indira Gandhi National Disability Pension Scheme (IGNDPS)	BPL persons with disability between 18 and 79 years of age;Rs. 300/month	308.88 (0.0023)
	National Family Benefit Scheme	BPL persons between 18 and 59 years of age; Rs. 20,000 lumpsum	602.22 (0.0044)
Health and Maternity Benefits	RashtriyaSwasthyaBimaYojana	BPL and select occupational groups in unorganised sector, such as construction workers, domestic workers, street vendors etc. Annual family insurance cover of Rs. 30,000	595 (0.0044)
	Indira Gandhi MatritvaSahyogYojana	Above 19 years, up to 2 live births; Benefits of Rs. 6,000 for 6 months	400 (0.0029)

Source: Data collated from various Government ministries' websites

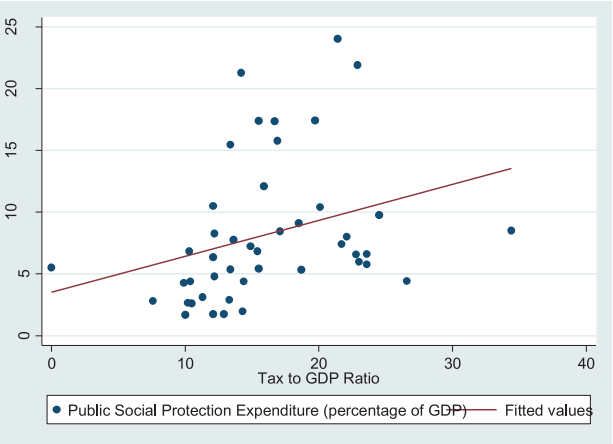
The World Commission on the Social Dimension of Globalization (2004) floated the idea of a socio-economic floor and its relationship to social protection. It argued that a certain minimum level of social protection needs to be accepted and undisputed as part of the socioeconomic floor of the global economy. Srivastava (2013) assessed the financial requirements of a Social Protection Floor (SPF) in India which encompassed the following six dimensions of social protection - children's education, nutritional status and health; employment and livelihood security; social pensions; social health protection; food security and housing. He found that India will require additional financial resources ranging from 1-3.5% of GDP in the initial year (12th Plan terminal year) to 2.26-4.37% of GDP in the 13th Plan final year to finance a SPF which can give a credible level of protection to the poor through entitlements[14].

Clearly, additional fiscal resources will be required for increasing expenditure on the above-mentioned schemes and providing a SPF. Adequate fiscal space can only come from raising the tax/GDP ratio from its present low levels. The tax/GDP ratio in India is not only low, but it has also fallen in recent years. There have been calls such as those by the Kelkar

[14] A bulk of this increase will cater to increases on expenditure in the health sector, in which expenditure as a percentage of GDP is slated to rise by 1.4% over a 10 year period.

Committee Report, 2012 to widen and deepen the tax base. Raising the tax to GDP ratio to a level similar to that in other countries of a similar per capita GDP is imperative. As can be seen from Figure 7, countries with a higher tax to GDP ratio have had the fiscal room to incur greater social protection expenditure as a percentage of GDP.

Figure 7: Scatter plot of public social protection expenditure to tax /GDP ratio



Source: Calculations based on World Social Protection Report, ILO (2014-15) and World Development Indicators (2012)

However, it needs to be noted that providing an effective SPF to the poor and vulnerable requires more than financial provision. What is needed is the political voice to make universal social security a reality. This political voice also needs to be backed by an appropriate design so that social security can achieve both the goals of providing a SPF and contributing to the development process. This requires a careful consideration of the design of the social protection programmes and their implementation, which in turn could also have implications for financial costs. Combined with better public provision of educational and medical services, a universal and potable SPF could thus function as an important instrument in pushing the economy on to the high road of not only rapid but also more inclusive and sustainable growth.

Monotax : Promoting formalization and extending social security to independent workers[15]

In 2001, Uruguay implemented a tax reform-the *Monotax*[16]-which aimed at formalizing the micro- and small- enterprises by combining enterprises' tax payments and social security contributions into a single monthly payment. The combined payment was then used to finance social security benefits to the employees of the same enterprise, thus reducing costs and increasing compliance by firms. The Monotax scheme provides two alternative payment options to small businesses and own account enterprises. Contributors can either pay the Monotax, which is a unified contribution of taxes and social security payments or pay normal taxes and social security contributions separately. The payments are collected by the Uruguayan Social Security Institute (BPS), out of which taxes are transferred to the respective fiscal authority. The remaining amount is then used to finance social protection benefits to the employees and family members of the enterprise. The Monotax not only reduces the number of procedures required for an enterprise to be formally registered but also lowers the overall cost of compliance. In 2011, the Government launched the 'Social Monotax', a policy specifically targeted at one-person enterprises, to bring individuals living in poverty and in conditions of vulnerability within the social security framework. Consequently, a range of independent workers, from one-person businesses and family owned enterprises to companies with no salaried workers registered under the scheme. By December 2012, the number of businesses registered with the social security institute under the Monotax reached 26,900, which is 7.4 times the figure in June 2007.

The Monotax scheme has proven to be an effective instrument for the formalization and inclusion of independent workers into the social security system and countries such as Argentina, Brazil and Ecuador have attempted to follow suit. The Monotax in Argentina has allowed for the subsidization of social security contributions for individual independent workers and micro-enterprises by incorporating low-income people into pension and health benefits schemes. Further, the "SIMPLES" scheme in Brazil has significantly reduced labour costs of small enterprises, thus promoting formalization. Lastly, in Ecuador, an incentive based system whereby an enterprise is offered a discount of 5% on social security contributions for each affiliated worker, has led to greater formalization within the economy. Although the Monotax regime faces a challenge of extending coverage to the entire economy in all four countries, it has nevertheless made a significant contribution to formalizing a large segment of these economies.

5 Conclusions

Despite experiencing strong economic growth in recent years, the informal sector has been a persistent phenomenon in India with the share of informal workers in total workforce remaining stubbornly high. This share may well increase as we witness increasing contractualisation and casualization of jobs in the organised sector. Given that informality is here to stay and the economic landscape is dominated by informal sector firms, a critical issue for policymakers is how best to improve the conditions of this sector. Efforts to relocate India's working poor to the formal sector need to be supplemented with concerted action to enable the informal sector to grow, participate more fully in India's economic growth and protect its workers who receive significantly lower wages and limited/no benefits as

[15] http://www.ilo.org/wcmsp5/groups/public/---americas/---ro-lima/documents/publication/wcms_245894.pdf
[16] http://www.social-protection.org/gimi/gess/RessourcePDF.action?ressource.ressourceId=48020

compared to their counterparts in the organised sector. From a production lens, there is a large continuum of firms in the informal sector-from very small household enterprises which are relatively unproductive and tend to stagnate over time to larger, more dynamic non-household enterprises. Given this marked heterogeneity, a 'one-size fits all' policy is of limited relevance. From a policy perspective, it is therefore imperative to understand the characteristics of informal enterprises and their potential growth trajectory. For the larger enterprises, particularly those hiring more than 10 workers, which should ideally be registered under the Factories Act, it may well be the case that a bureaucratic and unwieldy legislative system prevents the formalization of the enterprise. Adopting a simplified and flexible approach can reduce informality and boost growth, while increasing tax compliance and wider social security coverage. However, for household enterprises, whose natural size keeps them out of the scope of regulations, lowering registration costs is unlikely to bring them into the formal sector and unleash economic growth. The productivity of such enterprises is too low to survive in the formal sector and enhancing it is particularly important.

From an employment lens, given that there are different dimensions to informality, all of which cannot be addressed simultaneously, an important issue for policymakers is to consider which dimensions of informality to tackle first. Which aspects do workers value most about a formal job? Is it a contract, termination notice, level of pay or social security benefits? In this context, the government's recent initiative to provide social security benefits to unorganized workers and bring them in line with the organized sector workforce is noteworthy. The labour ministry, which controls the Employees' Provident Fund Organisation (EPFO), is building a system of providing provident fund (PF) and pension to unorganized workers—ranging from the farm hands to labourers working at construction sites, to domestic helps and tea sellers. Once implemented, such a move will not only provide a social security net to unorganized sector workers but will also give EPFO access to a huge pool of subscribers at a time when a proportion of its current subscriber base may have migrated to the National Pension System after the government announced a provision offering the choice in its budget proposal. The second initiative is to amend the Minimum Wages Act which was enacted at the time of Independence. As part of the amendments, the labour ministry plans to set a national floor for minimum wages for workers across professions. The minimum wages would be revised every five years by the Centre in accordance with the NSSO's consumer expenditure survey and it would also be revised every six months according to the consumer price index by states. This could result in a significant jump in salaries of unorganised sector workers.

Of course, none of these steps take away from the urgent need to provide a universal SPF. Given that implementation capacities are limited in India, it would be realistic to implement a SPF within a framework of "progressive realization" (UNICEF 2012) but within a statutory framework and a definite time frame. Though the fiscal costs of such a move would be significant, we need to look at this in the background of the fact that the existence of a large informal sector itself has significant fiscal costs in terms of forgone fiscal revenue (Levy 2008). The estimate of the Sub-committee of NCEUS taskforce ((National Statistical

Commission 2012, pg 30)[17] that about 50% of India's GDP was contributed by the unorganised/informal sector in 2004-05 is reflective of the enormous fiscal gains that would accrue from bringing the informal sector into the formal fold.

Given the dominance of the unorganized sector and rising levels of informality in the organized sector, the issue of informality needs urgent attention. In a developing country such as India, this is imperative as it has wider ramifications for the economy and society. From a macro-economic point of view, it helps to develop a healthy and content workforce capable of enhancing its contribution to the national income. This, in turn, would enhance the aggregate demand in the economy through higher purchasing power of this vast mass of the workforce. The mutually reinforcing nature of this relationship needs to recognised and exploited.

[17] http://nceuis.nic.in/Final_Booklet_Working_Paper_2.pdf

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APPENDIX 1

The Growth Pole Programme

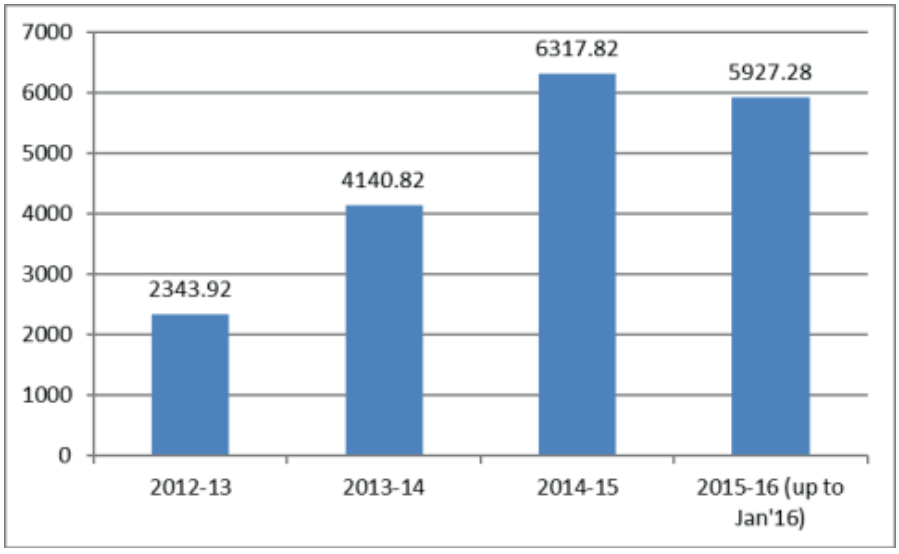
The Growth Pole Programme encompasses a mix of soft and hard interventions through various existing Government schemes. These include creating awareness, providing counseling and motivation, exposure visits, participation in workshops and training programmes, technology upgradation etc. Some of the "hard" interventions include creation of tangible assets such as Common Facility Centres, Design Centres, Testing Facilities, Common Logistics Centres, Raw materials depots and so on. Lastly, the programme also focuses on infrastructural development by providing facilities like electricity, water, telecommunication, drainage and pollution control activities.

Along with increases in employment and income, the pilot projects also shed light on several areas of concern that have stifled the growth of clusters and enhancement of unorganized enterprises. One of the biggest area of concern for the clusters was marketing. Issues such as lack of capacity to exploit emerging markets, low volume of production, poor market linkages and insufficient product diversification have stalled the growth of artisan clusters in Rajasthan and Kerala, among others. Further, marketing support through institutions like National Small Industries Corporation (NSIC), State Industries Development Corporation (SIDC) and sector-specific boards like the Coir Board is also not readily available. Moreover, the lack of technology up-gradation by a large number of micro and small enterprises has resulted in declining competitiveness as compared to other locations in India and around the globe. For instance, the cashew and coir enterprises in Kerala have been operating on traditional and conventional technology for decades and this is reflected in their low productivity growth. Infrastructure building was yet another issue. In the past, attempts were made to create industrial estates and common facility centres. However, enterprises in general have suffered from lack of basic infrastructural services such as power and water supply, access to raw materials, transport and communication links and so on.

Other issues of concern relate to the overall organizational and institutional support that is indispensable for enterprises to thrive. There are a multiplicity of schemes and programs for credit, technology, marketing and welfare. There are also multiple governmental and nongovernmental agencies for their delivery to this sector but the outreach, coverage and impacts are well evident by their absence at the grass root level. These agencies need to synergise to extend a collaborative institutional support mechanism for effective delivery. Thus, an innovative institutional structure is needed for sector/service specific programs to achieve financial sustainability and equity in the growth pole programme. Therefore, while the growth pole programme provides an overall structural framework in which various Government schemes could be comprehensively executed to achieve economic growth in the unorganized sector, the failure of the individual government schemes has throttled the project and prevented development of the unorganized sector enterprises. In 2015-16, the Cluster Development and Growth Pole programmes were clubbed into "Infrastructure Support and Capacity Building", an important component of the Ministry of MSMEs. Since the election

of the new government, the scheme has acquired a new impetus reflected in greater budget allocations (Figure 5).

Figure 5: Expenditure on Growth Pole Project (Sanctioned, in Rs Lakhs)



Source: Ministry of MSMEs, Government of India

APPENDIX 2

Summary of Central Government schemes for social protection of informal sector workers

	Scheme	Description
National Social Assistance Programme (NSAP)	Indira Gandhi National Old Age Pension Scheme (IGNOAPS)	This is a state-sponsored old age pension scheme, wherein individuals belonging to the BPL category, between the ages of 60 and 79 years receive Rs. 200 per month and those above 80 years receive Rs. 500 per month.
	Indira Gandhi National Widow Pension Scheme (IGNWPS)	This is a pension scheme for widows wherein beneficiaries belonging to the BPL category, between the ages of 40 and 79 years, receive Rs. 300 per month.
	Indira Gandhi National Disability Pension Scheme (IGNDPS)	This scheme is for persons suffering from disabilities in accordance with the PWD Act, 1995. Beneficiaries belonging to the BPL category, between the ages of 18 and 79 years receive an entitlement of Rs. 300 per month.
	National Family Benefit Scheme	This scheme provides a lumpsum amount of Rs. 20,000 to those BPL families whose primary breadwinner is deceased. The deceased must be between 18 and 59 years of age at the time of death.
Pradhan Mantri Jan Suraksha Yojana	Atal Pension Yojana	This scheme is for unorganised sector workers between the ages of 18 and 40 years, who have bank accounts and are not income tax payees. A minimum guaranteed pension ranging from Rs. 1,000 to Rs. 5,000 per month is provided upon attaining the age of 60 years, depending on the subscriber's contribution. The Govt. will also co-contribute 50% of the subscriber's annual premium or Rs. 1,000, whichever is lower for first 5 years (applicable for 2015-16 till 2019-20).
	Pradhan Mantri Suraksha Bima Yojana	This scheme is a one year renewable insurance cover for death and disabilities on account of accidents. The beneficiary must be between 18 and 70 years of age, must hold a bank account and consent to auto-debit facility. Premium paid by subscriber: Rs. 12/annum. Benefits: Death or permanent total disability-Rs. 2 lakh; Permanent partial disability- Rs. 1 lakh
	Pradhan Mantri Jeevan Jyoti Bima Yojana	This scheme is a one year renewable insurance cover for death due to any reason. The beneficiary must be between 18 and 50 years of age, must hold a bank account and consent to auto-debit facility. Premium paid by subscriber: Rs. 330/annum. Benefits: 2 lakhs
Health and Maternity Benefits	Rashtriya Swasthya Bima Yojana	This scheme provides health insurance to BPL households and select occupational groups in the unorganised sector (e.g. construction workers, beedi workers, domestic help etc.). Costs of Scheme: Registration Cost to Beneficiary family: Rs. 30/annum. Total Cost of Premium per beneficiary family: Rs. 750/annum. Central Govt. contributes 75% of premium, whereas State Govt. contributes the remaining 25%. The Central Govt. also provides a smart card (cost- Rs. 60) and pays a maximum of Rs. 1,000 per year for hospital visits. Benefits: Insurance benefit- Rs. 30,000 per family per year, along with a smart card as well as transport expenses for hospital visits.
	Indira Gandhi Matritva Sahyog Yojana	This scheme is for all pregnant women above 19 years of age, who do not receive similar benefits in formal employment. Therefore, it covers all unorganised sector women. The entitlement is Rs. 6,000 for 6 months, up to 2 live births.

Informal Employment in India: Current Status and Opportunities for Job Creation

August 2016

Draft Report submitted to the FRBM Review Committee

Version 0.9

Authors
Neelkanth Mishra

Prateek Singh

Table of contents

As required by the FRBM Review Committee, we have prepared a report analysing the current state of employment in India, which is dominated by informal workers, with recommendations to accelerate job creation.

The report has three sections: in the first we drill down into the employment data to identify specific sectors that dominate the informal space. In the second section we study the problems of high informality; the motivation to resolve some of these problems is what would shape policy. In the third section we provide six specific suggestions that can have a meaningful impact on job creation; we also highlight five additional areas that can be explored in greater detail should they be of interest to the Committee.

Informal Employment Drilldown

Employment data in India is infrequently collected, and there are material inconsistencies between the data reported by the Economic Census (EC) and that reported by NSSO's Employment-Unemployment Survey (EUS). There are large variations in the measurement of the labour force, with differences between estimates as high as 52mn workers, as well as in unemployment: the ratio changes from 2.4% to 8.2% depending on definitions used. Under-employment and unemployment are hard to separate, and categorization of jobs is also difficult, as many workers hold several jobs, often at the same time.

The primary source of data problems is the high share of informal workers: only 9.2% of the 473mn workers in the 2011-12 survey were formal, i.e. had regular wages/salaries and access to PF/Pensions. Worryingly, the ratio of formal workers in India is much below that of global peers, and hasn't improved despite strong GDP growth. A disproportionately large part of formal employment is in the public sector, with the private sector having a surprisingly small share (33% in 2006). All (formal) industrial employment in India is less than 3% of the workforce, and is lower than in 1983.

Even excluding agriculture, 72% (188mn of the 260mn) non-agriculture workers in 2012 were in the informal sector. The formal sector remains a small part of the overall employment scenario, and a worrying aspect has been the persistent increase of informal employment in the formal sector. In this report we primarily focus on the informal sector, and in particular on **Manufacturing**, **Trade**, **Non-Crop Agriculture** and **Transport**, which together are 83% of the informal sector jobs.

Within **manufacturing**, sectors like auto manufacturing, basic metals, petroleum products or Pharmaceuticals have a high formal share, as one would expect. Sectors like Apparel, Textiles, Tobacco (*beedis*, pan masala), Machine Repair, Furniture, Wood Products and the like account for most of informal manufacturing employment: apparel and textiles in particular are more than a third of such workers. In **Trade**, 93% of the employment is informal, with food retail the dominant sector by category of product. **Construction** jobs are mostly about buildings (80%), and contrary to the media commentary on big-city real-estate, more than three-fourths of construction jobs are rural, with rural buildings accounting for nearly 60% of them. Even road/rail and other infrastructure projects primarily create rural construction jobs. As most of the population, as well as the construction of *pucca* residential units is rural, this is not inconsistent with other surveys. Adding 2.6mn workers making bricks, we get more than 30mn informal workers in building construction. 85% of **Transport** jobs are in the roads sector, with more than half in passenger transport. In **Non-Crop Agriculture** nearly all jobs are informal, and these jobs are the most likely to be under-counted/misclassified.

Problems of high informality: low control, taxes, output

Informality creates several problems: it impedes productivity, creates a vicious cycle that constrains growth of the enterprise, impairs broader economic growth by constraining government services, and also reduces the impact of monetary policy on the economy. These

problems may get exacerbated as in the coming years, with agricultural productivity continuing to improve but not demand, workers get forced out of agriculture.

Productivity: With the informal sector accounting for 83% of workers (the additional 7.5% are informal workers in the formal sector) but only 45% of GVA, the value added per worker is as expected very low at Rs93K. On the other hand the formal sector has Rs1mn GVA per worker: this would not be out of place among the middle-income economies. If we exclude informal workers in the formal sector, whose value-add (as measured by compensation) would be insignificant, the GVA comes to an enormous Rs1.9mn per worker. With the exception of Mining, Construction and Transport, in 2012 the GVA per worker was less than Rs100K for almost every category of informal workers.

Impaired growth: Of the 59mn non-farm enterprises in India, only 0.8mn had 10 or more employees, and 79% of non-crop workforce works in enterprises smaller than 10 employees. Small size and high informality hurts growth as well: given the low productivity there aren't any savings to invest back in the business, and availability of external capital is also constrained: 93% of MSMEs as per the 2007 census were self-financed. Further, the cost of capital for smaller firms in India is also much higher than it is for larger firms. For informal borrowers the costs would be even higher and availability more constrained than for the (mostly formal) MSMEs, with interest rates running at 3-5% per month (45-60% per annum). This is because formal lending is generally against collateral and informal enterprises are asset lite, with not much proof of their cash flows.

"Low equilibrium" on government services: India's headline tax to GDP at 17% is among the lowest in the world. However, given that 45% of the GDP is not taxable, the tax to GDP for the remaining 55% is nearly 30%, among the highest rates in the world. Thus, despite the high fiscal deficit, general government spending in India is perhaps lower than it should be, and many essential government services are constrained. In 2013, the US for example had nearly 50% more police personnel per unit population than India, despite their police force being much better equipped. The same applies to other services like urban transport, civic services, education and health. In the absence of these, productivity of the economy goes down, which in turn drives low taxes. This is a problem faced by most less-developed economies (LDCs), and it's important to move out of this lower equilibrium to a higher equilibrium where high taxes enable bigger government and thence higher taxes.

Less Monetary Control: Given the lack of formal accounts and generally sub-scale requirements of credit, most of informal enterprises rely on informal sources of credit. In rural areas, as per the All India Debt and Investments Survey, for non-cultivators more than half comes from informal sources, and only 22% of credit is from scheduled commercial banks. Even in urban areas for the self-employed nearly a third of the credit is from informal sources. This is despite decades of policy support to lending in this sector. High informality and less dependence on formal banking channels is also what drive a disproportionately greater use of cash in the Indian economy even compared to other Emerging Market peers. In an economy with significant use of cash and low deposits and credit as a share of GDP the central bank has limited ability to control growth or inflation.

Suggestions for Job Creation

We approach the prescriptions keeping in mind the current employment mix: the current mix of jobs indicates the availability of skillsets, and should act as a blueprint. While enough has been said and done about skilling, impacting tens of millions of workers is unlikely to be achieved in a few years. This must be blended with the axiom that income growth equals productivity growth over time, which by definition means that fewer workers are needed unless demand grows. Livestock for example cannot be the destination for non-crop workers for the next decade like it was in the last. Further, India being a sixth of humanity, the solutions need to be of scale, and at the same time aping what worked in other economies may not be ideal. We detail six suggestions, with five more mentioned as ideas we can further explore should the committee desire so.

1. **Rural Housing: Housing subsidy is for workers**: Nearly 60% of all construction jobs are for building rural houses, and at the same time 38% of houses in India are *kutcha* or semi-*pucca*, 87% of them rural. Incentivizing the construction of these houses can thus create jobs in addition to improving the productivity of their residents. Rural house construction is much less expensive than in urban areas, primarily as the land is usually owned by the household: all spend thus goes into construction, providing more "bank for the buck". Further, there is little risk of encouraging speculation, and with labour more than half the total cost of construction (directly or indirectly), it acts as a subsidy for workers. Schemes like the Pradhan Mantri Awaas Yojana have tried to incentivize rural home-building, but fund allocation has been a constraint. The concerns with leakage in the scheme (large-scale expropriation by the *mukhiyas*) can be addressed through technology, both for the transfer of funds as well as monitoring of progress.
2. **Food Processing and Agricultural Exports**: We now have surpluses in almost all primary food categories, but exports are difficult because of low share of processing, and lack of cost-competitiveness. Currently only 3% of India's food is processed, and yet this is 9% of informal manufacturing. The demand for processed food (like pre-cooked meals/snacks) is likely to rise sharply in the coming years with income growth, as seen in habits of higher fractile consumers. This provides an opportunity to absorb people moving out of agriculture without driving much migration. The question is can and should policy accelerate the process: directed tax incentives can make it more affordable for lower consumption fractiles. This development can also help set up the producer pyramid wherein the top-most (technologically savvy and ambitious) manufacturers can export products: India's agricultural exports are too raw material heavy. Opportunities for growth may exist in beverages, meat, fruits, and confectionary and milk products.
3. **Ease lending by hand/subsidizing smartphones**: It's well understood that high cost of credit for micro-enterprises impedes growth. In China, a period in which millions of micro enterprises were created (very similar to India so far) was followed by a period where these enterprises scaled up their asset base. The resultant improvement in productivity also helped drive wage growth and jobs. Policymakers in India have been trying to solve the micro-credit problem for decades, but most attempts have fallen short. SSI/MSME share of loan books has not picked up – it has in fact come down sharply since 1991. The trouble with lending to small enterprises has been that they lack collateral against which to lend, and also lack reliable evidence of cash flows that a lender not known personally to the borrower can use to assess credit-worthiness. This has been a chicken-and-egg problem, but new techniques being attempted by several ventures that use non-financial usage data from smartphones to assess credit-worthiness can drive a breakthrough. By subsidizing smartphones (LED redux?) through a bulk purchase, the government can accelerate data capture for these enterprises, and the data then can be used by these ventures to start the lending cycle. This can also bridge the internet penetration gap that India has.
4. **Consumer Appliances/Electronics**: with income growth as well as substantial improvements in household electrification and power availability, the abysmal penetration rates for productivity enhancing small as well as large appliances in India can see a sharp jump up. So far this has been driving a jump in imports from China and is at the root of the rapidly expanding trade deficit with the country. Our analysis of substitutability of imports also points to this being the largest such opportunity. Our interactions with manufacturers suggest that Chinese cost advantages lie mainly in power costs, finance costs, the advantages of a well-developed local supply chain, as well as a substantial difference in worker productivity that offsets the low wage costs in India. Expansion of schemes like 80JJAA as well as the government paying the PF contribution for low-paid employees can help offset these disadvantages.
5. **Hard as well as Soft Transport Infrastructure**: Construction of roads creates jobs, but much more important is the fact that their use creates more jobs. Government focus has started to move from just building roads/railway lines to also improving the quality of transport. This is a welcome change in perspective even from a job creation perspective.

General government spending on national highways, state highways as well as rural roads is necessary for creating the enabling infrastructure for local industry to scale up. The flagship *Pradhan Mantri Gram Sadak Yojana* (PMGSY) has been a remarkable success over the past decade and a half, having constructed nearly 500,000 kilometres of roads, and connecting 110,000 habitations to the mainstream economy for the first time. This can now be scaled up for better quality connections. State highways somehow fall between the central government's focus on the major arterial roads and the last mile connectivity: while conversion of 50,000kms of state highways to National Highways can help, incentivizing state governments to spend on them can have multiplier effects: states with more developed state highway networks have much higher per capita GDP.

Perhaps more importantly, the government is starting to focus on the usage of roads. Passenger transport services are job creators, and while a natural process can see these develop once the road is built, it can be time consuming. It's clear that states with better public transport (buses per million people being one measure) also have higher per capita output.

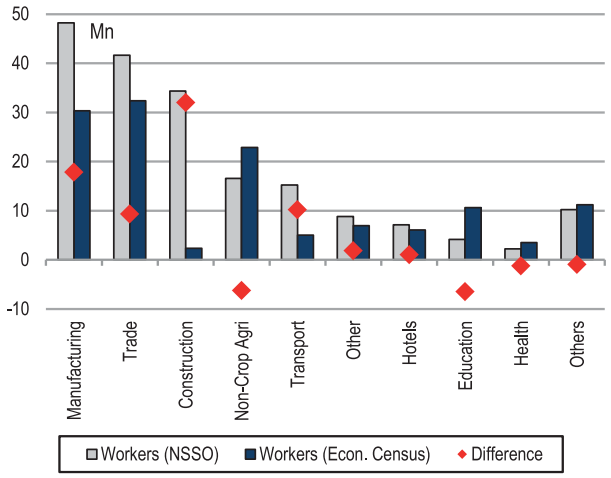
6. **Getting women into the workforce**: In India, average productivity is hurt by an abysmal participation rate for women. Not only is it already very low, it has been falling in the last decade. Most countries that pulled themselves out of poverty got their women into the workforce. As we believe the share of workers in agriculture is likely to start falling meaningfully, women are likely to be the worst impacted, as 75% of rural women workers are in agriculture, and participation rates in urban areas are abysmally low. Some of the recent moves to increase mandatory maternity leave and include on-site crèche services are necessary for the formal sector, but may act as a deterrent for employers at the lower end of the wage spectrum. The government may have to resort to women-specific subsidies to offset some of these concerns. There are also traditionally women-centric sectors like garmenting, education and health that the government can look to support to encourage more women to enter the workforce.

In addition to the above, there are several additional areas associated with the informal economy in terms of formalization or job creation that can have fiscal implications. These include i) Fiscal freedoms for local government; ii) Directly addressing the costs of formalization – the choice for the government is not if but when, as a growing old-age population that lacks pension coverage is likely to be a meaningful fiscal burden in the next 15 years; iii) Addressing rigidities of labour markets with directed subsidies; iv) State-specific incentives and/or cluster development; and v) Tourism. These are either very broad-based areas, or availability of reliable statistics (like Tourism) is a challenge. These can be detailed post discussions with the committee.

Informal Employment Drilldown

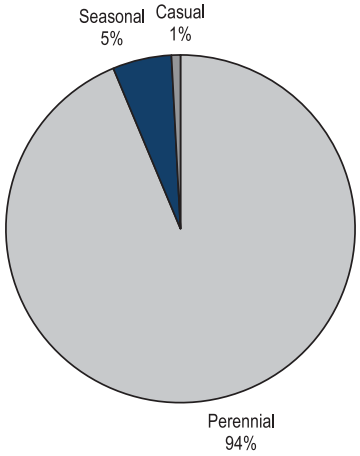
Employment data in India is infrequently collected, and is inconsistent. For example, there are large differences in the employment numbers as reported by the Economic Census (EC) and that reported by NSSO's Employment-Unemployment Survey (EUS) (Figure 1). Categorization is also difficult, as many workers hold several jobs, often at the same time.

Figure 1: Large differences between EUS and EC



Source: NSS 68th Round, 6th Econ. Census; Credit Suisse estimates

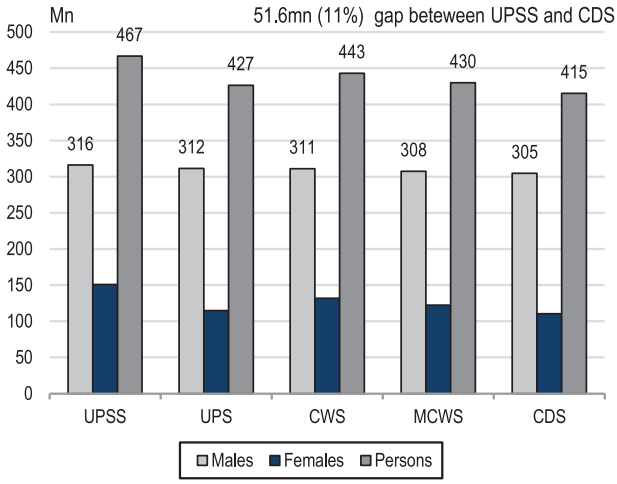
Figure 2: Most jobs are perennial; only % are Casual



Source: 6th Economic Census, Credit Suisse estimates

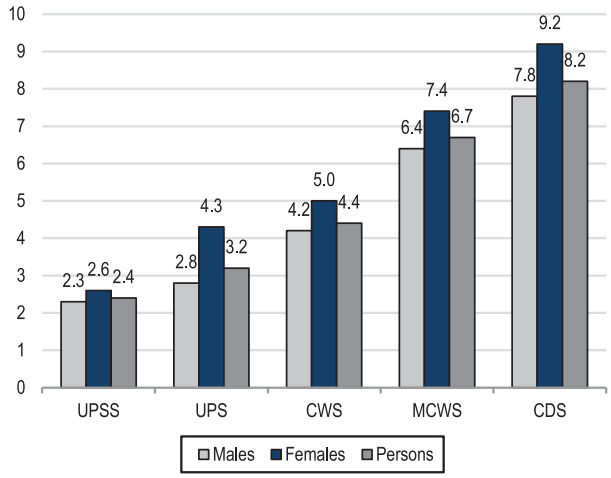
According to various Economic Censuses including the most recent one, jobs in India are mostly permanent jobs (Figure 2), and are not part-time. However, there are large variations in the measurement of the labour force (Figure 3; see Appendix for definitions) as well as in unemployment (Figure 4) and these suggest under-employment.

Figure 3: Labour force as per various measures



Source: NSSO, Credit Suisse estimates

Figure 4: Disparity in unemployment across measures



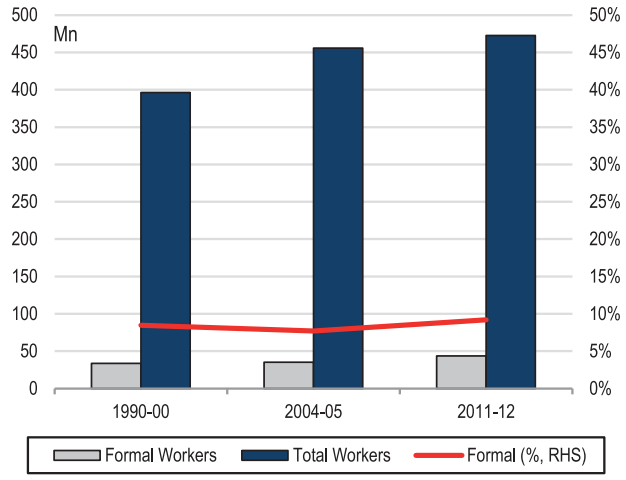
Source: NSSO, Credit Suisse estimates

Average daily wage/earnings also indicate underemployment: 80% of casual workers (84% of rural, 57% urban; 95% women, 74% men) and 31% of regular/salaried wage workers (42% rural, 25% urban; 54% women, 26% men) get average daily salary/wage less than the national minimum wage of Rs66/day. Trouble is also that this data is not available for the self-employed.

High share of informal employment

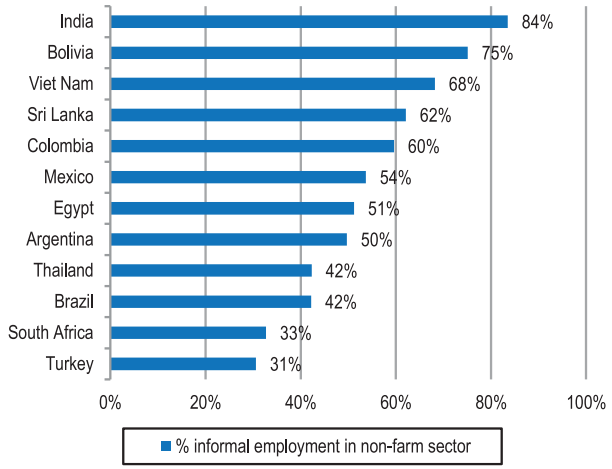
India has a very high share of informal workers. Of the 473mn workers as per the 2011-12 employment survey, only 43mn (9.2%, Figure 5) were formal, i.e. had regular wages/salaries and access to PF/Pensions/Gratuity. Worryingly, this ratio hasn't changed much over the years despite strong GDP growth, and even as the share of agriculture (all informal) has declined. It remains much below that of global peers (Figure 6).

Figure 5: Only 9% of workers in 2011-12 were formal



Source: NCEUS, NSSO, Credit Suisse estimates

Figure 6: High informal share of non-agri employment



Source: ILO Dept. Of Statistics, Credit Suisse estimates

Between 2004-05 and 2011-12, almost all job creation was in the formal sector (Figure 7), but this remains a small part of the overall employment scenario, and a worrying aspect has been the persistent increase of informal employment in the formal sector. Given the economic slowdown after 2012, it is possible if not likely that formal sector job creation may have slowed again: the NCEUS (Arjun Sengupta committee) had found nearly zero formal sector job creation between 2000 and 2005.

Figure 7: A substantial number of formal sector workers are informal

Mn	Workers, 1999-00			Workers, 2004-05			Workers, 2011-12*		
Enterprise	**Informal**	**Formal**	**Total**	**Informal**	**Formal**	**Total**	**Informal**	**Formal**	**Total**
Informal Sector	340	2	342	392	1	393	394	0	394
Formal Sector	23	32	55	29	34	63	36	43	79
Total	**363**	**34**	**396**	**421**	**35**	**456**	**429**	**43**	**473**

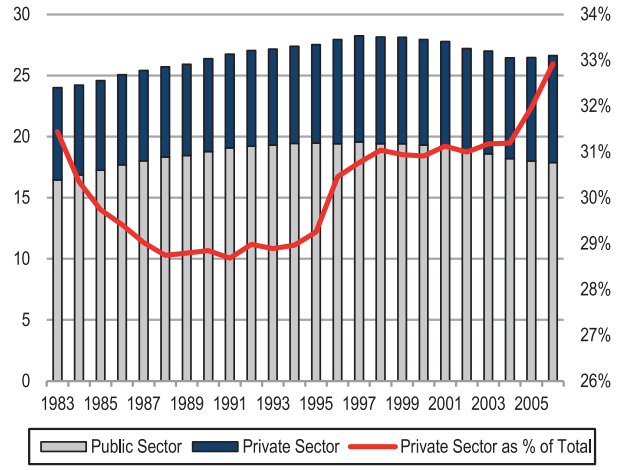
*Source: National Commission for Enterprises in the Unorganised Sector (NCEUS), NSSO 68th Round (EUS), *Credit Suisse estimates*

Government creates the bulk of formal sector jobs

A surprisingly small part of formal jobs are in the private sector (Figure 8): in 2006 this was only 33% as per the Employment Market Information (data from NCEUS). The government is still (or was still, at least till 2006) the employer for two-thirds of all formal sector employees, likely explaining the clamour for reservations in government jobs.

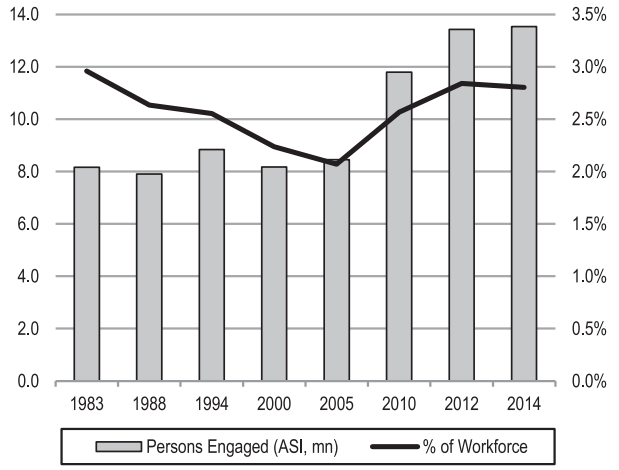
All (formal) Industrial employment in India is less than 3% of the workforce (Figure 9): this ratio was declining worryingly till 2005, and jumped thereafter, but it remains lower than in 1983, and the economic slowdown of the last few years seems to have driven stagnation again. The Annual Survey of Industries (ASI) is the most exhaustive survey available for industrial production, but as per CSO still covers only two-thirds of manufacturing GVA.

Figure 8: Two-thirds of formal jobs are in public sector



Source: Employment Market Information (ref NCEUS), CS estimates

Figure 9: (Formal) Industry only 2.8% of workforce



Source: Annual Survey of Industries, NSSO, Credit Suisse estimates

Non-agricultural Informal sector employment

Of the 260mn non-agricultural workers in India in 2011-12, we estimate 188mn (72%) were employed in the informal sector (Figure 10). We first focus on these; 32mn (12%) informal workers in the formal sector face different challenges and are not discussed here.

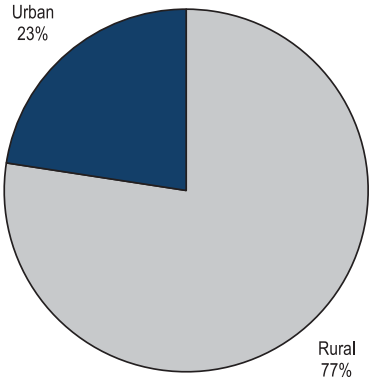
Figure 10: Split of Non-Farm employment

Non-Farm Workers, Mn	Workers, 1999-00			Workers, 2004-05			*Workers, 2011-12		
Enterprise	**Informal**	**Formal**	**Total**	**Informal**	**Formal**	**Total**	**Informal**	**Formal**	**Total**
Informal Sector	109	1	110	141	1	142	188	0	188
Formal Sector	18	31	49	26	31	56	32	41	73
Total	**127**	**32**	**159**	**167**	**32**	**199**	**220**	**41**	**260**

*Source: National Commission for Enterprises in the Unorganised Sector (NCEUS), NSSO 68th Round (EUS), *Credit Suisse estimates*

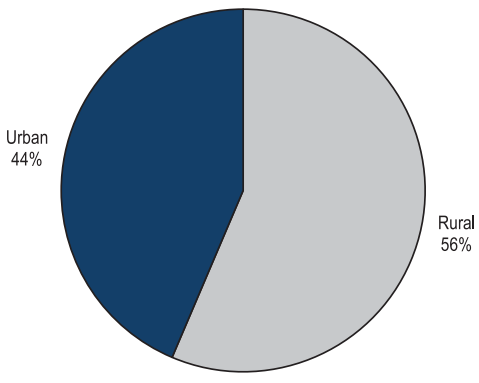
Nearly 77% of informal sector workers are in the rural areas (Figure 11), though this is dominated by crop agriculture. Removing crop agriculture, about 56% of informal sector workers are in rural areas and 44% (Figure 12).

Figure 11: Rural Urban split of all Informal Workers (2012)



Source: NSSO, Credit Suisse estimates

Figure 12: Rural Urban split of all non-crop Informal

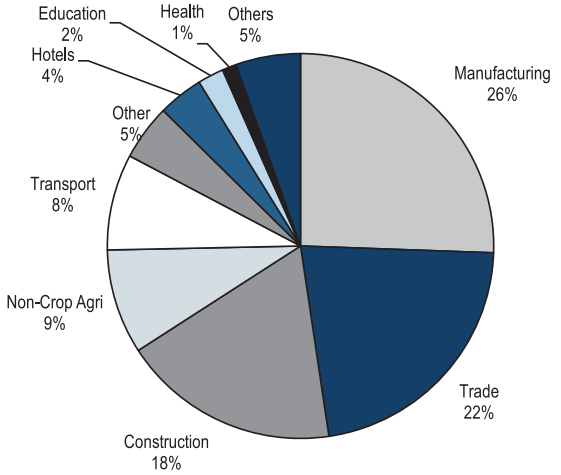


Split of 188mn Informal Sector Jobs

Source: NSSO, Credit Suisse estimates

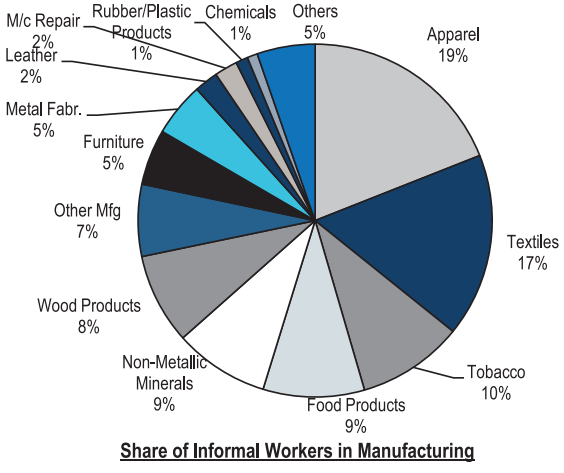
Of these, using the NSSO survey of Informal Sector Workers (an approximation, but broadly indicative), we find that 83% (156mn) are in Manufacturing, Trade, Construction, Non-Crop Agriculture and in Transport (Figure 13): we intend to focus on these categories from the perspective of policy support/stimulus.

Figure 13: Split of 189mn Informal Workers by Activity



Source: NSS 68th Round (Informal Sector Workers), CS Estimates

Figure 14: Split of Informal workers in Manufacturing

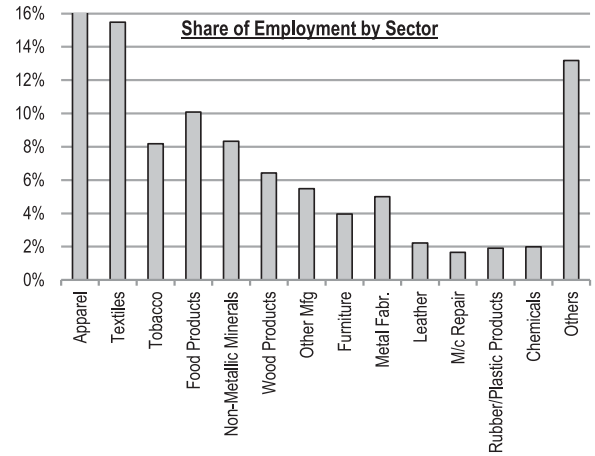


Source: NSS 68th Round (Informal Sector Workers), CS Estimates

Manufacturing

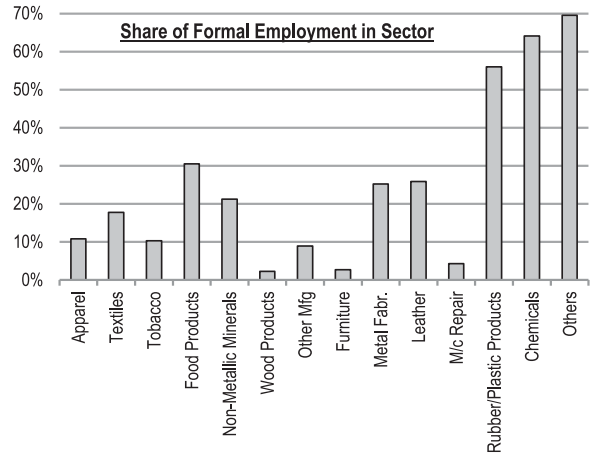
To arrive at the sector-wise split of informal employment in manufacturing, we start with the overall split of manufacturing employment (Figure 15), and remove from that the workers for each sector as captured by the Annual Survey of Industries (ASI). We find that sectors like Auto manufacturing, Basic Metals, Petroleum Products, or Pharmaceuticals manufacturing have a high formal share. This is quite intuitive: these are capital and technology intensive sectors. On the other hand Apparel, Textiles, Tobacco (mostly *beedis*, we believe), Machine Repair, Furniture, Wood Products and the like have very low formal sector presence (Figure 16).

Figure 15: Split of Total Manufacturing Employment



Source: NSSO, Credit Suisse estimates

Figure 16: Share of Formal Sector in the Category



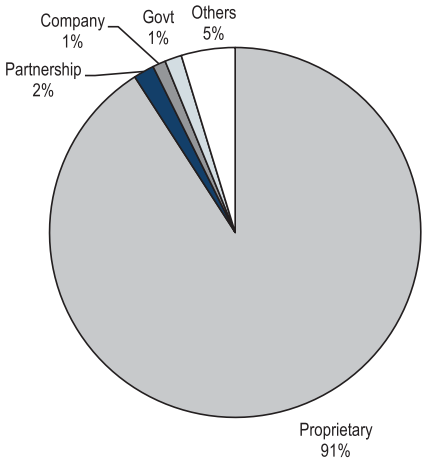
Source: NSSO, Credit Suisse estimates

Combining the two datasets we find that most of the manufacturing employment in the informal sector is in Apparel, Textiles, Tobacco, Food Products, Non-Metallic Minerals (sand, sandstone, limestone, marble, etc.), Wood Products and Furniture (Figure 14).

Apparel (garmenting), and Textiles are more than a third of the informal employment in manufacturing. The recent government stimulus for the sector intends Can drill down more on each of these if needed, starting with textile manufacturing.

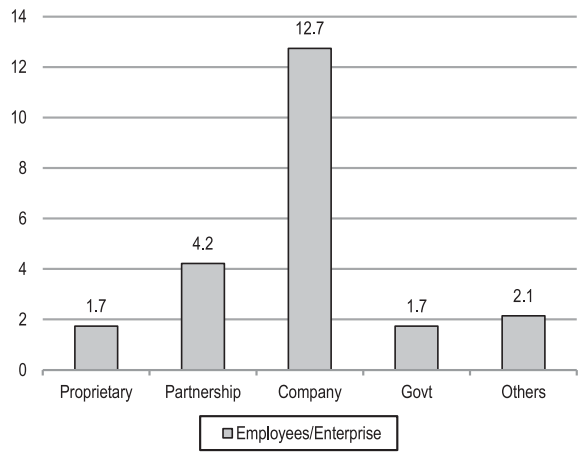
Trade: Retail, Wholesale and Repair of Motor Vehicles

Figure 17: Trade Employment by type of Enterprise



Source: 6th Economic Census, Credit Suisse Estimates

Figure 18: Most of P&P firms are small, and likely informal

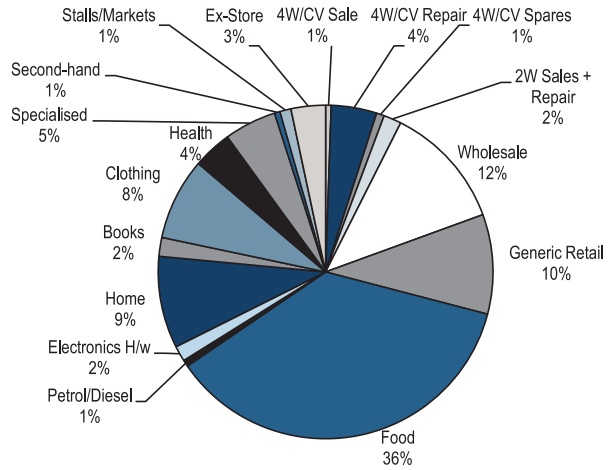


Source: Company data, Credit Suisse estimates

As per the 6th Economic Census, Proprietary and Partnership firms account for 93% of the employment in Trade (Figure 17). With an average 1.8 employees per enterprise in this set, one can assume nearly all the employees are in the informal space. Indeed, only the 3% employed by companies and government (likely the ration shops) would be formal.

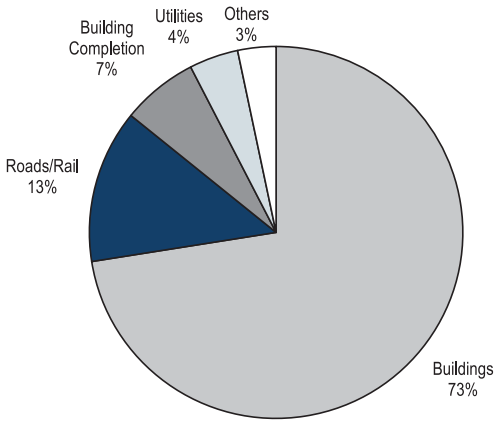
The number of employees in Trade as per the 6th Economic Census (32.3mn) differs from the count as per the NSS 68th Round by nearly 9.3mn, but we assume that the distribution of employees by enterprises would be similar. That even the NSSO classifies only 5.5% of the workers as formal supports this argument.

Figure 19: Split of Trade Employment by Product sold



Source: Company data, Credit Suisse estimates

Figure 20: Split of Construction Jobs



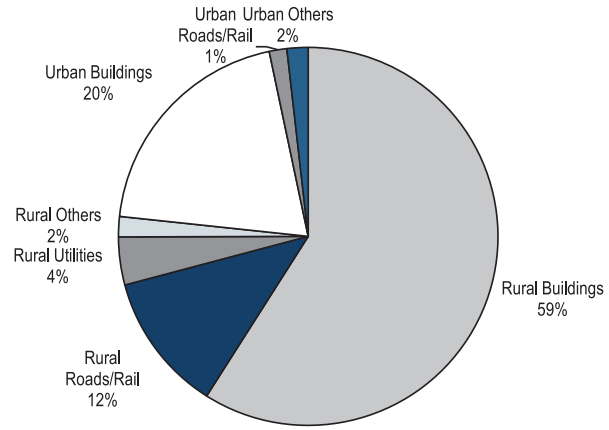
Source: Company data, Credit Suisse estimates

Construction: Mostly about residential real-estate

Nearly 80% of the 45mn construction jobs are in real-estate: 73% in construction of buildings and 7% in building completion. Another 13% are in the construction of roads and railways (Figure 20). It is possible that given the low pace of road/rail construction in 2012, the

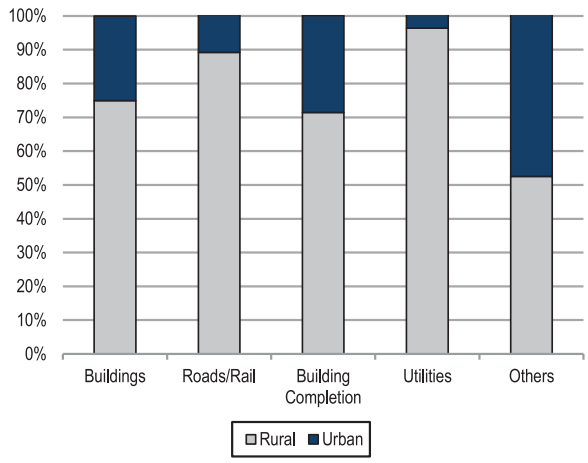
numbers indicated are lower than normal. At the same time, the vagaries of employment statistics in India, as seen in the difference between UPSS and CDS can also be at play: most workers would be in construction only part-time. This is particularly as more than three-fourths of construction jobs are rural (Figure 21).

Figure 21: Three-fourths of construction jobs are rural



Source: NSS EUS 68th Round, Credit Suisse estimates

Figure 22: Urban-rural jobs split by type of construction

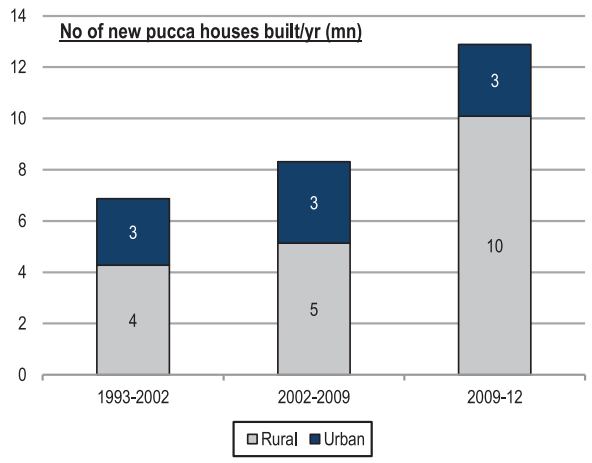


Source: NSS EUS 68th Round, Credit Suisse estimates

Interestingly, jobs for construction of Utilities (seems to be irrigation), and roads/rail construction (as most such activity would be outside the cities: cities are ~6% of India's landmass) are almost fully in rural areas (Figure 22).

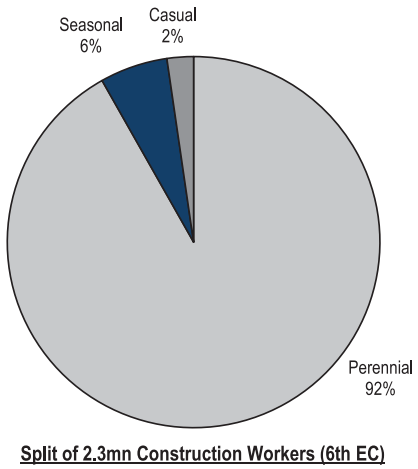
As per the 2001 and 2011 censuses, 8.1mn new houses were built every year. If one was to focus only on *pucca* houses, nearly 13mn new houses were built every year between 2009 and 2012, a sharp increase from the 8mn per year built between 2002 and 2009 (Figure 23). Most of this increase has been in rural *pucca* house construction, and would have thus accounted for most of construction jobs as well.

Figure 23: Sharp increase in *pucca* houses built/year



Source: NSS Housing Conditions Surveys, Credit Suisse estimates

Figure 24: Worker split by Type as per Economic Census



Source: 6th Economic Census, Credit Suisse estimates

As to what type of enterprises these workers are in is harder to analyse, as the 6th Economic Census reports just 2.3mn construction jobs, vs. 34.3mn as per NSSO. That it categorizes most of these jobs as perennial (Figure 24) may in fact reflect the lack of accuracy as most construction workers anecdotally are migrants. To the extent it is useful, even as per the

Economic Census, nearly 87% of workers are proprietors, meaning they work more or less for themselves.

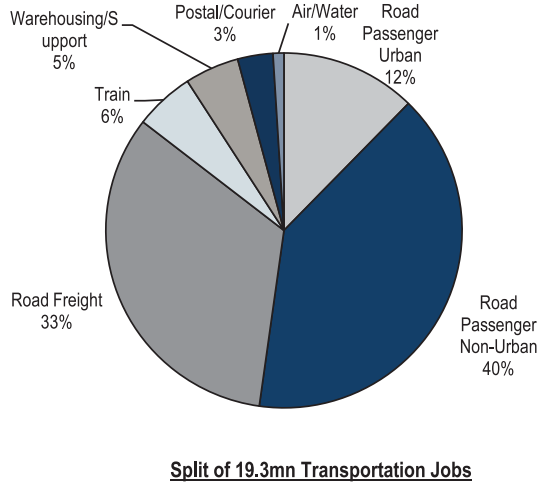
Of the much larger numbers that the NSSO reports the share of informal employment is a high 77%. We thus find that nearly 27.4mn informal workers are employed in buildings (construction and finishing). Adding 2.6mn workers making bricks (most of which we can assume are informally employed), we get more than 30mn workers employed in building construction.

Transport

85% of the 19.3mn transportation related jobs in India are in the roads sector, with about 33% of total transport jobs being in road freight, and 52% in passenger transport (Figure 25). Nearly 80% of all jobs in transportation are informal in nature. We estimate that most of the formal jobs are in Rail, Postal services, Air transport and in Warehousing/Support operations, and therefore the roads sector has much higher informality (Figure 26).

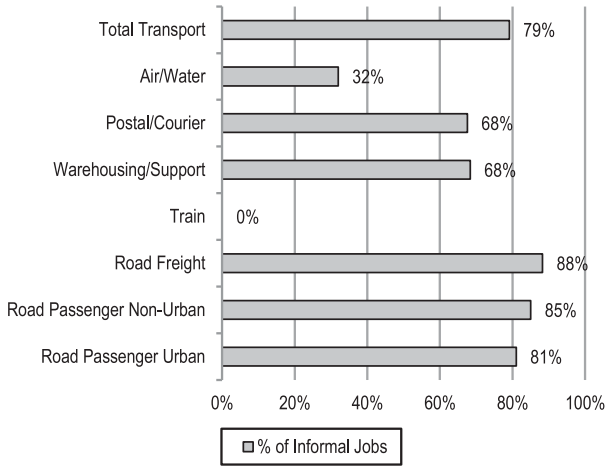
The Economic Census counts only 5mn jobs in Transportation, but the fact that nearly 83% of these are in Proprietorships, where the average employee count is just 1.5 per enterprise, it shows a high level of informality. Given the fragmented nature of freight demand, particularly as the transportation market is broken up by state boundaries, freight aggregators haven't developed so far – the implementation of GST should help on this front. Further, given cyclicality in the business even the freight operators that have size keep their fleets to the minimum sustainable through a down-cycle, and then rely on free-lancing truck owners/drivers to cater to excess demand.

Figure 25: Activity-wise split of Transport jobs



Source: NSS EUS 68th Round, Credit Suisse estimates

Figure 26: High informality in roads sector

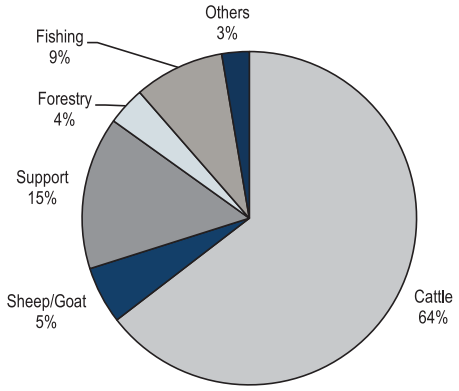


Source: NSS EUS 68th Round, Credit Suisse estimates

Non-Crop Agricultural Jobs

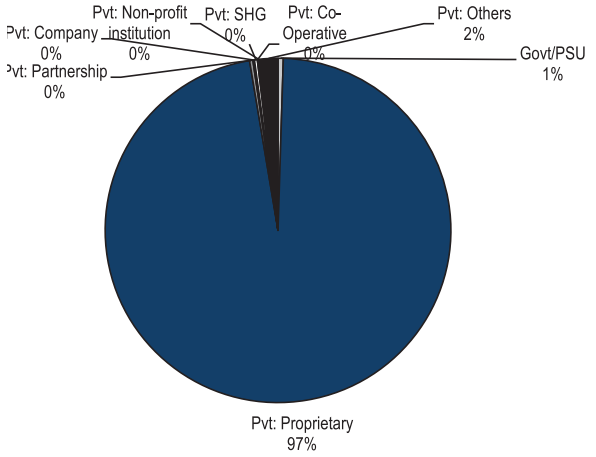
Nearly 18mn jobs are in non-crop agriculture (Figure 27): this includes mainly animal products like cattle, sheep/goat, fish, etc. and also some support jobs (activities undertaken on a fee basis, including the preparation of fields, crop spraying, trimming of fruit trees, etc.). Nearly all (93% as per the NSSO) of these jobs are informal in nature. The Economic Census counts 23mn of these jobs, of which 97% are in Proprietor-owned enterprises, corroborating the high informality observation (Figure 28).

Figure 27: Split of Non-Crop Agriculture Jobs



Source: NSS EUS 68th Round, Credit Suisse estimates

Figure 28: Non-Crop Agri Jobs by Type of Enterprise



Source: Company data, Credit Suisse estimates

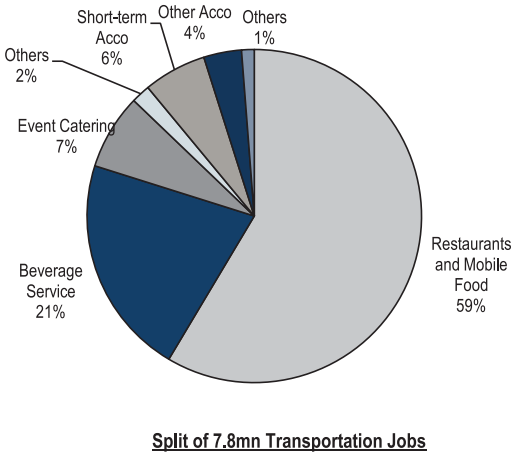
These jobs are the most likely to be misclassified or undercounted as the NSSO counts workers whose primary or secondary status is in a particular category. Taking poultry for example, if a farmer keeps 50-100 birds it's unlikely to be the household's primary or even secondary source of income. Else, given the livestock census count of 729mn birds in India and only 0.2mn workers in poultry as per the NSSO, birds per worker come to 3645. This cannot be right, given that most of these are proprietary as per the 6th EC.

Hotels and Restaurants

Hotels and Restaurants employed about 8mn people in 2012, with most of the employment in food and beverage outlets (Figure 29): nearly 90% of these jobs were informal. The 6th Economic Census only reported 6.1mn workers, but also reported almost 90% of the establishments in the proprietary and partnership category (Figure 30).

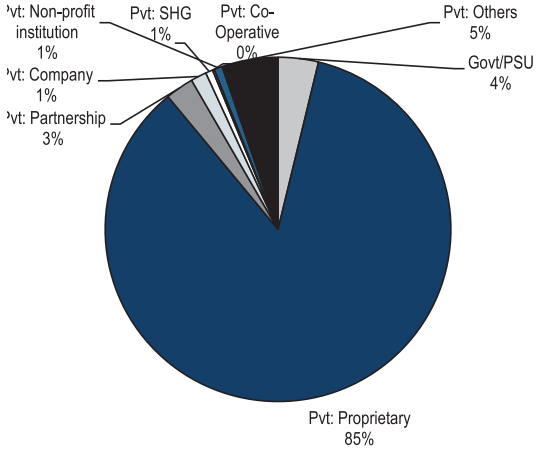
This category saw 61% growth in employment between the 5th and 6th economic censuses (3.8mn to 6.1mn), mirroring the rise in the number of enterprises (1.5mn to 2.4mn).

Figure 29: Split of Hotels and Restaurants Jobs



Source: Company data, Credit Suisse estimates

Figure 30: Hotels and Restaurants Establishments



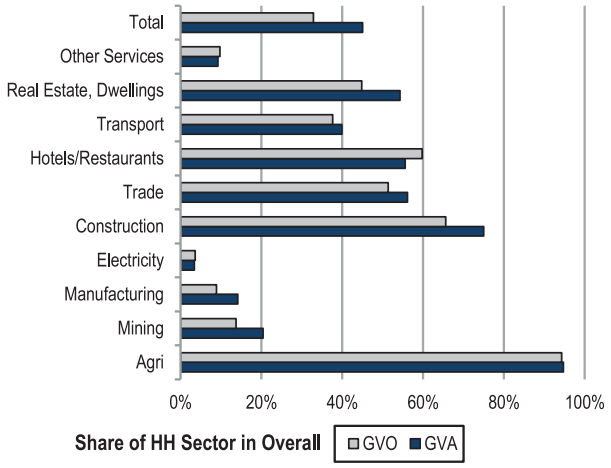
Source: Company data, Credit Suisse estimates

Economic Share higher in Agri, Construction, Trade

Assuming that the Household Sector as defined by the CSO is the Informal sector, we find that the sector drives about 45% of GVA (Figure 31). As 45% of Formal Sector workers are

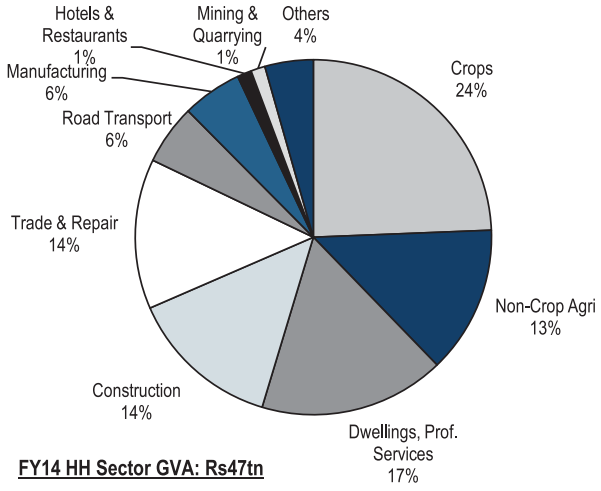
also informal workers, this is an under-statement. That its share of GVO is only 33% shows that the informal sector is more active in intermediate steps and not as much in final consumption. Outside of agriculture, the sectors where the informal sector has a large share are construction, Trade, Hotels/Restaurants and Transport.

Figure 31: HH Share of GVA & GVO Activity-wise (2014)



Source: CSO, Credit Suisse estimates

Figure 32: HH Sector GVA split by activity (2014)



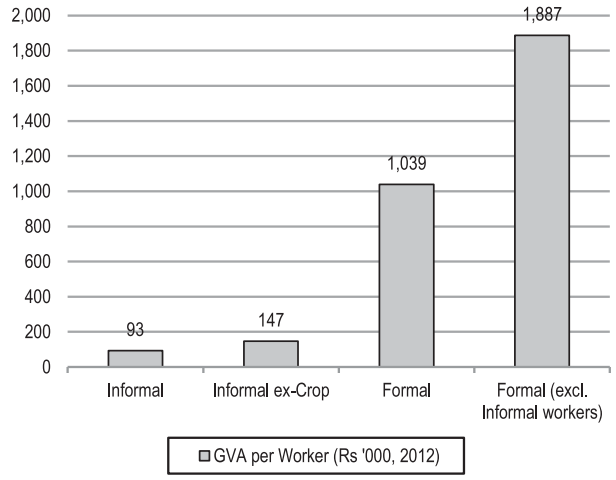
Source: CSO, Credit Suisse estimates

Of the total informal GVA of Rs47tn in FY14 (the last year for which data is available), nearly 38% comes from agriculture (crops as well as non-crop agriculture; Figure 32). The contribution from Dwellings & Professional Services in our view should be largely rent on own dwellings, and therefore not directly relevant to our analysis. Construction, Trade, and Road Transport are the categories of interest from a job creation perspective.

Problems of High Informality: Low output, Low taxes, Less control

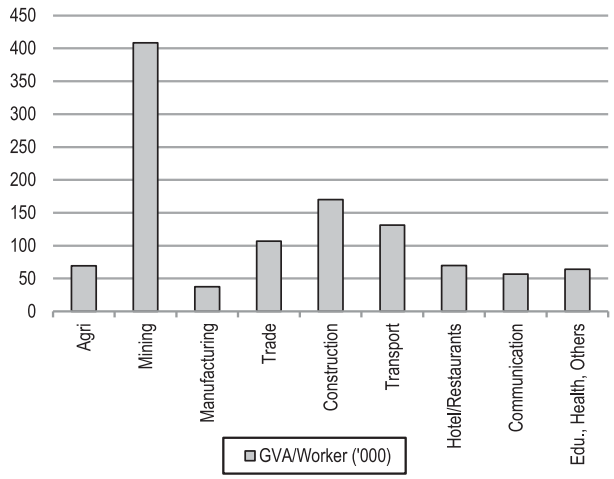
With the informal sector accounting for 83% of workers (the additional 7.5% are informal workers in the formal sector) but only 45% of GVA, the value added per worker is as expected very low at Rs93K (Figure 33). On the other hand the formal sector has Rs1mn GVA per worker: this would not be out of place among the middle-income economies. If we exclude the informal workers in the sector, whose value-add (as measured by compensation) would be insignificant, the GVA comes to an enormous Rs1.9mn.

Figure 33: Very low GVA per person in informal sector



Source: Company data, Credit Suisse estimates

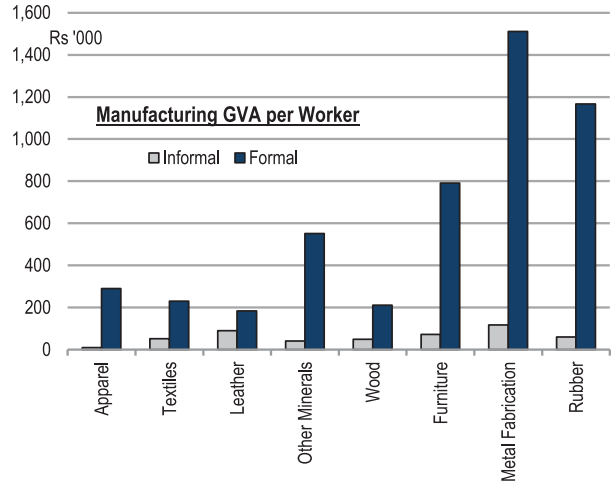
Figure 34: HH GVA by Employee Activity-wise (2012)



Source: Company data, Credit Suisse estimates

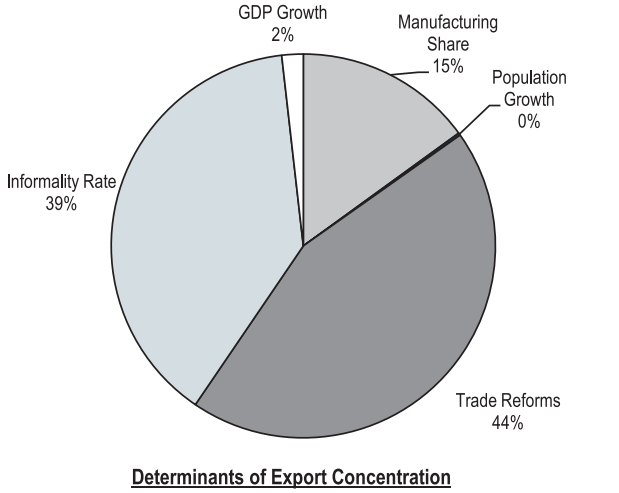
On the other hand for the informal sector, even excluding Crop Agriculture the value-added at Rs147K is one-seventh that of the formal sector. With the exception of Mining, Construction and Transport, in 2012 the GVA per worker was less than Rs100K for almost every category of informal workers (Figure 34).

Figure 35: Manufacturing GVA: Informal vs. Formal



Source: Company data, Credit Suisse estimates

Figure 36:



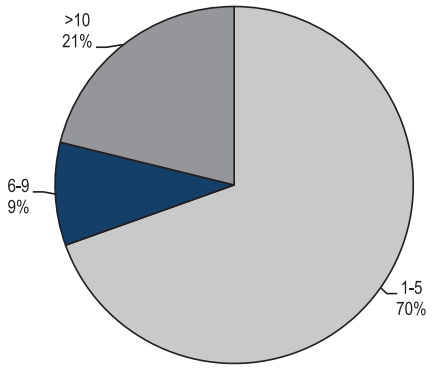
Source: IILS Informality Database, Credit Suisse estimates

Within manufacturing, for which we have sector-wise split of workers and GVA courtesy he ASI, the gap in GVA per worker runs across industries (Figure 35). High informality prevents countries from developing a sizeable, diversified export base (Figure 36).

Vicious cycle: small ⇨ costly capital ⇨ low growth

Of the 59mn non-farm enterprises in India, only 0.8mn had 10 or more employees, and 79% of non-crop workforce works in enterprises smaller than 10 employees (Figure 37). Small size and high informality hurts growth as well: given the low productivity there aren't any savings to invest back in the business, and availability of external capital is also constrained. While data availability on informal enterprises is limited, we note that 93% of MSMEs as per the 2007 census were self-financed (Figure 38).

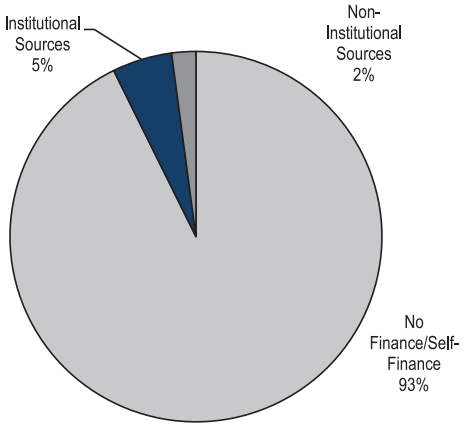
Figure 37: 79% in enterprises with less than 10 workers



Non-Crop Agri Workforce by Number of Workers/enterprise (2013)

Source: 6th Economic Census, Credit Suisse Estimates

Figure 38: Most MSME's forced to rely on self-finance

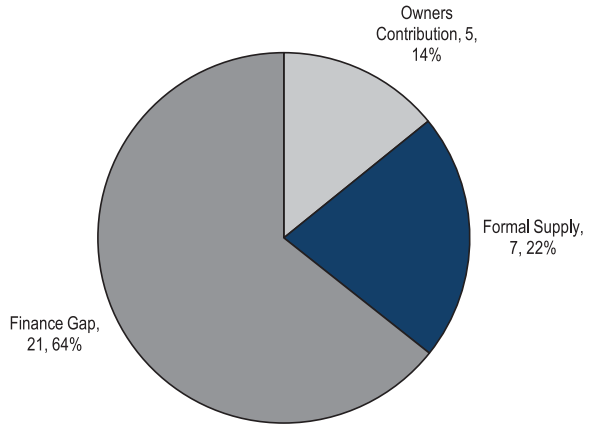


Percentage Split of MSMEs by Sources of Finance

Source: MSME Census 2007

IFC estimates that in 2011 MSMEs in India faced a 64% financing gap (Figure 39). This is not unique to India – as per IFC two-thirds of SMEs in poor countries cannot borrow as much as they would like. Further, the cost of capital for smaller firms in India is also much higher than it is for larger firms (Figure 40).

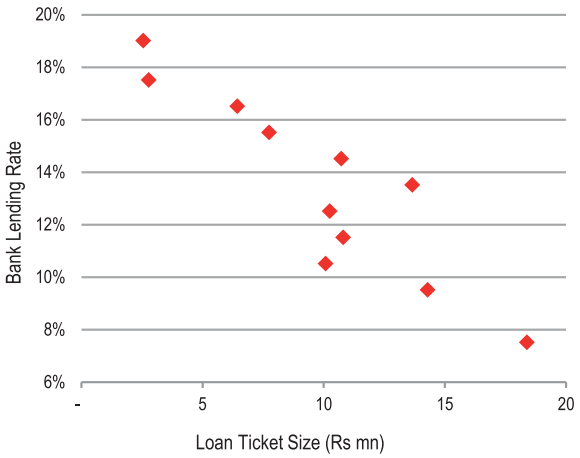
Figure 39: Significant financing gap for MSMEs (2011)



Total Finance Demand by MSME Sector Rs 32.5tn

Source: IFC

Figure 40: Smaller loans/borrowers have expensive loans



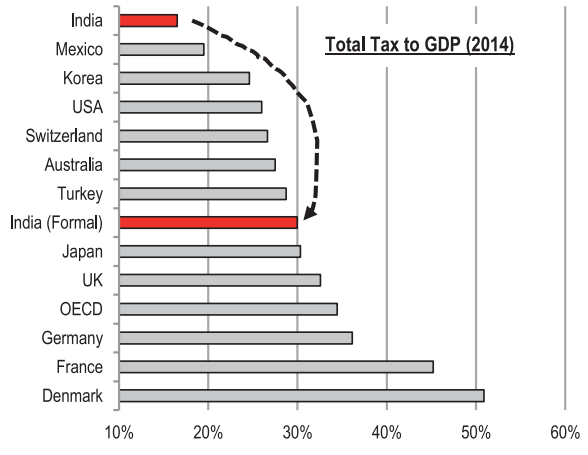
Source: RBI, Credit Suisse estimates

For informal borrowers the costs would be even higher and availability more constrained than for the (mostly formal) MSMEs, with interest rates running at 3-5% per month (45-60% per annum). This is because formal lending is generally against collateral and informal enterprises are asset lite, with not much proof of their cash flows. This lack of capital and its high cost also constrains their growth.

Equilibrium: low tax ⇨ small government ⇨ low GDP

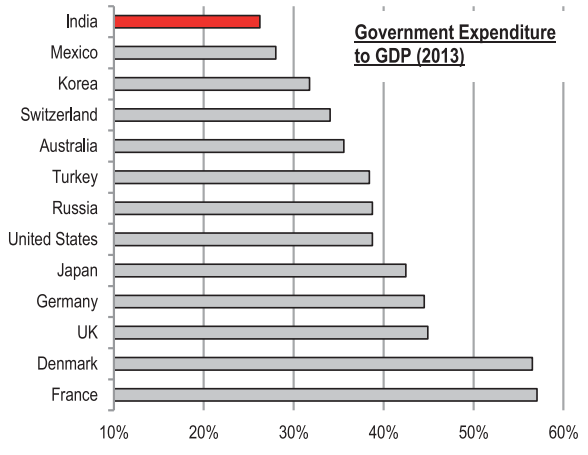
India's headline tax to GDP at 17% is among the lowest in the world (Figure 41). However, given that 45% of the GDP is not taxable, the tax to GDP for the remaining 55% is nearly 30%, among the highest rates in the world. Thus, there is limited scope for squeezing more tax from the formal economy. This limit ensures that despite the high fiscal deficit, general government spending in India is perhaps lower than it should be (Figure 42).

Figure 41: Formal sector is quite heavily taxed in India



Source: Company data, Credit Suisse estimates

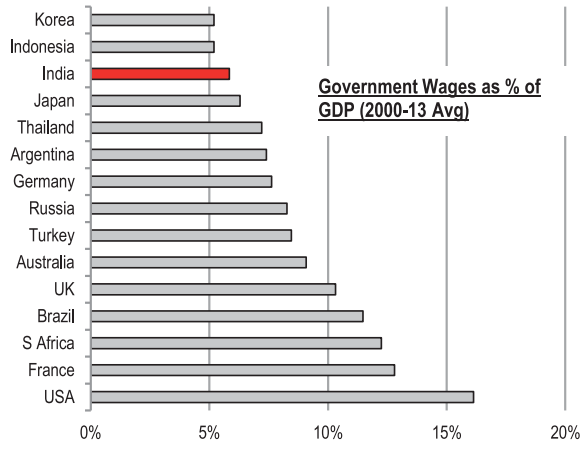
Figure 42: Government expenditure actually quite small



Source: OECD, Credit Suisse estimates

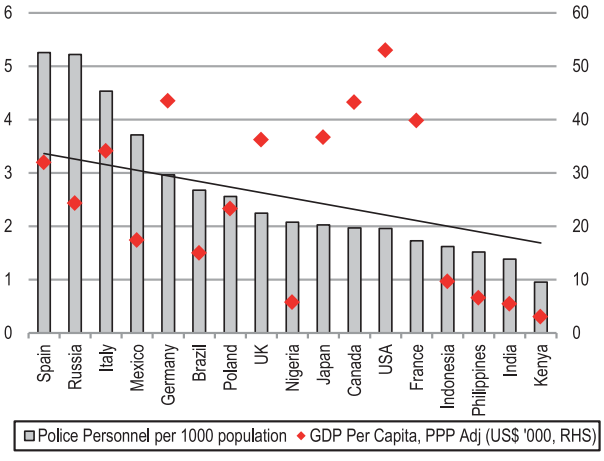
In particular, this constrains the government from expanding its staff: the size of the government (state + centre) is actually smaller than most other governments (Figure 43). As an example, India in 2013 only had 1.38 police personnel per 1000 population, among the lowest in the world (Figure 44). Even the US, despite the average police person being better equipped and with heavier use of IT, had 50% more police people.

Figure 43: General government size too is small



Source: Company data, Credit Suisse estimates

Figure 44: Police employment vs. per country capita GDP



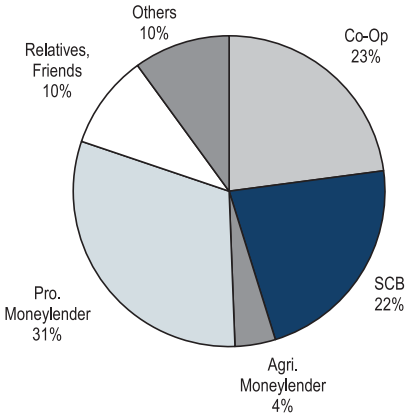
Source: UNODC, IMF, Credit Suisse estimates

This would apply to many other services, including in urban transport, civic services, education and health. In the absence of these, productivity of the economy goes down, which in turn drives low taxes. This is a problem faced by most less-developed economies (LDCs), and it's important to move out of this lower equilibrium to a higher equilibrium where high taxes enable bigger government and thence higher taxes.

Less Monetary Control

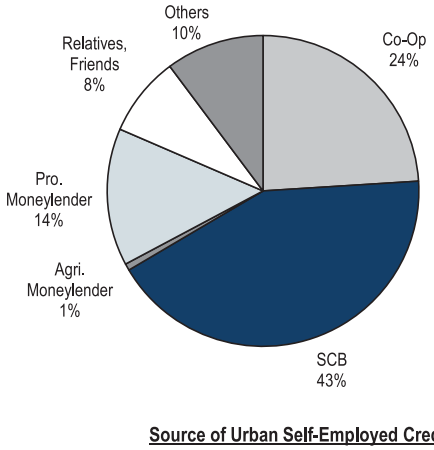
Given the lack of formal accounts and generally sub-scale requirements of credit, most of informal enterprises rely on informal sources of credit. In rural areas, as per the All India Debt and Investments Survey, for non-cultivators more than half comes from informal sources, and only 22% of credit is from scheduled commercial banks (Figure 45). Even in urban areas for the self-employed nearly a third of the credit is from informal sources (Figure 46). This is despite decades of policy driven push to support lending in this sector and bring down their borrowing costs.

Figure 45: Split of credit by type of agency – Rural (2012)



Source: RBI, All India Debt & Investment Survey, CS Estimates

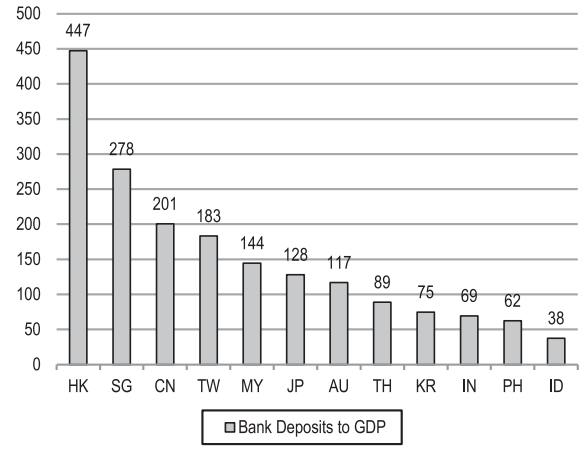
Figure 46: Split of credit by type of agency – Urban (2012)



Source: RBI, All India Debt & Investment Survey, CS Estimates

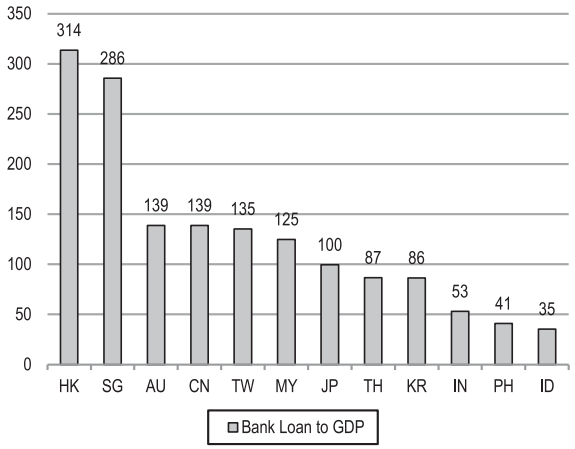
It's hard to conclude whether low banking system penetration is the cause or the effect of high informality – likely it contributes to high informality, and is also a victim of it. In addition to agriculture still being a meaningful part of GDP and low accumulated financial wealth, high informality is the reason deposits as % of GDP are among the lowest in the world (Figure 47). Not surprisingly, banking system credit as % of GDP is also low compared to most other nations (Figure 48).

Figure 47: Banking deposits as % of GDP



Source: Company data, Credit Suisse estimates

Figure 48: Banking System Credit as % of GDP is low

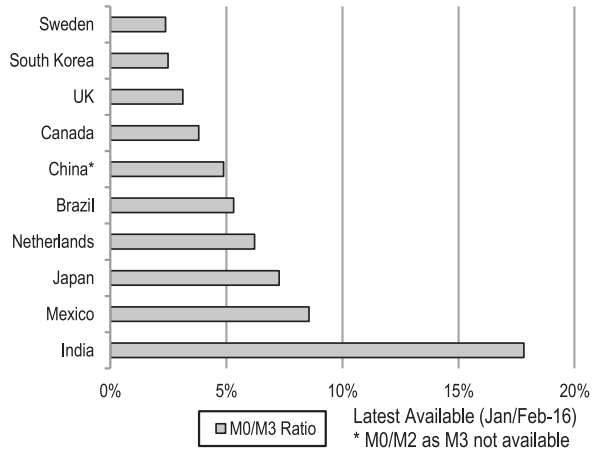


Source: UNODC, IMF, Credit Suisse estimates

High informality and less dependence on formal banking channels is also what drive a greater use of cash in the economy (Figure 49). Compared to most other economies, including Emerging Market peers like China and Brazil (another data point that comparing India to these

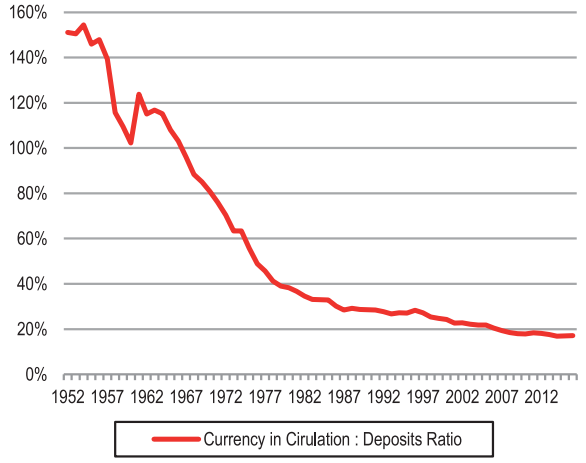
countries is inappropriate), India has a disproportionately higher use of cash. The ratio had been coming down since independence, though the pace of decline seems to have slowed, and even halted in the last 6-7 years (Figure 50).

Figure 49: Use of cash much higher than global norms



Source: Company data, Credit Suisse estimates

Figure 50: Decline in cash usage has stalled since 2009



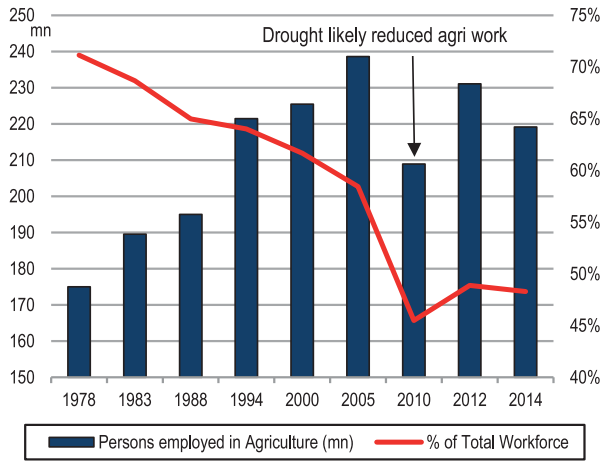
Source: RBI, Credit Suisse estimates

For people borrowing from money lenders or other informal sources like chit funds (classified as 'Others' in Figure 45 and Figure 46: chit funds could be supplying a very large part of borrowing needs, particularly in states like Kerala, Tamil Nadu and Andhra), changes to RBI rates are unlikely to have any material impact. Thus, in an economy with significant use of cash and low deposits and credit as a share of GDP the central bank has limited ability to control growth or inflation.

Shrinking Labour demand in Agriculture

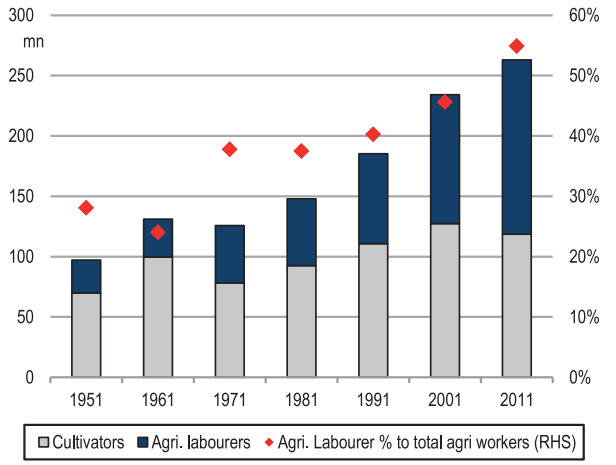
The share of agriculture in employment has been falling steadily over the past several decades, but due to population growth the number of agricultural workers kept rising till the 2005 survey (Figure 51). Even after that it has not come down by much. These numbers may be slightly under-reported, as the 2011 census (about the time the 2012 Employment Survey would have been conducted) still reported 250mn people employed in agriculture.

Figure 51: Number of people in agriculture still high



Source: Employment Surveys, Credit Suisse estimates

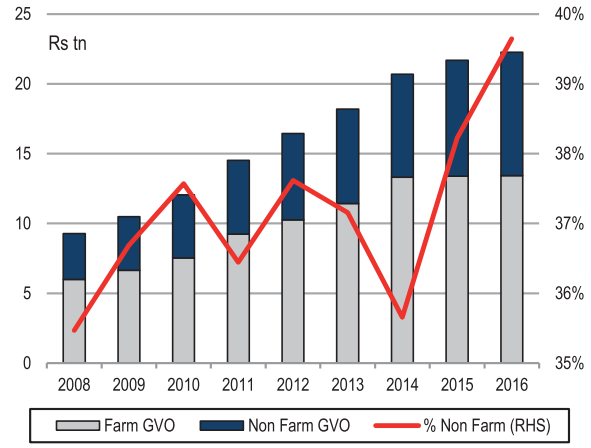
Figure 52: Share of "labourers" still rising



Source: Agri Census (various years), Credit Suisse estimates

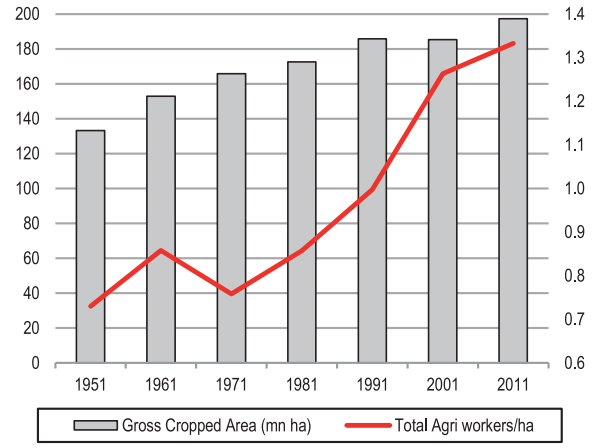
Slightly more worryingly, the share of agricultural labourers in this has gone up over time (Figure 52). This is likely because of two reasons: (1) non-cultivation output in agriculture has been rising (Figure 53) and (2) as gross cropped area in India has not grown much over the decades (the marginal increase visible is only through more crops per year, and some from irrigation in dry areas), the number of dependents per acre of cropped area has been rising (Figure 54). For some cultivators too farm-size fragmentation triggered by population growth has reduced acreage available, forcing them to work on other farms.

Figure 53: Non-farming related agriculture output rising



Source: CSO, Credit Suisse estimates

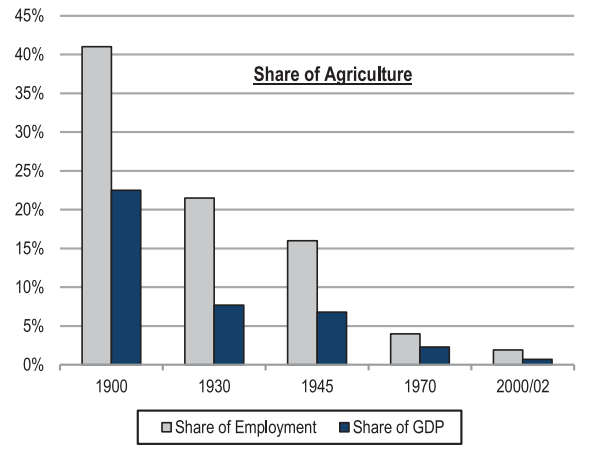
Figure 54: More agri workers/acre of gross cropped area



Source: Agri Census, CMIE, Credit Suisse estimates

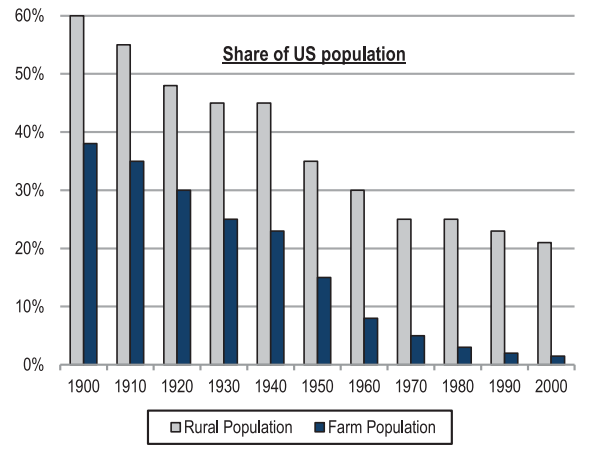
However, now with food demand growth slowing and agricultural productivity rising sharply, we are generating persistent surpluses. Agriculture is thus likely to "shed" workers. The US saw this transition a hundred years back: in 1900, 41% of its population was employed in agriculture, producing about a fourth of its GDP (Figure 55). Over the next few decades, its share of employment and share of GDP kept declining, and today just 2% of US workforce produces food for the country (and more: US has large agricultural exports). Interestingly, today 93% of US farm households have non-agricultural income[1] (Figure 56).

Figure 55: US share of GDP and workforce in agriculture



Source: USDA, Credit Suisse estimates

Figure 56: The decline in agriculture sharper than in rural



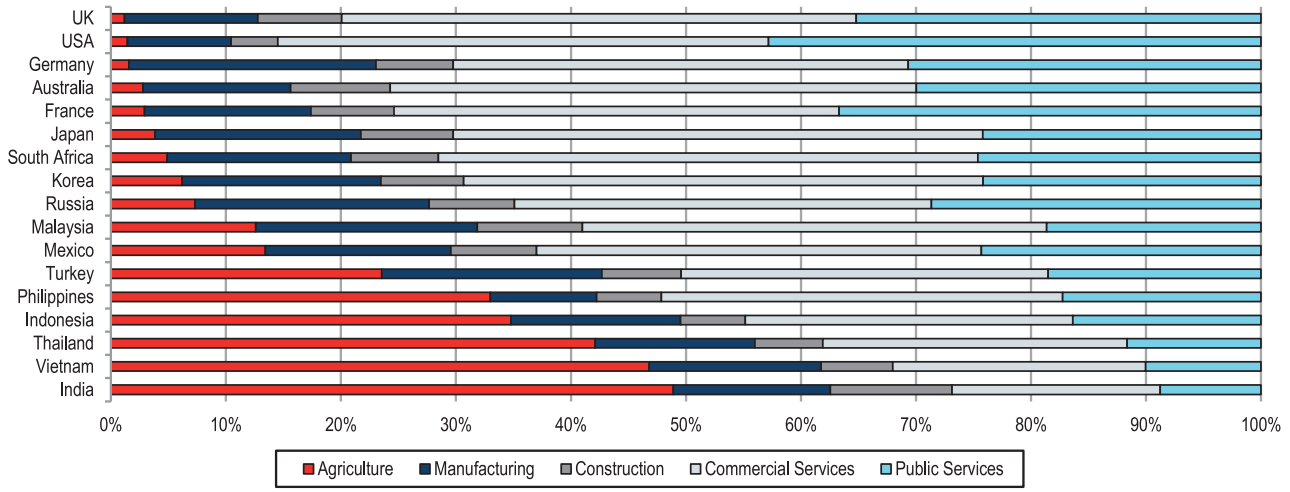
Source: ERS Economic Information Bulletin 3 June 2005

[1] Carolyn Dmitri et al (USDA): The 20th Century Transformation of US Agriculture and Farm Policy.

Benchmarking India's employment mix is tricky

Among other reasonably sized economies, India is really an outlier (Figure 57): it has by far the highest share of workers employed in agriculture, and the fewest in public services. This creates a vicious cycle: poor education and health impede manpower development.

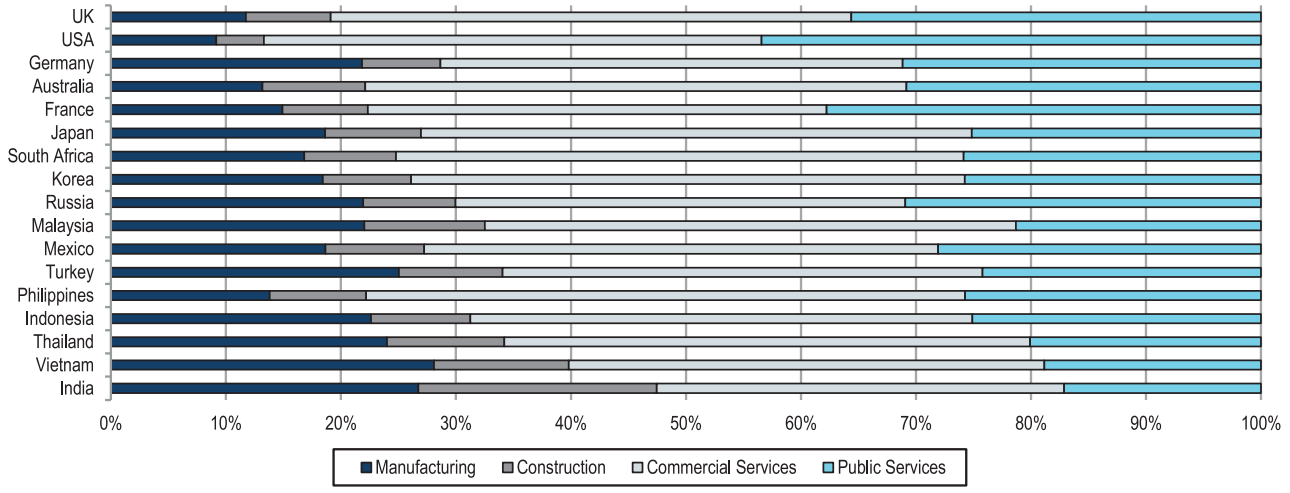
Figure 57: Country-wise split of workforce by type



Source: ILO, Credit Suisse estimates

One can say percentages get distorted by the high proportion of workers in agriculture. But in a hypothetical scenario even if we were to exclude the agricultural workforce from every economy, India is still an outlier. It has a much larger proportion of the workforce in construction, and far fewer in public services (Figure 58). That said from the perspective of skill availability (or a lack of skill), this is perhaps appropriate.

Figure 58: Split of workforce by country



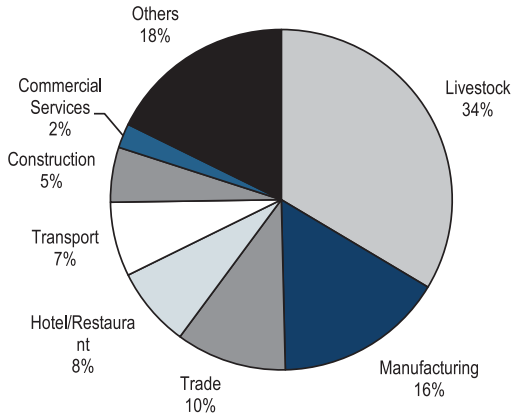
Source: ILO, Credit Suisse estimates

Suggestions for Job Creation

We approach the prescriptions with the following constraints:

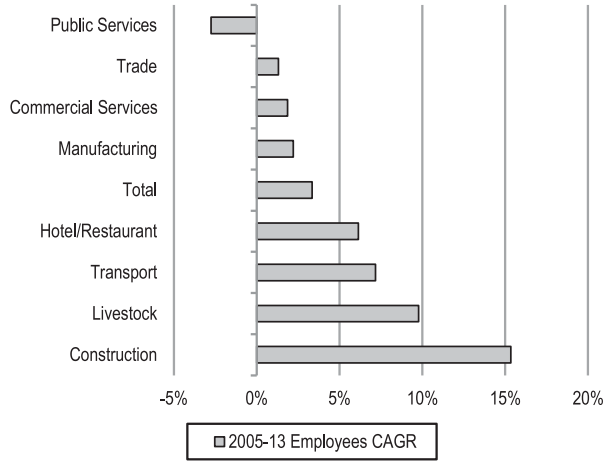
- The solutions must keep in mind the current employment mix: while enough has been said and done about skilling, impacting tens of millions of workers is unlikely to be achieved in a few years. While this cannot be allowed to dictate all prescriptions, the current mix of jobs indicates the availability of skillsets, and should act as a blueprint.
- This must be blended with ground realities of demand and supply. Increases in income cannot be achieved without improving productivity, and that by definition means that fewer workers are needed unless demand grows. Take for example the category-wise split of incremental workers between the 5th and the 6th Economic Censuses (Figure 59): more than a third went into livestock. However, as employment there grew at 10% CAGR (Figure 60), combined with improvements in productivity, we have started seeing surpluses in dairy and poultry among other food items. In the absence of other changes therefore, this category need not/cannot take any more workers.

Figure 59: Split of Incremental Workers 2005-13



Source: 5th & 6th Economic Censuses, Credit Suisse estimates

Figure 60: Growth by job type 2005-13



Source: 5th & 6th Economic Censuses, Credit Suisse estimates

- India is a sixth of humanity with a number of idiosyncratic characteristics. Copying solutions that have worked abroad, or in some ways aping the employment mix of other economies is therefore ill-advised. Being too prescriptive and rigid very early on has been the bane of most such past attempts.
- The solutions need to scale. Creation of a few lakh jobs is unlikely to move the needle. There can be a number of categories of jobs that may add up to the tens of millions of non-agricultural jobs that need to be created, but the granularity cannot be too fine.

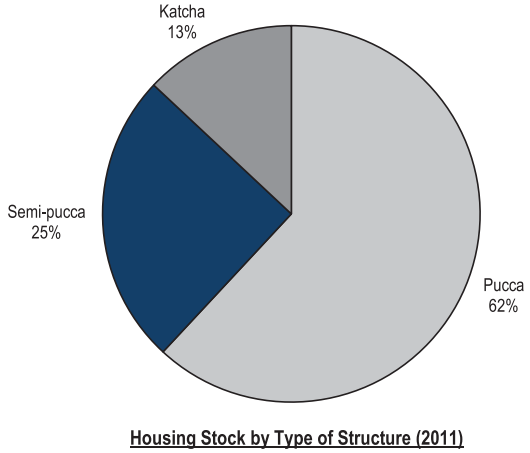
1) Rural Housing: Housing subsidy is for workers

As discussed on Page 13, nearly 60% of all construction jobs are in the construction of rural buildings. At the same time, a large number of rural houses are *kutcha* or semi-*pucca*: an analysis of 2011 Population Census data found 38% of the houses were *kutcha* or semi-*pucca* (Figure 61). Nearly all of these (87%) are in rural areas (Figure 62).

Incentivizing the construction of these houses can thus create jobs. The advantages of *pukka* houses don't need to be detailed: they are safer, easier to clean, easier to provide utilities to (electricity, water, sanitation), and save time for residents through better quality living

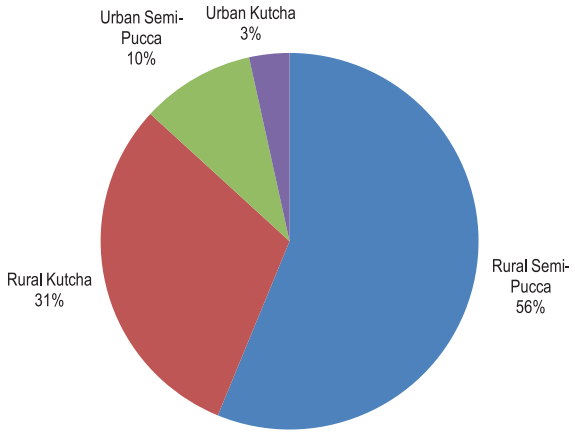
conditions and improved security. Thus, not only does this construction create jobs and substantial downstream activity, it also benefits the residents.

Figure 61: Split of houses by type (2011 Census)



Source: Population Census[2], Credit Suisse estimates

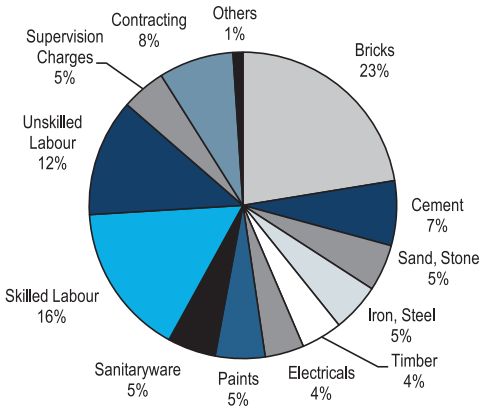
Figure 62: Most non-*Pucca* houses are rural



Source: 5th & 6th Economic Censuses, Credit Suisse estimates

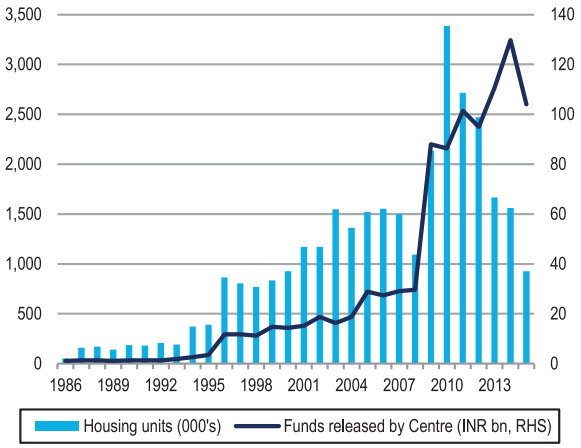
Rural house construction is much less expensive than in urban areas, primarily as the land is usually owned by the household in rural areas. This is not the case in urban areas, and rehabilitation becomes a problem too. Thus, there is greater "bang for the buck" in rural housing, as more money goes into construction. There is also likely to be less speculation. Further, labour is more than half the total cost of construction when one looks at both direct (29%), and indirect (nearly 35% is labour-heavy construction materials like bricks, sand and timber) contributions (Figure 63).

Figure 63: Construction cost is labour heavy



Source: Technical group on urban housing, Sep-2012

Figure 64: Houses built under the Indira Awas Yojana



Source: Ministry of Rural Development, Credit Suisse estimates

We have taken cost estimates from the report of the Technical Group on Urban Housing as construction costs should be broadly similar in the low-income group housing category.

The government has been trying to work on this problem for several decades now – the erstwhile *Indira Awaas Yojana* (IAY), now rechristened as the *Pradhan Mantri Awaas Yojana* (PMAY) have tried to incentivize this process (Figure 64). However, with construction costs

[2] Report of the Technical Group on Urban Housing Shortage, September 2012

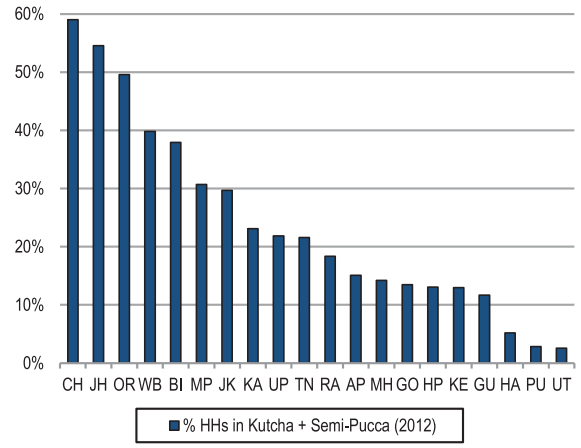
moving up sharply, the pace of house construction has come off, despite the budgets being broadly in the Rs100bn-plus range.

There has also been a problem with leakage in the scheme, with anecdotal evidence indicating large-scale expropriation by the *mukhiyas*. Further, like in other centrally controlled schemes that are for state subjects (like housing), there seems to have been a perception of lack of control. There has also been a risk that the *mukhiyas* do not let the scheme move ahead if they are refused their cuts.

DBT (Direct Benefits Transfer) is a great tool for limiting leakage and unlike food or fertilizer subsidy, the distribution channel is not multi-step and fragmented. A challenge may be in identifying households vs. individuals so as to avoid duplication. This challenge though would be a relatively minor one. Further, the use of technology – registering the land parcel where the land is being built, and then tracking using drones/satellite images can help with remote administration.

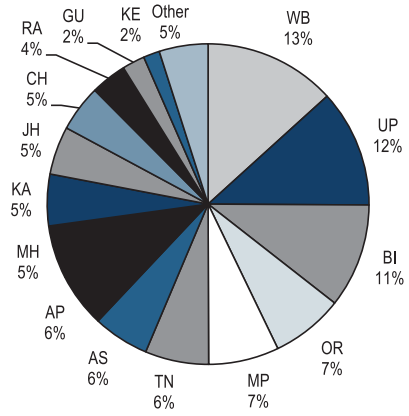
Including the problem of congestion (e.g. houses with less than 300 sq. ft. of floor area), the housing gap has been estimated at 62mn[3]. While there have been differences in the definition of *pucca* houses between the Census and the NSSO, to get a broad lay of the land in terms of state-wise incidence, we use the 2012 NSSO Housing Conditions Survey. We find that the states with the highest proportion of *Kutcha* + Semi-*Pucca* houses are the states where the move out of agriculture is likely to be the most extreme (Figure 65). These are also the states where most of the new houses need to be built (Figure 66).

Figure 65: State-wise % of Kutcha + Semi-Pucca houses



Source: NSSO, Credit Suisse estimates

Figure 66: State-wise split of stock of such houses



Source: NSSO, Credit Suisse estimates

As many of the construction materials (e.g. cement, wires) are also taxed (though in some cases local materials may be outside the indirect tax net), the net impact on government finances may not be as large as what the gross outlay may suggest. Cost sharing between centre and states can also get the states involved.

2) Food Processing and Agricultural Exports

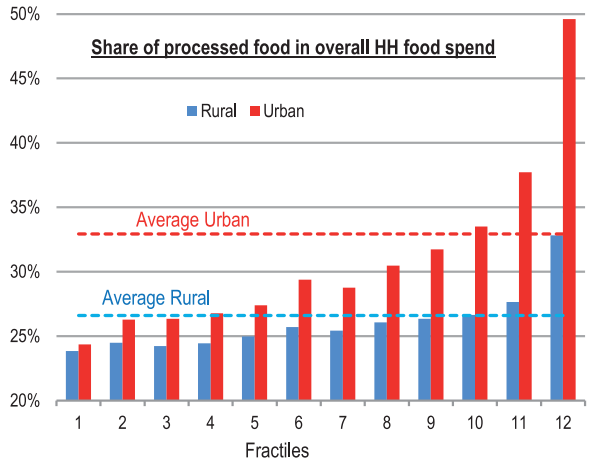
As discussed earlier in this report, with India's per capita calorie demand continuing to fall and productivity (yields for crops/livestock) continuing to rise, we now have surpluses in almost all food categories. If these rising surpluses cannot be exported, prices are likely to fall, forcing more exits from agriculture. This has been analysed in detail in our note "Agriculture: The Problem is Plenty" (published May 2016).

[3] Kumar, Arjun. "Estimating Rural Housing Shortage". EPW, June 28, 2014 vol XLIX nos 26 & 27, Pg 74-79.

Food Processing: Can policy drive demand acceleration?

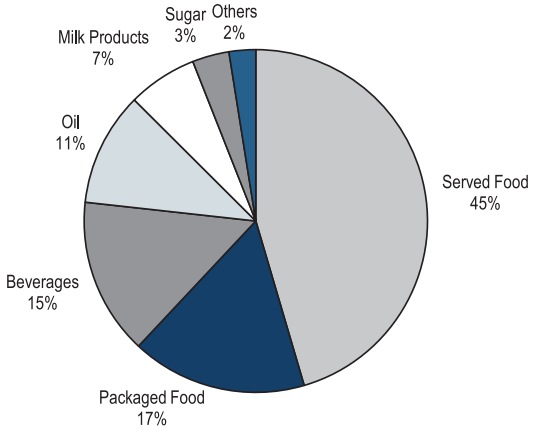
Consumers in higher fractiles consume more processed food (Figure 67), with dominant categories being pre-cooked meals/snacks (Figure 68). This data is naturally adjusted for changes in awareness and taste, so it can be taken as representative of what happens with rising incomes. As demand for processed food accelerates, there will be an opportunity for job creation in manufacturing, providing an opportunity to absorb people moving out of agriculture without migration. As discussed earlier in the report (see Figure 14 on Page 11), nearly 9% of informal manufacturing jobs are in food processing.

Figure 67: Share of processed food goes up with income



Source: NSSO, Credit Suisse estimates

Figure 68: Processed Food by Value (Urban, Top Quartile)

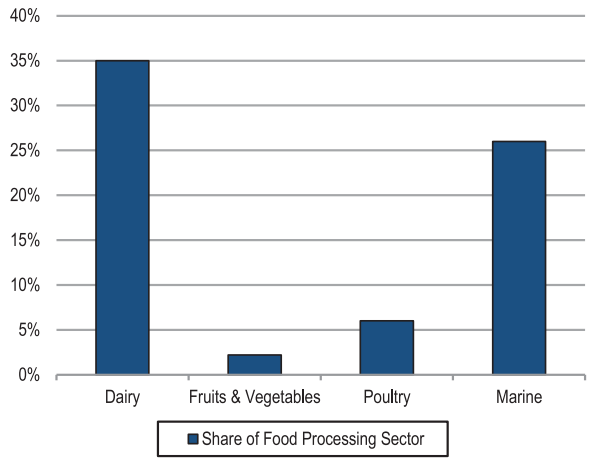


Source: NSSO, Credit Suisse estimates

Currently, only 3% of India's food is processed (Figure 69). This ratio is likely to rise over time naturally: the question is if policy can accelerate the process. Food processing as a sector has seen some airtime in budget speeches, but a concerted push may help.

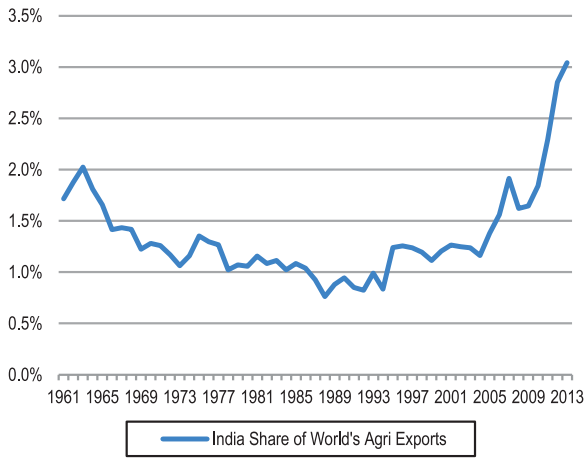
Slower transition to processed food is sometimes due to greater price differentials. Directed schemes like power subsidies or extension of employment-related benefits to employers in this sector (like 80 JJAA or the government paying PF contributions) can help. In some cases, like biscuits, duty differentials also act as a deterrent, with the redistributive design element in indirect taxes possibly hurting demand.

Figure 69: A very small part of food in India is processed



Source: IBEF, Credit Suisse estimates

Figure 70: India's share of Global agricultural axports

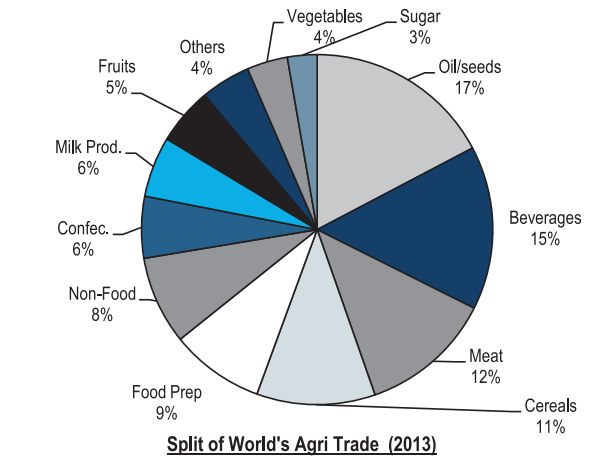


Source: FAO, Credit Suisse estimates

Agricultural Exports

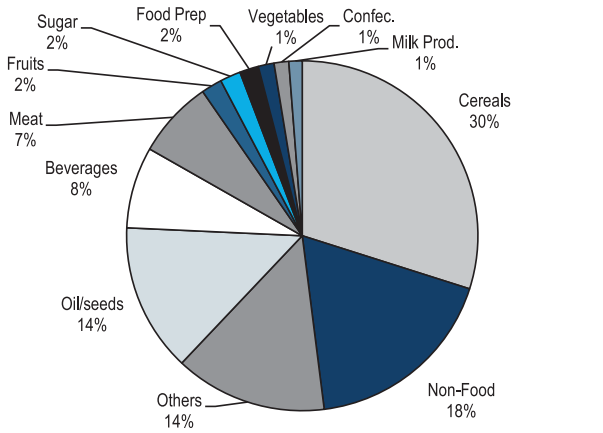
Given India's natural bounty (fertile land, year-long sunshine and good rainfall), India has the potential to dominate many global food categories. However, its share of global agricultural exports is a meagre 2%, despite the improvement last decade (Figure 70). Using the split of global agricultural trade (Figure 71) as a proxy for end-demand, and comparing it to India's agricultural exports (Figure 72), we note that opportunities for growth may exist in beverages, meat, fruits, confectionary and milk products.

Figure 71: Global agricultural trade commodity-wise



Source: FAO, Credit Suisse estimates

Figure 72: India's agricultural exports commodity-wise

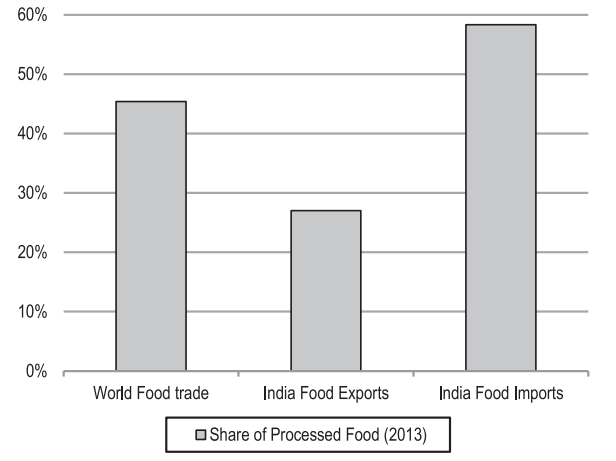


Source: FAO, Credit Suisse estimates

For agricultural exports to rise, many fundamental changes may be necessary:

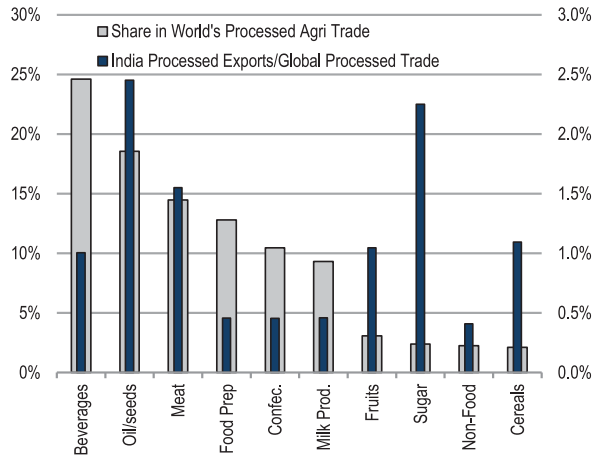
i) Processing needs to increase for the food to be transportable: the share of processing in India's agricultural exports is much below global average (Figure 73), and compared to its potential even in the best of categories share of exports is less than 2.5% (Figure 74): unprocessed products like cereals and cotton dominate. This is perhaps a consequence of low processing in general. There is also likely to be an opportunity for import substitution if food processing picks up;

Figure 73: Processed exports share smaller in India



Source: FAO, Credit Suisse estimates

Figure 74: India share of agri trade low across categories



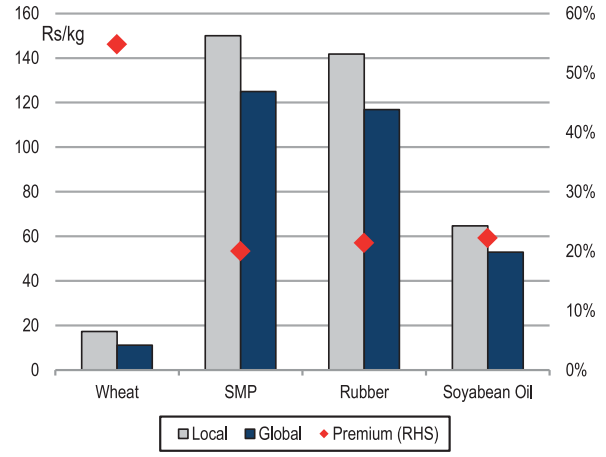
Source: FAO, Credit Suisse estimates

ii) Costs need to be brought down (Figure 75): e.g. Indian edible oil now has a 20% duty protection to stave off imports; Indian commodity-grade wheat is now 60% more

expensive than current global wheat prices, Indian milk prices are 30-40% higher than global prices, obviating exports; and

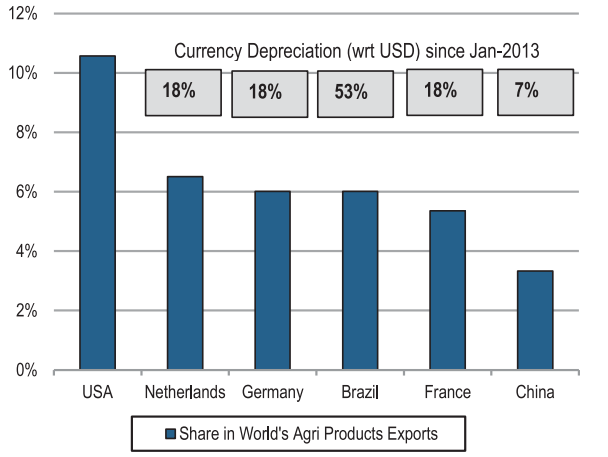
iii) Quality needs to improve as these frequently become non-tariff barriers.

Figure 75: Indian costs/prices not competitive



Source: Company data, Credit Suisse estimates

Figure 76: Currency (relative) strength hurting too



Source: Company data, Credit Suisse estimates

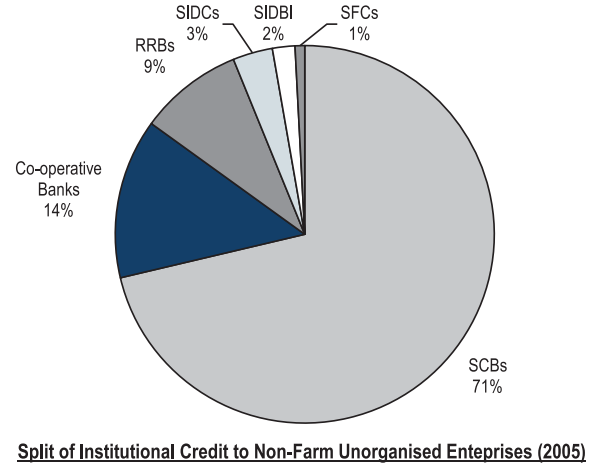
More food processing within the country should help solve the problem of improving the share of processing, and also of manufacturing quality – in a pyramid of companies, the more ambitious can aspire to qualify for export markets.

3) Ease lending by handing/subsidizing smartphones

Micro-lending has been a policy goal for a while, but hasn't seen much success

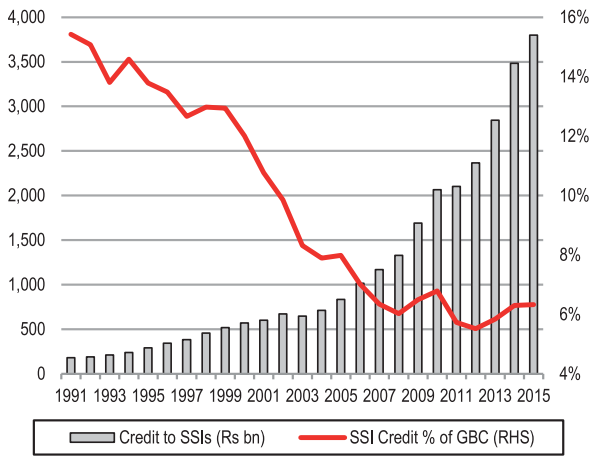
As seen earlier in the report, high cost of credit for micro-enterprises, which need machinery to expand and working capital, has been an impediment to growth. Policy in India has been trying to solve the micro-credit problem for decades, and attempts as diverse as cooperative banks, State Finance Corporations, SIDBI, etc. have been largely unsuccessful in solving this problem. Nearly two-thirds of credit is directly/indirectly sourced from banks (Figure 77), and the SSI/MSME share of loan books has not picked up (Figure 78) – it has in fact come down sharply since 1991.

Figure 77: Sources of credit for SSIs/MSMEs (2005)



Source: FAO, Credit Suisse estimates

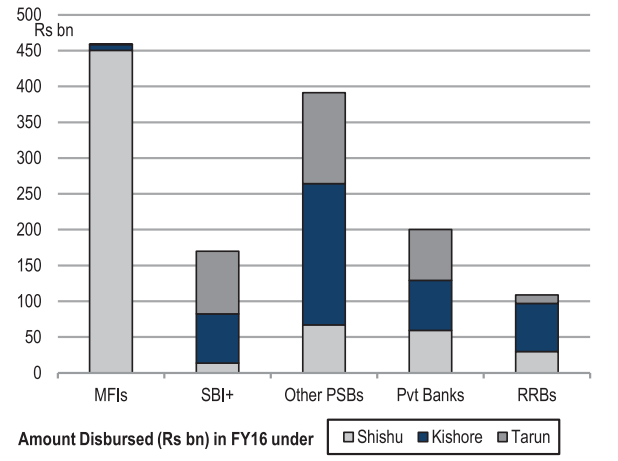
Figure 78: SSI share of credit has not picked up



Source: FAO, Credit Suisse estimates

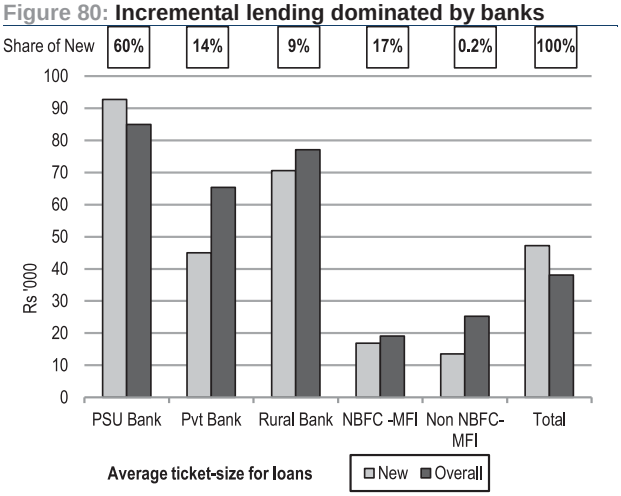
MUDRA has received much government attention, but so far it seems more of a coordinating agency, with its refinancing and credit enhancement functions barely used. In the Shishu category, where most of micro-enterprises are likely to borrow, the lending is dominated by Micro-Finance Institutions (Figure 79). While these are growing at a rapid pace, a disproportionately large share of the loans 12.5mn new borrowers in MUDRA last year was disbursed by PSU Banks (Figure 80). Slightly worryingly, PSU banks also had a larger average ticket-size for these new loans, hinting at an attempt to meet targets.

Figure 79: Most of Shishu loans are through MFIs



Source: FAO, Credit Suisse estimates

Figure 80: Incremental lending dominated by banks

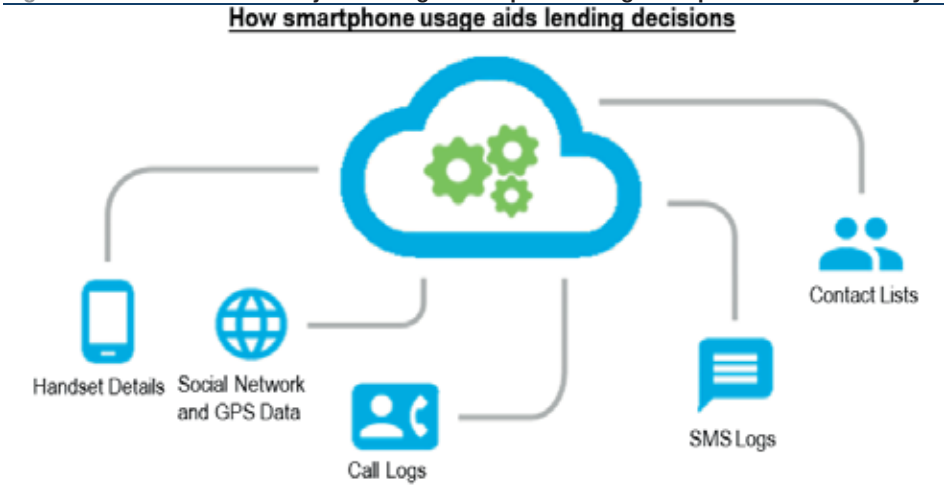


Source: FAO, Credit Suisse estimates

Smartphones to the rescue: free or subsidized; LED redux?

The trouble with lending to smaller enterprises has been that they lack collateral against which to lend, and also lack reliable evidence of cash flows that a lender not known personally to the borrower can use to assess credit-worthiness. This is where smartphones play a very important less well appreciated role: they help capture data about the user, and this has been found to help make lending decisions. Start-ups like tala.co and branch.co (Figure 81) that operate in Africa and other countries with challenges similar to that in India seem to have found good success on this front.

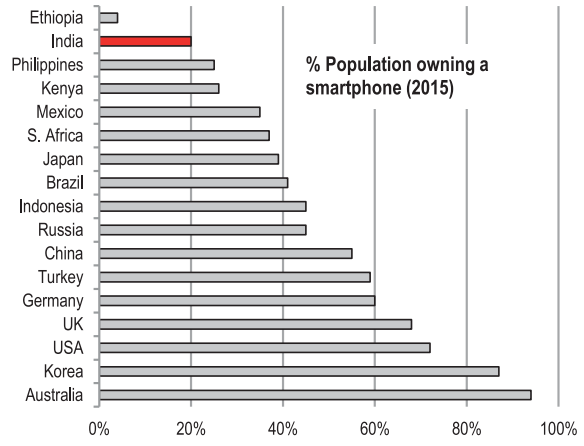
Figure 81: Non-financial data just through smartphone usage can provide credit history



Source: Branch.co, Credit Suisse estimates

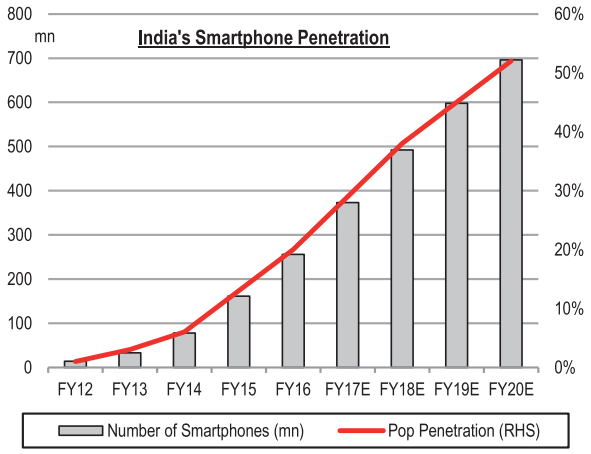
India lags the world in smartphone penetration (Figure 82). Adoption is expected to pick up sharply in the coming years (Figure 83), but it may not rise fast enough. Part of the reason is affordability – feature phones are still popular in India as they cost Rs1000-1500. There are other constraints too – user interfaces, applicable content, the recharge frequency, etc.

Figure 82: India's smartphone penetration is low



Source: PEW Research,Idea Cellular, Credit Suisse estimates

Figure 83: To grow rapidly, but likely not fast enough

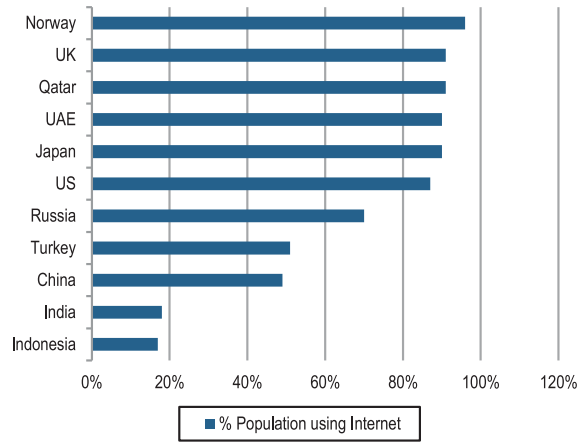


Source: Credit Suisse estimates

If the government was to subsidize these handsets through a bulk purchase, which would also enable it to specify design requirements like an iris scanner (for Aadhaar use), adoption of these phones could rise sharply. Even if the government were to distribute Rs3000 handsets to say 40mn people above the age of 18, the total cost would be just Rs120bn – only 30% of the cost of NREGA, but with substantially greater and sustained impact. Providing these handsets sooner than later would help accelerate the creation and capture of usage data – the more the data the easier it becomes to lend to these individuals/enterprises.

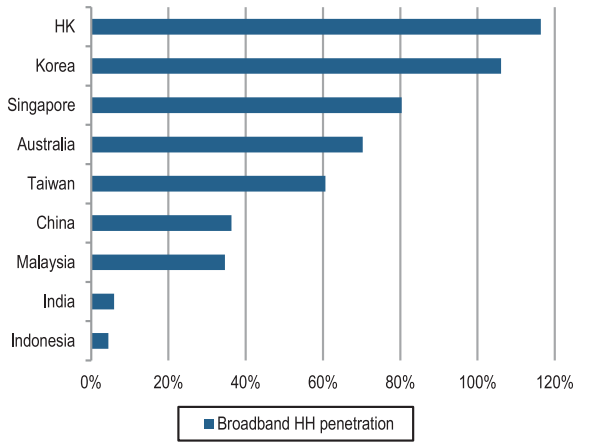
The enabling environment is coming up, in the form of UPI (Unified Payments Interface) and several payment banks that are likely to accelerate the generation and analysis of this data. By accelerating the adoption of smartphones this process can be speeded up.

Figure 84: Internet penetration



Source: Company data, Credit Suisse estimates

Figure 85: Broadband penetration



Source: Company data, Credit Suisse estimates

This would also solve a more obvious problem: India lags the rest of the world in internet penetration (Figure 84), with the gap even wider in broadband penetration (Figure 85). This is when India's definition of broadband assumes a much lower speed than the norm globally.

This creates a significant disadvantage for smaller enterprises, including farmers, in terms of access to information, be it on best practices or just prices of key inputs or of their production. For most Own Account Enterprises (OAE) be they in services or manufacturing, this significantly impairs utilization/hours worked and therefore compensation.

Other steps can be attempted, but most have been tried before

As discussed earlier in the report (see Figure 45 and Figure 46 on Page 21) in the absence of formal credit availability, small businesses and OAEs generally rely on friends and family or money lenders. Some informal mechanisms like Chit Funds are rather well designed even if they operate without much regulation. The government has attempted to engage with the Chit Funds Association, and several suggestions like getting CRISIL to rate Chit Funds, provision of insurance cover for subscribers, etc. have been recommended, but these seem unlikely to drive much change.

Similarly, enhancing the Credit Guarantee Fund for Micro and Small Enterprises (CGTMSE), which was set up in 2000, and has guaranteed Rs1.08tn worth of loans (2.3mn tickets), has come in for some flak for very poor lending standards. That it has only Rs43bn of capital is the lesser of the problems.

Learning from China and BRI (Indonesian bank)

Inevitably, China has been through a similar process of jobs migrating away from agriculture. In the first step, workers lack the skills or the education to do anything but the simplest of tasks, and therefore migrate to simple trade/manufacturing jobs. There was a proliferation of micro-enterprises: the average employee strength of the jointly owned/private enterprises was just 3. These enterprises then rapidly grew their asset base, helped by local/provincial/central government support as well as generous bank lending. The resultant improvement in productivity also helped boost wages. These charts are available in Appendix 2.

An aping of Chinese policies would be inappropriate, given their different challenges and policy framework. But the lesson to be learn from the Chinese experience is the necessity of having India's micro-enterprises scale up. Credit provision is of critical necessity on this front.

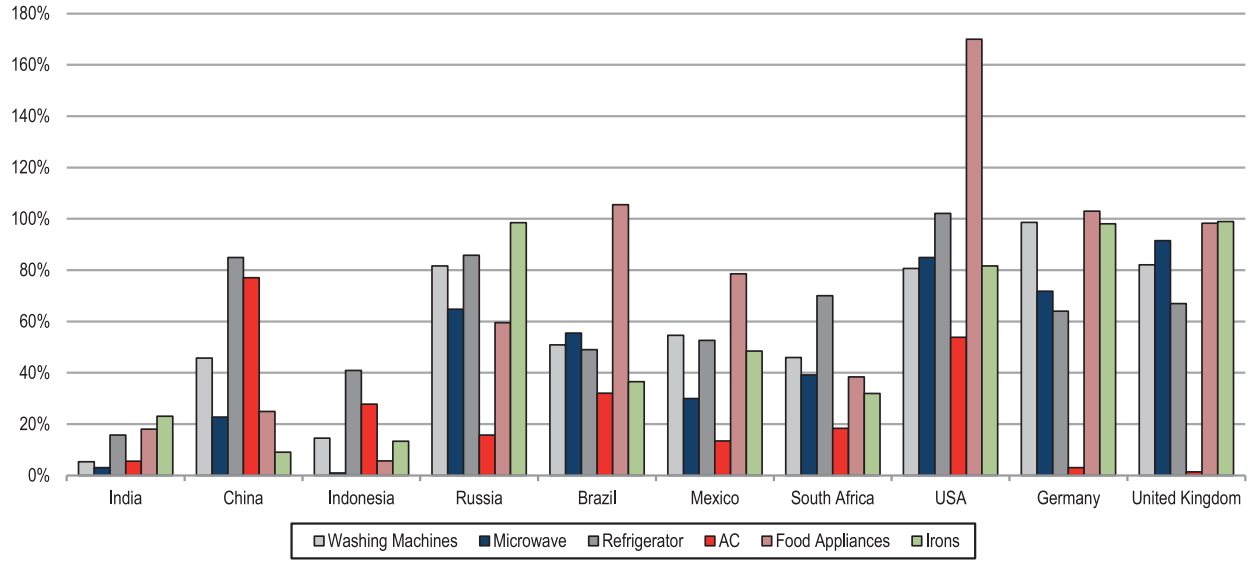
Like India, Indonesia has a large informal economy too, with 60mn SMEs as per Deloitte (2.8mn in Thailand; 1mn in the Philippines), and low banking penetration: as per World Bank 36% of adults have bank accounts (THA 78%, PHP 31%, MAL 81%, SGP 96%). The success of BRI, Indonesia's biggest provider of small loans: estimated to be half of the market below IDR200mn (US$15,277, or INR1mn), is worth studying. With a high net interest margin (8pp in 2015, from 9.5pp in 2011) and an NPA ratio of 2%, it is the most profitable publicly listed corporation, with IDR25.4tn (US$1.94bn) in profit in 2015. It has so far focused only on bricks-and-mortar branches (10,000 of them), and only now has started investing in branchless banking (small shops that offer banking services).

4) Consumer Appliances/Electronics

Rapid demand growth likely

India's penetration of basic productivity drivers like refrigerators, food appliances and washing machines is by far the lowest in the world (Figure 86). However, going forward this is likely to pick up. The reason for this is not only the adoption curves that plot per capita GDP with consumption of these appliances, but also improving household electrification, and improving quality of power.

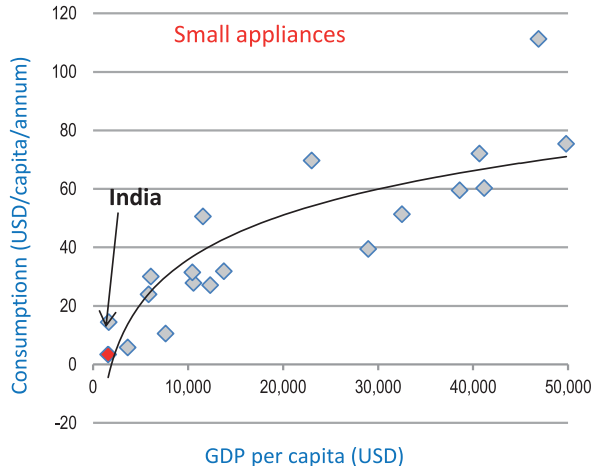
Figure 86: Household penetration of consumer appliances for large countries (2015)



Source: Company data, Credit Suisse estimates

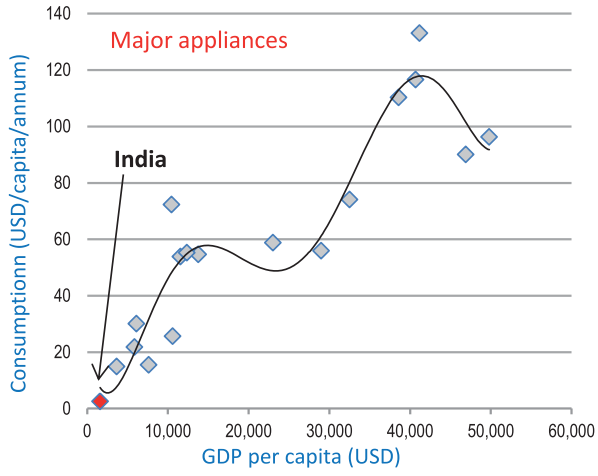
For both minor (e.g. small cooking appliances, personal appliances, ironing devices, etc. Figure 87) as well as major appliances (refrigeration, air-conditioning, home laundry, etc. Figure 88), as India's per capita GDP continues to rise at 7% or so, demand for these appliances could grow 2-6x over the coming decade. After this growth we are likely to have similar penetration levels as Indonesia.

Figure 87: Adoption curve for small appliances



Source: Company data, Credit Suisse estimates

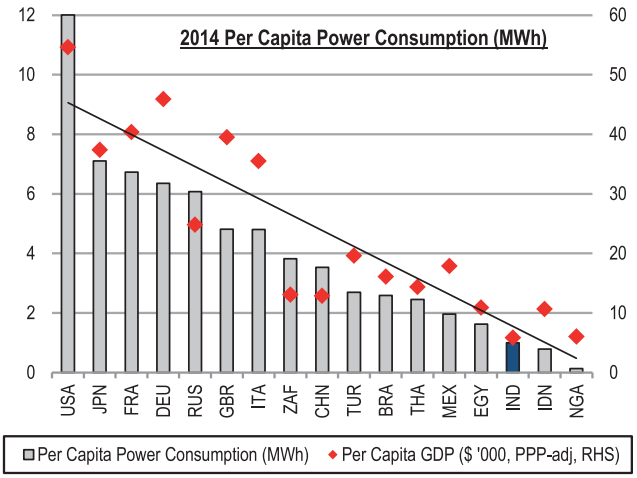
Figure 88: Adoption curve for large appliances



Source: Company data, Credit Suisse estimates

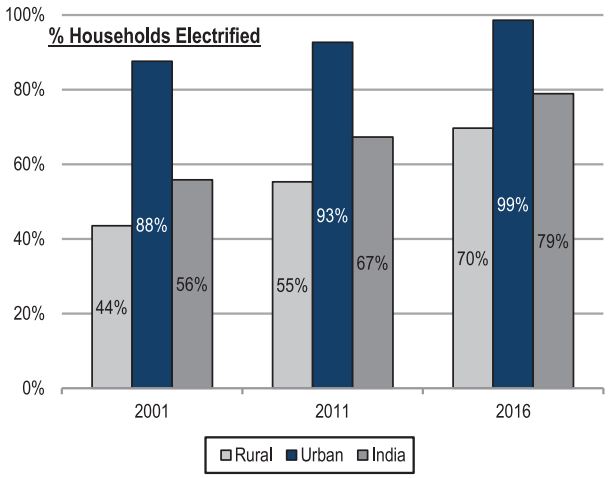
Thus far adoption of these has been constrained by power availability. While SEBs do try to subsidize power for low-end consumers, given the unsustainable nature of this scheme, they cannot afford to provide quality power to them. As a result, India's power consumption is also the lowest in the world (Figure 89). In the last decade, and in particular in the last five years, there has been a sharp pickup in the pace of household electrification (Figure 90). Improvements in domestic coal mining, better route planning by the railways, expansion in the transmission grids and large surpluses of generation capacity also imply low cost increases for SEBs.

Figure 89: Low per capita power consumption in India



Source: Company data, Credit Suisse estimates

Figure 90: Household electrification finally rising sharply



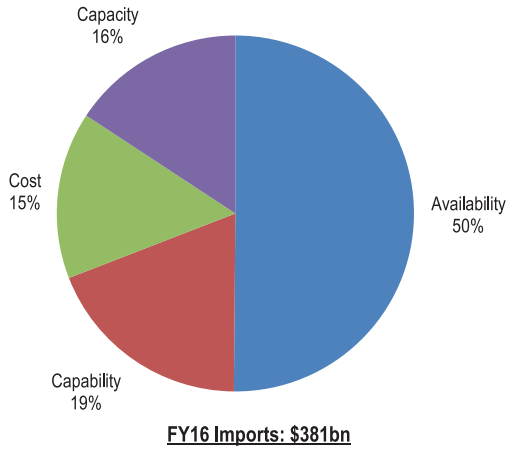
Source: Company data, Credit Suisse estimates

Availability of more reliable and affordable power as well as rising incomes should accelerate the adoption of consumer appliances.

This is the biggest import category that is substitutable

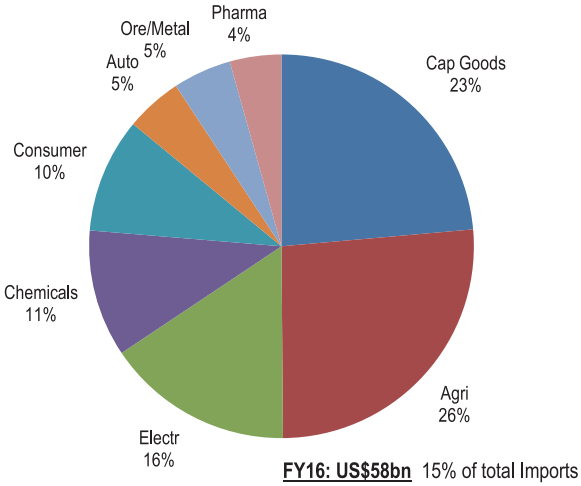
Thus far growing demand for these has been met with imports from China. In fact, of the imports that can be substituted (Figure 91: others are goods that are either not available, or India lacks capability, like aircraft or computer equipment, or capacity which in some ways can also be linked to cost, but only over the medium-term), consumer appliances and electronics are together nearly 40% of the import bill (Figure 92).

Figure 91: Split of imports by reason



Source: Company data, Credit Suisse estimates

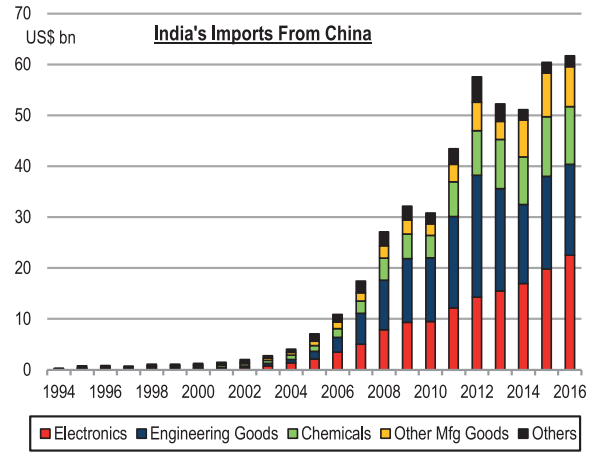
Figure 92: Category-wise split of Cost-related imports



Source: Company data, Credit Suisse estimates

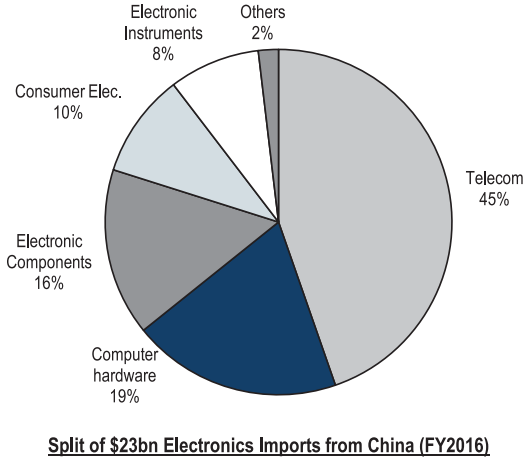
These categories also dominate our imports from China, and are at the root of the rapidly expanding trade deficit with the country (Figure 93). Our interactions with domestic manufacturers and supply chain experts point to significant cost advantages that the Chinese have – the reason most of these are imported.

Figure 93: Imports from China over time



Source: CMIE, Credit Suisse estimates

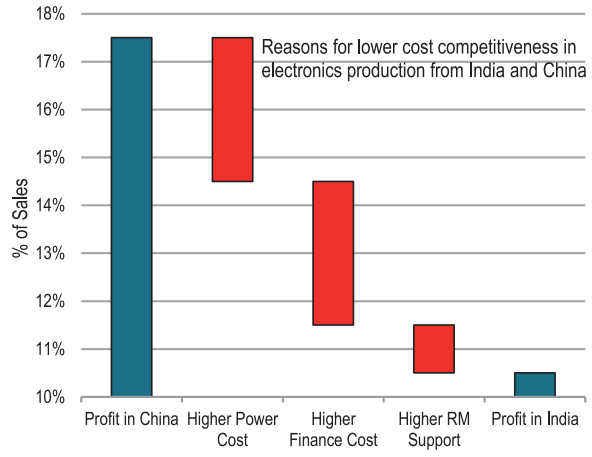
Figure 94: Electronics imports from China (FY2016)



Source: Company data, Credit Suisse estimates

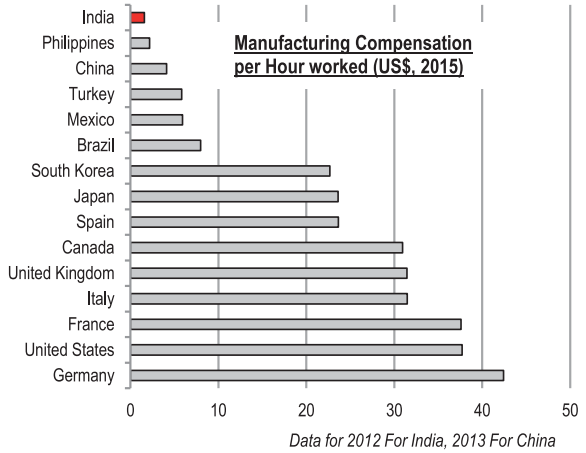
So far duty support has helped shift some cellphone assembly capacity (the largest part of the electronics imports from China: Figure 94) to India but extending it to too many categories runs the risk of WTO challenges. While the government seems to be incrementally going up the value chain to bring a larger part of the value-addition in mobile phones to India, it has been incremental and announced once every year in the budget. As per manufacturers giving some visibility on the roadmap over the next few years would accelerate the process of supply chain creation in India.

Figure 95: Cost advantages for China in appliances



Source: Company data, Credit Suisse estimates

Figure 96: India wages low, but offset by other factors



Source: Company data, Credit Suisse estimates

The bulk of the cost advantage is in the form of power costs, finance costs and supply chain efficiencies (Figure 95). While these add up to just 7% of sales, given the high proportion of material costs in these low value-added categories, these can provide a 15-20% advantage when it comes to returns.

There seems to be another hidden inefficiency: despite the average worker in India now costing nearly a third of a Chinese worker (Figure 96), it seems there is a substantial difference in worker productivity. The wage gap is further offset by basic constraints like number of hours worked (e.g. law and order problems and restrictions on overtime constrain 24 hour working in several areas) and the need for extra workers in ensuring continuous water and power supply.

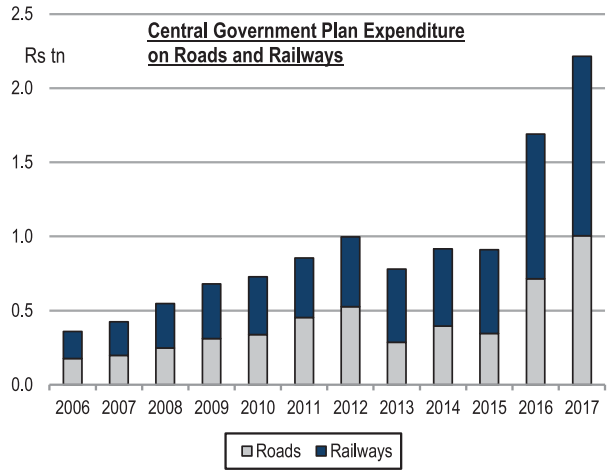
The two schemes launched by the government recently: 130% deduction for corporate income tax (section 80JJAA benefit) for employees with salary below Rs25000/month, and the government paying the PF contribution for employees at salaries below Rs15000/month for 3 years can be promoted for this industry as well.

5) Transport: Hard as well as Soft Infrastructure

Construction of roads creates jobs, and their use creates more jobs. Government focus has started to move from just building roads/railway lines to also improving the quality of transport. This is a welcome change in perspective even from a job creation perspective.

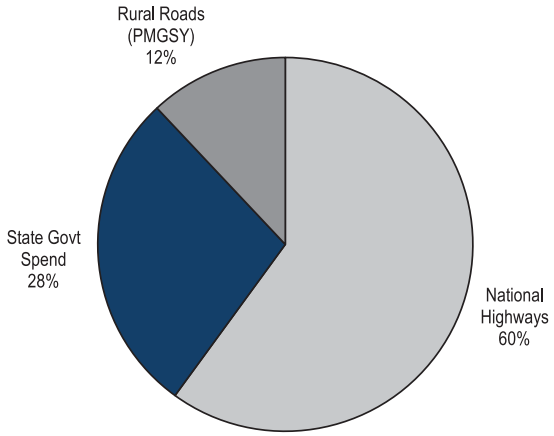
Construction: Job creation engine, but needs to scale up meaningfully

Figure 97: Total spend on National Highways/Railways



*Source: **Budget Documents**, Credit Suisse estimates*

Figure 98: Bulk of roads spending on National Highways



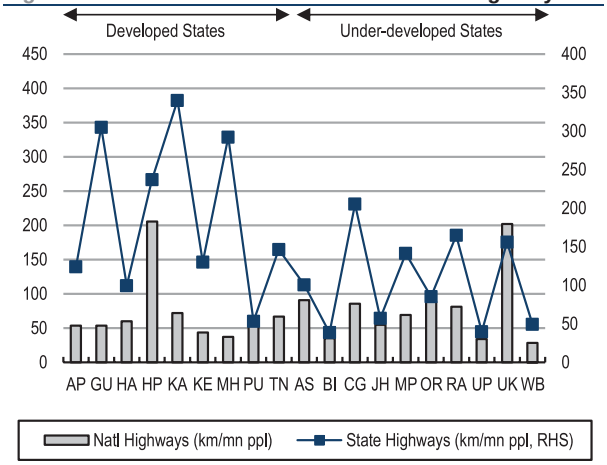
Source: Budget Documents, Credit Suisse estimates

As seen in earlier sections of this report, infrastructure construction is 13% of all construction jobs (Figure 20 on Page 12). If one was to take Spending on National Highways and Railways has picked up sharply (Figure 97). On roads, while National Highways are just 2% of the road network, they account for 40% of traffic and perhaps justifiably receive the bulk of general (i.e. state + centre) government expenditure.

The flagship *Pradhan Mantri Gram Sadak Yojana* (PMGSY) scheme has been a remarkable success over the past decade and a half, having constructed nearly 500,000 kilometres of roads, and connecting 110,000 habitations to the mainstream economy for the first time. This helps/has helped form larger economic units, by allowing perishables like labour, milk and vegetables better market access, and in the process encouraging specialisation and therefore productivity improvement. Acceleration of this scheme in terms of the number of habitations connected as well as scaling up the ambition on the width and quality of these roads can further enhance jobs.

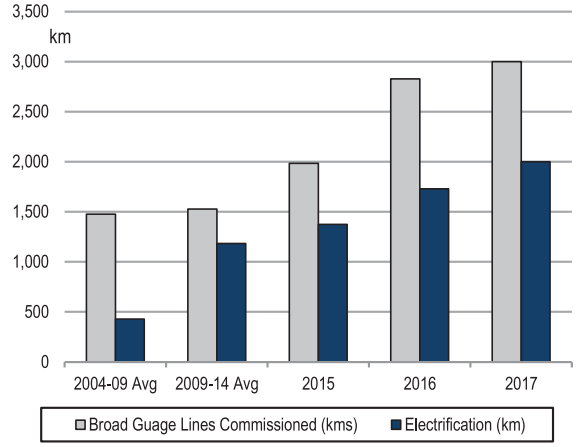
State highways somehow fall in between the central government's focus on the major arterial roads (National Highways) and the last mile connectivity. And yet, they are an important differentiator between developed and less developed states (Figure 99). By planning to upgrade 50,000km of state highways to national highways and then taking over their upgradation, the government is likely addressing this flaw without going through the contentious issues of funding infrastructure for specific states with central funds. Whatever the mechanism of building these, and that of funding them (i.e. through direct budgetary support or extra-budgetary borrowing), these are likely to contribute meaningfully to the general government borrowing requirements.

Figure 99: **Difference between states in state highways**



Source: Company data, Credit Suisse estimates

Figure 100: **Indian Railways targets**



Source: Railways Budget, Credit Suisse estimates

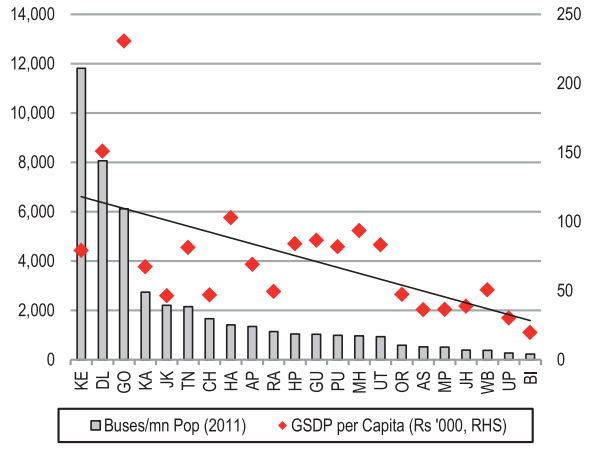
Similarly, for the Railways, given the scale of the change needed, and the difficulty in attracting private capital for a variety of reasons, it seems likely that the much needed expansion in rail capacity and speeds will either be funded directly by the government or will be through market borrowing, thus adding to PSBR.

Transportation Services: positive primary as well as secondary impact on jobs

Constructing a road is an important first step for mobility of labour and goods. However, without there being affordable transportation services, the utilization of these roads is sub optimal and takes many years to ramp up. Transportation services also account for a large number of jobs (Figure 25 on Page 14). The National Market is rather vibrant but but the state and local levels development of these markets if left alone can take a very long time.

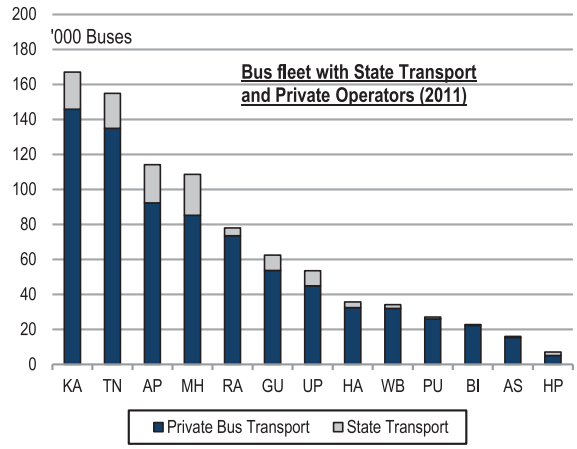
As can be seen from the visible correlation between a state's bus density (number of buses per million people) to its per capita GDP (Figure 101), it has a meaningful impact on productivity. Interestingly, the state does not have to own/run all of these (Figure 102): a very high share of these buses are privately run.

Figure 101: **Need public transport to complement roads**



Source: Company data, Credit Suisse estimates

Figure 102:**These aren't and need not be all private**



Source: Company data, Credit Suisse estimates

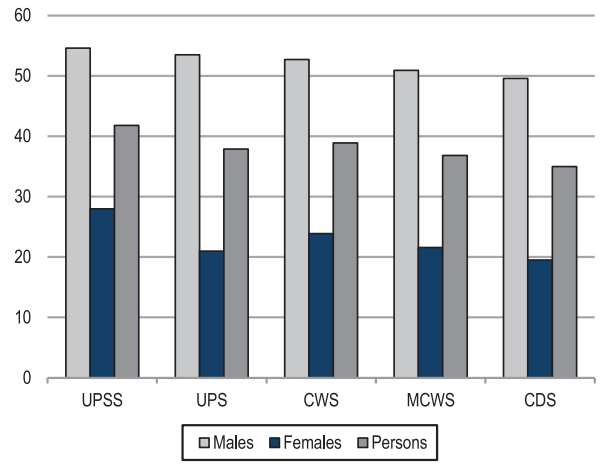
The provision of these services deteriorates meaningfully at the local government level. So far the central government has approached the problem through the Smart Cities project, and a more recent programme by the MoRTH in association with the World Bank, where state

transport corporation improvements are rewarded competitively with matching grants. Start-up ventures like Uber and Ola are revolutionising this market, but similar techniques can also be used to develop affordable urban transport.

6) Getting women into the workforce

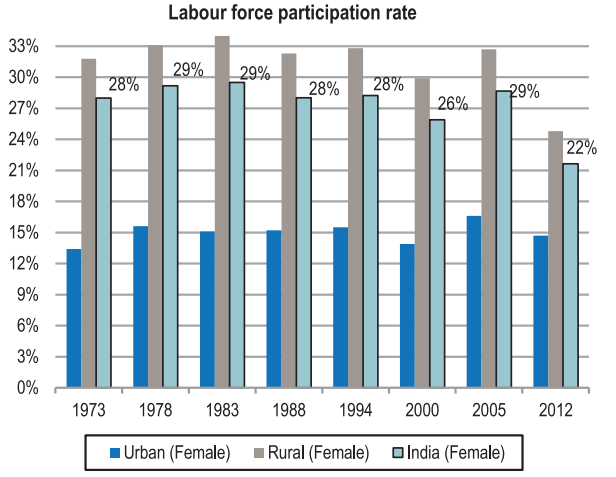
In India the average labour force/worker participation rates are brought down by an abysmal ratio for women: they are lower than men on most measures, and in particular for the most rigorous Current Daily Status (Figure 103), indicating high part-time involvement. It has been well documented that many countries that have pulled themselves out of poverty have done so through a surge in women entering the workforce. In India on the other hand the participation rate has been falling (Figure 104). Worryingly, this is in both urban and rural areas, though much more steeply in the latter.

Figure 103: Women's workforce participation rate is low



Source: Company data, Credit Suisse estimates

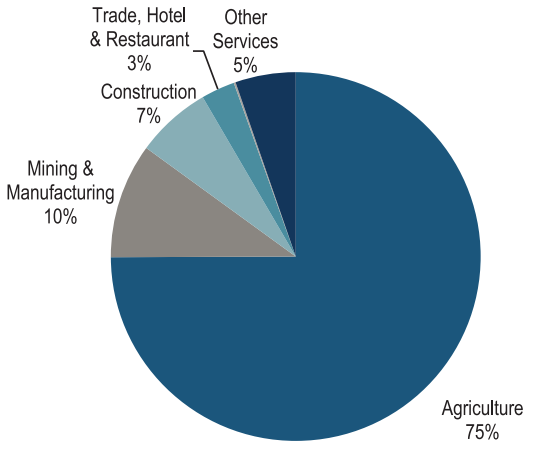
Figure 104: Participation of women in workforce dropping



Source: Company data, Credit Suisse estimates

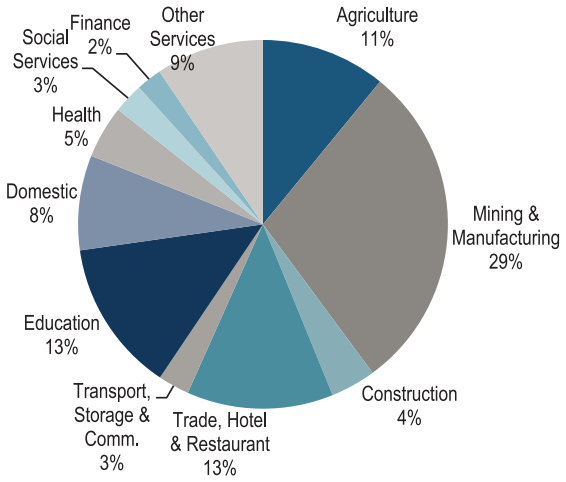
Many theories have been attempted to explain this, including i) improving prosperity is making it less important for women to venture out of home in physically unsafe/ uncomfortable environments if they don't need to, esp. to avoid social stigma; ii) allowing them more time to spend at home taking care of children; and iii) lack of appropriate skills.

Figure 105: Split of Jobs for Rural Women



Source: Company data, Credit Suisse estimates

Figure 106: Split of Jobs for Urban Women



Source: Company data, Credit Suisse estimates

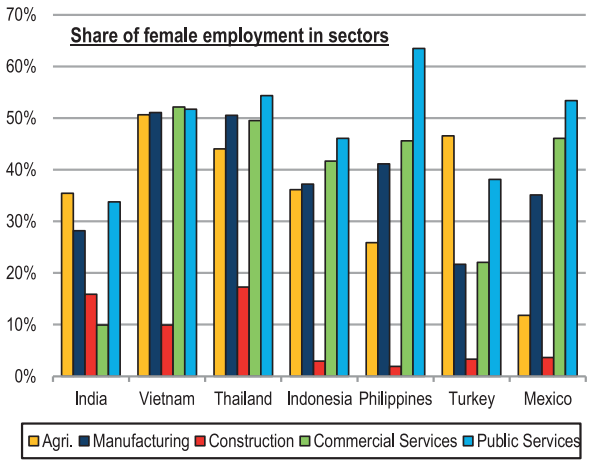
From our perspective, another worrying trend is agriculture needing fewer workers going forward, as 75% of rural women workers, where participation rates are higher, are in agriculture (Figure 105). Jobs for urban women are more evenly distributed across categories (Figure 106): the focus though would be in getting their participation to improve.

In developed economies female participation in the workforce is encouraged by income tax rates being set for families rather than individuals, with a second worker facing a lower tax rate. That is unlikely to work in India, given that most of these workers and their families are anyway outside the income tax bracket.

On the contrary, recent moves to increase mandatory maternity leave and inclusion of crèche services at job sites while necessary in the formal sector, may actually act as a deterrent for employers at the lower end of the wage spectrum: the government may have to resort to women-specific subsidies to offset some of these concerns.

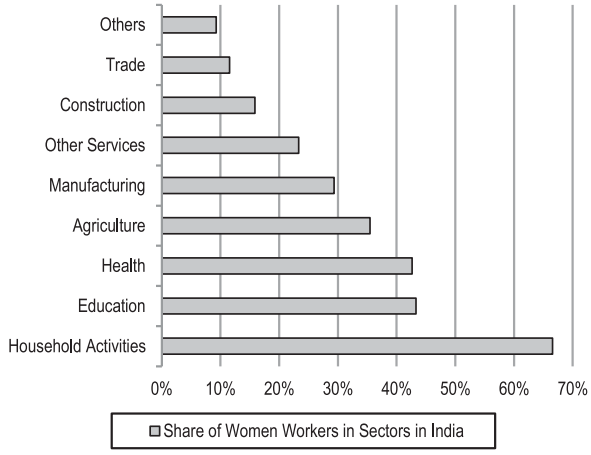
There are sectors that globally see higher proportion of women workers (Figure 107): assuming that over time India's mix of industry also shifts in that direction, industry-specific incentives can be used to generate employment opportunities for women. In India

Figure 107: Industries that employ more women globally



Source: ILO, Credit Suisse Estimates

Figure 108: Sectors in India where women's share is high



Source: NSSO, Credit Suisse Estimates

Ideas not detailed for now

In addition to the above, there are several additional areas associated with the informal economy in terms of formalization or job creation that can have fiscal implications. These have not been detailed as yet for one of two reasons: firstly, these are very broad-based, and quantification of the impact requires some important assumptions to be made; and secondly, availability of reliable macroeconomic statistics has been a challenge. In tourism for example, NSSO surveys capture variables like the number of tourists, number of inter-city overnight trips and the duration of stay, but translating these into job opportunities, or the fiscal impact of any government measures, requires several subjective assessments. These topics can be detailed post discussions with the committee.

Fiscal Freedoms for local government

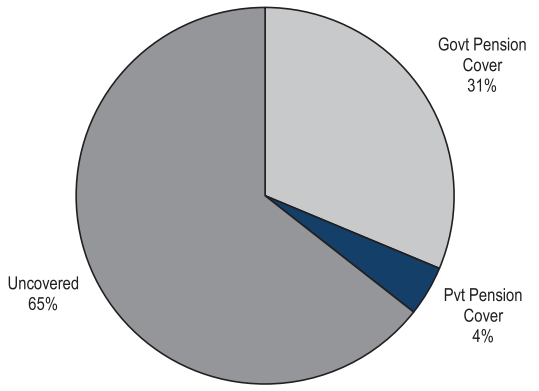
Several studies have shown that local government entrepreneurship was the primary driver of growth in the first two decades of the Chinese growth miracle, and likely after that as well. While the Fourteenth Finance Commission has significantly boosted direct transfers to local governments, the total quantum is still small. This is an area that can be transformational, but may require too many other changes (e.g. state governments giving control to local governments), and so we are unsure if this falls within the remit of the FRBM committee.

Directly addressing cost of formalization: formalize now, or pay pensions later

The government is aware that formalization is a cost-benefit balance for enterprises, and has been working to reduce the costs, as summarily discussed in the sub-section above on domestic manufacturing of consumer appliances. However, this is a much bigger subject, and can potentially necessitate much bigger budgetary allocations in future years.

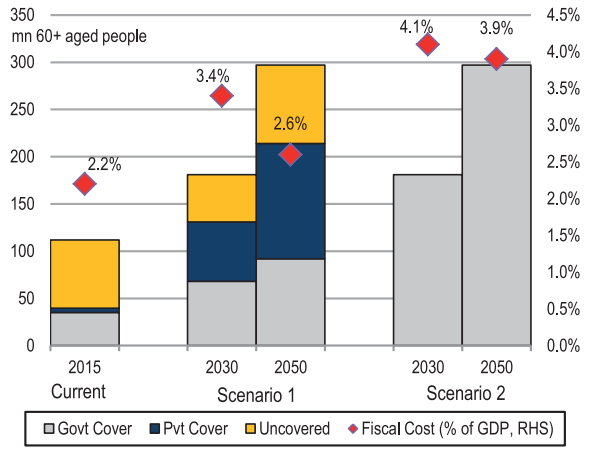
In particular, as the government may eventually have to bear the pension costs of the informal sector post their retirement. It could therefore make sense to spend now and encourage formalization rather than have to deal with this15-20 years later.

Figure 109: Limited pension cover outside government



Source: CRISIL4

Figure 110:Government pension outgo could rise sharply



Source: CRISIL4

CRISIL[4] estimates that from the current cost of 2.2% of GDP, pension costs to the government could rise sharply by 2030. A large part of 60-plus population is uncovered, as private sector coverage is insignificant (Figure 109). In the best case scenario, if private sector pension coverage rises from 8% currently to 70% by 2030 the government's burden may be 3.4% of GDP (Scenario 1 in Figure 110).

If however the private sector coverage ratio stays at 8% (Scenario 2), the burden for the government could rise to 4% of GDP even with lower per person outgo. In the worst case, if the outgo per person stays the same, the costs could be 6% of GDP. This is a substantial burden, and if a relatively smaller outlay can minimize this future liability, such a plan should be taken up without delay.

Addressing rigidities of labour markets with directed subsidies

One of the reasons stated why the private sector has preferred a capital intensive route is excessive labour market rigidity (e.g. inability to fire at will if employing > 100 workers; inability to acquire a flexible labour force through contract arrangements as these are restricted to non-perennial activities). We haven't yet explored if this cost in some way can be shared between the government and employers. In Europe for example lay-offs under certain conditions allow for the government to part-pay the severance. While Europe is no paragon of labour market flexibility, such a scheme can provide a via media for governments seeking labour protection and corporations seeking flexibility. This can start with specific sectors and geographies to assess flaws, but cost estimates are tough to do.

State-specific incentives and/or Cluster Development

Given that a large number of services and goods are regulated and taxed by state governments, there has been insufficient reform in many of them. Different states have different strengths in terms of resource availability. Bihar for example can excel in food

[4] CRISIL report. "When India ages, whiither pensions for all?", January 2015

processing, Jharkhand, Odisha and Chhattisgarh in minerals, MP in textiles and pharmaceuticals, UP in leather/sports goods.

Similarly, various studies have estimated around 350 small scale industrial clusters and around 2000 rural and artisan based clusters contributing almost 60% of the manufacturing exports and 40 % of the employment in the manufacturing industry. These are promoted and run by persons, many of whom are first generation entrepreneurs. In the Sankagiri transport cluster of TN which has second highest truck traffic in the country, more than 80% of the truck owners were earlier drivers and cleaners. Similarly, in the knitwear industry in Tirupur, more than 90%are from agricultural backgrounds. Descendants of farmers from Palanpur and Kathiawar have created the diamond hub in Surat which provides employment to large numbers in Antwerp and New York.

Tourism: Significant informal job creation potential

This was part of the NDA government's manifesto, and is widely believed to be a meaningful job creation engine: rightly so, in our view. But even reasonably accurate quantitative assessments are hard to get. The NSSO's surveys on tourism capture the activities and types of spending by tourists, but translation of these into formal and informal jobs, as well as identification of areas where the government can provide a fiscal boost involve making several subjective assumptions. The NSSO data captures the type of activity, and not the end use of that activity (e.g. is the urban transport service being run for tourists?).

Appendix 1: Definitions

Definitions of Informal sector, employment, economy

There is no single definition of informality: the three main schools of thought[5]: i) the dualist school – the informal sector is the inferior segment of a dual labor market with no direct link to the formal economy; ii) the structuralist school – the sector as firms/ unregistered workers subordinated to large capitalist firms; and iii) the legalist school – micro-entrepreneurs who prefer to operate informally to avoid costs associated with registration.

Informal Sector: "The unorganized sector consists of all unincorporated private enterprises owned by individuals or households engaged in the sale and production of goods and services operated on a proprietary/ partnership basis and with less than ten total workers".

Informal worker/employment: "Unorganized workers consist of those working in the unorganized sector or households, excluding regular workers with social security benefits provided by the employers and the workers in the formal sector without any employment and social security benefits provided by the employers".

Informal economy: The informal sector and its workers plus the informal workers in the formal sector constitute the informal economy.

Figure 111: Definitions

Abbreviation	Detail	Definition (of employment where applicable)
Participation Rate		
LPFR	Labour Force Participation Rate	Number of persons in the labour force divided by Total Population
WPR	Work Participation Rate	Number of persons in the work force divided by Total Population
Employment Status		
UPS	Usual Principal (Activity) Status	Status of an individual during a reference period of one year. Excludes from the labour force all those who are employed or unemployed for a total of less than 6 months.
UPSS	Usual Principal and Subsidiary Status	All those unemployed/out of labour force but had worked for at least 30 days over the reference year treated as subsidiary status workers. Most commonly used measure
CWS	Current Weekly Status	If s/he has either worked or is seeking and/or available for work at least for one hour during the reference period of one week preceding the date of survey.
CDS	Current Daily Status	Previous 14 half-days (7 days): 1-4 hours = half intensity and four hours or more is taken as full intensity. Preferred measure of unemployment.
MCWS	Modified Current Weekly Status	Two steps: 1) assign individuals to the workforce if the majority of their (prev. 14) half-days were in the labour force; 2) within the labour force use majority time principle to classify individuals among the two activity statuses: employed or unemployed.
Unemployment		
SUE	Severely Unemployed	Unemployed for 3.5 days or more (half or more days in the week)
PTW	Part-Time Workers	Workers who worked for 0.5-3 days in the week. This could be either because they were not interested in more work (which again could be because they didn't want to or because they felt discouraged), or because they couldn't find it.
UE	Underemployed	Worked for 0.5-3 days during the week and reported at least 0.5 days of unemployment

Source: Company data, Credit Suisse estimates

The definitions themselves make a big difference: labour force participation under UPSS (the broadest measure) and CDS (the narrowest measure) in 2004-05 differed by 51.6mn.

Figure 112: Definitions of Micro, Small and Medium Enterprises by Investment in Plant & Machinery

Rs Mn	Manufacturing	Services
Micro	< 2.5	< 1
Small	2.5-50	1-20
Medium	50-100	20-50

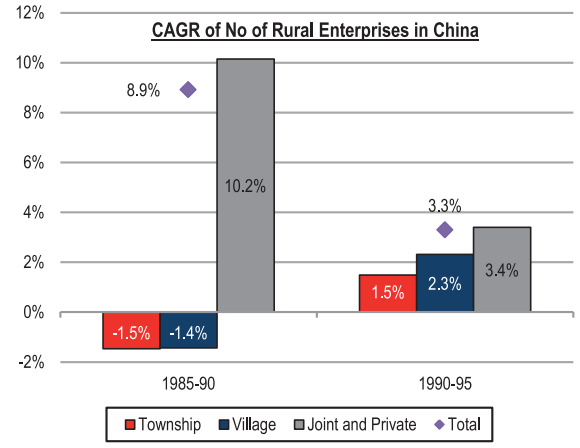
Source: Company data, Credit Suisse estimates

[5] Mark Bachetta (WTO) and Ekkehard Ernst (IILS, ILO), Globalization and Informal Jobs in Developing Economies, 2009, Page 40.

Appendix 2: China's Evolution

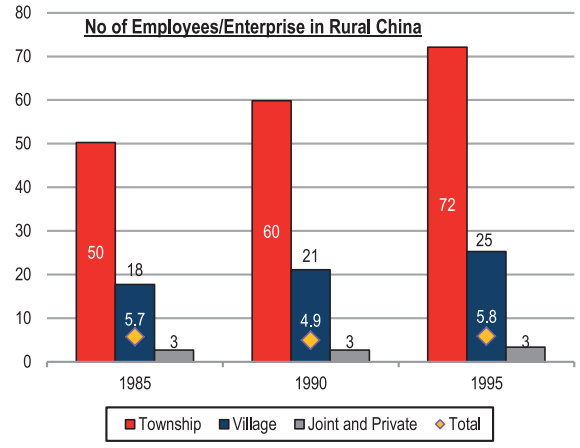
China has been through a similar process of a sharp spike in micro-enterprise creation[6], which is only natural, as in the first step out of agriculture the workers don't have the skills or the education to do much else. That's similar to what we are seeing in India. But what happened thereafter is more interesting. At the core of China's "economic miracle" was a massive upsurge of rural industrialization.

Figure 113: Surge in Joint/Private enterprises 1980-85



Source: Company data, Credit Suisse estimates

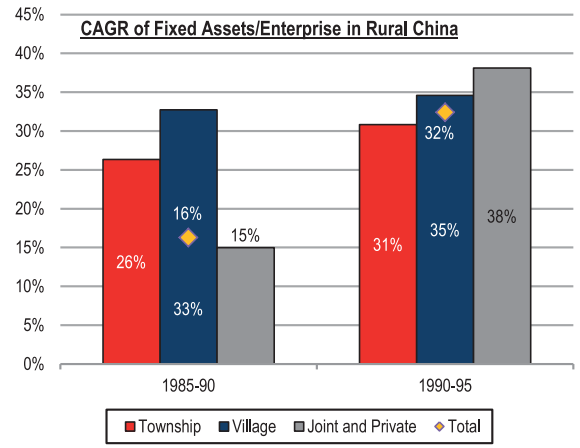
Figure 114:These had low average employee count



Source: Company data, Credit Suisse estimates

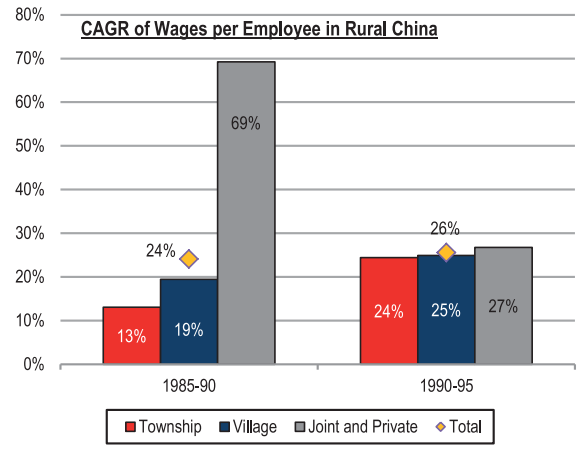
Between 1978 and 1990, output by rural enterprises grew at 26% CAGR, and soon formed 25% of China's exports. Tpercentage of rural labour engaged in village and township enterprises more than doubled, and 57 million new jobs were created between 1978 and 1986 – more than the jobs created by all state-owned enterprises (SoEs) till 1986. There were two clear phases in the 1985-95 period: first a large number of micro-enterprises got created (Figure 113), with average employee strength of just 3 (Figure 114).

Figure 115: Growth in assets 1990-95 helped productivity



Source: Company data, Credit Suisse estimates

Figure 116: And thus drove strong wage growth as well



Source: Company data, Credit Suisse estimates

[6] Oi, Jean C. Rural China Takes Off: Institutional Foundations of Economic Reform, University of California Press, 1999.

In the second half of this period, 1990-95, average fixed assets for these enterprises spurted (Figure 115). Likely as a consequence of the resultant improvement in productivity, average wage per employee grew strongly too during this period Figure 116). The funding of these enterprises seems to have been only partly via banks (this may surprise current followers of the Chinese economy): only about 30% of the incremental asset value increase came from banks. But then in the China of the 1990s it was hard to separate the banks from the government (more so than now).

Some of these drivers are harder to replicate in India, like the significant independence given to local officials, which triggered a surge in entrepreneurship. Or the experiments in taxation that are less easy in India's political set up. China also had to transition from collective ownership to private ownership, and there were policy challenges that made the transition far from ideal. For this reason, aping all that the Chinese did may not be appropriate for India.

But the necessity of providing a supporting environment for the micro-enterprises to scale up and improve their productivity is a lesson that cannot be forgotten.

SECTION 2:
FISCAL RULES AND INDIA

Fiscal Rules for India

Martin Wolf, Financial Times

Why should a country adopt rules for fiscal policy? What should be the principles underlying those rules? How should those principles be applied to India? These are the questions to be addressed in this note. Its focus is on the overall fiscal balance, not the structure of taxation or spending, with one important exception: the balance between consumption and investment.

Why Adopt Notionally Binding Fiscal Rules?

Suppose a government is not only benevolent, responsible and far-sighted, but known to be so. In that case, it would not need to be bound by rules, which would almost certainly deliver sub-optimal policies from time to time. It would be better to give such government discretion to adjust fiscal policy in the light of circumstances. There would be no concern that such a government might default, for example. A benevolent government would smooth taxes and spending over time, allowing larger deficits to emerge during recessions, offset by smaller deficits or, if necessary, surpluses, during booms. A benevolent government would borrow to make investments that increase the wealth of the citizens. In a developing country, a benevolent government would make the objective of increasing the stock of human and physical capital and promoting innovation a particularly high priority. In a dynamic developing country, a benevolent government would seek to raise the consumption of today's relatively poor people, at the expense of tomorrow's relatively wealthy ones. A credibly benevolent government would indicate the principles underlying its choices, to guide the public, including investors, but it would not feel any need to be bound by them.

The principal justification for binding rules is that such a benevolent government does not exist or, as important, is not believed to exist. If effective, binding rules could make it more likely that the government will behave in a benevolent way. In particular, they might diminish "deficit bias". Agreed and transparent constraints should raise the cost of deceitful or "time -inconsistent" behaviour: that is, making promises it is not in the interests of the government to keep when the conditions in which it is supposed to do so arrive. Enhanced confidence in the government's behaviour would lower the likelihood of crises over its ability to manage its debt. That would also reduce the costs of occasionally-desirable periods of high borrowing. It would, not least, reduce the likelihood of self-fulfilling prophecies of doom, in which a collapse in confidence generates higher costs of debt and so increases the risks of the defaults doomsayers fear.

The benefit of rules derives from their being credibly binding. That credibility, in turn, largely derives from the costs of breaking them. The plausibility of such costs is, however, debatable. Governments cannot, in general, be sanctioned for breaking fiscal rules they have adopted. Even in the European Union, which possesses a supranational authority with the purported power to impose fines, the feasibility of sanctions is doubtful. For other countries, sanctions are notional, beyond those that follow from losing the confidence of markets. Unfortunately, market discipline is both erratic and brutal, often allowing an unsustainable trend to continue too long and then imposing damaging crises. True, breaking pre-specified commitments would usually

have some political costs. But these might be dwarfed by the costs of keeping them. If so, their effectiveness in altering behaviour might be modest and, above all, be believed to be modest.

Thus, one should not assume that agreeing rules on future fiscal behaviour would bring large benefits. At the least, if rules are to add to credibility they must be ones a government should and could keep. Thus, it must make sense to follow those rules when they become binding. Too often, however, governments make promises, even promises embedded in law, they are very unlikely to keep in relevant states of the world, partly because doing so would not make much sense. Such promises might as well not have been made.

Beyond designing sensible and so credible rules, it also makes sense to create an independent and permanent institution empowered to assess the government's behaviour and to comment on the appropriateness of the rules and the ways in which they might be adapted to actual events. Such an institutional backstop has the potential to enhance credibility, while providing necessary flexibility.

What are the Principles for Fiscal Management?

In a nutshell, ideal rules would guarantee solvency, while giving the makers of fiscal policy the flexibility to to enhance long-term growth and respond when necessary to macroeconomic shocks.

Why would one want solvency? The answer is that debt crises are costly events, whether they take the form of an inability to sell debt, an inability to sell debt on tolerable terms, or an outbreak of high inflation (or, quite probably, a combination of the three). Such crises are economically costly, since they often trigger recessions and leave a long aftermath of high interest rates and difficulties in selling public debt. The latter, in turn, make the management of subsequent adverse economic shocks more difficult and costlier. Moreover, debt crises are not just economically costly. They are also politically costly, since they inflict long-lasting damage on trust in the government and politicians.

Unfortunately, no simple guidance can be offered on what solvency means for a government. Formal modeling of solvency involves calculations of the present value of government primary (non-interest) spending and revenue, to infinity. Such a calculation cannot be done with any reasonable degree of precision: future fiscal policy, economic growth and interest rates are all highly uncertain. Moreover, a sovereign government cannot, by definition, be put through bankruptcy. A government's assets cannot, for the most part, be liquidated. Most of its assets do not generate direct monetary returns, however important their contribution to the welfare of the population. A government' principal financial asset is its ability to raise taxes and, if necessary, cut spending. But that is always limited by political and even moral constraints. Ultimately, the solvency of a government is more a matter of its perceived willingness to service its debt than its ability to do so.

Given all this, the starting point can be no more than a rule of thumb: a ceiling for the intended ratio of debt to GDP judged from historical experience to be manageable in virtually all circumstances. One advantage of setting such a ceiling is that it is likely to keep interest rates low. Another is

that government debt (and so deficits) can then act as a shock absorber in times of stress. It also makes sense to target a falling debt ratio, in normal times. That will be particularly important when the current debt ratio is close to the chosen ceiling. A falling debt ratio in normal circumstances will, over time, give more freedom of manoeuvre in exceptional circumstances, in terms of both deficits and debt. Thus, if the actual deficit is below the level needed to stabilise the debt ratio, it can rise without threatening a large jump in the ratio. Similarly, if the actual debt ratio is below the desired ceiling, it will be possible to accommodate a period of high deficits, without sacrificing the framework or, worse, threatening insolvency.

Moreover, economies do not crash upwards. This asymmetry means that there is a possibility of large and sudden jumps in deficits and debts, as demonstrated by the aftermath of the 2007-08 financial crises in western economies. It is desirable, therefore, to leave headroom between the actual debt ratio and the intended ceiling. Among other benefits, this would reduce or even eliminate pressure towards rapid and costly reductions in fiscal deficits and debt.

An important question is whether the envisaged debt ceiling should take account of the composition of government spending.

Thus, if investment brought future direct or indirect gains to revenue, it might appear sensible to accept a higher debt ceiling or even to ignore the debt ratio altogether. Yet ignoring debt incurred to finance investment might be risky, since a liquidity crisis in the public debt markets, unexpectedly low returns (or, quite possibly, both) might cause substantial difficulties. A pragmatic solution would be to adopt a rule related to the reasons for borrowing, alongside a relatively high debt ceiling. A well-known version is the “golden rule”, which states that borrowing should only be for investment, over the business cycle. This appears to make quite good sense. But to make application of the golden rule credible, it is important to develop institutions able to ensure the quality of the investments.

Yet a case can also be made or borrowing to finance current spending and so a higher debt ratio in a country with a high prospective growth rate. That would allow the government to smooth the level of consumption over generations, in favour of today’s poor, who are likely to be poorer than tomorrow’s poor. Moreover, some of what is usually considered current spending – on education and health, for example – has benefits for economic growth. For these reasons, even the golden rule might not be appropriate and substantial borrowing to finance current spending could make sense, instead. But borrowing to finance current spending might also risk perceptions of imprudence and so higher costs of debt.

Against this, in a country with good investment opportunities, government saving would be particularly valuable if it raised national savings and investment rates. This would argue for surpluses on the current budget, possibly ones big enough to finance all (or even more than all) public investment. The result could be lower interest rates and the crowding in of private investment. The implication is that solvency (or sustainability) is just a necessary, but not a sufficient, condition for a good fiscal policy. The impact on overall domestic savings and investment is also likely to be quite important.

A further issue concerns the relationship between debt and deficits. Starting with a ceiling for

debt provides an easy way to set an upper limit to the cyclically-adjusted deficit. But the debt ratio is not the best operational target. It makes better sense to target deficits, since the attempt to hit a given target for debt within a relatively short period might cause excessive fiscal loosening or tightening. Imagine, for example, a financial crisis that drove the fiscal deficit up from, say, 3 per cent to 10 per cent of GDP and the debt ratio up from 60 per cent of GDP to over 80 per cent, over a couple of years. Attempting to get the deficit down from 10 per cent back to 3 per cent of GDP would be hard enough. Attempting to get the debt ratio back down to 60 per cent fairly quickly would probably demand fiscal surpluses. If the debt ratio were not high enough to raise doubts about solvency, such a policy would be unnecessarily costly. It would make far better sense to bring the deficit down to a level expected to bring the debt ratio ratio back down, over the long term. So the operational target should be deficits, a flow variable, rather than debt, a stock variable.

A further important issue is the relationship between fiscal and monetary policy. The more it is possible to rely on monetary policy as the principal instrument of economic stabilisation, the less important it is to preserve fiscal space. But experience suggests at least two important reasons why fiscal policy still has a part to play in stabilisation. One is the fact that monetary policy works by encouraging credit expansion and changes in asset prices. Both could prove highly destabilising. For a developing country, the economic costs of financial crises are likely to prove particularly high. Another reason is that interest rates might end up close to zero. At that point, monetary policy becomes relatively ineffective. For these reasons, it is important to preserve space for the use of fiscal policy. The best way to do this is to ensure manageable debt and contained deficits in normal times.

A final question concerns debt management. There is a temptation for governments to borrow short term, because short-term interest rates are normally below long-term interest rates. But unforeseen events might make it difficult to roll over short-term debt on favourable terms. These risks are smaller for a country able to borrow easily in its own currency, particularly if it borrows mainly from residents. But the risks are real. The fiscal position is less vulnerable to panics the longer are the debt maturities. Similar arguments can be made for relying on inflation-indexed bonds. While this reduces the ability of the government to use inflation as a covert tax, it also makes low inflation more credible. That, in turn, anchors inflation expectations and interest rates on long-term conventional bonds.

How Might the Principles be Applied to India?

According to the International Monetary Fund, India's ratio of gross government debt to GDP was 67 per cent at the end of 2015. This is a manageable level for a government able to borrow in its own currency, particularly in a country with a gross domestic savings rate of more than 30 per cent of GDP. The debt ratio is also appreciably below where it was in the early 2000s: it peaked at 84 per cent in 2003. At the same time, it is not a highly comfortable level, by relevant international standards. Standard & Poor's also rates India's sovereign debt at BBB-. This applies to foreign currency debt, which is not (and should not become), that important to the Indian government. Moreover, the credibility of the ratings agencies is in tatters after their poor

performance in the run up to the financial crisis. Nevertheless, some account should be taken of this low rating.

It would seem reasonable for a risk-averse Indian government, mindful of the costs of a fiscal crisis, to set a debt ratio of no greater than 60 per cent as its desired ceiling. This would put India in line with Maastricht norms and, if consistently achieved, establish it as a strongly creditworthy county. So what might this mean for the deficit? India should grow at no less than an average of 6 per cent over the next decade. This is below the average of 7.7 per cent achieved between 2005 and 2015 and the forecast by the International Monetary Fund of 7.2 per cent between 2011 and 2021. The target for consumer price inflation in India is 4 per cent. If the GDP deflator and consumer prices are expected to move in line, then the trend growth of nominal GDP should be above 10 per cent, at least twice as fast as in the high-income countries. Finally, the average interest rate paid by the government on its outstanding gross debt is 7 per cent. This is also close to the recent redemption yield on 10-year Indian government bonds. A 7 per cent yield in India, with expected inflation at 4 per cent, implies a real interest rate of 3 per cent. The global real interest rate on the most highly-rated government securities is close to zero. Thus, India's government debt offers a premium of 3 percentage points over real rates in high-income countries.

Under these assumptions, India could stabilise its debt ratio at 60 per cent of GDP with a general government deficit of 6 per cent of GDP, in normal circumstances. Thus, India could meet the Maastricht criteria for debt with a deficit ratio twice as high as in the Maastricht treaty. Provided the average cost of borrowing remained 7 per cent, this would mean a primary fiscal deficit of 1.8 per cent of GDP, together with 4.2 per cent of GDP in interest payments. If the aim were, quite sensibly, to ensure a steadily falling debt ratio in normal times, in order to give substantial room for manoeuvre in times of recession, the deficit should be below 6 per cent. It would be sensible, therefore, to set the target general government deficit at not more than, say, 5 per cent in normal times, at least until the debt ratio falls substantially below 60 per cent.

The growth rate might be lower than 6 per cent, though that seems unlikely, and the real interest rate might end up higher than 3 per cent. The global real rate on safe bonds might, for example, rise to the pre-crisis level of 2 per cent. Other things being equal, that could raise Indian bond yields to 9 per cent. Even so, the long-term nominal interest rate would remain below the prospective nominal growth of the economy. Under these assumptions, a target deficit of 5 per cent would require a small primary surplus. If India achieved a general government deficit of below 5 per cent of GDP in normal times, India's government would surely be deemed solvent. This starting point would also give it needed room for fiscal manoeuvre, if a crisis should hit.

How far should considerations, other than perceived solvency, affect the choice of fiscal target?

According to the latest Economic Survey, public sector saving was only 1.2 per cent of GDP in 2014-15, while public sector gross capital formation was 7.4 per cent of GDP. It follows that borrowing already funds almost all of public investment. Given the uncertainty about the returns

[1] According to IMF data, India's gross debt ratio in 2015 was 33rd from the top among 147 emerging and developing countries and well above both the mean (50 per cent of GDP) and the median (48 per cent).

on public investment and its questionable benefits to future government revenue, running a deficit equal to total public sector investment would seem clearly excessive. Moreover, the countervailing argument for higher government savings seems, in Indian circumstances, powerful. Given the desire to raise the growth rate of GDP towards 10 per cent, the need for a huge increase in spending on infrastructure and the risks in becoming reliant on net capital inflows from abroad, a further rise in the domestic savings rate seems highly desirable. At present, however, the government's contribution to domestic savings is negligible: in 2014-15, it generated just 4 per cent of total domestic savings. The argument for the government to raise its contribution to savings surely outweighs the argument for financing investment from borrowing, particularly since gross indebtedness is still quite high.

An argument considered above is for borrowing to shift spending from richer future generations to the poorer present one. This argument only works if creditors can be confident that future generations would not default. But, if higher borrowing today led to substantially higher debt ratios, that assumption might not be believed, with dire consequences. Furthermore, it matters for this argument that spending be targeted on today's relatively poor people. That seems quite unlikely. For such reasons, this argument for intergenerational equity must be treated with suspicion. The argument for intra-generational equity is stronger.

This leaves two institutional issues.

One concerns the relationship between the central government and the states. The above analysis has focused on general government debt and deficits. The implicit assumption is that the central government does (or at least should) both control and stand behind state debt and deficits. In practice, the situation appears to be ambiguous. If the central government is confident that it can let a state government default and has no concern over the impact of state government fiscal positions on the general government position, it should focus on its own debt and deficit alone. In practice, however, neither assumption seems at all plausible. For this reason, the right focus appears to be on general government debt and deficits. This leaves the difficult challenge of controlling these aggregates effectively.

The second institutional question concerns the decision-making process involved in setting and adjusting fiscal targets and assessing how far the government is meeting them. There is a strong case for an independent fiscal council charged with assessing actual and prospective fiscal performance, as is now done by the Office of Budgetary Responsibility in the UK. This has proved to be an excellent innovation. But the UK is just one of many countries with fiscal councils. In India's complex federal system, it would make sense to go somewhat further, by asking the fiscal council to review and recommend fiscal goals for general government debt and deficits consistent with long-term sustainability and any needed short-term flexibility.

Conclusion

This note reaches the following main conclusions.

1. The government should set simple, robust and time-consistent rules for its future fiscal policy as guidance for itself and for the public.

2. The aim of sensible fiscal rules is to combine sustainability in the long run and flexibility in the short run.

3. India starts with a manageable debt position, but debt is a little on the high side for an emerging country, even one able to borrow easily in its own currency. It would make sense to set a ceiling of 60 per cent in the desired ratio of gross debt to GDP, a little below the current ratio of 67 per cent.

4. India is a fast-growing emerging economy. Under plausible assumptions about its prospective growth, a general government deficit of 6 per cent would be consistent with a target debt ratio of 60 per cent.

5. Given that India starts with a debt ratio above 60 per cent and given the desirability of room for manoeuvre in deficits, it should target a general government deficit of below 5 per cent of GDP. That deficit should deliver long-term sustainability, provided nominal GDP grows at not less than 10 per cent a year.

6. There is also a strong case for the Indian government to make a substantial contribution to domestic savings, which is it not now doing. For this reason, the government should target a substantial surplus on the general government current budget, unless and until the private savings ratio rises substantially.

7. In Indian circumstances, the right objective for fiscal policy appears to be the general government deficit and debt, not just the central government's deficit and debt. If the focus is to be on the latter, credible curbs (from market or institutional disciplines) must be imposed on state debt and deficits.

8. India should create an independent fiscal council charged with assessing actual and prospective fiscal performance. It should clarify the underlying assumptions about growth, inflation, interest rates and target levels of debt.

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[1] Associate Editor and Chief Economics Commentator, Financial Times, London.

[2] Jonathan Portes and Simon Wren-Lewis, "Issues in the Design of Fiscal Policy Rules", Department of Economics Discussion Paper Series, Number 704, May 2014, www.economics.ox.ac.uk/materials/papers/13342/paper704.pdf, p.

[3] https://en.wikipedia.org/wiki/List_of_countries_by_credit_rating.

[4] http://economictimes.indiatimes.com/news/economy/indicators/india-adopts-inflation-target-of-4-for-next-five-years-under-monetary-policy-framework/articleshow/53564923.cms

[5] Economic Survey 2015-16, Technical Appendix. Table 1.9.

[6] See Arghya Sengupta, Anisha Sharma and Ritwika Sharma, On Central Control over Sub-national Debt in India, October 2014, fincomindia.nic.in/writereaddata%5Chtml_en_files%5Cfincom14/others/42.pdf; and Balbir Kaur, Atri Mukherjee, Neeraj Kumar and Anand Prakash Ekka, Debt Sustainability at the State Level in India, July 2014, https://www.rbi.org.in/scripts/PublicationsView.aspx?id=15767.

[7] http://budgetresponsibility.org.uk/.

[8] See "The Functions and Impact of Fiscal Councils", International Monetary Fund Policy Paper, July 16 2013

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FISCAL RULES IN INDIA: ARE THEY EFFECTIVE?

Willem H. Buiter
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ABSTRACT

This paper, a chapter in the forthcoming Oxford University Press Handbook of the Indian Economy, edited by Chetan Ghate, considers India's experience with fiscal (responsibility) rules during the past decade. After reviewing the basic facts concerning public debt and deficits in India, the background and basic arithmetic of the Fiscal Responsibility and Budget Management Act, 2003 (FRBMA) are presented and commented upon. With the very small number of data points at our disposal, no formal statistical estimation and hypothesis testing about the efficacy of the rules can even be attempted. Instead we critically explore the outcomes of the FRBMA over the 5-year period of its operation, 2004/05-2008/09, using an eclectic but comprehensive metric comprising quantitative targets, qualitative strictures, transparency, integrity, and overall financial performance over the business cycle. We also briefly review fiscal responsibility legislation (and outcomes) at the state level. The evidence suggests that in recent years the fiscal space "vacated" by the states has been usurped by the central government. Finally, the recommendations of the 13th Finance Commission regarding a roadmap for fiscal consolidation are examined. We also outline a basic incentive compatible framework for state and central governments to hold each other accountable over agreed pre-determined targets.

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1. Introduction

A chapter on fiscal rules for this Handbook is apposite on three grounds. First, the terminal date for India's maiden attempt at legislating fiscal virtue passed relatively recently (end-March 2009).[1] Second, the challenge of reining in large fiscal deficits has reemerged in India and elsewhere. At present India's fiscal position, as measured by such common indicators as the general government budget deficit and the general government gross debt (as shares of GDP) puts it in the same camp as recognised fiscally stretched states like Greece, Portugal, Spain, Ireland and the UK.[2] Third, against the background of a worrisome fiscal stance, the 13th Finance Commission has suggested contours of successor fiscal responsibility legislation to the first one, whose targets were effective 2004/05-2008/09.[3]

There are four standard reasons and one somewhat unconventional driver for unease when a country's public sector debt and deficit are high and/or rising. First, there is the possibility of *sovereign insolvency* or *bankruptcy of the Exchequer*. Sustainability issues can come to the fore during economic downturns if the public debt and the primary (non-interest) public sector deficit are not already at prudent levels.

[1] The Fiscal Responsibility and Budget Management Act, 2003 received the Presidential assent on August 26, 2003. It was the first attempt to legislate fiscal responsibility at the Union level. It included the specific requirement that the Central Government revenue (or current) deficit be eliminated by the 31st March, 2008 and that thereafter an adequate revenue surplus be built up. Neither objective was achieved.

[2] The central government's deficit in 2008/09, including off-budget issue of bonds (in lieu of cash payment), was 7.8 percent of GDP, the highest since 1991. (The Indian fiscal year runs from April 1 to March 31.)

[3] The main (but not only) term of reference of the Finance Commission, which is appointed quinquennially, is to determine the distribution (for a 5-year period) between the central government and the state governments of taxes collected by the centre. The 13th Finance Commission, in addition, was requested by the Union government to help with the following: "Having regard to the need to bring the liabilities of the central government on account of oil, food and fertiliser bonds into the fiscal accounting, and the impact of various other obligations of the central government on the deficit targets, the Commission may review the roadmap for fiscal adjustments and suggest a suitably revised roadmap with a view to maintaining the gains of fiscal consolidation through 2010 to 2015" (Government of India [2010c]).

To achieve debt sustainability, either revenues will have to be raised or public spending cut. Higher revenues often require higher marginal tax rates, which is distortionary and curbs potential output. Public spending cuts often fall on productivity-raising infrastructure investment or on socially desirable support for the vulnerable and weak. In addition, if consumption behaviour has Keynesian features (a change in current disposable household income has an effect on consumption through channels other than its contribution to permanent household income) and output is demand-constrained, the Keynesian demand multipliers will cause actual output to contract when fiscal policy is tightened. Finally, cross-country studies of the relationship between debt and GDP growth indicate public debt and external debt thresholds that induce tipping points for growth performance (Reinhart and Rogoff [2010]).[4] The observed negative correlation between debt burdens and growth could reflect either the negative impact on growth of the fiscal tightening measures implemented to reduce the public and external debt burdens or the response of the bond markets to a failure to implement such measures.

The second reason a rising public debt burden is a concern is *financial crowding out*. In the absence of debt neutrality or Ricardian equivalence, the substitution of government borrowing for current taxes on labour income will tend to raise private consumption.[5] For an economy with full utilisation of resources this will lead either to displacement of private investment and other interest-sensitive forms of private spending or to an increase in the current account deficit of the balance of payments.

India has restricted international mobility of financial capital. Public sector debt, in particular, is mostly sold and held at home. In an economy where the overall general

[4] Growth is 1.1-1.6 percent lower in emerging market economies when debt is above 90 percent of GDP. The simplest relationship between growth and public debt has been put forward in Barro [1979].
[5] A public-expenditure induced increase in household consumption.

government budget deficit is estimated by the International Monetary Fund [2010] to be 10.9 percent of GDP for 2009/10, of which 10.6 percent of GDP is domestically financed, and where household gross financial saving as a share of GDP is 10.4 percent, pressures for higher interest rates can only be defied for so long. If in response to high and rising domestic interest rates, India's private sector were to resort to (less costly) large scale borrowing abroad in foreign currency, this can lead to vulnerabilities and problems beyond official debt servicing. Although this is not an issue for India presently, it is noteworthy that external borrowing by India's private sector has increased as a share of GDP in recent years, and the share of long-term private non-guaranteed debt plus short-term external debt (mainly trade credits) in India's total external debt has increased from a fifth to two-thirds between 2002/03 and 2008/09. Historical experience from developing countries and emerging markets and post-August 2007 evidence from the advanced industrial countries demonstrates that private debts can become public debts if the private entities involved are deemed too systemically significant (too big, too complex, too interconnected) or too politically connected to fail. It is a complex exercise in political economy to determine how much private external debt and private foreign-currency –denominated debt represents contingent public exposure.

The third reason a rising public debt burden is of concern pertains to the contribution of unsustainable fiscal policy to volatility and uncertainty, which in turn may have adverse consequences for investment and growth. Both the standard Keynesian approach and tax-smoothing neoclassical models advocate a tax policy that should smooth either taxes as a share of GDP (in the Keynesian approach) or the average marginal tax rate (in the neoclassical tax-smoothing approach). A robust tax policy

therefore should be neither procyclical nor require sharp anticipated corrections, thus stabilizing economic activity (from the Keynesian perspective) or minimizing the excess burden of distortionary taxation (in the tax smoothing neoclassical perspective). Excess volatility can encourage private savers and investors to grant excessive weight to short run considerations, which may lead to a suboptimal allocation of resources for investment (Serven [1998]).

The fourth reason for disquiet about rising public debt burdens relates to the risk of an eventual monetisation of persistent deficits – fiscal dominance over monetary policy – and thus to their potential inflationary consequences, a pattern that India is not unfamiliar with (Buiter and Patel [1992]). For a given primary government deficit (as a share of GDP), a higher ratio of public debt to GDP will, if the long-run interest rate exceeds the long-run growth rate of GDP, increase the amount of real resources that will have to be extracted through seigniorage (base money issuance). This seigniorage or *anticipated* inflation tax may, however, not be as important (or as tempting) to the government as the *unanticipated* inflation tax on domestic-currency-denominated interest-bearing debt. The lure of reducing the real value of current and future debt service through an unanticipated burst of inflation will be stronger the longer the average maturity of the fixed-rate domestic currency debt. Almost all India's public debt is rupee-denominated. The IMF estimates the current stock of general government gross debt to be more than 80 percent of annual GDP. About 40 percent of Government of India Rupee loans outstanding at March 31 2008 had a maturity of over 10 years (Reserve Bank of India [2009b] – also see footnotes).[6] [7]

[6] On average, for the years 1970/71-2007/08, the share of central government loans with a maturity of over 10 years has been 55.6 percent. It is noteworthy that, over this four-decade period, the four years when the

Fear that the government may, at some future instance, be tempted to inflate away part or all of the burden of the domestic-currency denominated debt, usually manifests itself before the event through the rising nominal rates associated with higher expected inflation and possibly also with a higher inflation risk premium. Inflation in March 2010 was running at an annual rate of close to 10 percent – enough to get the bond markets to sit up and take notice.[8]

The fifth (relatively unexplored/under emphasised) cause for apprehension about a rising government debt burden is that of exhausting the sovereign's fiscal elbow room from a (macro) risk management perspective; in other words, there is merit in keeping some powder dry (as a form of self protection) for instances of stress (transmission of external shocks, domestic banking crisis requiring recapitalisation, a natural calamity or external conflict). This can be beneficial as regards maintaining investor confidence and, therefore, helps to keep a lid on yields expected and required by debt markets. A perception of loss of fiscal control combined with unfavourable developments in other "variables" in the political economy mix like, say, internal/external security threats, can put the country over an "inflection point" related to overall (mis)governance in a country-risk metric; alternatively, high debt levels signal an "impairment of capacity to remain a self determining nation" (Shelton [2009]).

The outline for the rest of the paper is as follows. In Section 2 we set out the basic arithmetic of government debt, deficits and solvency. In section 3, we briefly

share of long-dated loans was in excess of 80 percent was during the years 1987/88-1990/91 – that is, the years leading up to and including the last crisis!

[7] For state governments, 46 percent of the securities outstanding on March 31 2009 were due for repayment in 2017/18 and beyond (Reserve Bank of India [2010]).

[8] Headline (wholesale) inflation has accelerated sharply – in part due to food price increases on account of a poor monsoon – from a low of minus one percent in June 2009.

review some facts concerning public debt and deficits in India. In section 4 the background and basic arithmetic of the Fiscal Responsibility and Budget Management Act, 2003 (FRBMA) and the associated rules are presented and commented upon. With the very small number of data points at our disposal, no formal estimation-based hypotheses about the efficacy of rules can even be attempted. Therefore, in section 5, the outcomes of the FRBMA over the 5-year period of its operation, 2004/05-2008/09, are critically explored along an eclectic but comprehensive metric comprising quantitative targets, qualitative strictures, transparency, integrity, and overall financial performance over the business cycle. In section 6, we briefly review fiscal responsibility legislation (and outcomes) at the state level. Taking sections 5 and 6 together it will become clear to the reader that in recent years the fiscal space "vacated" by the states has been (more than) usurped by the central government. In section 7, the recommendations of the 13th Finance Commission regarding a roadmap for fiscal consolidation are formally examined. The section also attempts to outline a basic incentive compatible framework for state and central governments to hold each other accountable over agreed pre-determined targets. Section 8 contains some concluding remarks.

2. The basic arithmetic of public debt, deficits and solvency

We define the following notation, which can apply, after suitable consolidations, to the debt, deficit, spending and revenue totals of any level of government. In this section "government" is used generically. It could refer to the central government, to the general government (the consolidated central, state and local government plus the assorted social funds, including social security retirement, health and disability), to the public sector (which consolidates the state enterprise sector with the general government)

and the consolidated public sector and central bank; f is the government financial deficit as a fraction of GDP, i is the average effective nominal interest rate on Rupee-denominated government non-monetary debt, b is the value of the total government non-monetary debt (rupee-denominated and foreign currency-denominated) as a share of GDP, i^* is the average effective nominal interest rate on government debt denominated in foreign currency, g^c government consumption spending as a share of GDP (excluding depreciation of the government capital stock), g^I gross government physical capital formation as a share of GDP, δ the proportional depreciation rate of the government capital stock, k the government capital stock as a share of GDP, θ the gross financial rate of return (which can of course be negative) on government capital, α the share of foreign currency debt in total government debt, ε the proportional rate of nominal depreciation of the rupee, $\pi = \frac{\dot{P}}{P}$ is the domestic inflation rate, P the general price level, τ government taxes net of transfers as a share of GDP, η is non-tax revenue (such as royalties on natural resources like offshore oil and natural gas; telecom license fees; and proceeds from the auction of the spectrum) as a share of GDP and $priv$ is privatisation receipts as a share of GDP. When the central bank is consolidated with the general government or the public sector, non-tax revenues include seigniorage revenues as a share of GDP, σ, defined by $\sigma \equiv \frac{\dot{M} - i^M M}{PY}$, where M is the nominal stock of base money (coin and currency in circulation plus bank reserves held with the central bank), P is the GDP deflator, Y is real GDP and i^M is the effective nominal interest rate on base

money (zero on coin and currency; whatever the central bank sets or charges on its deposits for reserves).

Note that:

$$f \equiv g^C + g^I + ib + (i^* - i)\alpha b - \theta k - \tau - \eta - priv \tag{2.1}$$

It follows that over time the government net non-monetary debt to GDP ratio, b evolves as follows:

$$\dot{b} \equiv f + \varepsilon\alpha b - (n + \pi)b \tag{2.2}$$

or, equivalently,

$$\dot{b} \equiv (r - n)b + g^C + g^I - \theta k - \tau - \eta - priv + (i^* + \varepsilon - i)\alpha b \tag{2.3}$$

where $r \equiv i - \pi$ is the domestic real interest rate and $n \equiv \frac{\dot{Y}}{Y}$ is the growth rate of real output.

The government primary (non-interest) surplus as a share of GDP, *s*, is defined as:

$$s \equiv -f + ib + (i^* - i)\alpha b \tag{2.4}$$

It follows that the dynamic equation for the government's non-monetary debt to GDP ratio can also be written as:

$$\dot{b} \equiv -s + (r - n)b + (i^* + \varepsilon - i)\alpha b \tag{2.5}$$

For expositional simplicity, we ignore in what follows India's foreign currency-denominated public debt, which is in any case small.[9] This reduces the two representations of the government's non-monetary debt dynamics to the following form:

$$\dot{b} \equiv f - (n + \pi)b \tag{2.6}$$

[9] Instead of setting $\alpha = 0$, we could assume that uncovered interest parity holds, that is, $i^* + \varepsilon - i = 0$.

$$\dot{b} \equiv -s + (r - n)b \tag{2.7}$$

The standard solvency constraint is that the present discounted value of the terminal government non-monetary debt be non-positive, that is,

$$\lim_{F \to \infty} b(F) e^{-\int_t^F [r(u) - n(u)] du} \leq 0 \tag{2.8}$$

This no-Ponzi finance or no-pyramid scheme constraint on the government's fiscal-financial plans implies that the growth rate of the public debt cannot forever be greater than the effective interest rate on the public debt: at some point a solvent government will have to run primary surpluses. More specifically, (2.8) implies, from (2.7), that the government's intertemporal budget constraint takes the following form:

$$b(t) \leq \lim_{F \to \infty} \int_t^F e^{-\int_t^v [r(u) - n(u)] du} s(v) dv. \tag{2.9}$$

That is, the outstanding value of the government's non-monetary debt cannot exceed the present discounted value of its future primary surpluses. Let $\overline{s}(t)$ be the value at time t of the government's permanent primary surplus as a share of GDP, that is, that constant value of the primary surplus (as a share of GDP) whose present discounted value is the same (if it were to maintained over an infinite horizon) as the present discounted value of the primary surplus (as a share of GDP) that is actually planned or expected.[10] Loosely, the permanent primary surplus (as a share of GDP) is the average expected or planned future primary surplus as a share of GDP. We can also

[10] That is, $\overline{s}(t) = \lim_{F \to \infty} \left[\int_t^F e^{-\int_t^v [r(u) - n(u)] du} \right]^{-1} \int_t^F e^{-\int_t^v [r(u) - n(u)] du} s(v) dv$

define the permanent excess of the interest rate over the growth rate of GDP at time *t*, $\overline{r(t)-n(t)}$ as follows:

$$\overline{r(t)-n(t)} \equiv \lim_{F\to\infty}\left[\int_t^F e^{-\int_t^v [r(u)-n(u)]du}\right]^{-1} \tag{2.10}$$

The lowest permanent primary surplus (as a share of GDP) consistent with government solvency, $\overline{s}^{\min}(t)$ is the one that satisfies (2.9) with equality. It follows that the solvency constraint can be written intuitively and simply as follows:

$$\overline{s}(t) \geq \overline{s}^{\min}(t) \equiv \left(\overline{r(t)-n(t)}\right)b(t) \tag{2.11}$$

The likelihood of government insolvency is greater the smaller its capacity to generate future primary surpluses (by raising taxes and cutting public spending or through seigniorage), the larger the outstanding stock of non-monetary government debt, the higher the interest rate on the public debt and the lower the growth rate of GDP.

It may seem that the solvency constraint (2.8) permits the ratio of non-monetary government debt to GDP to rise without bound, as long as the growth rate of the debt does not exceed the effective interest rate on the debt. This condition would be satisfied even if the growth rate of government debt were to exceed the growth rate of GDP forever, as long as the effective interest rate on the government's non-monetary debt is lower than the growth rate of the government debt in the long run.

Although this is technically correct, note from (2.11) that if the government debt to GDP ratio were to rise without bound, the minimum required permanent primary surplus to maintain solvency, would also rise without bound, as a share of GDP, as long as $\left(\overline{r(t)-n(t)}\right) > 0$. Since government spending cannot be cut below zero, this would

imply an unbounded tax to GDP ratio – not an economically interesting prospect with distortionary taxes and significant tax administration, collection and compliance costs.

Some authors indeed have proposed a bounded government non-monetary debt-to-GDP ratio as a primitive solvency constraint, instead of (2.8). We prefer to think of it instead as a further constraint on feasible government fiscal-financial programmes, implied by the absence of non-distortionary (lump-sum) taxation and the costly nature of transferring resources from the private to the public sector through taxation.

Except for the initial government debt to GDP ratio, all the key terms in the government's intertemporal budget constraint (2.9) or (2.11) – the permanent primary surplus, the long-run real interest rate and the expected long-run real growth rate are unobservable. This is obviously the case for the permanent primary surplus (as a share of GDP) and the permanent growth rate of real GDP. The permanent real interest rate could in principle be observable today, but as India (in common with all other countries), does not have a complete set of index-linked government debt instruments with maturities ranging from instantaneous to Kingdom Come, the permanent real interest too is expectational and unobservable.

As regards the likely behaviour of the real interest rate and the real growth rate in the long run, the experiences of other countries at different stages of economic development can provide a guide. It is clear that even if India were to grow for one or two generations at average real GDP growth rates of 8 percent per annum or higher, growth at this rate cannot last forever. The experience of past successful emerging markets, from Japan to Korea and Singapore provide evidence of that. The relevant interest rate is partly determined by the equilibration of global and domestic saving-

investment balances (with capital controls providing a greater role for domestic factors) and partly by country-specific drivers of sovereign default risk perceptions. Reinhart and Rogoff [2009] identify three sovereign defaults or debt reschedulings for India on its external debt since independence, in 1958, 1969 and 1972, but none on domestically held sovereign debt. The lion's share of India's sovereign and sovereign-guaranteed debt today is both rupee-denominated and held domestically.

Even if we knew the entire time structure of sovereign real interest rates and real GDP growth rates, the solvency constraint (2.11) only gives us the minimum value of the permanent primary surplus, that is, the value that will have to be generated on average in the future if the government is to remain solvent. It does not tell us that future primary surplus will have to be a constant share of GDP. Indeed, the mathematics are consistent with high and rising primary deficits for 1000 years followed by an eternity of large primary surpluses.

It is here that government credibility becomes a crucial driver of the market's response to government plans for future fiscal virtue. If the government has been persistently procyclical in the most recent boom period or periods, spending the windfalls created by unsustainable growth and other friendly acts of God and of the external environment (good harvests, favourable terms of trade shocks) or even cutting tax rates or forgiving debts owed by private agents to the sovereign, then its credibility when it announces future fiscal tightening measures but without any up-front public spending cuts or tax increases, is likely to be minimal. The markets become doubting Thomases, for whom seeing is believing.

Once the government has lost its reputation for fiscal probity, it is hard to regain. It may even require pro-cyclical actions during the next downturn (raising taxes or cutting public spending) to convince the private sector that the government is capable of inflicting fiscal pain. As will become clear from the discussion that follows, we believe that most of the state governments have by now gained a reputation for fiscal rectitude. The central government, on the other hand, has no reputation for responsible countercyclical behaviour during recent booms to fall back on. It has depleted its reputational capital that would have allowed it to engage in countercyclical fiscal policy actions during the next cyclical downturn, or indeed to take other temporary adverse shock-mitigating measures without spooking the markets and adding a sovereign risk premium to the risk-free rate.

The history of Fiscal Responsibility Laws in India is so short that no formal statistical or model-based tests of their influence on the sustainability of the government's fiscal-financial programme is feasible. The discussion of the evidence that follows is therefore inevitably informal. The solvency arithmetic framework spelled out in this section does, however, guide, direct and discipline the discussion that follows and is therefore indispensible.

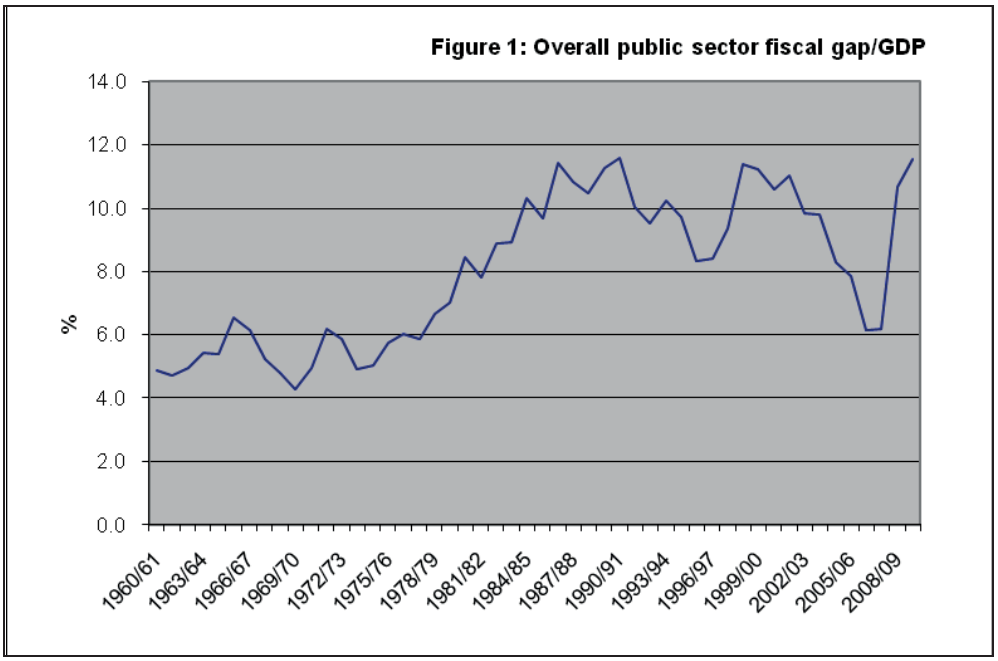
3. Some facts on deficits and debt

While much of the discussion in the chapter will be on the Union government's fiscal stance and institutional arrangements, we will intersperse our comment and analysis on four 'flow' measures of fiscal balance and their associated 'stock' or public debt measures:

- The central government fiscal and revenue deficits, including off-budget expenditure/borrowing.
- Fiscal and revenue deficits of state governments.
- The consolidated general government fiscal deficit covering the central and state governments.
- The overall public sector fiscal deficit comprising the consolidated fiscal balances of the general government and the non-bank public enterprises.

India exhibits a sustained proclivity for running large fiscal deficits compared to not only its peer group of emerging economies, but also globally (Ahya and Gupta [2009]). Over the last three decades, India has found it impossible to sustain, for an appreciable time, an overall public sector financial deficit of less than 8 percent of GDP (see Figure 1 below);[11] analogously, it has been extremely rare for the general government fiscal deficit to be lower than 6 percent of GDP (see Appendix Figure A1).

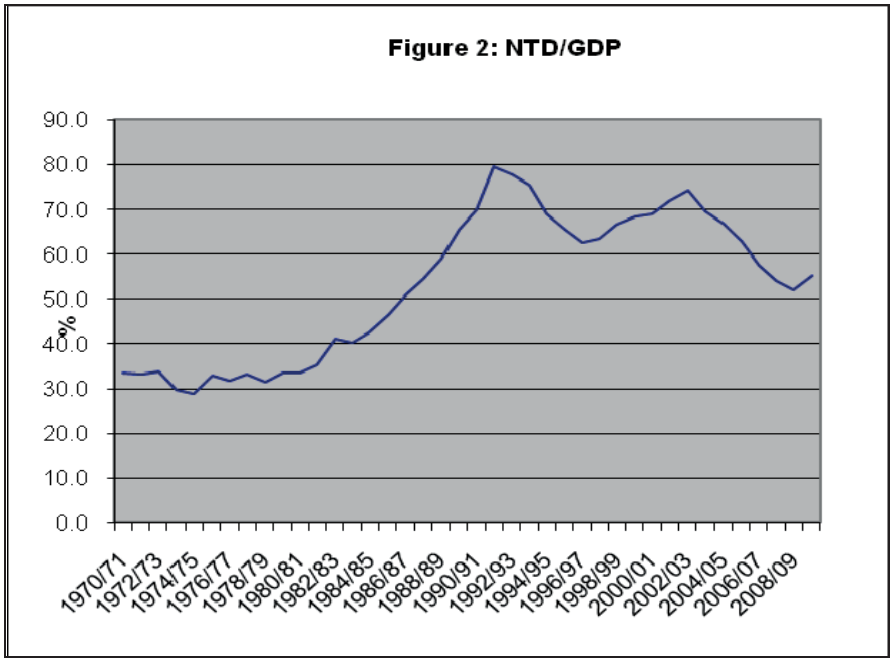
[11] The fiscal gap data used for Figure 1 are from Table 2.2 in the Appendix of the Economic Survey (Government of India [2010a] and previous years). The data from 2007/08 onwards have been revised/re-estimated as more up-to-date budgetary data are available from other official sources; also note that off-budget bonds issued to public enterprises are not included in this measure (as it is intra-public sector "borrowing"). The measure in Figure 1 is the closest estimate of the public sector borrowing requirement (PSBR).



Since the crisis of the early 1990's, which had fiscal origins, fiscal deficits in India have approached levels, including in recent years, that may be considered imprudent, even alarming, if not corrected. But India has, thus far, avoided explosive debt-GDP ratios of the kind that lead to the 1990/91 crisis. Between 2002/03 and 2007/08, debt ratios in India declined substantially – the *net* public debt level is relatively low, and is largely domestically held, primarily in the banking system, much of which is state controlled. Statutorily, 25 percent of bank deposits have to be deployed for holding government (and other approved) securities. Over the last two years this ratio, the statutory liquidity ratio, has usually been in the range of 27-28 percent, that is, higher than the mandatory floor.

The current net total debt (NTD)-GDP ratio is estimated at about 56 percent, which compares with 74 percent of GDP in 2002/03 (see Figure 2 below and Appendix

Table A1);[12] the share of official foreign currency-denominated debt is about a sixth, and official foreign exchange reserves at 20 percent of GDP are adequate to cover *all* foreign debt (official & private, long-term & short term).[13]



Foreign debt servicing is not a danger; India's vulnerability to financial shocks has eased to the point that an external financial crisis is not a material risk. As an aside, the debate within the country (between important policy-making nodes) of the utility of large official foreign reserves as "self-insurance cover" has been settled conclusively; India emerged unscathed from the global financial crisis in no small part due to its large holdings of external reserves, which appreciably helped to cushion the backwash from illiquid international financial markets.

[12] The NTD consolidates central and state governments, as also the central bank and non-bank central public enterprises.
[13] The extant *gross* total public debt to GDP ratio is estimated at about 76 percent of GDP (column for GTD in Appendix Table A1).

In addition, India continues to maintain selective (discretionary) capital controls, particularly those that keep arbitrage-type flows – for instance, external borrowing by domestic financial intermediaries, investment by foreign institutional investors in fixed income securities (official and corporate), or, cross-border borrowing of a short-term nature by practically anyone – in check. It is therefore fair to say that while India faced a combined internal (fiscal) and external transfer problem during the years leading up to the crisis of 1991, the weakening of the fiscal position in recent years represents almost exclusively an internal resource transfer problem.

4. Fiscal rules

a. Background

The Indian government's experience of fiscal rules has been brief. The first one wholly related to ending the fiscal abuse of the central bank. In September 1994 an agreement (without legislated sanction) to phase out by 1997/98 the instrument of *ad hoc* Treasury Bills which hitherto facilitated automatic monetisation of the budget deficit – the borrowing gap after all other financing instruments have been exhausted – was reached between the Reserve Bank of India (RBI) and the Central Exchequer. This, in itself, did not preclude the RBI from participating in primary issues of central government securities or operating in the secondary markets for central government debt, but it left these decisions to the RBI's discretion.

After moderate improvement during the five years immediately following the balance of payments crisis, 1992/93-1996/97, fiscal fundamentals in India had deteriorated again, as exemplified by rising ratios of public sector debt and public sector financial deficit to GDP. The public sector financial deficit as a share of GDP was

around the same level in 1998/99 as in the crisis year of 1990/91. The deficit persisted at about 10 percent of GDP until 2003/04, after which a modest consolidation took place for a brief period; 'normal service' has been resumed since then.[14] The 5-year period of correction and subsequent slippage broadly overlaps with the Fiscal Responsibility and Budget Management Act, FRBMA (which ran its course up to March 31 2009).

The fiscal rule in the FRBMA was narrow in the sense that it kept outside its ambit public sector enterprises (PSEs) and state governments (and their enterprises). The latter was a (legitimate) recognition of the federal nature of the country, provided that, de jure and de facto, the central government is not in the final analysis responsible for the debts of the state and other lower-tier governments. It is a practice found is some other federal states, but not all). The former is difficult to rationalise, unless there truly is an arm's length relationship between the government and the corporations that it has sponsored and/or owns, that is, if there is no explicit or implicit guarantee of PSE debt by the sovereign. Regardless, it extends the scope for shifting fiscal policy implementation "off budget" and "off balance sheet".

b. Brief description

The Indian Parliament, in August 2003[15], voted for the FRBMA. The Act was amended in July 2004, with the terminal date for achieving the numerical targets pertaining to fiscal indicators extended by one year to 2008/09 (a case of moving the goal posts with the game having barely started!); the annual targets for fiscal correction were

[14] The *general* government fiscal deficit declined from 8.5 percent of GDP in 2003/04 to 6.8 percent of GDP in 2005/06.
[15] The bill was first introduced in Parliament in December 2000.

specified by Rules framed under the Act (Government of India (GoI) [2005a]). There were also clauses with regard to guarantees and debt.[16]

The FRBMA, *prima facie*, broadly satisfies three unexceptionable attributes of a numerical fiscal rule. Specifically, it is well defined in terms of explicating time-bound targets for relevant indicators, it is simple and transparent in terms of the targeted outcomes, which is helpful for effective communication of government policy (or, for opposition parties to take the government of the day to task), and it is monitorable.[17]

The government's desire to rein in its finances seemed sincere enough. For scripting an operational strategy towards the fiscal goals embedded in the legislation, the then Finance Minister, in February 2004, constituted a Task Force. In July, under a new political dispensation, the Ministry of Finance published the comprehensive analysis and recommendations of the Task Force in the form of a report (GoI [2004]). The critical recommendations were on the revenue side of the deficit equation, specifically measures to enhance direct taxes by 2 percentage points of GDP and to shift the revenue base of indirect taxes to include a greater share of services. After all this, in his presentation of the 2005/06 Union budget in February 2005, the Finance Minister remarked that he was "left with no option but to press the `pause' button vis-à-vis the FRBM Act" (GoI [2005b]).

c. Basic arithmetic of the "hard law" component of the FRBMA

There were two key "hard" features of the FRBMA. *First*, the restriction that by 2008/09 the overall central government financial deficit be not more than three percent of GDP:

[16] The increase was restricted to 0.5 percent of GDP per annum for guarantees and for debt additional liabilities were capped at 9 percent of GDP for 2004/05, for subsequent years there was an annual reduction in the limit of one percentage point of GDP.
[17] This metric of attributes is from Corbacho and Schwartz [2007].

$$d \leq 0.03 \qquad (4.1)$$

To help satisfy (4.1), the FRBMA Rules specified an operational *trajectory* on d of an annual reduction of at least 0.3 percentage point of GDP[18]; therefore, a minimum 1.5 percentage point of GDP cumulative reduction in the centre's financial deficit. *Second*, the 'golden rule' restraint that the revenue or current budget should be in balance or surplus by 2008/09. It was unclear whether this meant that central government borrowing should not exceed gross central government investment (including depreciation) or net central government investment (net of depreciation). In the first case the (gross) golden rule can be written as:

$$d \leq g^I \qquad (4.2)$$

In the second case, the (net) golden rule can be written as:

$$d \leq g^I - \delta k \qquad (4.3)$$

The Rules stipulated a ½ percentage point of GDP (or more) annual reduction for the revenue deficit. A rigorous enforcement of (4.1) would ensure that the central government's long term debt-GDP ratio will not be explosive even with modest growth prospects.

d. "Soft" aspects of the law

The FRBMA introduced initiatives for the first time that pertained to fiscal planning. The Act obligated the government to, *inter alia*, prepare a medium term fiscal policy statement (encompassing three-year rolling targets) that lays out the time path for attaining the (quantitative) fiscal goals. Although the government was obliged to take steps to enhance revenues and/or reduce expenditure ("appropriate measures"), leeway

[18] The terminal target for the fiscal deficit was stipulated in the rules (framed in July 2004) to the 2003 Act. The target of balance on the revenue account was enshrined in the Act itself.

was allowed for targets going awry on "exceptional grounds" such as natural calamities and/or national security.

The statute also required that the RBI will not subscribe to government paper after March 31 2006. Nevertheless, borrowing from the RBI on account of "temporary excess of cash disbursement over cash receipts during any financial year", essentially "ways and means advances" was permitted.[19] Finally, as a nod towards greater integrity of the budgetary process, the Rules "mandate the government to disclose changes in accounting standards, policies and practices that have a bearing on the fiscal indicators" (GoI [2005a]).

On the composition of outstanding liabilities of the central government in official documents setting out the targets, several observations are warranted. First, the variable is a measure of *gross* debt; official foreign exchange holdings and securities held by the central bank are ignored, which means that these two items would have to be netted out if the central bank and the government are consolidated.

Second, "reserve funds and deposits" are added to the stock of outstanding debt; these liabilities are on account of borrowing from statutory funds within the government and therefore are not strictly in the nature of IOUs to entities external to the government.

The *market* value of (listed) Indian government-sponsored enterprises, GSEs, including banks is estimated at US$ 300 billion, a liquid asset, same as official foreign

[19] Since April 2004, the Government of India in consultation with the RBI has launched the Market Stabilisation Scheme (MSS). The scheme envisages issue of treasury bills and/or dated securities to (solely) absorb excess liquidity, arising largely from significant foreign exchange inflows. During 2009/10, as per the Memorandum of Understanding (MoU) signed between the central government and the RBI, the ceiling of outstanding liabilities (face value of dated securities plus discounted value of treasury bills) at any given time has been kept at Rs. 500 billion. The estimated outstanding liabilities under MSS in respect of market loans and 91/182/364 day Treasury Bills are separately reflected in the government's Statement of Liabilities. In our computation of consolidated net debt ratios for Figure 2 (and Appendix Table A1), we have netted out both MSS-related liabilities and (conventional) net RBI credit outstanding to government.

currency reserves. The value of the government's financial interest in these GSEs (equity plus any other net financial claims on these GSEs such as made to these GSEs or GSE bonds owned by the state) should be added as part of the government's net financial assets (or offset against its debt) if these assets can realistically be sold or disposed of at the these valuations.

Assume for simplicity that equity is the only claim of the government on the GSEs. Even if they cannot realise (sell) the equity, it will have a 'continuation value' in public ownership: the present discounted value (PDV) of future dividend payments by the GSEs to the government. Any non-tax revenues would be included in equation (2.1) in term $((\theta-\delta)k)$ or in η. If there are taxes paid on the profits of the GSEs, the value to the government would be the sum of the PDV of the after-tax profits. The PDV of the profit taxes would be included separately in the government's intertemporal budget constraint. The correct value of the GSEs on the public sector balance sheet is the PDV of future dividends paid to the government until they sell the equity, plus the PDV of the future privatisation of the GSE (the sale of the equity). That flow of dividend income is therefore in the government's budget balance – even in the primary balance as profit income if 'primary' is net of interest income only.

The solvency constraint (intertemporal budget constraint) that the existing net debt not exceed the PDV of future primary surpluses can either be written with net debt defined inclusively to included (with a –ve sign) the value of the government's financial assets, in which case the stream of future primary surpluses will be smaller, because future dividends are no longer part of the primary surplus, or it can be defined narrowly to include only the value of the government's financial liabilities, with the primary

surplus now including all the earnings streams associated with the government's ownership of financial assets.

Provided all net cash flows accruing to the state from the GSEs are either capitalised as financial assets or included in the stream of future primary surpluses, it does not matter where you put them. One could even kick all the government's debt out of the intertemporal budget constraint and reduce the PDV of future primary surpluses by the same amount, because the market value of the debt is the PDV of future interest payments and repayment of principal. The only slightly tricky issue is when the continuation value of the government's equity in the GSEs (their value should they continue to be owned by the government) is different from their value under private ownership. We would then face the tricky task of valuing the equity as the sum of the PDV of the dividends it would pay in the public sector for as long as it remains publicly owned, plus the PDV of the privatisation receipts, whenever privatisation is assumed to take place. A conservative approach would value the assets as the smaller of their permanent continuation value in the public sector and their immediate privatisation value.

5. Outcomes

The impact of fiscal rules in India inevitably relates to how they are expected to change over time and to what degree they are likely to be enforced. Since these rules have no constitutional standing, they can be can be modified easily over time (and even ignored as we'll see below). Furthermore, a Westminster-style parliamentary system means there is virtually no scope for "independent" checks and balances at the political level, viz., an executive "veto point" over expenditure.

In this section we attempt to (heuristically) determine whether the FRBMA rules have affected conduct of fiscal policies of the Indian government with regard to stated goals of fiscal correction, or done anything more than clarify the government's intentions. In a previous paper, the first draft of which was written in July 2005, our comment on the expected outcome under the FRBMA was: "The requirement that the revenue budget be in balance or surplus is very likely to be the binding constraint on the central government, with the 3 percent ceiling on its overall financial deficit a non-binding constraint" (Buiter and Patel [2006]).

The central government's fiscal deficit for the terminal year, 2008/09, was 6 percent of GDP, excluding estimated off budget expenditure (settled by IOUs or simply ignored) of about 2 percent of GDP. Indeed, as shown in Table 1 below, the central government has missed *both* the fiscal and revenue deficit targets by some margin. Obviously, the FRBMA has failed to bind the government to either of the main legislated targets.

Table 1: Central government fiscal indicators (as % of GDP)

	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10[a]
(a) Fiscal deficit (FD).	5.9	4.5	3.9	4.0	3.3	2.6	6.0	6.7
(a)′ FD with off- budget bonds issued in that year.	NA	NA	NA	4.3	4.8	3.0	7.8	6.9
(a)′′ Off-budget bonds o/s in Rs. bn (as % of GDP).	NA	NA	NA	123 (0.3)	762 (1.8)	950 (1.9)	1909 (3.4)	2012 (3.3)
(b) Revenue deficit (RD).	4.4	3.6	2.4	2.5	1.9	1.1	4.5	5.3
(b)′ RD with off-budget bonds issued in that year.	NA	NA	NA	2.8	3.4	1.5	6.3	5.5
(c) Primary balance with off -budget borrowing in last 5 years (+ indicates surplus).	-1.1	0.0	0.0	-0.7	-1.3	+0.5	-4.4	-3.4
(d) Off-budget expenditure.	NA	NA	NA	0.4	1.8	1.9	2.3	0.6
(e) Net tax-GDP ratio.	6.5	6.8	6.9	7.3	8.2	8.9	8.0	7.5
(f) Outstanding Liabilities.[b]	63.1	67.3	68.8	65.7	64.4	63.8	59.6	58.9
(g) Guarantees.	3.7	3.2	3.4	3.1	2.7	2.2	NA	NA
(h) Real GDP growth (%).	3.8	8.5	7.5	9.5	9.7	9.0	6.7	≈7.2[c]
(i) Nominal growth (%).	7.0	12.0	17.6	14.4	15.6	15.5	12.7	≈11[c]
(j) GDP deflator (change in %).	3.8	3.6	5.6	4.7	5.6	5.3	7.2	3.6[c]
(k) Weighted avg. interest on outstanding internal liabilities (%).	9.5	8.8	8.5	8.1	8.4	8.5	8.4	8.7
(l) Weighted avg. interest rate on govt. dated securities (%).	7.34	5.71	6.11	7.34	7.89	8.12	NA	NA

Notes: NA: Not applicable/available; a: all fiscal numbers for 2009/10 are revised estimates; b: Definition of FRBMA used, which excludes off-budget bonds outstanding, and foreign liabilities only includes sovereign debt. In February 2010 the government changed the definition of outstanding liabilities – for the better – by excluding the share of states' in small savings collected by the centre; for 2009/10, the number under the new definition is disclosed at 51.5 percent of GDP but still excluding off-budget bonds (Medium Term Fiscal Policy Statement in GoI [2010b]); c: projection.

Sources: (a), (a)′, (b), (b)′, (c): Budget at a glance (various years), Budget speech for 2010/11, and Economic Survey 2009/10 and previous years (GoI [2010a, 2010b]); (a)′′: For the 2009/10 figure, Report of 13th Finance Commission (GoI [2010c]), and for previous years interpolated by authors based on budget documents (GoI [2009b, 2010b]; (d): Analyst estimates; (e): Indian Public Finance Statistics 2008/09 (GoI [2009c]), Economic Survey 2009/10 (GoI [2010a]), Budget at a glance 2010 (GoI [2010b]) (figures are for centre's share in taxes that it collects); (f): Medium Term Fiscal Policy Statement as part of budget documents, Ministry of Finance, GoI (various years); (g) Annual Report, RBI [2009a]; (h), (i), (j), (k): Economic Survey 2008/09 and 2009/10 (GoI [2009a, 2010a]); and (l): Handbook of Statistics on the Indian Economy, RBI [2009b].

It should be apparent that after 2004/05, not only has there been no fiscal correction once off-budget items are included, but indicators have mostly deteriorated. From the above outturn table, taking into account off-budget expenditure, it is amply clear that the FRBMA "transition" annual targets towards a 3 percent of GDP fiscal deficit and balance on the revenue account by 2008/09 were exceeded before the onset of the global recession towards the end of 2008 (also see Patel [2008a]). The adverse evolution in fiscal balances was not on account of the operation of automatic stabilisers during a cyclical slowdown; on the contrary, the Indian government's revenues have been buoyant – the gross tax-GDP ratio increased from 9.7 percent in 2004/05 to 12.6 percent in 2007/08 – on the back of an almost 9 percent average annual real growth rate.[20]

The recent profligacy of the central government has its primary driver in populist spending policies by the ruling coalition leading up to national elections in May 2009; three stimulus packages (including a reduction in indirect taxes) starting in late 2008 to counter the global recessionary headwinds only helped matters along in the same direction. Much of the slippage on the expenditure side can be attributed to large and increasing energy, food & fertiliser subsidies, funding loss-making public sector units, expansion of a rural income support scheme (started in 2005), increase in salaries and pensions of civil servants (implemented in 2008), and a huge agricultural) loan waiver scheme (announced in early 2008, but not budgeted for!).

The FRBMA's provisos for the central government's (gross) outstanding liabilities and guarantees have been comfortably met (Table 1 above and also see the second column in Table A1 in the Appendix). Liabilities have declined even with an

[20] The tax-GDP ratio slipped in 2008/09 due to, in part, steep cuts in indirect taxes introduced in September 2008.

annual average central government fiscal deficit over the five years at 4.8 percent of GDP (including off budget bonds); the driver for this happy state of affairs is India's unprecedented growth performance in recent years – annual average nominal GDP growth of 15 percent during the 5 years of the FRBMA's operation – in comparison to the government's cost of borrowing.

It is possible to simulate the central government's long-run debt-GDP ratios if, say, the present (average) fiscal deficit continues forever into the future:

$$d \leq 0.048 \tag{5.1}$$

Ignoring foreign currency-denominated debt for simplicity, the consistent application of (5.1) implies (from (2.6)) that:[21]

$$\begin{aligned} b(t) &\equiv b(0)e^{-\int_0^t [n(u)+\pi(u)]ds} + \int_0^t f(s)e^{-\int_s^t [n(u)+\pi(u)]du} ds \\ &\leq b(0)e^{-\int_0^t [n(u)+\pi(u)]ds} + 0.048\int_0^t e^{-\int_s^t [n(u)+\pi(u)]du} ds \end{aligned} \tag{5.2}$$

As long as the long-run average growth rate of nominal GDP, $\bar{n}+\bar{\pi}$ is positive and $\lim_{t\to\infty} b(0)e^{-\int_0^t [n(u)+\pi(u)]ds} = 0$,[22] the long-run debt to GDP ratio will satisfy

$$\lim_{t\to\infty} b(t) \leq \frac{0.048}{\bar{n}+\bar{\pi}} \tag{5.3}$$

Were India to maintain a *long-term* nominal GDP growth rate, $\bar{n}+\bar{\pi}$, of, say, 0.0625 the central government's long-run debt to annual GDP ratio would be 76.8 percent – hardly a comfortable level.[23] Of course, the debt ratio becomes even more worrisome when the

[21] Notation and definitions are identical to those used in previous sections.
[22] This is the familiar "no Ponzi finance" terminal boundary condition constraining the growth of the public debt in the long run.
[23] India will not have a 7 percent real (or 11.5 percent nominal) GDP growth rate forever. By the time population stops growing and India's GDP per capita is at the West-European level, real growth will

deficits of other levels of government are also included and appropriately consolidated, as should be the case. For instance, a public sector financial deficit of 10 percent of GDP "caps" the (broad) public long-run debt to annual GDP ratio at about 160 percent of GDP – undoubtedly a fiscal high-wire act.

Time consistency and enforcement

Any limit on the magnitude of the permissible deficit, regardless of whether it applies to the overall deficit or just to the revenue (current) deficit, restricts the government's ability to engage in countercyclical deficit financing during economic downturns, *unless* during normal and prosperous times the government generates sufficiently large surpluses to avoid hitting the deficit ceiling during bad times. It may be possible (at least conceptually) to have arrangements, institutions, laws, rules, regulations or conventions that can induce the sovereign to impose discipline during good times on *itself*. Was there any feature of the FRBMA that encouraged the government not to follow a procyclical policy during periods of exceptionally strong growth performance (as during 2003/04-2007/08), or exceptionally low interest rates (as during 2002/03-2007/08).[24] The FRBMA had no inbuilt carrots (to run smaller deficits) or sticks (for missed targets); it suffered from the same drawbacks as some other high profile examples of fiscal responsibility legislation (FRL). Non-compliance by the central government has not been politically costly; there has been limited attention from the electorate, the media, or even opposition parties to the subject matter! In essence reliance on reputation costs has been ineffective. Indeed, it is widely felt that supplementary bills that boost

probably be more like 2 percent per annum and inflation tolerance will likely also be at the current advanced industrial country 2 percent level. Post-catch up, a nominal GDP growth rate of 5 percent is probably as reasonable an assumption as any. The assumption of long-run nominal growth of 0.0625 for the simulation would be broadly consistent with this.

[24] Source: Table 121 in RBI [2009b] for interest rates on central and state government dated securities.

expenditure from budgeted levels are not only unlikely to be rejected in the Indian parliament, they are welcomed with bipartisan fervour; to the best of our knowledge, no mid-year spending bill has been rejected.

The EU's Stability and Growth Pact (SGP) failed, in both its original and its revised 2005 incarnations, precisely because of the absence of incentives to run larger surpluses (or smaller deficits) during upswings and the failure to enforce the penalties (including fines) that were, in principle, part of the collective arsenal of SGP enforcement. The failure to exercise fiscal restraint during the upswing by France, Germany and Italy was not penalised by the EU's Council of Ministers in 2004, because the political cost-benefit analysis of naming, shaming and fining a leading member of the European Union Club militated against collective enforcement of these penalties.[25] The latest evidence of the SGP's failure is the situation of Greece, which "managed" to persistently run high and increasing fiscal deficits (some of it hidden), culminating in a gap of 12.7 percent of GDP in 2010. But for a last-minute (and clumsily put-together) financial backstop provided by the other Euro Area members and the IMF, Greece would undoubtedly have been frozen out of the domestic and international financial markets during the first quarter of 2010 and forced into default. Most other Euro Area members, and EU members not part of the Euro Area, like the UK, also engaged in reckless pro-cyclical behaviour during the boom that preceded the financial crisis that erupted in August 2007. It is clear well beyond a reasonable doubt that the Stability and Growth Pact was a paper tiger.

[25] In the case of the UK, Chancellor Gordon Brown mangled the classification of government borrowing to such an extent that its fiscal rule stands broadly discredited.

In 1985, the US Congress passed the Gramm-Rudman-Hollings (GRH) bill, which specified a series of annual deficits leading to a balanced budget in 1991. If the budget was projected to miss the deficit target, then an automatic "sequestration" process would take effect in order to ensure the deficit target was met. Subsequent to the modification in the sequestration procedures in 1987 (because the 1985 version was found to be unconstitutional), the zero deficit target date was pushed back to 1993 (Auerbach [2008]).

To avoid a pro-cyclical fiscal stance against the backdrop of the 1990 recession, the GRH was scrapped and replaced with the Budget Enforcement Act (BEA). The BEA did away with the annual overall deficit targets, instead instituting budget rules (spending caps) for discretionary spending (as distinct from entitlements), and a rule for legislated changes in policy related to taxes and entitlement spending, specifically, that legislated changes in these two categories should not increase the deficit (so called "pay-as-you-go" (PAYGO) restrictions).

The BEA's death was a bipartisan effort. It started to erode in 1999 under a Democratic administration by using the subterfuge of designating enhanced spending as "emergency" discretionary spending, which was not subject to caps. Budget rules were changed by Congress to adjust the caps to be consistent with actual spending, and the PAYGO rules were set aside before they expired. This helped to usher in the large Republican administration-sponsored tax cuts in 2001 *without* offsetting revenue increases or expenditure restrictions, which the undiluted BEA would have required. Any prospect created by the BEA, that public debate in the US might be focused on fiscal sustainability and intergenerational (in)equity vanished without trace.

Accountability and transparency

In his budget speech (for fiscal 2008/09) delivered in February 2008, India's Union Finance Minister stated: "It is widely acknowledged that the fiscal position of the country has improved tremendously. I am happy to report that the revenue deficit for the current year [2007/08] will be 1.4 per cent [of GDP] (against a budget estimate (BE) of 1.5 per cent) and the fiscal deficit will be 3.1 per cent (against a BE of 3.3 per cent)." In tables related to expenditure, an amount of Rs. 188 billion (0.4 percent of GDP) in the form of "Securities issued in the first and second Supplementary Demands for grants 2007/08 in lieu of subsidies" to oil marketing and fertiliser companies was recognised as a below-the-line *note* (and, thus, off-budget). The FRBMA's clauses were obviously insufficient to prevent the Finance Minister from excluding (unpaid) dues on account of subsidies in calculating the fiscal and revenue deficits. Moreover, provision for off-budget bonds was inadequate to cover the expenditure overrun (or, deliberately shown to be low); estimates by market analysts suggest that excess expenditure was about 1.9 percent of GDP in 2007/08. Not surprisingly, influential commentators have described budget numbers in recent years as "fictional".

Arrears on account of food, fertiliser and petroleum subsidies have persisted since 2005/06, with the oil sector as the largest component followed by fertiliser. The petroleum subsidy burden outside the budget *reportedly* gets split between refining (marketing) companies, upstream (production) companies and bonds (IOUs). About 60-65 percent of the arrears to companies in this sector have been "settled" through the issue of bonds aggregating 3.3 percent of GDP (see row (a)′′ in Table 1). From an accounting perspective, only the bonds component constitutes a government liability, but they are not

part of the central government's liability statement as they are off budget (there is a consistency in treatment of both flows and stocks regarding this liability – they are ignored!). The balance is borne by the companies, actually their shareholders, of which the government is the largest, but these companies do have other shareholders and are publicly listed.[26] As a result of persistent non-payment/arrears by the government for goods and services provided by the public sector units (PSUs) borrowing by them is likely to increase. PSUs may even use bonds issued by the central government as collateral.[27] Official budget documents, including the medium term fiscal policy statement, have, since 2005/06, been silent on deployment of these window dressing "strategies" for imparting a respectable sheen to the "headline" fiscal picture.

6. State-level fiscal responsibility legislation

Both the central and state governments in India have exhibited a bias for fiscal profligacy. The overall fiscal deterioration during the late 1990s and early years of the millennium – due to the impact of an industrial slowdown, Fifth Pay Commission salary hikes for government servants, the parlous financial state of government-owned electricity utilities, and lower than expected revenue buoyancy – could be blamed on both

[26] Profit margins of the three government-owned oil marketing/refining companies have declined by between one-half and three-quarters since the mid-nineties. One of the oil marketing company's revenue has increased eleven-fold since 1992/93, but the equity price has appreciated by less than 5 percent (Financial Express [2010]).

[27] Even the central bank has been caught in the vortex of the oil subsidy. The RBI, between June 5 and August 8 2008 in effect provided US$ 4.4 billion to government-owned oil companies in exchange for oil bonds (outright purchase or collateralised repo). These so-called Special Market Operations (SMO) from the perspective of the RBI were effectively a swap on the assets side of its balance sheet, specifically, Rupee-denominated oil bonds for foreign currency reserves. Since the liabilities side of the RBI's balance sheet is unchanged, the SMO was monetary neutral. However, from a fiscal dimension, whether this operation was neutral depends on the value imputed to these bonds in exchange for foreign exchange. It was understood at the time that the RBI had to intermediate in this manner to keep oil imports flowing into the country because banks were reluctant to accept more of this (largely illiquid) paper issued by the government to the oil companies (Patel [2008b]).

the Union and state governments and was the primary driver for establishing fiscal rules (when the memory of 1991 was still relatively fresh).[28]

State-level FRLs – enacted by individual state governments between 2002 and 2007 – were an attempt to introduce a framework for rule-bound fiscal consolidation and to usher in a regime of transparent and prudent fiscal management.[29] The process was encouraged by the recommendations of the 12th Finance Commission made in 2004, which incentivised fiscal correction paths for state governments through the Debt Consolidation and Relief Facility (DCRF) in the form of conditional debt restructuring and interest rate relief (GoI [2005a]). [30]

- Central government loans to states aggregating Rs. 1288 billion (4 percent of GDP) could be consolidated and rescheduled for a fresh term of 20 years, at an interest rate of 7.5 percent. The facility was available to only those state governments that enacted an FRL.
- A debt write-off scheme linked to a reduction of revenue deficits of states. Under this scheme, repayments due from 2005/06 to 2009/10 on central government loans contracted up to March 31, 2004 would be eligible for write-off.

It is pertinent to point out that there are two macro institutional limits on a state's borrowing. Firstly, a state cannot borrow in the markets without the central government's permission as long as it is in debt to the central government (which is always the case).[31] Secondly, there is no scope for the automatic monetisation by

[28] The financial deterioration of state-government owned electricity utilities was a major contributor to the states' fiscal malaise during this time (Bhattacharya and Patel [2008]).
[29] Twenty states enacted FRLs in 2005 and 2006.
[30] See Rajaraman and Majumdar [2005] for implications for states of FRLs in the context of recommendations of the 12th Finance Commission.
[31] This means that each state's annual market borrowing programme, with the RBI as the effective merchant banker, has to be approved in Delhi.

borrowing from the central bank, although a limited "ways and means advances" facility is available to the states.

While all states except Sikkim and West Bengal have enacted FRLs, we will briefly review the FRLs of the first seven states – Kerala, Maharashtra, Karnataka (the forerunner), Gujarat, Tamil Nadu, Uttar Pradesh and Punjab – that legislated them.[32] [33] The state FRLs impose quantitative and time-bound (4-6 year) targets on revenue and fiscal deficits, viz., elimination of the former and reduction of the latter to 3 percentage points of gross state domestic product (GSDP). However, there is one notable exception in this regard; Kerala has a ceiling of 2 percent of GSDP for the fiscal deficit (see Table 2 below for state-wise summary of the seven FRLs and the associated outcomes). In addition, a couple of states have deployed atypical measures. The Maharashtra legislation, enacted in April 2005, stipulates that "The State Government shall by rules specify the targets for reduction of fiscal deficit", with the (operational) target "interpreted" in a somewhat novel manner as a "ratio of expenditure on interest to revenue receipts", which actually does not help to limit the fiscal deficit. To appreciate this, let D be the fiscal deficit, G total spending, T^R revenue receipts, T^{NR} non-revenue receipts and I expenditure on interest. It follows that $D = G - T^R\left(1 - \frac{I}{T^R}\right)T^R - T^{NR}$.

[32] The share of these seven states in national output is about one-half. Notably, three states passed FRLs between September 2002 and August 2003 (the central government passed its FRBMA on August 26 2003).

[33] Analogous to the centre's FRBMA, there are notable qualitative initiatives pertaining to fiscal planning and transparency that are embedded in the state legislations (see Government of Gujarat [2009], for example). The state FRLs require a medium term fiscal policy statement (encompassing multi-year rolling targets) that, *inter alia*, lays out the time path for attaining the fiscal goals, and they also call for those changes in accounting standards, government policies and practices that are likely to affect the calculation of the fiscal indicators to be disclosed in the respective state assembly.

Table 2: State-wise fiscal responsibility legislation targets and performance

State	Karnataka		Kerala		Tamil Nadu		Punjab		Gujarat		Uttar Pradesh		Maharashtra	
Effective from:	2002/03		2003/04		2002/03		2003/04		2005/06		2004/05		2005/06	
Fiscal Deficit (FD) as % of GSDP	Not more than 3% by end-March 2006		2% by end-March 2007.		Not more than 3% by end-March 2008.		Contain rate of growth of FD to 2% per annum in nominal terms, until brought down to 3% of GSDP.		Not more than 3% by 2008/09.		Not more than 3% by end-March 2009.		Rules to be specified for reduction of fiscal deficit, with the target "interpreted in the form of a ratio of expenditure on interest to revenue receipts."	
Revenue Deficit (RD) as % of GSDP	Nil by end-March 2006.		Nil by end-March 2007.		Ratio of RD to revenue receipts (RR) not to exceed 5% by end-March 2008.		Reduce RD as per cent of RR by at least 5 percentage points each year until revenue balance is achieved.		Zero by 2007/08.		Nil by end-March 2009.		Revenue surplus from 2009/10 onwards.	
Debt as % of GSDP	Total liabilities not to exceed 25% of GSDP by end-March 2015. In 2008/09: 25.5%		-		Limit on total outstanding guarantees at 100% of revenue receipts: Not binding.		Not to exceed 40% by end-March 2007; outcome: 42.1%. In 2008/09: 40%		30% by 2007/08; outcome: 32.7%. In 2008/09: 30%		Not to exceed 25% by end-March 2018. In 2008/09: 50.8%.		-	
as % of GSDP	FD	RD	FD	RD	FD	RD	FD	RD	FD	RD	FD	RD	FD	RD
2004/05	2.3	-1.0	4.0	3.3	2.8	0.3	4.2	3.5	4.6	2.1	5.2	2.8	4.8	2.6
2005/06	2.0	-1.3	3.4	2.5	1.0	-0.8	2.4	1.1	2.8	0.2	3.6	0.5	4.0	0.9
2006/07	2.3	-2.0	2.7	1.9	1.4	-1.0	3.6	1.4	2.2	-0.7	3.1	-1.6	2.3	-0.2
2007/08	2.2	-1.6	3.8	2.3	1.2	-1.5	3.3	2.8	1.6	-0.7	4.0	-1.0	-0.5	-2.5
2008/09	3.5	-0.3	3.5	2.0	2.7	0.0	4.5	2.5	2.9	-0.1	5.3	-1.1	2.3	-0.6

Note: - indicates surplus. Sources for data: State Finances – A Study of Budgets [2006/07; 2008/09; 2009/10], Reserve Bank of India; Planning Commission website for GSDP numbers.

Setting a target (or even a ceiling) for $\frac{I}{T^R}$ does not constrain *D* in any way! At any rate, Maharashtra did halve the fiscal deficit between 2004/05 and 2008/09.

Regarding its revenue deficit, Tamil Nadu enjoins the government to reduce the ratio of revenue deficit to revenue receipts every year by 3-5 percent ("depending on the economic situation in that year") to a level below 5 percent by end-March 2008. Four of the states in this sample have legislated ceilings for official debt. Karnataka, Gujarat, Uttar Pradesh and Punjab, respectively, have capped their outstanding total liabilities at 25 percent, 30 percent, 25 percent and 40 percent of their respective GSDP. On the other hand, the Tamil Nadu Act has placed a limit on total outstanding guarantees of one hundred percent of total revenue receipts in the preceding year or at 10 percent of GSDP, whichever is lower. Except for Kerala all states have made noteworthy progress on fiscal and debt indicators (some earlier than envisaged under the respective FRL) and four of the states are running a surplus on the revenue account.

Fiscal consolidation by states at the aggregate level in recent years has been commendable. Between 2003/04 and 2007/08, the fiscal deficit declined markedly from 4.4 percent to 1.5 percent of GDP. The main explanation being that enhanced budget revenues were not offset by discretionary action on the expenditure side. During 2008/09, the fiscal performance deteriorated somewhat (with the deficit at 2.6 percent of GDP, but still below the mandated 3 percent ceiling), due to the slowdown and the accompanying moderation in the pace of revenue growth; however, the revenue deficit in most states was within the target of zero balance in 2008/09 (RBI [2010]). States' management of fiscal affairs over both a period of high growth and the subsequent slowdown exhibits successful conduct of 'discretionary countercyclical' policy within the

rules.[34] Therefore, the recent deterioration in the national fiscal situation cannot be blamed on Indian state governments, contrary to opinions proffered elsewhere that states stand in the way of achieving sustained overall consolidation (Hausmann and Purfield [2004]). Nevertheless, there are three factors that could cast a shadow over the future: First, the beneficial impact to states of the debt restructuring will become less important over time[35]; second, the steady-state effects of Pay Commission awards on government salaries and pensions usually take a couple of years to permeate through in full in the government accounts after the increase is announced[36]; and third, if states don't adjust (average) electricity tariffs regularly to match (average) cost of generation and supply, the adverse impact on state government fiscal health will turn out to be large in due course, much like in the early 2000s (Patel and Bhattacharya [2010]).

7. What next?

It is not surprising that, given the existing fiscal situation, there has been a flurry of activity. Both the Report of the 13th Finance Commission and the central government's 2010/11 budget have laid out a road map to cut the fiscal deficit and public debt over the next five years. It is not yet clear that a new fiscal responsibility law will be drawn up. Although the "golden rule" (a balanced revenue budget) has been maintained as an objective in the latest proposals, the important change in emphasis is the dominance, over the next five years, of three *gross* public debt-GDP ceilings (in contrast to the fixed (linear) annual reduction in the revenue and fiscal deficits embedded in the FRBMA):

[34] The Government of India permitted states to borrow one-half percent of GSDP more in 2008/09 and a further one-half percent of GSDP in 2009/10 as countercyclical measures for reviving growth.
[35] Debt relief has been provided to states several times over the last four decades.
[36] States bear a larger burden compared to the central government with regard to pay revisions because they have more staff on their rolls, in part because they are responsible for delivery of social services (like schools, health etc.), and law and order (police), which are intrinsically labour intensive.

$$b^{c}(T) \leq 0.448 \qquad (7.1)$$

$$b^{s}(T) \leq 0.243 \qquad (7.2)$$

$$b^{c\cup s}(T) \leq 0.678 \qquad (7.3)$$

Where $b^{c}(T)$ is the central government's terminal date, T, gross debt-GDP ratio, $b^{s}(T)$ is the state governments' gross debt ratio, and $b^{c\cup s}(T)$ is the consolidated general government gross debt ratio at the same date.[37] The estimated starting ratios are $b^{c}(t_0) = 0.548$, $b^{s}(t_0) = 0.271$ and $b^{c\cup s}(t_0) = 0.794$.[38] [39] The principal public debt challenge in India, as things stand, is for the central government to reduce its debt-GDP ratio by ten percentage points over five years for meeting (7.1) (and concomitantly (7.3)). The government has sought to activate the debt goal for 2014/15, by disclosing rolling targets for the revenue and fiscal deficits, which, almost by definition, would continue to remain the levers for achieving (7.1), but may cease to be legally-binding intermediate "sign posts" in future legislation.

The 2014/15 target for the central government's fiscal deficit is 3 percent of GDP – identical to that required by the erstwhile FRBMA –, and the general government target is 5.4 percent of GDP (GoI [2010c]). It is sobering that in the last three decades, the general government deficit has been less than 6 percent of GDP in *only* two years. The

[37] Since the Finance Minister's most recent budget speech mentions a status paper within six months, which would include a road map for curtailing public debt, it is not clear whether the central government has already formally accepted (7.1) proposed in GoI [2010c]. Nevertheless, the budget documents strongly endorse a debt-GDP ceiling (GoI [2010b]).

[38] t_0 is April 1 2010. The central government's ratio of 0.548 includes outstanding off-budget bonds equivalent to 3.3 percent of GDP. As observed earlier, the central government's medium term fiscal policy statements have consistently failed to recognise off-budget bonds, but they are acknowledged to be a liability of the central government by the 13th Finance Commission (see Tables 9.2 and 9.7 in GoI [2010c]).

[39] These 2009/10 debt ratios also differ from those presented in Appendix Table A1 on two grounds, viz., the set of reasons cited in section 4, and our motivation is to obtain, as far as possible, a consolidated and conceptually consistent measure of *net* total public (domestic and foreign) debt comprising central & state governments, non-bank public enterprises, and the central bank.

basic arithmetic of the latest medium term fiscal strategy can hardly be much different from that of the FRBMA since the challenges, goals and instruments are virtually identical. If $d^{c\cup s} \leq 0.054$ (general government deficit of 5.4 percent) is **consistently adhered to**, using the same set of assumptions for the long term that were deployed in section 5, viz., $\overline{n} + \overline{\pi} = 0.0625$, the general government's **long-run** debt to annual GDP ratio would be capped at 86.4 percent.

The 13th Finance Commission's Report, drawing lessons from the central government's conduct in recent years has, to its credit, made thoughtful and constructive suggestions for changes in the areas of transparency, (limited) in-built flexibility, and enhancing integrity of fiscal policy in the design of future legally-binding rules. Specifically, transparency is sought to be imparted by asking the government to make explicit assumptions underlying expenditure and revenue projections "and the band within which these parameters can vary while remaining consistent with [legislated] targets"; the argument is that this will compel the government to make an evidence-based case for relaxation of targets.

Furthermore, future legislation will have to spell out "the nature of shocks that would require a relaxation of targets".[40] Unfortunately, the Report (implicitly) seems to endorse (temporary) relaxation of targets for sharp increases in oil prices, although this would only make sense if the commodity price increases were temporary. The suggestion presumes that it is *ex ante* possible for the Indian government to discern whether a shock is temporary or permanent. As it is, the government is still paying subsidies for price changes that took place several quarters ago. Budget goals should not

[40] The (laundry) list of shocks that the Commission has specified includes: "agro-climatic events of a national dimension", global recessions and shocks caused by domestic or external events like asset price bubbles or systemic crises in important sectors like the financial markets.

be at the mercy of changes in the international price of imported petroleum. After all, oil is not the only systemically important commodity whose price is volatile.

There are two further observations. More detailed conceptual motivation for the 2014/15 deficit targets and debt ceilings would have been enlightening; for instance, it is not clear why the resting point/steady state for the aggregate fiscal deficit of states should be 2.4 percent of GDP when 3 percent of GDP was the erstwhile norm (GoI [2005a]). Formal entrenchment of discretionary flexibility in a fiscal rule for responding to exogenous shocks is hardly a "core objective" of public finance as the Commission makes it out to be – governments everywhere find a way of spending money beyond budgeted targets quite easily. Instead, the Commission spurned the opportunity to demonstrate innovation regarding the urgent and difficult task of designing and implementing a time consistent fiscal rule for the sovereign (in a democracy which shows a sustained proclivity for running high fiscal deficits without public opprobrium).

The main difficulty thrown up by our analysis of outcomes under the FRBMA and other FRLs remains the design of a fiscal rule to incentivise the government not to give in to a procyclical bias, which, behaviourally and in practice, is especially pertinent for policy during upswings.

It takes a thief to catch a thief?[41]

The most important reason why legislated fiscal rules have met a sorry end is "the failure to discover a way of tying a nation's fiscal Ulysses to the mast, with the result that the siren song of fiscal retrenchment tomorrow but fiscal expansion today will continue to lead policy makers astray" (Buiter and Patel [2006]). Is there a countervailing actor to effectively police the sovereign's fiscal behaviour? In a federal country like India, the

[41] Or alternatively, it takes a policeman to catch a policeman?

answer could be, well, another level of government, specifically the states. It may then be possible to "punish" one level of government for transgressing its commitment towards the general deficit target consistent with (7.3) above. For example, the margin by which a deficit target is exceeded by, say, the centre in a particular year would not only have to made up next year (as the debt-GDP ratio has to be met), but it would also have to cut the deficit by a further pre-specified amount ("punishment") to allow the states to run a higher deficit of the same quantum.[42] Since states are politically powerful, it would be more difficult for the central government to brush them aside than to ignore fiscal legislation signed by the President of India (as all Union legislation in India has to be).[43] [44] In the taxonomy of outcomes, the central government's failure to honour its commitment and the states' sticking to theirs is only one of four results:

		Centre	
States		Y	N
	Y	10,10	5,12
	N	12,5	7,7

Where Y and N denote, respectively, success (honouring one's fiscal commitment) and failure (not honouring it). The Centre chooses the Y or N heading the columns, the States the rows. The numerical pairs of payoffs in the shaded 2x2 submatrix represent the benefit derived by the States (first element) and the Centre (second element) from a particular pairing of choices. The example represents the classical Prisoner's Dilemma configuration where defecting (N) is a dominant strategy for both players, even though

[42] The tables, of course, would be reversed if states under achieve and the central government meets its commitment.
[43] States in India are not averse to using courts to protect their rights and sphere of influence granted under the constitution.
[44] Major implicit assumptions are that states will have annual deficits that are not too dissimilar, and that they would formally agree to a scheme with these characteristics.

the resulting outcome, (N, N), is Pareto-dominated by honouring one's commitment (Y), which leads to the outcome (Y,Y).

Governments with recourse to the law to enforce a compact governing state-centre fiscal relations might carry the requisite heft; there is therefore a distinct possibility that such a compact would be enforced by the judiciary. Thus, by adding another player to the game (the judiciary), it may be possible to arrive at the (Y,Y) outcome.

Rather than modelling this 3-player, multi-stage game, we can capture its essence by changing the payoff matrix as follows:

		Centre	
States		Y	N
	Y	10,10	8,9
	N	9,8	7,7

When one player honours his debt commitment but the other does not, the party not honouring his commitment gets punished by being forced to transfer, in the next fiscal year, part of his debt allowance to the party that did honour his commitment. Even though the defector may still be better off, on balance, than the player that stuck to his commitment (9 is better than 8), the reduction in the reward to the defector (from 12 to 9) and the increase in the reward for the player who honours his commitment (from 5 to 8), mean that (Y,Y) now is the dominant strategy. One would, of course, have to explain why a transgressor would not or could not simply refuse to accept the fiscal punishment in the next fiscal year. The strength and independence of the judiciary provide, we hope, the answer to that objection.

A conceptual scaffolding of the type sketched here may help to underpin behaviour by both levels of government towards (nationally beneficial) fiscal rectitude embedded in debt limits and targets.

8. Conclusions

It is often said that the main reason for India's historic price stability relative to its peer group of developing countries has been the polity's intolerance of high inflation (hence, a conservative monetary stance for the most part). With regard to fiscal policy, it would seem that the preference is for high expenditure and low taxation. Political opportunism (rational at the individual, partisan level) in India as elsewhere calls for the postponement of (any) expenditure cuts or tax increases and the prompt spending of revenue windfalls – there is always the chance that the political cost of painful fiscal retrenchment will be borne by the opposition, when its turn in office comes around. In addition to the reasons outlined in the introduction to this chapter to be concerned about high public indebtedness, cynics may argue that the Indian government may want to undertake fiscal retrenchment in the near term to re-engineer the next "political business cycle", in time for the next national elections that are due in 2014.

Unless India reverses the recent trend in its fiscal balances, its net public debt-GDP ratio will cross thresholds that could undermine its growth performance. The Union government's primary balance has deteriorated from close to balance a few years back to substantial deficits (after proper accounting for off-budget borrowing). The challenge lies at the central government level and pertains to controlling expenditure items that have evolved, politically speaking, into entitlements. The primary deficit therefore has the characteristics of being "structural". With smaller current fiscal deficits and higher saving and investment, the government could make a contribution to faster growth; the

period of high growth was not unrelated to the transformation of public sector *dis*saving in 2002/03 to a *positive* savings ratio of five percent of GDP in 2007/08.[45]

But it is another matter whether India needs a new set of legislative rules of the FRBMA type to bind the government to its medium-term fiscal plan, while at the same time providing enough discretion for the government to act quickly in times of trouble. Another FRL which is not incentive compatible for a myopic and opportunistic government, i.e., without mechanisms for implementation and enforcement is as likely to be ignored as the FRBMA was. Given the sorry fate of FRLs in most other parts of the world, it is hardly prejudicial to conclude that fiscal virtue cannot be legislated without thoughtful mechanism design that renders its practice incentive-compatible. On the other hand, since a general government debt–GDP perspective may be incorporated in India's prospective macroeconomic management approach, it may be possible to have an incentive compatible framework with an inbuilt carrot-and-stick strategy that brings in the judiciary and thus integrates the central and state governments in a manner that holds them credibly accountable and, more importantly, rewards and punishes (enforces) each other's fiscal performance.

[45] India's gross domestic saving ratio is estimated to have declined to 32.5 percent of GDP in 2008/09 from 36.4 percent of GDP in 2007/08. The deterioration is almost entirely on account of the sharp drop in public sector gross saving from 5 percent of GDP in 2007/08 to 1.4 percent in 2008/09 (see Appendix Figure A2 and GoI [2010a]).

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Appendix

Table A1: Indian public debt as percent of GDP

	CDD	SDD	PEDD	NTDD	TFD	GTD	R	NTFD	NTD
1970/71	17.2	4.2	0.3	21.7	13.5	35.2	1.6	11.9	33.6
1971/72	16.8	4.3	0.3	21.4	13.6	34.9	1.8	11.8	33.2
1972/73	17.2	4.1	0.3	21.7	13.9	35.6	1.7	12.2	33.9
1973/74	14.5	3.8	0.2	18.5	12.8	31.3	1.6	11.2	29.7
1974/75	13.8	3.6	0.5	17.0	12.3	30.2	1.4	11.0	28.8
1975/76	16.2	4.0	0.7	20.9	14.5	35.3	2.3	12.2	33.0
1976/77	16.6	4.1	1.0	21.7	13.9	35.5	3.6	10.2	31.9
1977/78	20.7	4.0	0.9	25.6	12.5	38.1	4.8	7.7	33.3
1978/79	19.3	4.4	1.2	24.9	12.0	36.9	5.3	6.6	31.6
1979/80	20.5	4.2	1.5	26.3	12.1	38.5	4.9	7.2	33.5
1980/81	20.3	4.0	1.5	25.8	11.7	37.5	3.8	7.8	33.6
1981/82	19.8	4.2	1.5	25.5	12.2	37.6	2.4	9.8	35.2
1982/83	23.5	4.4	1.9	29.8	13.9	43.7	2.6	11.4	41.1
1983/84	21.7	4.5	2.0	28.3	14.7	43.0	2.7	12.0	40.2
1984/85	24.8	4.5	2.2	29.3	16.2	45.5	3.0	13.2	42.6
1985/86	27.3	5.0	2.3	32.2	17.0	49.2	2.9	14.2	46.4
1986/87	27.7	5.0	2.6	35.0	18.6	53.6	2.7	15.9	50.9
1987/88	28.4	5.4	3.1	36.9	19.8	56.7	2.3	17.5	54.4
1988/89	29.4	5.5	3.9	38.8	22.1	60.9	1.8	20.4	59.1
1989/90	30.4	5.8	4.4	40.7	26.4	67.0	1.4	25.0	65.6
1990/91	30.6	6.0	6.4	43.0	29.0	71.9	2.0	27.0	69.9
1991/92	30.9	6.3	6.1	43.2	40.6	83.8	4.4	36.2	79.4
1992/93	31.8	6.4	7.0	45.2	36.7	81.9	4.1	32.6	77.8
1993/94	35.7	6.5	7.1	49.3	33.0	82.3	7.0	26.1	75.4
1994/95	35.4	6.5	6.1	48.1	28.8	76.9	7.8	21.0	69.1
1995/96	33.8	6.7	5.7	46.2	25.4	71.6	6.3	19.2	65.3
1996/97	33.6	7.1	6.6	46.9	22.7	69.5	6.9	15.8	62.6
1997/98	35.8	7.6	6.2	49.1	22.0	71.1	7.6	14.4	63.5
1998/99	37.0	7.5	8.2	52.8	21.8	74.6	7.9	13.9	66.7
1999/00	38.4	10.1	8.0	56.5	20.3	76.8	8.5	11.8	68.3
2000/01	40.0	12.6	7.2	59.9	18.7	78.5	9.4	9.3	69.1
2001/02	43.4	14.8	8.0	66.3	17.4	83.6	11.6	5.8	72.1
2002/03	47.6	17.6	7.4	72.5	16.5	89.0	14.7	1.8	74.3
2003/04	49.5	20.4	6.8	76.7	10.6	87.3	17.8	-7.2	69.5
2004/05	48.8	21.3	6.5	76.7	9.3	85.9	19.1	-9.8	68.8
2005/06	45.5	21.8	6.9	74.1	7.1	81.2	18.2	-11.1	62.9
2006/07	43.8	20.7	6.9	71.4	6.6	78.0	20.3	-13.7	57.7
2007/08	46.1	19.4	6.7	72.3	6.9	79.2	25.0	-18.1	54.2
2008/09	40.5	19.5	5.9	65.9	9.0	74.9	23.0	-14.1	51.9
2009/10*	41.8	20.2	NA	NA	NA	≈76.0**	20.3	NA	≈56.0**

Definitions

NTDD = CDD + SDD + PEDD (including Rupee-denominated short term debt, for which data is unavailable prior to 1990/91.)

GTD = NTDD + TFD

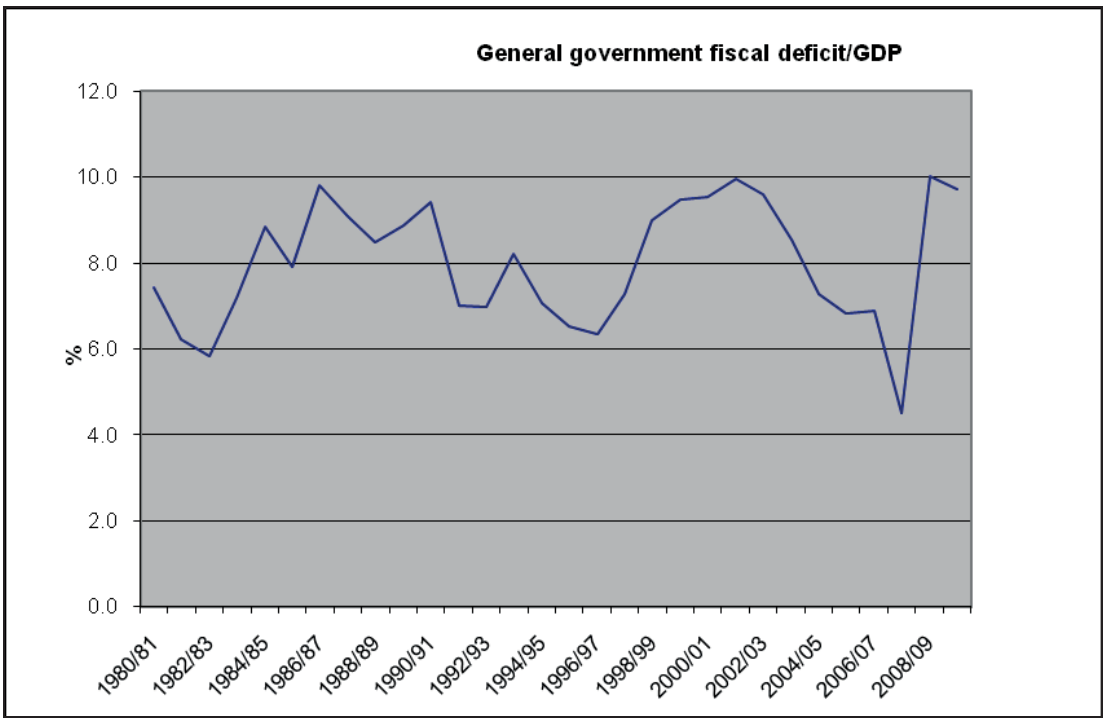
(Table A1 cont'd…)

Table A1 cont'd…

NTFD	=	TFD – R
NTD	=	NTDD + NTFD
NTDD:		Net total domestic debt.
TFD:		Foreign currency public and publicly guaranteed long-term debt plus use of IMF credit plus imputed short-term public debt.
GTD:		Gross total debt.
NTFD:		Net total foreign debt.
CDD:		Internal (domestic) debt of the central government less net credit outstanding from the Reserve Bank of India; plus share of liabilities on account of small savings fund; plus other accounts, including provident funds; but excluding bonds issued to public enterprises in lieu of cash.
SDD:		Rupee denominated market and other loans of (and advances to) state governments less net credit outstanding from the Reserve Bank of India, and excluding power bonds (which is a liability to central government-sponsored enterprises that are vendors to the state government-owned power utilities); plus share of liabilities on account of small savings (since 1999/00); plus provident funds etc.
PEDD:		Rupee denominated short- and long-term debt of public enterprises not held by government.
R:		Official foreign exchange reserves including gold and SDRs.
-:		Indicates net assets.
*:		Revised estimates from official documents, where available, or, budget estimates from official documents.
**:		Authors' estimate.
NA:		Not available

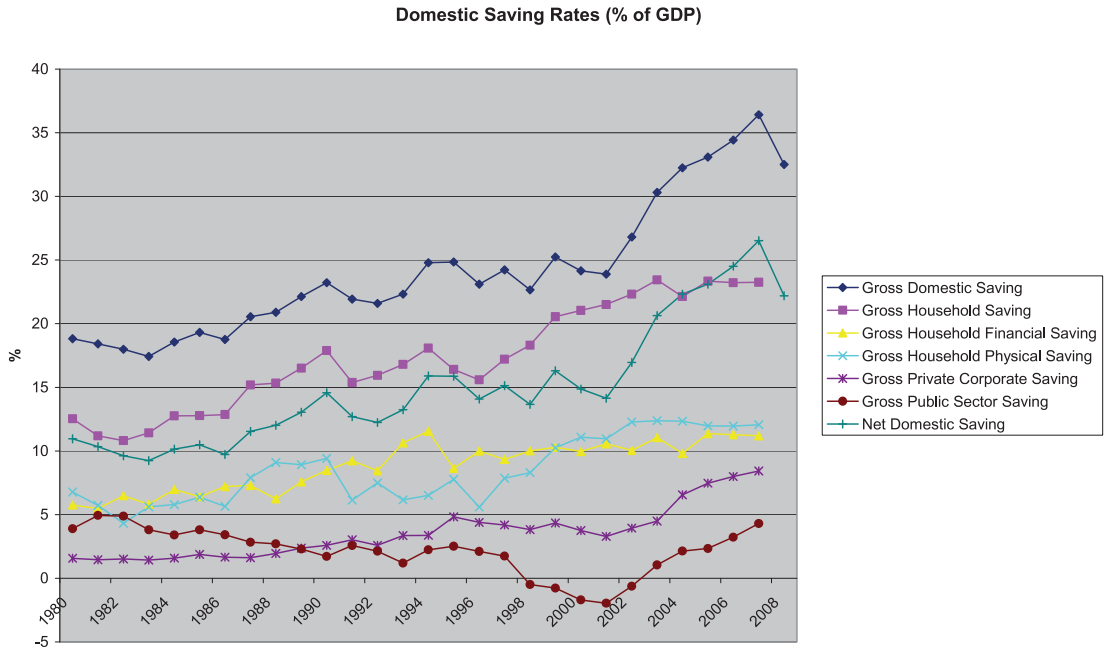
Sources: Handbook of Statistics on the Indian Economy (2009), Reserve Bank of India; Report on Currency and Finance, Volume II (various years), Reserve Bank of India; Budget Documents, Statement of Liabilities of the Central Government, Receipts Budget (2010 and previous years), Government of India; State Finances – A Study of Budgets of 2009/10, Reserve Bank of India; Public Enterprises Survey (volumes for 1970/71-2008/09), Bureau of Public Enterprises, Government of India; Weekly Statistical Bulletins of the Reserve Bank of India; Global Development Finance Report (various years from website), The World Bank. (GDP, used in the denominator for computing the ratios, is at current market prices.)

Figure A1



Note: The deficit includes off-budget bonds issued by the central government. The general government measure, therefore, treats these bonds differently from the overall (public sector) fiscal gap displayed in Figure 1 of section 2.
Source: RBI [2009b]; data from 2007/08 onwards has been revised using RBI [2010] and GoI [2009b, 2010b].

Figure A2



Fiscal Deficit: Story of the magic '3' percent
S. Gurumurthy

Magic 3%

Three percent Fiscal Deficit! This is a dream announcement any finance minister of India would love to make. Fiscal deficit is the excess of payments over receipts of the government. The quantum of fiscal deficit in budgets in India is fixed by law — the Fiscal Responsibility and Budget Management [FRBM] law enacted in 2004. The FRBM law has mandated that, in every budget from 2005, the fiscal deficit should keep coming down till the 3 percent limit is achieved by budget 2009. But because of the global financial crisis in 2008, the UPA government deferred the target date, justifiably. But with the passage of FRBM law, the rate of fiscal deficit has come to play determinative role on budgets. If a budget moves on the road map to get to 3 percent fiscal deficit, the finance minister is glorified. If not, he gets demonised.

The finance minister Arun Jaitley must be a worried man. He has promised to reach this magic 3 percent by 2018. He has pegged the fiscal deficit in the last budget at 3.9 percent. He has to cut it by at least 40 to 50 basis points in this budget, to get to the target of 3 percent in 2015. But he sees the reality, which the Reserve Bank does not see or refuses to see. Jaitley sees that the economy is short of money and the corporates are not able to absorb credit and push money down into the economy. He must be pained that it happens when India is seen as an Island of growth by the IMF. He has to infuse cash into the system to strengthen the growth impulses. He needs to recapitalise the banks to get them out of the RBI "watch". He has to sidestep the march towards fiscal consolidation this year — the other name for cutting fiscal deficit to touch the magic figure of 3 percent next year. Moving towards fiscal consolidation now when the economy is starved of money will weaken the national growth drives. Jaitley is clearly in a catch-22 situation. If he goes for fiscal consolidation, growth will be hurt. If he does not, his reputation will be. The number '3' must be tormenting Jaitley.

Story in EU

But how did the figure 3 percent become an ideal fiscal deficit target? Where did the number 3 emerge in the world of fiscal economics. How did it become the bible verse of budget making in India? The story of how magic number took birth in fiscal world is interesting. It made its advent in fiscal economics when European nations signed the famous treaty at Maastricht in Netherlands to form the European Union [EU] as an economic and monetary union in 1992. The treaty named after the university city Maastricht was preparatory for the EU to evolve as a single currency — the Euro — zone from January

2002. A national currency is the product of a politically sovereign state in exercise of what is known as its “seignorage power”. Put in layman's language, seignorage power is the authority to print nation’s currency or borrow from central bank. In monetary economics this means creating money if the economy needs it. This power inherent in a nation state saved the US economy in 2008 when the financial system of the US had all but collapsed.

The EU is not a nation state in which this power is inherent. It is monetary union in which this power rests on a package of critical commitments by the EU members. Critical because if the individual nations do not comply with the package, the Euro will not survive as a common currency. The package agreed stipulated that a member’s inflation should not exceed 1.5 percent over the average of three member states with the lowest inflation; its public debt should not exceed 60 percent of GDP, and importantly, its fiscal deficit should not exceed 3 percent of its GDP. For Eurozone’s survival as one monetary unit, individual nations cannot have inflation, debt, interest or fiscal deficit beyond the agreed band. This is how the figure of ‘3’ made debut in the fiscal economic discourse.

But how did the Eurozone members honour the committed the deficit figure 3 percent of GDP? Of 12 members, 10 breached the 3 per cent limit during the twelve years, 1999 to 2011 — Greece, every year; Portugal,10 years; Italy, eight; France, seven; and the strongest one, Germany, five. Also the ceiling 60 percent of debt to GDP, inherently linked to fiscal deficit, too was violated by most including France, Spain, Belgium, Austria, Italy, and Germany. The Maastricht treaty, including the 3 percent rule, is observed more in breach.

Story in India

However, the FRBM fiscal deficit number, identical to the EU number, has become the celebrated principle of judging the budgets and finance ministers in India. The Indian economic establishment, faced with the criticism that it had adopted the EU rate of 3 percent, devised a convoluted arithmetical formula to get the same number as in Maastricht treaty. It was first reported that the magic figure was recommended by a committee of the finance ministry, but no such recommendation seems available on record. Later, somewhere in 2006, long after FRBM law had adopted the 3 percent limit, Dr S Rangarajan and Dr Subbarao explained the logic of the magic 3 percent thus: out of the average financial savings of India, which was 13 percent, 5 percent would “go” private sector corporates and of the balance 8 percent, 2 percent would go to public sector undertakings— “leaving” 6 percent for central and state governments to be appropriated 50:50 between them to fund their deficits. That was how the 3 percent limit for the central government in FRBM was rationalised. Now interrogate them.

The assumption seems to be that the 5 percent financial savings would "go" to private corporates on the orders of the economic establishment. What if the private sector refuses to take part of it, like they do in the last few years as evident from the decreasing credit to GDP ratio? Should the government then not step in to fill the gap in investment? Is the basis for fiscal deficit not be linked to the extent of credit demand by private corporates rather than by the amount of savings notionally allocable to them? The experts' explanation has no answers to these questions. Undeniably the 3 percent limit in FRBM law has no rational nexus with either the causes or the consequences of deficit financing. The philosophy of deficit funding tries to balance between how much deficit financing is needed for the economy to grow and how much of it will not risk inflation. The Anglo-Saxon nations have taught the world about the need for fiscal deficit, without risking inflation, to trigger and sustain growth. In the 1963, when Milton Friedman was invited to India, he advised the government to go for a feasible level of deficit financing for growth without inflation. But his view based on his quantity theory of money, which later won Nobel prize in 1976, was rejected by Indian policy makers who derisively called his quantity theory of money as quantity theology of money. Friedman proved right, finally. The Fourth Plan [1969-74] became the victim of serious forex crisis and inflation. Therefore, avoiding fiscal deficit itself could harm.

3% plagiarised

That the FRBM rate of fiscal deficit and the EU rate are identical is therefore no coincidence. The convoluted explanations to justify the FRBM rate which has no rational nexus with the theory of fiscal deficit actually lets the cat out of the bag. The perception that the Maastricht rate was smuggled into the FRBM law and post facto explanations were invented later to plagiarise it as Indian arithmetic, is unavoidable. Given the pressure on not just India, but on the entire developing world till 2008 to follow the West, that India adopted the EU rate should be no surprise. But it is time it is revisited. A point to flag here. The idea of fiscal prudence is not new to India. Many may be surprised to know that, in India, revenue deficit occurred for the first time in 1979-80.

The issue is not about whether deficit financing is good or bad, but how much of it is good and how much is not. Good economics is not about either this or that, but about how much of both. The need for and quantum of fiscal deficit are a country specific issue and even a context specific one. It needs no seer to say that the adoption of the EU number is not only not rational but harms India. Most EU nations breach the magic number because of its unsuitability for their needs. Mandatorily applying such clerically devised ceiling on fiscal deficit is proving harmful to Indian economy.

However, the actual implications of the working of the Act are much more serious and potentially adverse, than is generally understood.

Box 1

Requirements of FRBM

	FRBM Act	FRBM Rules
Revenue deficit Date for elimination	31-3-2008 (now 31-3-2009)	
Minimum annual reduction		0.5% of GDP
Fiscal deficit Ceiling		3% of GDP by 31-03-2008
Minimum annual reduction		0.3% of GDP
Total debt		Increase capped at 9% of GDP in 2004-05
Annual reduction		1% of GDP
RBI primary market purchases of GOI bonds		To cease on 1-4-2006

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Fiscal consolidation with high growth: A policy simulation model for India

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ABSTRACT

In this paper a fiscal consolidation program for India has been presented based on a policy simulation model that enables us to examine the macroeconomic implications of alternative fiscal strategies, given certain assumptions about other macro policy choices and relevant exogenous factors. The model is then used to estimate the outcomes resulting from a possible strategy of fiscal consolidation in the base case. The exercise shows that it is possible to have fiscal consolidation while at the same time maintaining high GDP growth of around 8% or so. The strategy is to gradually bring down the revenue deficit to zero by 2014–15, while allowing a combined fiscal deficit for centre plus states of about 6% of GDP. This provides the space for substantial government capital expenditure, which translates to a significant public investment program. This in turn leads to high overall investment directly and indirectly, via the crowding in effect on private investment, which drives the high GDP growth. The exercise has also tested the robustness of this strategy under two alternative scenarios of higher and lower advanced country growth compared to the base case.

1. Introduction

The Thirteenth Finance Commission (henceforth *The Commission*) was mandated to recommend a fiscal consolidation program for implementation by central and state governments. This task was made particularly challenging by the global financial crisis that followed the collapse of Lehman Brothers on 11th September 2008. India did not suffer a deep recession like most developed countries. However, the recession in developed countries resulted in a decline in demand for Indian exports to those countries. This effect was compounded by considerable volatility in financial markets, triggered by the rapid withdrawal of portfolio investments by foreign institutional investors (FIIs) and a sharp squeeze of liquidity, resulting in severe demand deficiency in several sectors of the real economy. The combined effect of the external crisis transmitted through these two main channels resulted in a significant dip in India's growth from around 9% in the recent past to only 6.7% in FY2008-2009.

A strong fiscal stimulus became necessary in the second half of FY 2008–2009 and again in FY2009–2010 to help revive growth. The positive impact of this stimulus became evident especially during the last two quarters of FY 2009–2010. At the same time the stimulus entailed a further deterioration of the fiscal condition, which was challenging even before the global crisis got underway. One of the key tasks before the Commission was to propose a program of revenue and public expenditure for the federal and state governments that takes the economy back to a sustainable fiscal path along with high growth. The NIPFP policy simulation model (henceforth NIPFP model) was used to assist the Commission in addressing this question. This paper reports on that exercise.

Alternative approaches to macroeconomic policy simulation are discussed in Section 2, which also provides the rationale for choosing a traditional Tinbergen-Goldberger-Klein type structural model (henceforth Tinbergen type model) as the appropriate macroeconomic policy simulation tool. The model itself is presented in Section 3. In its present application the model enables us to examine the macroeconomic implications of alternative fiscal strategies, given certain assumptions about other macro policy choices and relevant exogenous factors, such as the state of the global economy and world oil prices. The model is then used to estimate the outcomes resulting from a possible strategy of fiscal consolidation in the base case discussed in Section 4. The possible consequences of this strategy under altered global conditions, both positive and negative, are also examined by perturbing the exogenous assumptions relating to future growth performance of advanced countries. Section 5 concludes. Appendix A states the data sources. Appendix B presents the estimated equations. Appendix C describes some ratios and definitions that have been used for the empirical estimation of the model.

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2. Approaches to macroeconomic policy simulation

The idea that a Keynesian (or any other) macroeconomic model with empirically estimated functions and behavioural parameters, and some degrees of freedom, could be used to derive the required values of a vector of policy (instrument) variables that would generate the desired values of a vector of target variables (outcomes) was first spelt out in Tinbergen's theory of economic policy (Tinbergen, 1967). However, empirical application of this approach had already started in the 1950s with the structuralist macroeconometric models of Klein and Goldberger (1955) that followed the neoclassical synthesis of Keynesian economics in Hick's IS-LM framework (Hicks, 1937). After a clear run of almost two decades Tinbergen theory and its empirical application in Klein-Goldberger type structural macroeconomic models (henceforth Tinbergen models) came under attack in the 1970s for several reasons. Keynesian policies had failed to tackle the phenomenon of 'stagflation', rising unemployment and rising inflation at the same time. This fuelled a growing hostility towards *dirigisme*, or government activism, during the Reagan-Thatcher years of market fundamentalism. While Friedman and the monetarists (Friedman and Schwartz, 1971) led the intellectual attack against Keynesianism, the attack against Tinbergen type policy modelling was led by the emerging paradigm of 'rational expectations', and in particular the Lucas critique.

To understand the Lucas critique, it is useful to view macroeconomic policy making as a Stackelberg game in which the government is the Stackleberg leader setting policy while all private agents, firms and households are followers responding to Government policy. In a seminal paper that came to symbolize what Mishkin (1995) has called the 'rational expectation revolution', Robert Lucas (1976) argued that the behaviour of private firms and households is not policy independent. If behaviours change in response to policy changes then structural parameters of the policy model, based on past behaviour of individual private entities, will become invalid. As such structural relationships estimated on the basis of past behaviour may no longer be valid. Building on his critique Kydland and Prescott (1977) demonstrated in another seminal paper that optimal policies would necessarily be time inconsistent because an optimal policy based on current behaviour may not be optimal post changes in behaviour of private agents in response to that policy.[1]

These key papers and a host of others that together constitute the rational expectations revolution have fundamentally changed the landscape of macroeconomics and the way policymakers approach macroeconomic policies. There is greater focus now on long term issues, the importance of time consistency and the credibility of announced policies. Nevertheless, policymakers have continued to primarily draw on traditional Tinbergen models as policy tools despite the emergence of an alternative genre of real business cycle (RBC) models that grew out of the Lucas critique (Gali, 2008). In these models business cycles are driven by Lucas's 'deep' variables such as technology and consumer preferences that are policy independent. Mishkin suggests that policy makers are not comfortable with these RBC models because they do not reflect the behaviour of real economies. He mentions that the RBC theorists tend to reject disconfirming evidence, attributing it to faulty data rather than any fault in their theories (Prescott, 1986).

There are also other reasons for the continuing recourse to traditional Tinbergen models despite the Lucas critique. First, not all policy choices are choices between alternative policy rules, and some choices may merely represent alternative values of policy variables within a given policy rule, and these need not affect behaviour. For this class of policy choices, Tinbergen models are no more subject to the Lucas critique than the models based on the 'deep' micro-foundation variables that he recommended. Second, the information requirements of micro-foundation based RBC models, such as Bayesian Dynamic Stochastic General Equilibrium (DSGE) models, are so large that they are not easily applicable in real world economies, especially developing economies. Thus, while DSGE modelling is an important field of contemporary research on macroeconomic policy simulation, it is not an available option for comparing between alternative policy choices at present.[2]

The information question points to more fundamental issues about the behavioural foundations of real business cycle theory. In this paradigm policy choices are posed as options for welfare maximization in a context where macro relations aggregate the behaviour of individual agents maximizing their respective utility functions. However, the assumed optimizing behaviour of individual agents that provides the micro-foundation of RBC theory, as indeed much of standard economic theory, is a matter of belief rather than scientific evidence. There is a growing body of disconfirming evidence in the field of behavioural economics that economic agents do not in fact manifest optimizing behaviour. Behavioural economics is founded on the early insight of Herbert Simon (1957) that economic models would be much better approximations of reality if they assumed that individual agents engage in what he termed 'satisficing' behaviour. The central conclusion of repeated empirical verification in behavioural economics is that given the limits of cognitive capacity, economic agents look for satisfactory options rather than best options. Typically, in making choices, agents restrict the information they are prepared to process to a limited information set, and choose the best option based on that limited information set, i.e., bounded rationality (Kahneman, 2003). This applies not only to decision making under conditions of certainty but also decision making under conditions of risk (Kahneman and Tversky, 1979).

The micro-foundations of the normative policy making process implicit in RBC models are also subject to a similar critique. Building on the insights of institutional economics (North, 1990; Williamson, 1985) and public choice theory (Buchanan and Tullock, 1962), Dixit has argued that the assumption of an omnipotent, omniscient, welfare maximizing benevolent dictator is inappropriate for policy analysis (Dixit, 1996). In Dixit's view policy making is essentially a multi-stage political process constrained by varieties of asymmetric information, adverse selection and moral hazard. In some cases a particular policy game may be modelled with one principal and many agents. In other games, the policy maker is a single agent dealing simultaneously with multiple principals. Dixit has tried to capture this rich variety of policy contexts within the general approach of transaction cost politics. However, this broad approach is yet to be developed into a general model of the policy process that can serve as an appropriate micro-foundation for RBC theory.[3]

These open questions regarding the micro-foundations of RBC theory, combined with its very demanding data requirements for empirical application, probably account for the continuing popularity of Tinbergen type models. The principle of parsimony would suggest

[1] An alternative class of *structuralist* models replace time series estimated parameters with parameters calibrated by solving a computable general equilibrium model for some base year (Dutt and Ross, 2003; Taylor, 2004). For a recent application to India see Naastepad (1999). These models are also subject to the same Lucas critique. Non-structural models usually used for unconditional forecasts, such as the vector autoregression models due to Sims (1980), are not subject to the Lucas critique, but on the other hand they are also not very useful for comparing the outcomes of alternative policy decisions.

[2] Early experiments with DSGE modelling in India have generated some promising insights. See for instance the evidence on 'financial acceleration' and volatility (Anand et al., 2010). NIPFP also has an ongoing research program on DSGE modelling for India. For an initial output from this programme see the paper by Batini et al. (2010) which compares domestic inflation targeting under floating and managed exchange rate regimes.

[3] It is quite likely that the large variety of policy contexts envisaged in Dixit's approach may not be reducible to a single general model of the policy process. For some early attempts to model the political economy of macroeconomic policy see Persson and Tabellini (1994).

that Tinbergen models, with their much less demanding information requirements, are better tools for macroeconomic policy simulation in the present state of our knowledge. In India, although building of Tinbergen type structural models started from early 1960s, large economy-wide models emerged only in the late 1980s. Several such models were built to address different policy questions.[4] Over time these models became increasingly complex, highly disaggregated and intractable. Recent research in this genre has tended to build relatively simple core models with additional satellite models to deal with specific policy questions as required.[5]

3. The model

3.1. Key features

The NIPFP model presented here belongs to this Tinbergen tradition. It has been developed as a tool that policymakers can use to assess the likely consequences of alternative policy choices. Policy decisions are primarily based on intuition, the political decision makers' judgement about the likely consequences of her action. However, it helps the cautious policymaker a great deal if she can cross check her judgement with model simulated test runs of her policy, provided of course that the model itself is a reasonable approximation of reality.

To effectively serve as a user friendly policy tool for this purpose, the model has to have three key characteristics. First, it has to be applicable. It should be possible to run the model based on data that is actually available and it should not have data requirements that are impossible to meet. Second, the model has to be flexible, amenable to adjustments in its structure to address the specific policy questions policy makers may ask from time to time, and provide answers in the form that is required. Finally, the model has to be transparent, simple enough for the non-specialist policymaker to at least broadly understand the structure and mechanics of the model, or the chain of cause-effect relationships that lead from her policy choice to a particular outcome under given conditions as specified in the model.

The NIPFP model has been developed to meet these characteristics. It is a simultaneous equations system model developed for *policy simulation*. Hence, the main results presented below are not unconditional forecasts but conditional indicators of what would be the outcome for, say, growth or inflation if a particular set of policies were adopted and under an assumed, but hopefully realistic, set of exogenous conditions. In other words the exercise is the nature of 'if, then' statements which estimate the likely outcomes *if* certain policy and external conditions prevail. It is also a fairly simple model, consisting of only 22 equations. There are 13 behavioural relationships and 9 identities. The model has been kept deliberately simple to make the cause-effect relationships transparent and not a black box as often happens in very large models. This enables us to easily see how particular policy or exogenous variables are affecting the outcome variables. The model is also quite flexible and easily adaptable to answer different types of policy questions. Thus, the instrument and target variables can be interchanged to fit the question being asked. Sub-components of the model can easily be expanded if the policy question requires such detail on one or another aspect of the model. It is therefore in the very nature of this model that it will always be 'work in progress'. There is no 'final' version of this model and it will be adapted from time to time to address the specific policy question being asked. In the present application the model has been applied to track the macroeconomic outcomes of a fiscal consolidation path.

Finally, it should be mentioned that the model is theoretically eclectic rather than purist, picking up elements from different theoretical approaches as required by the empirical realities of the Indian economy. To illustrate, the inflation function in Eq. (2) has elements of demand-supply based price formation, where markets are cleared through price adjustment, as well as cost plus mark-up pricing where markets are cleared through quantity adjustments, and also an administered price component because we believe that all three price formation rules apply in different segments of the Indian economy (Mundle and Mukhopadhyay, 1993). That being said, it should be mentioned that the model is essentially Keynesian in nature since output levels are demand determined rather than supply constrained (Bhaduri, 1990). Given the persistence of high levels of involuntary unemployment, either open or disguised, we believe that this is the appropriate specification for India. Capacity constraints enter the picture only in the form of utilization levels influencing the level of private investment demand in Eq. (3).

3.2. Macroeconomic Block[6]

The aggregate (nominal) demand in the economy in period t (Y_t) is given by

$$Y_t \equiv C_t + I_t^p + I_t^g + G_t + B_t^t + L_t \tag{1}$$

where C_t is aggregate private consumption expenditure, I_t^p is aggregate private investment demand, I_t^g is aggregate government investment, G_t is aggregate government consumption expenditure, B_t^t is the aggregate balance of trade in goods and services, and L_t is net inflow of invisibles (remittances etc.). Therefore, $B_t^t + L_t$ is the net current account balance.

It is assumed that there is a 'fix price' segment of the economy where prices are determined as a mark-up over cost and another segment where prices are administered by the government. In both these segments the market is cleared through quantity adjustments. There is a third segment of the economy, e.g., food grain sector above the threshold price, where the market is cleared through price adjustments in response to excess demand or supply. Excess demand in turn is dependent on rainfall, which is a major determinant of annual variations in food grain supply. Hence the rate of change in the aggregate price level (inflation) is assumed to depend on liquidity, measured by the rate of change of money supply, cost push factors such as the rate of change in administered prices and production costs, and rainfall. Thus, inflation in period t ($\dot{p}_t$) is given by

$$\dot{p}_t = \phi\left(\dot{M}_{1t}, \hat{\bar{p}}_t^a, \dot{\bar{A}}_t, \bar{V}_t\right) \tag{2}$$

where $\dot{M}_{1t}$ is the growth rate of narrow money, $\hat{\bar{p}}_t^a$ is the rate of change in the level of administered prices, $\dot{\bar{A}}_t$ is the rate of change in factor costs (wage, rent and interest costs), and $\bar{V}_t$ is the index of rainfall in period t. In the estimated equation system all the inflation determinants are significant with expected signs (Appendix B).

There is an accelerator type private investment function, where private investment is assumed to depend on the cost of capital as well as the crowding in effect of public investment, and the expected rate of capacity utilization. Hence, the rate of private investment $\left(\frac{I_t^p}{Y_t}\right)$ is given by:

$$\frac{I_t^p}{Y_t} = \phi\left(r_t, \frac{I_t^g}{Y_t}, \frac{Z_t^e}{Z_t^c}\right) \tag{3}$$

[4] See Krishnamurthy (2008) for an excellent survey of Indian macroeconometric models.

[5] For a recent small macroeconometric model applied to high frequency data see Bhanumurthy and Kumawat (2009).

[6] In the following system of equations the notation convention adopted is to denote all exogenous variables with a bar [$\bar{x}$], all policy variables with a hat [$\hat{x}$], and growth rates with a dot [$\dot{x}$].

where r_t is the average cost of borrowing from the domestic credit market (i.e. average nominal interest rate of scheduled commercial banks and some of the major term lending institutions like ICICI, IDBI etc.), I_t^g is government investment in period t, Z_t^e is the expected real output in year t and Z_t^c is the real full capacity output in period t. The latter (Z_t^c) is based on the capital stock existing at the beginning of the year t.

$$Z_t^c \equiv \frac{1}{k} \times K_{t-1} \tag{4}$$

where k is the capital-output ratio and K_{t-1} is the real capital stock at the beginning of period t.

$$K_{t-1} \equiv K_{t-2} + I_{t-1}^p + I_{t-1}^g \tag{5}$$

Following an adaptive expectations approach (Enders, 2004), expected real output in period t (Z_t^e) is given by:

$$Z_t^e \equiv Z_{t-1} + \Delta \tilde{Z}_t \tag{6}$$

where Z_{t-1} is actual GDP of the previous period and $\Delta \tilde{Z}_t$ is the predicted first difference of GDP in period t. This is derived from Eq. (7).

$$\Delta \tilde{Z}_t = f\left(\Delta Z_{t-1}, \Delta^2 Z_{t-1}\right) \tag{7}$$

where ΔZ_{t-1} is the first difference of real output in the previous period and $\Delta^2 Z_{t-1}$ is the second order difference of real output in the previous period. $\dot{\Delta} Z_{t-1}>0$ & $\ddot{\Delta}^2 Z_{t-1}<0$. The r.h.s. determinants are all significant with expected signs in the estimated equations (Appendix B).

3.3. Government Block

Nominal aggregate government current expenditure (G_t) is given by

$$G_t = f\left(G_{t-1}, \hat{W}_t\right) \tag{8}$$

where $\hat{W}_t$ is the revenue expenditure of government in period t, a policy variable.

The level of government revenue (tax and non-tax) in period t is given by (T_t):

$$\Delta T_t \equiv \hat{\beta} \times \frac{\Delta Y_t}{Y_{t-1}} \times T_{t-1} \tag{9}$$

where revenue buoyancy $\hat{\beta}$ is a policy determined variable. It is assumed that government can set this through adjustments in tax rates and the administrative tax effort.

All government capital expenditure does not flow into investment and all public investment does not come from the government budget alone, since it is supplemented by investment of internal surpluses of public sector undertakings. However, the two are closely correlated. Hence, public investment is assumed to be a function of government capital expenditure:

$$I_t^g = \eta\left(\hat{S}_t^g\right) \tag{10}$$

where $\hat{S}_t^g$ is the capital expenditure of government in period t, a policy variable. The r.h.s variables in behavioural Eqs. (8) and (10) are all significant with expected signs in the estimated system of equations (Appendix B).

The fiscal deficit in period t (F_t) is given by

$$F_t \equiv W_t + \hat{S}_t^g - T_t - \hat{N}_t^g \equiv \hat{D}_t^g + \Delta \hat{O}_t^g \tag{11}$$

where D_t^g is the aggregate market borrowing of the government in period t, $\hat{N}_t^g$ is non-debt capital receipts of the government (disinvestment etc.) and $\Delta \hat{O}_t^g$ is the change in fiscal reserves.

3.4. External Block

The trade balance in terms of domestic currency in period t (B_t^t) is given by

$$B_t^t \equiv X_t - M_t \tag{12}$$

where X_t is the value of exports (including services) and M_t is the value of imports (including services) in period t.

Export demand was initially assumed to depend on the competitiveness of Indian products, measured by average tariffs as a proxy, the exchange rate, and the income of advanced countries, which account for the bulk of Indian exports. However, in the empirical estimation the exchange rate turned out to be insignificant. Hence, we have

$$X_t = f\left(\hat{U}_t,\ \overline{Y}_t^a\right) \tag{13}$$

where $\hat{U}_t$ is the policy determined average tariff rate and $\overline{Y}_t^a$ is the *GDP* of advanced countries, an exogenous variable.

The value of imports is assumed to depend on the exchange rate, the price of imported oil and oil related products, and domestic income. Hence,

$$M_t = f(e_t, \overline{P}_t^o, Y_t) \tag{14}$$

where e_t is the nominal exchange rate (Rs/US$), $\overline{P}_t^o$ is the import price of oil and petroleum products of Indian basket in terms of domestic currency, an exogenous variable, and Y_t is nominal GDP in period t. The r.h.s. variables are significant with expected signs in the estimated equations (Appendix B).

The nominal exchange rate is assumed to be a function of the net inflow of foreign capital.

Thus:

$$e_t = f(J_t) \tag{15}$$

where J_t is net foreign capital inflow. It has also been verified that other variables such as the trade balance and interest rate do not have a significant effect on the exchange rate at present. The determinant is significant with expected sign in the estimated equation.

Net capital inflow J_t is assumed to be a function of the level of income in the United States ($\overline{Y}_t^{us}$), the major origin of foreign capital flows to India, and China ($\overline{Y}_t^c$), the main competing destination for these flows, and Indian GDP (Y_t) as a proxy for domestic demand.

$$J_t = f(\overline{Y}_t^{us}, \overline{Y}_t^c, Y_t) \tag{16}$$

It has been verified that capital inflow is not causally dependent on either the domestic-external interest rate differential or the exchange rate.

The net inflow of invisibles (L_t) is assumed to be a function of aggregate output of advanced (OECD) countries ($\overline{Y}_t^a$) and the Middle East ($\overline{Y}_t^{me}$), these being the two major sources of remittances.

$$L_t = f(\overline{Y}_t^a + \overline{Y}_t^{me}) \tag{17}$$

The r.h.s arguments in Eqs. (16) and (17) are all significant and have the expected signs.

The balance of payments identity in period t (B_t^p) is given by

$$B_t^p \equiv B_t^t + L_t + J_t + \Delta \overline{R}_t \equiv 0 \tag{18}$$

where $\Delta \overline{R}_t$ is the change in foreign exchange reserves.

3.5. Monetary Block

Narrow money ($\dot{M}_{1t}$) has been chosen as the estimate of money supply instead of broad money because the money multiplier was found to be more stable for the former. Given the value of the money multiplier, the change in narrow money supply in period t ($\dot{M}_{1t}$) is given by

$$\dot{M}_{1t} = \gamma\left(\dot{H}_t\right) \tag{19}$$

where $\dot{H}_t$ is the change in high-powered money supply in period t . The growth of high powered money ($\dot{H}_t$) is in turn assumed to be a function of total government borrowing (D_t^g) and change in foreign exchange reserves ($\Delta\overline{R}_t$), i.e.,

$$\frac{\dot{H}_t}{H_{t-1}} = \lambda\left(D_t^g,\ \Delta\overline{R}_t\right) \tag{20}$$

where H_{t-1} is the volume of high-powered money in the previous period. Total government borrowing is given by

$$D_t^g \equiv \hat{D}_{ct}^g + \hat{D}_{mt}^g \tag{21}$$

where $\hat{D}_{ct}^g$ is government borrowing from RBI and $\hat{D}_{mt}^g$ is government borrowing from the market.

Finally, the average nominal rate of interest is assumed to be a function of the rate of inflation, the policy rate and the volume of government borrowing from the market, the potential crowding out element.[7] Hence,

$$r_t = \xi\left(\dot{p}_t, \hat{i}_t, \hat{D}_{mt}^g\right) \tag{22}$$

where $\hat{i}_t$ is the repo rate (bank rate before 2004–05) of RBI in period t. The r.h.s variables are significant with expected signs in estimated Eqs. (19), (20), and (22).

3.6. Variables of Interest

The key policy variables in solving this model include revenue and capital expenditure, tax buoyancy, the rate of change in administered prices, the policy interest rates, government borrowing from the market and (formerly) from RBI. The important exogenous variables include the growth of output in OECD countries as a group as well as in the USA, China, and the Middle East; world oil prices; and the rainfall index. A scenario is designed by setting the value of both the policy variables as well as the exogenous variables. The outcome variables of interest in each scenario include the growth rate, the inflation rate and the public debt-GDP ratio as well as some other key macroeconomic ratios, i.e., the investment rate; the trade deficit and current account deficit relative to GDP; the tax-GDP ratio, the revenue deficit-GDP ratio and the fiscal deficit-GDP ratio; and finally the exchange rate and interest rate.

3.7. Empirical Validation

The model has been estimated using annual data for the period 1991–92 to 2008–09, taking care of time series properties. The standard diagnostic tests have also been applied. The model has been solved for the sample period 2000–01 to 2008–09 and validated for this period. The root mean square percentage errors for all the key variables are shown in Table 1. The tests show that the model is robust and performs well against actual outcomes for the sample period. Fig. 1 shows the plots of estimated outcome variables against their actual values in the sample period. It is noted that the estimated model captures many though not all of the turning points in actual outcomes.

[7] See, however, Palley (2002) and others of the 'endogenous money' school who maintain that money supply typically adjusts to satisfy money demand at the going rate of interest i.e. no crowding out.

Table 1
Historical validation of the model.

Description	RMSPE	Description	RMSPE
Private Consumption	1.89	Net Capital Inflow	6.25
Government Consumption	1.58	Invisible (Remittances)	4.89
Govt. Current Expenditure	0.72	Rupee/US dollar exchange rate	2.16
Private Investment	2.43	Prime lending rate	1.00
Public Investment	3.67	Narrow Money Supply (M1)	2.49
Govt. Capital Expenditure	5.76	GDP Deflator	1.26
Total Govt. Revenue	1.54	Inflation (WPI)	6.80
Fiscal Deficit	1.35	Nominal output (factor cost)	1.15
Total Government Debt	3.03	Nominal output (market price)	1.35
Exports Including Services	1.15	Real output (factor cost)	0.28
Imports Including Services	1.66	Real output (market price)	0.61

Note: RMSPE = Root Mean Square Percentage Error (model generated).

4. A Proposed Fiscal Consolidation Program

The model developed above has been applied to assess the macroeconomic consequences of a fiscal consolidation program that eliminates the combined revenue deficit of the federal and state governments by the year 2014–15. This is the base case and the basic strategy. Two more scenarios are then examined to test the robustness of outcomes in the base case. An optimistic case where the rates of growth of the advanced countries are assumed to be 50% higher than those forecast by the IMF, and a pessimistic case of 'double-dip' recession where the rates of growth of USA and other advanced countries are assumed to fall to (−)1% and 0% in 2010–11 and 2011–12 respectively, and then gradually recover to the IMF forecast rate of 2.6% by the terminal year 2014–15. All other specifications are the same in these two cases as in the base case.

4.1. The Base Case

The outcomes resulting from a basic fiscal strategy of gradually eliminating the revenue deficit by 2014–15 have been first estimated for the base case, which is defined by the following assumptions:

1. In the real sector the output-capital ratio is assumed to remain constant at its current level of 0.375 and factor costs are assumed to rise at the rate of 4% per year. Administered prices are assumed to rise at the rate of 5% per year through the reference period.
2. In the monetary field, the policy(repo) rate has been held constant at 6%
3. In the external sector the base case assumes that the advanced countries, India's major trading partners and important sources of remittances, will grow at the rates forecast by the IMF. USA, China and the Middle East, respectively the main source of foreign capital, the main competing destination of foreign capital, and one of the major sources of remittances, are also assumed to grow at the rate forecast by the IMF. The import weighted average tariffs are assumed to remain at the same level as at present, i.e., 9%. The weighted average price of the Indian basket of petroleum, oil and lubricant products have been assumed to remain at the same level for the reference period as the average price recorded for the period 2006–07 to 2008–09.
4. The largest set of assumptions relate to the fiscal block. On the revenue side, after smoothening the recent spurt in corporate and income tax buoyancy, it is assumed that there will be no major policy or performance changes affecting revenue collection, implying that revenue buoyancy remains unchanged at its medium term level of 1.225.[8] On the expenditure side, nominal public investment is assumed to increase at 10% per year. It is also assumed that there will be no off-budget items for the reference period and that there will be no change in fiscal reserves during this period.

[8] This assumption will clearly have to be revised following the adoption of a new direct taxes code and the introduction of Goods and Services Tax (GST). The impact of these major expected reforms of the tax system on revenue buoyancy could be significant but cannot be estimated at present.

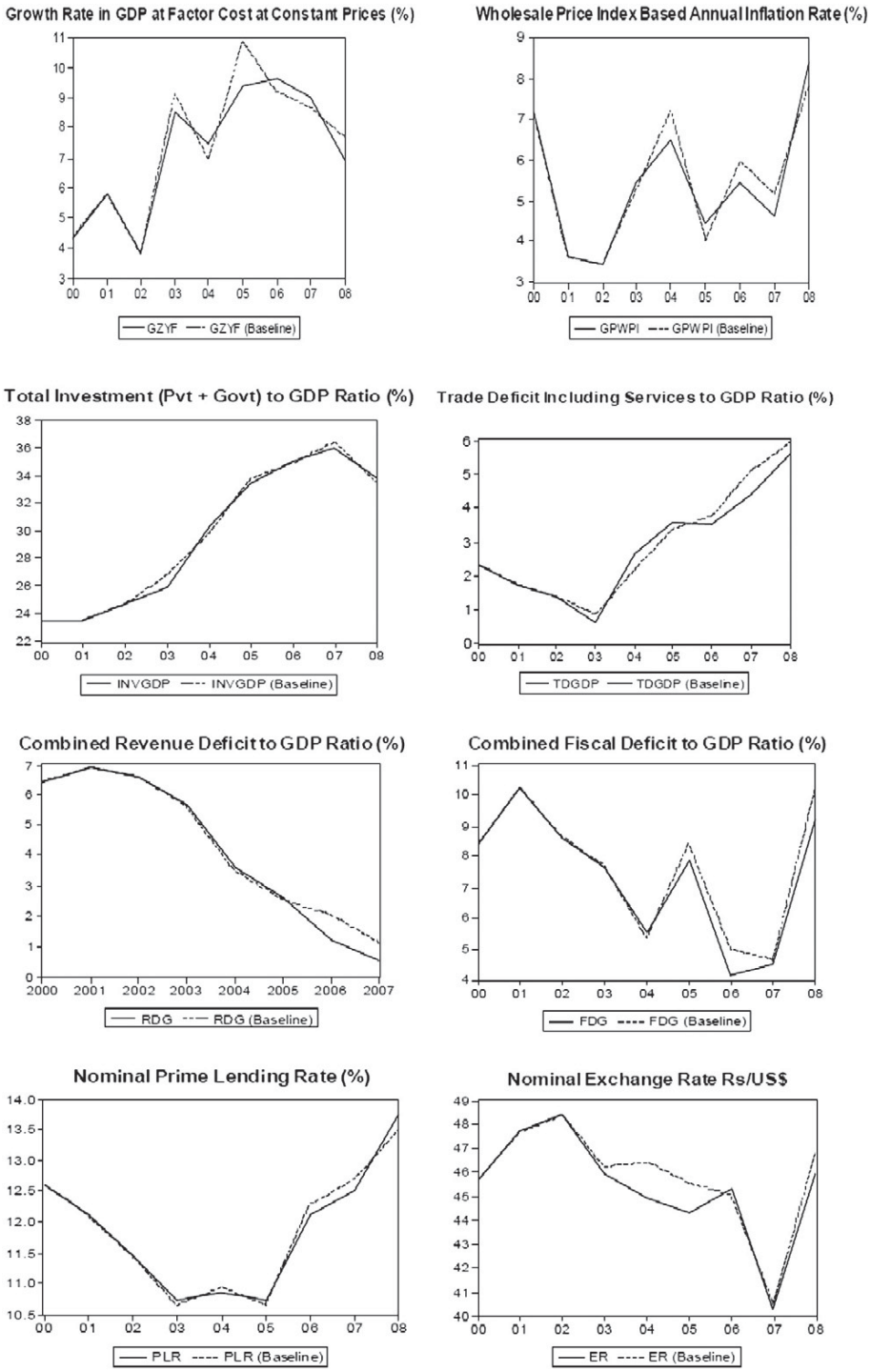

Fig. 1. Historical Validation of the Model (2000–01 to 2008–09).

The impact on key macroeconomic outcomes of a gradual reduction in the combined revenue deficit of the centre plus states to zero by 2014–15 in this base case is shown in Table 2.

In this scenario, the current account deficit rises to about 3.2% of GDP by 2014–15 and inflation remains moderate at just over 4%, except for a spike to 7.6% in the initial year. This is essentially the 'base effect' of a very low inflation rate in 2009–10. The revenue - GDP ratio is estimated at around 21.8%. The combined fiscal deficit of the centre and states as a ratio of GDP declines to about 6% by 2014–15 as the revenue deficit shrinks to zero (by assumption), implying government capital expenditure of around 6% of GDP in the terminal year. The corresponding public debt - GDP ratio is estimated at about 67.5%, which is quite reasonable compared to international benchmarks.[9] Based on these estimates, the 13th Finance Commission set a target of

[9] There is no theoretically robust rule about the level of sustainable public debt. For a compelling analysis of the limitations of the Domar rule and other attempts to derive a general rule for sustainable debt see Rakshit (2005).

Table 2
Base case outcomes 2010–11 to 2014–15 (%).

Year	GDP Growth	WPI Inflation	Investment Rate	Current A/c Deficit-GDP Ratio	Fiscal Deficit-GDP Ratio	Revenue Deficit-GDP Ratio	Revenue-GDP Ratio	Public Debt-GDP Ratio
2010–11	8.1	7.6	33.7	2.7	10.3	5.9	21.1	75.0
2011–12	9.0	4.1	33.4	2.2	9.0	4.4	21.3	75.1
2012–13	9.2	4.2	34.0	2.4	7.6	3.0	21.5	73.6
2013–14	9.3	4.0	35.1	2.8	6.1	1.5	21.7	70.8
2014–15	8.4	4.0	36.3	3.4	5.9	0.0	21.8	68.8

reducing the public debt to GDP ratio to 68% by 2014–15. This was subsequently incorporated in the fiscal consolidation programme introduced by the Central Government in the 2010–11 budget.

The most interesting implication of these results is that a strategy of compressing the revenue deficit down to zero creates the space for government capital expenditure of around 6% of GDP, leading to a high public investment rate. The crowding-in effect translates this to high private investment and an impressive total investment rate of over 36% of GDP by 2014–15. It is this high investment rate that largely accounts for the estimated high growth rate of over 8.5% through most of the reference period. An important concern is that the current account balance is likely to worsen in future since India may continue to grow at a faster rate than its major trading partners.

4.2. Alternative scenarios

The robustness of these outcomes are tested under two alternative scenarios with optimistic and pessimistic assumptions regarding the external growth environment (Tables 3 and 4). These alternative assumptions are important because growth of the advanced countries drives the growth of Indian exports, with knock-on effects on overall growth. The optimistic scenario assumes 50% higher growth compared to the base case in the advanced countries.

The main change in outcomes in this case, compared to the base case, is that the growth rate is higher, reaching 10% in two years of the reference period. Inflation remains modest at around 4% except in 2010–11 as in the base case. On the fiscal side the revenue-GDP ratio improves marginally, while the fiscal deficit declines to less than 6% by 2014–15. The public debt-GDP ratio declines to 67%. On the external front, the current account deficit remains below 3% of GDP.

In the pessimistic scenario 'double-dip' recession is assumed with growth rates of the advanced countries, including USA, falling to (−)1% in 2010–11, followed by 0% in 2011–12 and then gradually approaching the IMF forecast growth rate by 2014–15. In this case growth is slightly lower compared to the base case, but still impressive at over 7.5%. Inflation remains modest after the initial spike in 2010–11 as in the base case. The revenue-GDP ratio remains around 21.5% and the fiscal deficit declines to less than 6% by the end of 2014–15. The public debt-GDP ratio also declines, but remains higher than in the base case. The current account deficit reaches almost 4% of GDP and this is the main factor accounting for the lower rate of growth compared to the base case.

5. Conclusion

In this paper a fiscal consolidation program has been presented based on a policy simulation model. The exercise shows that it is possible to have such consolidation while at the same time maintaining high growth rates of around 8% or more. The strategy is to gradually bring down the revenue deficit to zero by 2014–15, while allowing a combined fiscal deficit for centre plus states of about 6% of GDP. This provides the space for substantial government capital expenditure, which translates to a significant public investment program. This leads in turn to high overall investment directly and indirectly, via the net 'crowding in' effect on private investment. High GDP growth follows through various stages of the Keynes-Kahn multiplier. On the fiscal side, the fiscal deficit ratio declines despite rising public expenditure because of the combined effect of the strong income multiplier for government capital expenditure (Das, 2007) and an estimated revenue buoyancy significantly greater than one.

The exercise has also tested the robustness of this strategy under alternative scenarios of higher and lower advanced country growth. Though this leads to some variation in the rates of growth, fiscal deficit, public debt-GDP ratio, etc. the basic qualitative results of the fiscal consolidation strategy are sustained. It is also noted that the current account deficit varies between 2% to 4% of GDP in the alternative scenarios.

Table 3
High advanced country growth outcomes 2010–11 to 2014–15 (%).

Year	GDP Growth	WPI Inflation	Investment Rate	Current A/c Deficit-GDP Ratio	Fiscal Deficit-GDP Ratio	Revenue Deficit-GDP Ratio	Revenue-GDP Ratio	Public Debt-GDP Ratio
2010–11	8.1	7.6	33.7	2.7	10.3	5.9	21.1	75.0
2011–12	9.6	4.1	33.3	2.0	9.0	4.4	21.3	74.6
2012–13	10.0	4.2	33.9	2.0	7.6	3.0	21.6	72.7
2013–14	10.2	4.1	34.9	2.2	6.2	1.5	21.9	69.5
2014–15	9.2	4.0	36.1	2.9	5.9	0.0	22.1	67.2

Table 4
Low advanced country growth outcomes 2010–11 to 2014–15 (%).

Year	GDP Growth	WPI Inflation	Investment Rate	Current A/c Deficit-GDP Ratio	Fiscal Deficit-GDP Ratio	Revenue Deficit-GDP Ratio	Revenue-GDP Ratio	Public Debt-GDP Ratio
2010–11	7.6	7.6	33.3	2.9	10.3	5.9	21.8	75.4
2011–12	7.6	4.1	33.8	2.8	8.9	4.4	21.2	76.3
2012–13	7.8	4.1	33.5	3.2	7.5	3.0	21.2	75.4
2013–14	8.2	4.0	34.3	3.5	6.1	1.5	21.4	73.1
2014–15	7.9	4.0	35.3	3.9	5.9	0.0	21.5	71.0

Elimination of the revenue deficit by 2014–15 will entail determined action both on the revenue side as well as in government expenditure. On the revenue side, maintaining high tax buoyancy following the envisaged reform in direct and indirect taxes will be key. Pending such reforms, substantial mobilization of non-tax revenues and non-debt capital receipts will be important in the short run. On the expenditure side the Government needs to focus on measures to contain revenue expenditure growth and create the space for robust capital expenditure. The risk is that if these steps on the revenue or expenditure side turn out to be politically or administratively infeasible, then the proposed fiscal consolidation program could fail.

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Appendix A. Data Sources

ADEBT is the accumulated combined aggregate liability of the centre and state governments. Data from *Handbook of Statistics on the Indian Economy*, RBI.

ADVGDP is the index number of GDP of all advanced countries taken together (1970=100). Data from the *World Economic Outlook*, 2009, IMF.

AINF is the WPI based inflation for commodities with prices that are largely administered. Data from *Office of the Economic Advisor*, Ministry of Commerce & Industry, GOI.

CAPINFLOW is the net foreign capital inflow to India. Data from the *Handbook of Statistics on Indian Economy*, RBI.

CAPSTOCK is the net capital stock at 1999–2000 prices available at the beginning of any period. Data from the *National Accounts Statistics*, CSO, GOI.

CAPSTOCK is the net capital stock in the beginning of the period. Data from the *National Account Statistics (NAS), CSO, GoI.*

CHINAGDP is the index number of GDP of China (1970 = 100). Data from the *World Economic Outlook*, 2009, IMF.

CPR and CPU are respectively private final consumption expenditure and government final consumption expenditure. Data from *National Accounts Statistics*, CSO, GOI.

DUTY is the import weighted tariff rate. Data from website of the *Planning Commission of India.*

ECAP is the current price combined capital expenditure of the central and the state governments together. Data from *Indian Public Finance Statistics*, Ministry of Finance, GOI.

ECURR is the combined revenue expenditure of the central and state governments. Data from *Indian Public Finance Statistics*, Ministry of Finance, GOI.

ER is the exchange rate (Indian rupee per US$). Data from the *Handbook of Statistics on Indian Economy*, RBI.

FD is the combined fiscal deficit of the central and state governments. Data from *Indian Public Finance Statistics*, Ministry of Finance, GOI.

FOREX is the foreign exchange reserves. Data from *Handbook of Statistics on Indian Economy*, RBI.

GCP is the growth rate of wages, rents and interest cost in organized sector manufacturing industries in India. Data from Annual Survey of Industries (ASI), GOI as reported in the *Handbook of Statistics on Indian Economy*, RBI.

GDPCAPRATIO is the 3-year moving average of the ratio of GDP at factor cost constant price to net capital stock at constant prices. Data for both variables from *National Accounts Statistics*, CSO, GOI.

GM3 and GM0 are the annual growth rates of broad and high powered money supply respectively. Data from the *Handbook of Statistics on Indian Economy*, RBI.

GPWPI is the WPI based inflation of all commodities. Data from *Office of the Economic Advisor*, Ministry of Commerce & Industry, GOI.

INVISIBBLE is net invisible earnings, less earnings in services, in rupees crore. Data from the *Handbook of Statistics on Indian Economy*, RBI.

IPV and IPU are respectively gross private domestic capital formation, and gross domestic capital formation by the public sector. Data from *National Accounts Statistics*, CSO, GOI.

MB is the aggregate market borrowing of the Government. Data from *Handbook of Statistics on the Indian Economy*, RBI.

MEGDP is the index number of GDP of Middle East countries taken together (1970=100). Data from the *World Economic Outlook*, 2009, IMF.

MTO is the imports including services. Data from *Handbook of Statistics on Indian Economy*, RBI.

NDCR is the non debt capital receipts of the government comprising dis-investment etc. Data from *Indian Public Finance Statistics,* Ministry of Finance, GOI.

OIL is the index number of international price of oil and petroleum products of the Indian basket in terms of rupees crore (1972–73 = 100). Data from the *Handbook of Statistics on Indian Economy*, RBI.

PLR is the average nominal (simple) prime lending rate calculated as the average RBI prescribed lending rate of all scheduled commercial banks including SBI and prime lending rates of term lending institutions like IDBI, IFCI, ICICI, IIBI/IRBI and that of SFCs. *Handbook of Statistics on Indian Economy*, RBI.

RAIN is the rainfall index for India is taken from NASA website.

RD is the combined revenue deficit of the central and state governments. Data from *Indian Public Finance Statistics*, Ministry of Finance, GOI.

REPO is the RBI determined bank rate taken up to 2003–04 and repo rate thereafter. Data from *Handbook of Statistics on Indian Economy*, RBI.

TAX is combined revenue receipts of the central and state governments. Data from *Indian Public Finance Statistics*, Ministry of Finance, GOI.

TD is the trade deficit. Data from *Handbook of Statistics on Indian Economy*, RBI.

USGDP is the index number of GDP of USA. Data from the *World Economic Outlook*, 2009, IMF.

XTO is the exports including services. Data from *Handbook of Statistics on Indian Economy*, RBI.

YMP, ZYMP, YF and ZYF are respectively GDP at current market prices, GDP at constant (1999–2000) prices, GDP at factor cost in current prices, and GDP at factor cost in constant (1999–2000) prices. Data from *National Accounts Statistics*, CSO, GOI.

DUMCRISIS takes 1 for 2008–09 to capture the impact of global financial crisis and 0 for rest of the period.

Dummy variables have been introduced in many of the equations largely to take care of the structural shifts and also the outliers in the estimated equations.

AR (Auto Regression) and MA (Moving Average) terms have been used to control the presence of autocorrelation in the estimated equations.

Appendix B. The Estimated Equations

Detailed results of the estimated individual functions used for running the simultaneous equation system model are described below along with the analysis.

Macroeconomic Block:

1) Private nominal consumption (CPR) has been hypothesized to be positively dependent on disposable income (YMPD) i.e. aggregate income less taxes and on its own past values (CPR(−1)).

$$\begin{aligned} &Sample\,size = 18(1991-92\ to\ 2008-09)\\ &CPR = 47581.09 + 0.49*YMPD + 0.35*CPR(-1) + 51836.18*DUMCPR\\ &\qquad\quad (7.09)\qquad\quad (18.93)\qquad\quad (8.52)\qquad\quad (9.54)\\ &Adj\,R^2 = 0.99\qquad DW\,Stat = 2.6. \end{aligned}$$

The explained variation is almost 100% and the Durbin-Watson statistic is 2.6. Both the coefficients are positive and significant with a positive significant intercept.

2) Nominal consumption expenditure of the central and state governments taken together (CPU) has been hypothesized to be positively dependent on the combined revenue expenditure of government (ECURR) and on its own past values (CPU(−1)).

$$\begin{aligned} &Sample\,size = 18(1991-92\ to\ 2008-09)\\ &CPU = 6224.56 + 0.21*ECURR + 0.63*CPU(-1) + 10436.90*DUMCPU\\ &\qquad\quad (1.69)\qquad\quad (6.87)\qquad\quad (7.85)\qquad\quad (5.58)\\ &Adj\,R^2 = 0.99\qquad DW\,Stat = 1.72. \end{aligned}$$

The explained variation is almost 100% and the Durbin-Watson statistic is 1.72. Both the coefficients are positive and significant with a positive significant intercept.

3) The first difference of GDP at factor cost at constant price (DZYF) has been hypothesized to be negatively dependent on its one year lagged second order difference D(DZYF(−1)) and on its own past values (DZYF(−1)).

$$\begin{aligned} &Sample\,size = 18(1992-93\ to\ 2009-10)\\ &DZYF = 20574.37 + 0.88*DZYF(-1) - 0.29*D(DZYF(-1)) + 70896.45*DUMDZYF\\ &\qquad\quad (1.73)\qquad\quad (10.09)\qquad\quad (-1.75)\qquad\quad (3.93)\\ &Adj\,R^2 = 0.89\qquad DW\,Stat = 2.77. \end{aligned}$$

The explained variation is 89% and the Durbin-Watson statistic is 2.77. The coefficient of one year lagged second order difference is negative and insignificant while the coefficient of one year lag of the dependent variable is positive and significant with a positive significant intercept.

4) Investment by the government and public sector enterprises (IPU) has been hypothesized to be positively dependent on combined capital expenditure of government (ECAP) and on its own past values (IPU(−1)).

$$\begin{aligned} &Sample\ size = 15(1994-95\ to\ 2008-09)\\ &IPU = 7322.92 + 0.83*ECAP + 0.62*IPU(-1) + 17221.93*DUMIPU\\ &\qquad\quad (2.49)\qquad\quad (11.81)\qquad\quad (11.31)\qquad\quad (5.07)\\ &Adj\,R^2 = 0.99\qquad DW\,Stat = 2.43. \end{aligned}$$

The explained variation is almost 100% and the Durbin-Watson statistic is 2.43. Both the coefficients are positive and significant with a positive significant intercept.

5) The private investment to GDP ratio (IPV/YF) has been hypothesized to be negatively dependent upon the average prime lending rate and positively dependent on the ratio of expected real output to full capacity real output (RATIO) and the government investment rate (IPU/YF).

$$\begin{aligned} &Sample\,size = 18(1991-92\ to\ 2008-09)\\ &IPV/YF = -0.69 - 0.01*PLR + 0.93*RATIO + 0.53*(IPU/YF) + 0.07*DUMIPV + 0.01*DUMCRISIS\\ &\qquad\quad (-18.97)\qquad\quad (-21.22)\qquad\quad (30.02)\qquad\quad (4.21)\qquad\quad (24.25)\qquad\quad (3.66)\\ &Adj\,R^2 = 0.99\qquad DW\,Stat = 2.87. \end{aligned}$$

The explained variation is almost 100% and the Durbin-Watson statistic is 2.87. All the coefficients are significant with a negative significant intercept. We have added a crisis dummy here following the 'financial crisis' of developed World.

6) The wholesale price index based inflation (GPWPI) has been hypothesized to be positively dependent on the increase in administered commodity prices (AINF), the growth rate in narrow money supply (GM1) and the increase in cost of production (GCP) and negatively dependent on the rainfall index (RAIN) in India.

$$\begin{aligned} &Sample\,size = 16(1993-94\ to\ 2008-09)\\ &GPWPI = -5.79 + 0.21*AINF + 0.09*GM1 + 0.02*GCP + 0.01*RAIN + 2.26*DUMPWPI + 2.75*DUMCRISIS + 0.63*AR(2)\\ &\qquad\quad (-4.67)\qquad\quad (11.43)\qquad\quad (2.99)\qquad\quad (1.88)\qquad\quad (5.34)\qquad\quad (14.28)\qquad\quad (7.40)\qquad\quad (14.37)\\ &Adj\,R^2 = 0.98\qquad DW\,Stat = 3.29. \end{aligned}$$

The explained variation is almost 98% and the Durbin-Watson statistic is 3.29, which is higher than the acceptable limit. All the coefficients are significant. We have added one auto regressive term (AR2) in order to take care of time series property. We have also added a crisis dummy here following the 'financial crisis' of developed World.

7) The inflation in GDP deflator (GPGDP) has been hypothesized to be positively dependent on the inflation based on WPI (GPWPI).

$$\begin{array}{l} Sample\ size = 20(1990-91\ to\ 2009-10) \\ GPGDP = 0.14 + 0.98 * GPWPI + 3.82 * DUMPGDP \\ \qquad (0.35) \qquad\quad (17.17) \qquad\quad (10.18) \\ Adj\,R^2 = 0.94 \qquad DW\,Stat = 3.03. \end{array}$$

The explained variation is almost 94% and the Durbin-Watson statistic is 3.03, which is higher than the acceptable level. The coefficient is significant with a positive intercept.

8) The first difference of capital stock at the beginning of any period (CAPSTOCK) has been hypothesized to be positively dependent on the total investment of last period (i.e. private investment plus government investment IPV(−1)+IPU(−1)).

$$\begin{array}{l} Sample\ size = 17(1992-93\ to\ 2008-09) \\ D(CAPSTOCK) = 80351.29 + 0.43 * (IPV(-1) + IPU(-1)) + 137422.67 * DUMCAPS \\ \qquad\quad (9.87) \qquad\quad (34.24) \qquad\quad (5.61) \\ Adj\,R^2 = 0.99 \qquad DW\,Stat = 1.44. \end{array}$$

The explained variation is 99% and the Durbin-Watson statistic is 1.44. The coefficient is significant with a positive significant intercept.

9) The constant price GDP at factor cost (ZYF) has been hypothesized to be positively dependent on GDP at constant market price (ZYMP).

$$\begin{array}{l} Sample\,size = 19(1991-92\ to\ 2009-10) \\ ZYF = -27970.54 + 0.79 * ZYMP + 0.16 * ZYMP(-1) \\ \qquad (-4.77) \qquad\quad (17.43) \qquad\quad (3.15) \\ Adj\,R^2 = 0.99 \qquad DW\,Stat = 1.86. \end{array}$$

The explained variation is almost 100% and the Durbin-Watson statistic is 1.86. The coefficient is significant with a negative significant intercept.

Government Block:

10) The combined revenue receipt of Central and State governments (TAX) has been hypothesized to be positively dependent on the GDP at nominal market price (YMP).

$$\begin{array}{l} Sample\ size = 18(1991-92\ to\ 2008-09) \\ LOG(TAX) = -6.80 + 1.33 * LOG(YMP) + 0.06 * DUMTAX + 0.90 * AR(1) \\ \qquad (-2.71) \qquad\quad (8.74) \qquad\quad (4.94) \qquad\quad (17.06) \\ Adj\,R^2 = 0.99 \qquad DW\,Stat = 2.16. \end{array}$$

The explained variation is almost 100% and the Durbin-Watson statistic is 2.16. The coefficient is significant with a negative significant intercept. We have added one auto regressive term (AR1) in order to take care of time series property.

11) The combined revenue expenditure of government (ECURR) has been hypothesized to be positively dependent on the nominal GDP at factor cost (GM0) and on its own past values.

$$\begin{array}{l} Sample\ size = 18(1991-92\ to\ 2008-09) \\ ECURR = -4141.94 + 0.69 * ECURR(-1) + 0.10 * YF + 121621.23 * DUMECURR + 175815.36 * DUMCRISIS \\ \qquad (-1.31) \qquad\quad (13.42) \qquad\quad (8.97) \qquad\quad (6.06) \qquad\quad (21.55) \\ Adj\,R^2 = 0.99 \qquad DW\,Stat = 2.15. \end{array}$$

The explained variation is almost 100% and the Durbin-Watson statistic is 2.15. The coefficients are positive and significant with a negative intercept. We have added a crisis dummy here following the 'financial crisis' of developed World to capture the fiscal stimulus including the 6th pay commission impact.

12) The market borrowing of the government (MB) has been hypothesized to be positively dependent on the fiscal deficit of last year (FD(−1).

$$\begin{array}{l} Sample\ size = 16(1993-94\ to\ 2008-9) \\ MB = -22693.57 + 0.75 * FD(-1) + 59681.33 * DUMCRISIS + 57159.69 * DUMMB \\ \qquad (-4.93) \qquad\quad (23.84) \qquad\quad (9.08) \qquad\quad (9.73) \\ Adj\,R^2 = 0.98 \qquad DW\,Stat = 2.29. \end{array}$$

The explained variation is 98% and the Durbin-Watson statistic is 2.29. The coefficient is significant with a negative significant intercept. We have added a crisis dummy here also due to fiscal stimulus following the 'financial crisis' of developed World.

External Block:

13) The value of imports in rupee terms (IMPORT) has been hypothesized to be positively dependent on GDP at factor cost (YF) and the average international price of oil and petroleum products in the Indian basket (OIL) and negatively dependent upon the average rupee-dollar exchange rate (ER).

$$\begin{array}{l} Sample\ size = 17(1992-93\ to\ 2008-09) \\ IMPORT = -10372 + 0.24 * YF + 79.76 * OIL - 6117 * ER + 42936 * DUMMTO - 27395 * DUMCRISIS \\ \qquad (-0.73) \qquad\quad (45.01) \qquad (25.85) \qquad (-13.69) \qquad\quad (20.65) \qquad\quad (-4.62) \\ Adj\,R^2 = 0.99 \qquad DW\,Stat = 2.19. \end{array}$$

The explained variation is almost 100% and the Durbin-Watson statistic is 2.19. All the coefficients are significant with a negative intercept. We have added a crisis dummy here following the 'financial crisis' of developed World.

14) The first difference of exports in rupee terms (D(EXPORT)) has been hypothesized to be positively dependent on the first difference of GDP of advanced countries (ADVGDP) and negatively dependent upon the import weighted average tariff rate (DUTY).

$$\begin{array}{l} Sample\,size = 17(1992-93\ to\ 2008-09) \\ D(EXPORT) = 174058.7 + 8111.6 * D(ADVGDP) - 7170.3 * DUTY + 53598 * DUMXTO - 108671 * DUMCRISIS + 0.53 * AR(1) \\ \quad (20.29) \qquad (10.46) \qquad (-20.47) \qquad (11.56) \qquad (14.43) \qquad (36.26) \\ Adj\,R^2 = 0.99 \qquad DW\,Stat = 2.52. \end{array}$$

The explained variation is almost 99% and the Durbin-Watson statistic is 2.52. All the coefficients are significant with a positive significant intercept. We have added one auto regressive term (AR1) in order to take care of time series property. We have also added a crisis dummy here following the 'financial crisis' of developed World.

15) The rupee-dollar exchange rate (ER) has been hypothesized to be negatively dependent on the net capital inflow (CAPINFLOW).

$$\begin{array}{l} Sample\ size = 14(1995-96\ to\ 2008-09) \\ ER = 45.91 - 3.61e-05 * CAPINFLOW + 6.45DUMER + AR(1) + AR(2) \\ \quad (27.16) \qquad (-13.95) \qquad (5.47) \qquad (10.55) \quad (-5.00) \\ Adj\,R^2 = 0.99 \qquad DW\,Stat = 1.50. \end{array}$$

The explained variation is almost 100% and the Durbin-Watson statistic is 1.5. The coefficient is negative significant with a positive significant intercept. We have added two auto regressive terms (AR1 & AR2) in order to take care of time series property.

16) The net capital inflow (CAPINFLOW) has been assumed to be a function of GDP of China (CHINAGDP) that of United States (USGDP) and Indian domestic real GDP (ZYMP) at market price.

$$\begin{array}{l} Sample\ size = 18(1991-92\ to\ 2008-09) \\ CAPINFLOW = -144320 - 20.64 * CHINAGDP + 11.69 * USGDP + 0.08 * ZYMP + 181174.51 * DUMCAP - 58039.24 * DUMCRISIS \\ \quad (-3.30) \qquad (-1.58) \qquad (2.59) \qquad (1.81) \qquad (13.81) \qquad (-5.39) \\ Adj\,R^2 = 0.99 \qquad DW\,Stat = 1.81. \end{array}$$

The explained variation is almost 99% and the Durbin-Watson statistic is 1.81. The coefficients are significant with a negative significant intercept. We have added a crisis dummy here following the 'financial crisis' of developed World.

17) The net invisible flow of current account of balance of payment (INVISIBLE) has been hypothesized to be a function of joint GDP of the advanced countries (ADVGDP) and the Middle East (MEGDP).

$$\begin{array}{l} Sample\,size = 17(1992-93\ to\ 2008-09) \\ INVISIBLE = -48600 + 105.06 * (MEGDP + ADVGDP) + 16919.14 * DUMINV + 13575.62 * DUMCRISIS + 0.60AR(1) \\ \quad (-5.85) \qquad (17.10) \qquad (5.06) \qquad (2.79) \qquad (2.90) \\ Adj\,R^2 = 0.99 \qquad DW\,Stat = 2.02. \end{array}$$

The explained variation is almost 99% and the Durbin-Watson statistic is 2.02. The coefficients are significant with a negative significant intercept. We have added a crisis dummy here following the 'financial crisis' of developed World. We have also added one auto regressive term (AR1) in order to take care of time series property.

Monetary Block:

18) The average prime lending rate (PLR) has been hypothesized to be positively dependent on the WPI inflation rate (GPWPI), the RBI determined repo rate (REPO) and the market borrowing of the government (MB).

$$\begin{array}{l} Sample\ size = 14(1995-96\ to\ 2008-09) \\ PLR = 5.99 + 0.11 * GPWPI + 0.77 * REPO + 1.78e-06 * MB + 0.75 * DUMPLR \\ \quad (37.18) \qquad (8.15) \qquad (55.75) \qquad (2.69) \qquad (17.04) \\ Adj\,R^2 = 0.99 \qquad DW\,Stat = 1.90. \end{array}$$

The explained variation is almost 99% and the Durbin-Watson statistic is 1.90. The coefficients are significant with a positive significant intercept.

19) The narrow money (GM1) has been hypothesized to be positively dependent on the high-powered reserve money (GM0).

$$\begin{array}{l} Sample\,size = 18(1991-92\ to\ 2008-09) \\ GM1 = -36346.31 + 1.37 * M0 + 42635.34 * DUMM1 - 81273.64 * 4DUMCRISIS \\ \quad (-10.03) \qquad (136.95) \qquad (10.76) \qquad (-8.13) \\ Adj\ R^2 = 0.99 \qquad DW\,Stat = 2.50. \end{array}$$

The explained variation is almost 99% and the Durbin-Watson statistic is 2.50. The coefficient is positive and significant with a negative significant intercept. We have added a crisis dummy here also following the 'financial crisis' of developed World.

20) The stock of reserve money (M0) has been hypothesized to be positively dependent on foreign exchange reserves (FOREX) and market borrowing by the government (MB).

$$\begin{array}{l} Sample\ size = 18(1991-92\ to\ 2008-09) \\ M0 = 103854.76 - 0.43 * FOREX + 0.98 * MB + 64698.70 * DUMGM0 + 115994.77 * DUMCRISIS \\ \quad (17.64) \qquad (27.05) \qquad (8.49) \qquad (5.99) \qquad (7.44) \\ Adj\,R^2 = 0.99 \qquad DW\,Stat = 1.98. \end{array}$$

The explained variation is almost 100% and the Durbin-Watson statistic is 1.98. The coefficients are significant with a positive significant intercept. We have added a crisis dummy here also following the 'financial crisis' of developed World.

Appendix C. Definitions

Ratios to GDP (Y_t):

$$DBG_t = \frac{DB_t}{Y_t} \tag{D1}$$

where, DB_t is the accumulated debt.

$$RDG_t = \frac{RD_t}{Y_t} \tag{D2}$$

where, RD_t is the revenue deficit.

$$FDG_t = \frac{F_t}{Y_t} \tag{D3}$$

where, FD_t is the fiscal deficit.

$$TDG_t = \frac{B_t^t}{Y_t} \tag{D4}$$

where, B_t^t is the balance of trade in goods and services.

$$RG_t = \frac{T_t}{Y_t} \tag{D5}$$

where, T_t is the combined revenue of Centre & States.

$$IG_t = \frac{I_t}{Y_t} \tag{D6}$$

where, I_t is the investment.

Growth Rates:

$$\frac{\dot{Y}_t}{Y_{t-1}} = 100 \times \left(\frac{Y_t}{Y_{t-1}} - 1\right) \tag{D7}$$

$$\frac{\dot{Z}_t}{Z_{t-1}} = 100 \times \left(\frac{Z_t}{Z_{t-1}} - 1\right) \tag{D8}$$

$$\frac{\dot{H}_t}{H_{t-1}} = 100 \times \left(\frac{H_t}{H_{t-1}} - 1\right) \tag{D9}$$

$$\frac{\dot{p}_t}{p_{t-1}} = 100 \times \left(\frac{p_t}{p_{t-1}} - 1\right) \tag{D10}$$

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Targeting Debt and Deficits in India: A Structural Macroeconometric Approach

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Targeting Debt and Deficits in India A Structural Macroeconometric Approach[a]

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Abstract

This study attempts to construct a consistent macroeconomic framework for India to review the macro-fiscal linkages over the 14th Finance Commission period of 2015-19. The existing NIPFP model has been reworked to add a full-fledged real sector block comprising of agriculture, industry, services and infrastructure, with the overall economy comprising of real sector block, external block, monetary block, fiscal block and macroeconomic block. The estimated model was used for policy simulations that are relevant for the 14th Finance Commission. The various scenarios include (a) shock due to 7th Pay Commission award, (b) targeting deficit and debt and (c) targeting higher growth. The results suggest that while Pay Commission award would result in slightly higher growth compared to the base case, this also results in higher inflation, fiscal-revenue deficits, current account deficit as well as higher government liability. Further simulation results suggest that expenditure switching policy, which is the core of expansionary fiscal consolidation mechanism, of increasing higher government capital expenditure and reducing the government transfers could result in higher growth with a manageable fiscal deficit of 5.3 per cent that also brings down the government (centre *plus* states) liability to around 60 per cent by 2019-20.

JEL Classification: C32, E10, E17, E60, H60
Key Words: Fiscal consolidation, government debt, fiscal deficit, macroeconometric modeling, India

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Introduction

Global financial crisis and the expansionary fiscal policy measures, including the fiscal stimulus in the post-Crisis period, initiated in and around the Union Budget 2008-09 have led to higher fiscal deficits, much higher than those specified in the FRBM act, 2003. While those policies have helped in restraining further slowdown in the economy and helped in recovery in the two subsequent years, the nature of stimulus packages[1], which are largely irreversible in nature, appeared to have resulted in deterioration of fiscal health. In order to revert to the fiscal consolidation path, therefore, the 13th Finance Commission revised the fiscal road map. As per the revised targets, Indian economy should achieve a fiscal deficit target of 5.4 per cent by 2014-15 while the debt-GDP ratio should be brought down to 68 per cent[2]. However, such targets were subject to some major assumptions on the exogenous factors such as external sector recovery and on the assumption of elimination of revenue deficit by 2014-15. As it turned out, the fragile recovery in the global growth and failure in reducing revenue deficit as per the revised fiscal consolidation path has made the feasibility of achieving the fiscal targets as suggested by the 13th Finance Commission almost impossible.

In 2012-13, the economy experienced a sharp slowdown in growth along with higher inflation, unsustainable current account deficits and higher fiscal deficits. It was an urgent necessity to review the fiscal deficit targets as prescribed by the 13th Finance Commission. Given the domestic and global environment, the Kelkar Committee (2012) revised and extended the fiscal deficit targets to 2016-17[3]. Since then, the Government has been trying to contain the fiscal deficits as per the revised targets. However, there appears to be a slippage on the sub-targets such as revenue deficit. For instance, as per the revised targets, the revenue deficit target for 2014-15 should have been 2 per cent compared to the Budget estimate of 2.9 per cent. At the same time there seems to be a slippage on the growth assumption as well[4]. Such a slippage on most of the indicators calls for revisiting of the fiscal deficit targets and suggesting conditions under which one can achieve the multiple objective of fiscal consolidation with stable growth.

With this background, this study attempts to review the macro-fiscal linkages over the 14th Finance Commission period of 2015-19 with the help of consistent macroeconomic framework for India. In the next section, some discussion on the revised NIPFP Macroeconomic Policy Simulation Model (MPSM) is provided. Here the approach is largely the Klein-Goldberger framework that follows structural macroeconometric method. In *section-III* databases and methodology used are discussed briefly. In *section-IV*, based on the assumptions on the exogenous variables, the model is simulated for both in-sample and out of sample. Diagnostic checking in terms of in-sample forecast performance and error behaviour is undertaken to establish the robustness of the model. As the purpose is to provide some policy inputs for the 14th Finance Commission, two policy issues are discussed in *section-V*. Simulation exercises are discussed in *section-VI* followed by the conclusion section.

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[1] *See* Mundle *et al,* 2011

[2] Mundle*, et al*, 2010, showed that such fiscal targets are consistent with reasonably higher and stable growth.

[3] *See* the "Report of the Committee on Roadmap for Fiscal Consolidation: 2012", http://finmin.nic.in/reports/Kelkar_Committee_Report.pdf. These targets are only for Central Government.

[4] Kelkar Committee (2012) assumes a nominal GDP growth of 15 per cent for 2014-15 against the Union Budget assumption of 13.4 per cent.

II. Model Specification for the revised NIPFP Macroeconomic Policy Simulation Model

Macroeconomy is represented in terms of five blocks which are real sector block, external sector block, fiscal block, monetary block and macroeconomic block.

Real Sector Block

The real sector of the economy has been disaggregated into four Sectors: Agriculture, Industry, Services and Infrastructure. The forces of demand and supply impact the price and output determination differently in the four sectors.[5]

The four sectors are defined as per the NAS classification by economic activity.

(a) Agriculture includes agriculture, forestry and fishing (industry group 1).
(b) Industry includes mining & quarrying (industry group 2) and manufacturing (industry group 3).
(c) Services include trade, hotels and restaurants (industry group 6), finance, insurance and real estate (industry group 8) and community and social services (industry group 9).
(d) Infrastructure includes electricity, gas and water (industry group 4), construction (industry group 5) and transport, storage and communication (industry group 7).

Agriculture

All macro-models on the Indian economy have conceptualised the agriculture sector as a supply constrained sector with accumulation of capital constraining the level of value added. Krishnamurty, et al (2004) cast the relationship in terms of productivity of land. Yield per acre is a function of net fixed capital stock per acre and total agricultural credit per acre of land. The latter can be interpreted as the availability of working capital per unit of land.

To capture the effect of technology on capital productivity in agriculture, Sachdeva and Ghosh, 2009 have used area under HYV to total cropped area. Higher the area under HYV, higher the productivity of capital stock. Bhide and Parida (2009) postulate that higher value addition of agricultural products in agro-processing and allied sectors raises yield of agricultural production[6].

Most other models do not address agricultural productivity explicitly. Kar and Pradhan (2009) determine real output as a function of capital stock and exogenously determined rainfall variable. Srivastava *et al* (2012) add to the specification of Kar and Pradhan by introducing the extent of irrigated area to total area as a determinant of output. Another complementary variable that releases supply bottlenecks in agriculture is infrastructure (power, road and other transport, storage). Murty and Soumya (2006) find that infrastructure output has a significant positive impact on agricultural output.

[5] Also, there are differences in respect to fiscal variables. While agricultural incomes are outside the direct tax net, the other sectors, particularly industrial sector, bears the burden of taxation. Public investment is crucial for all the productive sectors; infrastructure growth depends on fiscal policy support.
[6] The variables, however, are not statistically significant in the estimated equation.

In models where the agriculture sector has been further disaggregated, relative prices across commodity groups have played a significant role (Bhide and Parida, 2009; Krishnamurty*, et al,* 2004). These models do not find a significantly positive price response of total agricultural output for the Indian economy.

We postulate the real agricultural output to be supply determined with production dependent on net capital stock in agriculture and deviation of actual from normal rainfall. While the structural component of real agricultural output is a function of real capital stock at the end of the previous period, the cyclic component would depend upon the performance of rain, an exogenous variable. To bring in the price response of production, minimum support price (MSP) is added as an explanatory variable.[7]

1) $ZYF_t^{AGRI} = f(ZNK_{t-1}^{AGRI}, RAIN, MSP)$

ZYF_t^{AGRI} : Real agricultural GDP at factor cost
ZNK_{t-1}^{AGRI}: Real net capital stock in agriculture (in previous period)
RAIN: deviation of actual from normal rainfall (EXOGENOUS)
MSP: minimum support price (POLICY variable)

A set of identities link investments to net capital stock in agriculture. Addition to capital stock in agriculture between period t and t-1 takes place through net investment in period t (equation 2). Gross investment adjusted for depreciation is net investment (equation 3). Depreciation is assumed to be exogenous for the model.

2) $ZNK_t^{AGRI} = ZNI_t^{AGRI} + ZNK_{t-1}^{AGRI}$

3) $ZGI_t^{AGRI} = ZNI_t^{AGRI} + Depreciation_t^{AGRI}$

ZNI_t^{AGRI}: Real net capital formation in agriculture
ZGI_t^{AGRI}: Real gross capital formation in agriculture
$Depreciation_t^{AGRI}$: Depreciation of capital stock in agriculture (EXOGENOUS)

Nominal gross investment in agriculture, derived from the real gross investment in agriculture, is the sum of gross private and public investment in agriculture.

4) $GI_t^{AGRI} \equiv P_t^{AGRI} * ZGI_t^{AGRI} \equiv GIPU_t^{AGRI} + GIPV_t^{AGRI}$

GI_t^{AGRI}: Nominal gross investment in agriculture
$GIPV_t^{AGRI}$: Nominal gross private investment in agriculture
$GIPU_t^{AGRI}$: Nominal gross public investment in agriculture
P_t^{AGRI}: Price deflator of agriculture sector

The sectoral investment functions for all the sectors of the Indian economy, including agriculture, display an accelerator relationship with output. Besides, there is strong complementarity with public investment in agriculture (Mani, *et al,* 2011). Real investment in agriculture is presumed to be independent of interest rate changes, because of the preferential treatment of the sector in credit policies. Models like

[7] Net irrigated area and the area under HYV (as a proportion to total cropped area) have been stagnant over the last few years, and therefore were not included in the model specification. Institutional credit to meet the working capital needs of the agriculture sector affects real agricultural output. However, when introduced along with capital stock in agriculture, the variable suffers from multicollinearity problem.

Krishnamurty *et al* (2004) and Bhide and Parida (2009) have included credit growth in the private investment function, since most actors in this sector are up against supply rationing in the credit market. Higher availability of institutional credit for the farm sector would lead to higher capital formation in agriculture.

We postulate private investment to depend upon the nominal output in the agriculture sector and having complementarity with) public investment in agriculture.

5) $GIPV_t^{AGRI} = f(YF_t^{AGRI}, GIPU_t^{AGRI})$

YF_t^{AGRI}: GDP at factor cost in the agriculture sector.

Public investment in agriculture is a function of capital expenditure by government (combined, Centre and States) on agriculture. All government capital expenditure does not flow into investment and all public investment does not come from the government budget alone, since it is supplemented by investment of internal surpluses of public sector undertakings. However, the two are closely correlated.

6) $GIPU_t^{AGRI} = f(ECAP_t^{AGRI})$

7) $ECAP_t^{AGRI} \equiv a_1 . ECAP_t$

where $ECAP_t^{AGRI}$ is capital expenditure by government in agriculture (nominal); $ECAP_t$ is total capital expenditure by government (nominal); a_1: policy determined ratio of proportion of capital expenditure going to agriculture.[8]

Agricultural prices are determined by a combination of supply and demand factors. Kar and Pradhan (2009) estimate a simple function with real output in agriculture and private disposable income for determining agricultural prices. Besides, government's activity in agricultural markets has an important bearing on agricultural prices. The government sets the MSP which has a positive impact on prices. The government has an important role in determining the net availability of foodgrains through its stock-holding operations and public distribution system. Krishnamurty (1984) had introduced per capita net availability of food grains (net production plus change in government stocks plus net imports) to represent the supply conditions in the foodgrain market.[9] Alongside real factors, monetary factors have been used in a few models. In Krishnamurty *et al* (2004), M3/GDP is a common determinant of price level in all the sectors of the economy.

We postulate agricultural prices to be determined by a combination of supply and demand factors and MSP. The equation is cast in terms of change in agriculture prices. Change in agricultural prices is a function of change in MSP, change in private consumption demand in the economy and the cyclical component of real output of agricultural sector.

8) $d(P_t^{AGRI}) = f(d(CPR_t), d(MSP), Cyc\_ZYF_t^{AGRI})$

P_t^{AGRI}: Price deflator of the agricultural sector.
CPR_t: Private consumption

[8] While we have attempted to relate the budgetary capital expenditure with public investment, the relation is subject to certain practical limitations. Indian Public Finance Statistics reports the capital expenditure of the government in terms of functional heads, whereas the National Accounts Statistics reports public investments under economic heads. At times, this gives rise to incongruity among the capital expenditure and public investment numbers.

[9] Bhide and Parida (2009) have used net availability as a determinant of price of rice.

$Cyc\_ZYF_t^{AGRI}$: Cyclic component of ZYF_t^{AGRI}

Industry

Industrial output in any year can be seen as a product of the productive capacity of the industrial sector and the utilization of the installed capacity, while industrial capacity utilization is mainly determined by demand side variables (Kar and Pradhan, 2009). [10]

Different studies have used different sets of variables to represent the demand side: real compensation to employees (Bhide and Parida, 2009), agricultural output and autonomous expenditure where the latter is measured as government expenditure and exports of goods and services (Kar and Pradhan, 2009), real public consumption, investment plus exports (Krishnamurty *et al,* 2004).

In Krishnamurty *et al*, 2004 real output in manufacturing is modeled as a product of capital stock and productivity of capital stock.[11] The latter is a function of both demand side and supply side variables. The supply side variables include the real infrastructural output per unit of real capital stock in the manufacturing sector to explain the productivity of manufacturing. Two other variables on the intensity of input use in manufacturing are the non-food agricultural output and real import of crude and other mineral oils, chemicals etc (as a proportion of real capital stock in the manufacturing sector).

Bhide and Parida (2009) introduce the effect of FDI-induced technological changes as a determinant in the output equation. FDI in mining, quarrying and manufacturing reflects the impact of growing integration of the economy with the international markets through adoption of modern technology and practices on productivity. This variable is found to be significant.

We hypothesize a demand side specification for industrial output, given the predominantly demand constrained nature of the sector. Industrial output in real terms is postulated as a function of overall investment demand in the economy and export demand for goods in the economy where both the demand side variables are expressed in real terms. Since a large part of the industrial output is produced to meet the investment requirements of industry and other sectors, a slowdown in investment demand affects the industrial sector the maximum.

9) $ZYF_t^{INDUS} = f\,(X_t^G/P_t^{INDUS}\,,\, GI_t / P_t^{INDUS})$

ZYF_t^{INDUS}: real output of the industrial sector at factor cost
GI_t: gross total investment
X_t^G: exports of goods (nominal)
P_t^{INDUS} : price deflator of industrial goods

A set of identities similar to identities (2) to (4) in the agriculture sector link net capital stock to gross investment in the industrial sector.

[10] In the reduced form equation on real industrial output, capacity utilization is substituted by its determinants.

[11] Sachdeva and Ghosh (2009) macro-consistency model use a similar approach across the three sectors (agriculture, industry and services).

Gross investment in industry is the sum of private and public investment in industry[12].

10) $GI_t^{INDUS} = GIPU_t^{INDUS} + GIPV_t^{INDUS}$

GI_t^{INDUS} : gross investment in industry
$GIPU_t^{INDUS}$: gross public investment in industry
$GIPV_t^{INDUS}$: gross private investment in industry

Private investment in industry is determined by (a) monetary and credit conditions; (b) expected output growth (accelerator) (c) complementarity with public investment. The last of these relationships, between public investment and private investment, is an oft debated one though there is strong evidence of the importance of public sector investment to revive and sustain industrial and economy-wide growth.[13] Several studies have thus tried to empirically explore crowding in and crowding out through the industrial investment function. In Krishnamurty *et al* (2004) higher gross investment (total) is supposed to affect private investment in manufacturing positively, while public investment (total) along with private investment in agriculture, by competing for investible resources, tends to affect it adversely. The authors obtain statistically significant evidence of crowding out as per the above definition. Kar and Pradhan (2009) find that the impact of public investment in industry is positive on private investment in the industrial sector, but the impact of higher government consumption expenditure is negative. The problem with Kar and Pradhan's specification is the presence of a close relationship between the two independent variables – public consumption expenditure and public investment. As we discuss later in the Fiscal Block, higher public consumption may itself cause the capital expenditure and public investment to decline given fiscal deficit targets.

We postulate private investment function in industry on the lines of Mundle *et al* (2011). It is an accelerator type private investment function, where private investment is assumed to depend on the cost of capital as well as the crowding in effect of public investment, and the expected rate of capacity utilization. This economy-wide investment function in Mundle *et al* (2011) has been taken to be valid for the industrial sector.

11) $GIPV_t^{INDUS} / YMP_t = f[INTRATE_t, (GIPU_t^{INDUS} / YMP_t), ZYF_{t-1}^{INDUS} / C(ZYF_{t-1}^{INDUS})]$

$INTRATE_t$: lending rate by commercial banks
ZYF_{t-1}^{INDUS}: Real output of the industrial sector in the previous period.
$C(ZYF_{t-1}^{INDUS})$: Capacity output of the industrial sector in the previous period.

The rate of private investment in industry is determined by interest rate, public investment rate in industry and previous years' capacity utilization rate. $C(ZYF_t^{INDUS})$ or the capacity output of the industrial sector is derived by multiplying the actual capital stock with the inverse of the trend component of capital output ratio in the industrial sector.

12) $C(ZYF_t^{INDUS}) \equiv (1/ KOR\_TREND_t^{INDUS}) * ZNK_t^{INDUS}$

[12] *See appendix B figure no.1* for share of public investment in total sectoral investment (public and private).
[13] *See* Chakraborty (1988) "Some current issues in economic policy" in Development Planning.

ZNK_t^{INDUS}: Real Net Capital Stock in Industry.

$KOR\_TREND_t^{INDUS}$ is the trend component of the capital output ratio in the industrial sector after removing the cyclical component. This variable can be viewed as representative of the industrial technology. $KOR\_TREND_t^{INDUS}$ shows a secularly rising trend since the mid-1990s (*See appendix B, figure 2* on sectoral capital-output ratio, HP-Trend).

Gross public investment in industry is linked to budgetary capital expenditure in industry through a link equation. And capital expenditure on industry is a fraction, a_2, of the total capital expenditure.

13) $GIPU_t^{INDUS} = f(ECAP_t^{INDUS})$

14) $ECAP_t^{INDUS} \equiv a_2 . ECAP_t$

Where $ECAP_t^{INDUS}$ is capital expenditure by government in industry (nominal); $ECAP_t$ is total capital expenditure by government (nominal); a_2 is policy determined proportion of capital expenditure going to industry.

In contrast to agricultural prices which are determined by demand and supply conditions after controlling for the impact of administered pricing, industrial prices exhibit cost-plus pricing. Econometric models have thus used cost factors in the industrial price specification. We specify industrial price (measured as industrial price deflator) as a function of its own past value, agricultural prices, domestic oil prices and money supply (net capital flows plus bank credit). Agricultural prices and domestic oil prices represent the cost of certain essential inputs for the industrial sector, whereas the lagged value of industrial prices is to capture the price stickiness. Higher net capital flows and bank credit, used as a proxy for money supply, exerts an upward pressure on industrial prices.

15) $P_t^{INDUS} = f(P_{t-1}^{INDUS}, P_t^{AGRI}, P_t^{OIL}, \text{Net Capital Flows}_t)$

P_t^{INDUS} : price of industrial goods
P_t^{AGRI}: price of agricultural goods
P_t^{OIL}: administered price of oil (POLICY variable)
$\text{Net Capital Flows}_t$: Net international capital flows to India

16) $P_t^{OIL} = f(OILPRUSD_t, OILPRRATIO_t)$

$OILPRUSD_t$: International price of Indian basket of oil imports (EXOGENOUS)

$OILPRRATIO_t$ is the ratio of domestic oil price index divided by the international oil price index in Rupee terms. This is also called the pass-through ratio. Given the international oil prices, higher the pass-through ratio, higher is the domestic oil price.

Services

Service sector has witnessed substantial gains in productivity unlike other sectors of the Indian economy in the years since 1991 (*see Graph 1* for capital productivity in services). Rakshit (2007) notes that while there has been a decline in growth of capital stock in services, output growth in the sector continued to be high, due to increases in total factor productivity. In general, volume of investment required is moderate and technological adaption is faster and easier in the service sector.

Demand side factors have played a crucial role in raising total factor productivity in service sector in India argues Nell (2013).Thus, most macroeconometric models have found growth of real output in the service sector being explained by demand side variables. Alternate specifications to capture the importance of demand (either directly in the output function or as a determinant of productivity of capital stock) include: real output of non-service sector (Krishnamurty *et al*, 2004, Kar and Pradhan, 2009), real compensation to employees (Bhide and Parida, 2009); private disposable income and government consumption (Srivastava *et al,* 2012); agricultural and industrial output and all exports, including invisibles (Sachdeva and Ghosh, 2009).

Besides the demand side factors, increase in total factor productivity in service sector can be explained by: (a) nature of production involving low intensity of capital and financial requirements, release of infrastructure bottlenecks and (b) FDI encouraged through favourable fiscal policies and presence of high skilled labour. Bhide and Parida (2004) find significant impact on service sector growth of supply of infrastructure and FDI in the sector.

We model the real output of the service sector as a product of productivity of capital stock and capital stock in service sector. Service productivity in turn is explained by domestic consumption needs (private and public) as well as external demand for services.

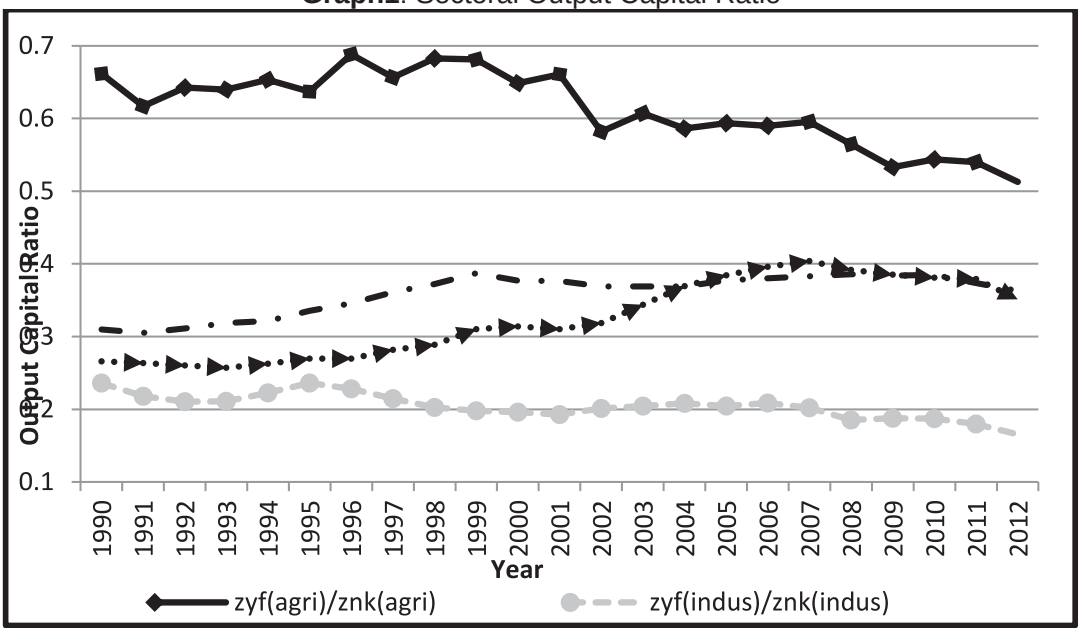
17) $ZYF_t^{SER} = ZNK_t^{SER} * (Z\ YF_t^{SER} / ZNK_t^{SER})$

18) $ZYF_t^{SER} / ZNK_t^{SER} = (NX_t^{SER}/P_t^{SER}, CPU_t + CPR_t/P_t^{SER})$

ZYF_t^{SER} : real output of the service sector at factor cost
ZNK_t^{SER}: real net capital stock of the service sector
NX_t^{SER}: net exports of services
P_t^{SER}: price of services
CPR_t: Private consumption demand
CPU_t: Public consumption demand

Public consumption of services not only adds to demand for services from the demand side but can be considered as an essential input from the supply side to raise productivity of services. Public expenditure on education, health and other social services raises overall productivity of services in the economy in the medium and long run.

Graph1: Sectoral Output Capital Ratio



Source: NAS, 2013.
Note: zyf/znk denotes the output to capital ratio in different sectors.

A set of identities similar to identities (2) to (4) in the agriculture sector link net capital stock to gross investment in the service sector.

Private investment in services is simply modeled as a function of public investments in services and public investments in infrastructure, representing the complementarity between private and public investments.

19) $GIPV_t^{SER} = f(GIPU_t^{INFRA} + GIPU_t^{SER})$

$GIPV_t^{SER}$: gross private investment in services
$GIPU_t^{INFRA}$: gross public investment in infrastructure sector
$GIPU_t^{SER}$: gross public investment in service sector

Public investment in services is linked to the capital expenditure of the combined government.

20) $GIPU_t^{SER} = f(ECAP_t^{SER})$

21) $ECAP_t^{SER} \equiv a_3 . ECAP_t$

Where $ECAP_t^{SER}$ is capital expenditure by government in services (nominal); $ECAP_t$ is total capital expenditure by government (nominal); a_3 is policy determined ratio of proportion of capital expenditure going to services.

Unlike the industrial sector where prices follow costplus pricing, we hypothesize that the prices in the service sector are determined by demand factors. Inter-industry input use in the service sector is far less compared to the industrial sector or the infrastructure sector. Thus, service sector price is a function of aggregate income in the economy and lagged price of services on account of price stickiness.

22) $P_t^{SER} = f(P_{t-1}^{SER}, YMP_t)$

P_t^{SER} : Price deflator of the service sector
YMP_t: nominal GDP at market price

Infrastructure

Infrastructure sector consists of the subsectors (a) electricity, gas and water; (b) construction; and (c) transport, storage and communication. Infrastructure figures as a separate sector in very few macro models. Infrastructure investment by the government (exogenously given) enters as a determinant in private investment functions of other sectors (RBI, 2002). Krishnamurty *et al* (2004) treat economic activity in infrastructure sector as supply driven. Further, they find that public infrastructure investments crowds in private investment significantly.

We hypothesize infrastructure output as a function of real net capital stock in infrastructure sector.

23) $ZYF_t^{INFRA} = f(ZNK_{t-1}^{INFRA})$

ZYF_t^{INFRA} : real output of the infrastructure sector at factor cost
ZNK_{t-1}^{INFRA} : real net capital stock of the infrastructure sector at the end of the previous period.

A set of identities similar to identities (2) to (4) in the agriculture sector link net capital stock to gross investment in the infrastructure sector.

Private investment in infrastructure is dependent on the level of economic activity (accelerator relationship), interest rate (cost of borrowing) and public investment in infrastructure (complementarity of investments).

24) $GIPV_t^{INFRA} = f(GIPU_t^{INFRA}, INTRATE_t, YMP_t)$

$GIPV_t^{INFRA}$: gross private investment in infrastructure sector
$GIPU_t^{INFRA}$: gross public investment in infrastructure sector

Public investment in infrastructure is linked to the capital expenditure of the combined government.

25) $GIPU_t^{INFRA} = f(ECAP_t^{INFRA})$

26) $ECAP_t^{INFRA} \equiv a_4 . ECAP_t$

Where $ECAP_t^{INFRA}$ is capital expenditure by government on infrastructure (nominal); $ECAP_t$ is total capital expenditure by government (nominal); a_4: policy determined ratio of proportion of capital expenditure going to infrastructure sector.
Infrastructure prices (P_t^{INFRA}) is a function of its own past values and industrial commodity price (P_t^{INDUS}), the latter capturing the inter-sectoral linkages.

27) $P_t^{INFRA} = f(P_{t-1}^{INFRA}, P_t^{INDUS})$

With growing integration of the domestic economy with the rest of the world, there are a number of channels through which external shocks transmit to the domestic economy. External sector is a major source of demand for sectoral output, as seen above. Higher growth in rest of the world causes export demand for goods and services to rise and vice-versa. On the other hand, higher domestic growth translates to higher import demand both for intermediate use and final consumption.

Trade flows along with flows on the income account comprise the current account balance of the balance of payments for the economy. Current account balance (as a proportion of overall economic activity), an indicator of external balance, is a key policy target for developing economies. Remittance income and net investment income are the two flows on the income account of the current account of the balance of payments. The remittance income increases with higher growth of advanced economies and Middle East economies, while the net investment income is related to net capital flows. The specifications of the components of current account of BOPs are discussed below. [14]

Export of goods is a function of World GDP, exchange rate and import weighted average tariff rate. The tariff rate captures the competitiveness of Indian exports (see Mundle *et al*, 2010).

$$28)\ X_t^G = f(WORLDGDP_t, DUTY_t, ER_t)$$

X_t^G: export of goods
$WORLDGDP_t$: world GDP (EXOGENOUS)
ER_t: exchange rate (EXOGENOUS)[15]
$DUTY_t$: import weighted average tariff rate (EXOGENOUS)

Import of goods is a function of nominal output, international oil prices and exchange rate. Higher the international price of oil, higher is the import bill.

$$29)\ M_t^G = f(YMP_t, ER_t, OILPRUSD_t)$$

M_t^G: import of goods$OILPRUSD_t$: oil price in US Dollars (EXOGENOUS)

Net exports of services are dependent on the level of GDP of the US, since it is the major destination country for India's exports of services. Merchandise exports exert a positive influence on service exports due to network effects wherein a country with high penetration in goods market can use its networks to export services.

$$30)\ NX_t^{SER} = f(X_t^G, USGDP_t)$$

NX_t^{SER}: net export of services
$USGDP_t$: US GDP (EXOGENOUS)

[14] The external sector block has been discussed in further detail and greater level of disaggregation in Bhanumurthy *et al* (2014). Krishnamurthy and Pandit (1997) present a moderately disaggregative model of India's trade flows covering the period 1971-91.

[15] In Bhanumurthy *et al* (2014) exchange rate is endogenous, determined by the macroeconomic balance approach.

Remittances rise with the rise in domestic interest rate and the income in the source countries measured as the sum of GDP of Middle East and Advanced Economies.

31) $REMIT_t = f(MEGDP_t + ADVGDP_t, INTRATE_t)$

$REMIT_t$: remittances
$MEGDP_t$: Middle East GDP (EXOGENOUS)
$ADVGDP_t$: GDP of the advanced countries (EXOGENOUS)
$INTRATE_t$: lending rates of banks

The last component of the current account of BOP is the net investment income. Net investment income has been deteriorating in the recent years. With persistently high current account deficit, great capital inflows have been required to balance the external accounts, which in turn give rise to greater outflows in investment income. Net investment income is negatively related to net capital flows and exchange rate.

32) $NETINVESTINCOME_t = f(NETCAPITALFLOWS_t, ER_t)$

$NETINVESTINCOME_t$: Net investment income
$NETCAPITALFLOWS_t$: Net capital flows (Inflows minus Outflows in the capital account)

Most macro-models assume capital flows to be autonomous beyond the control of national authorities. Another noteworthy fact about capital flows is their procyclical nature. We model net capital flows as a function of nominal income to reflect the procyclical nature of capital flows. Further, credit rating is a forward looking variable that captures the future prospects of the economy. Credit rating of a country is based on its institutional and governance effectiveness, economic structure and growth prospects, external liquidity and international investment position, fiscal performance and monetary flexibility. By influencing the perceived investment climate, credit rating affects net capital flows positively. Interest rate plays a role in determining international debt flows, but is found to have little influence on the aggregate net capital flows.

33) $NETCAPITALFLOWS_t = f(YMP_t , CREDITRATING_t)$

$CREDITRATING_t$: Credit rating (EXOGENOUS)

Current account balance (CAB) is represented by the following identity:

34) $CAB_t = X_t^G - M_t^G + NX_t^{SER} + REMIT_t + NETINVESTINCOME_t$

FISCAL BLOCK

Fiscal block has important policy levers consisting of expenditure and revenue measures to steer the economy both from the demand side as well as supply side. This is vital in the context of growth-inflation and fiscal imbalances, and particularly relevant to the 14th Finance Commission,
Revenue receipts of the combined government comprise of direct tax revenue, indirect tax revenue and non-tax revenue. The change in direct tax revenue of government is given by:

35) $d(DTAX)_t \equiv [b1_t \times d(YMP)_t / YMP_{t-1}] \times DTAX_{t-1}$

$DTAX_t$: Direct tax
$b1_t$: Direct tax buoyancy (POLICY variable)
YMP_t : Nominal income

It is assumed that the government can influence the buoyancy through adjustments in tax rates and the administrative tax effort.

Similarly, the change in indirect tax revenue of government is given by:

36) $d(INDTAX)_t \equiv [b2_t \times d(YMP)_t / YMP_{t-1}] \times INDTAX_{t-1}$

$INDTAX_t$: Indirect tax
$b2_t$: Indirect tax buoyancy (POLICY variable)

Non-Tax revenue is assumed to be a function of nominal income.

37) $NONTAXREV_t = f(YMP_t)$

$NONTAXREV_t$: Non Tax revenue in year t.

Revenue Receipts ($REVREC_t$) is represented by the following identity

38) $REVREC_t = DTAX_t + INDTAX_t + NONTAXREV_t$

Revenue Expenditure in year t is given by the following identity:

39) $REVEXP_t = OTHERECURR_t + TRANSFERS_t + INTERESTPAY_t$

$REVEXP_t$: Revenue Expenditure in year t
$OTHERECURR_t$: Other Revenue Expenditure in year t.
$TRANSFERS_t$: Transfer payments by government inclusive of subsidies (EXOGENOUS).
$INTERESTPAY_t$: Interest Payment on Government Liabilities.

OTHERECURR is the budgetary counterpart to government consumption expenditure. It includes the salaries and wages component of the government budget and is sticky upwards; it is assumed to depend on its own past values.

40) $OTHERECURR_t = f(OTHERECURR_{t-1})$

Interest payments can be represented by the following identity comprising of liabilities at the end of the last period and rate of interest on government securities in the last period.

41) $INTERESTPAY_t \equiv LIAB_{t-1} * ROIGSEC_{t-1}$

$LIAB_{t-1}$: Stock of government liabilities outstanding at the end of the previous period
$ROIGSEC_{t-1}$: Interest rate on government securities in the previous period

Transfer payments by government inclusive of subsidies (TRANSFERS) is assumed to be a discretionary policy variable for the model.[16]

Revenue Deficit ($REVDEFICIT_t$) is given by

42) $REVDEFICIT_t \equiv REVEXP_t - REVREC_t$

Capital expenditure of the government is a crucial policy variable with important links with the real sector as seen in the real sector block. Bose and Bhanumurthy (2013) obtain a capital expenditure multiplier of 2.4 for the Indian economy. However, this important component of government expenditure is often squeezed to make space for other kinds of expenditure. Empirically it has been found that higher the revenue deficit smaller is the capital expenditure, given fiscal deficit target (*see Appendix B, Fig 4*). Thus we postulate capital expenditure to be a declining function of revenue deficit.

43) $ECAP_t = f(REVDEFICIT_t)$

$ECAP_t$: Capital Expenditure in year t

Capital expenditure by the government is divided into sectoral capital expenditure. Apart from the sectoral shares, about 15-25 per cent of total capital expenditure is defense related. A substantial part of this expenditure is spent on imports and has no linkage with productive sectors in the economy.[17]

44) $ECAP_t \equiv ECAP_t^{AGRI} + ECAP_t^{INDUS} + ECAP_t^{SER} + ECAP_t^{INFRA} + ECAP_t^{DEF}$

The fiscal deficit in year t (FD_t) is given by

45) $FD_t \equiv REVDEFICIT_t + ECAP_t - NDCR_t \equiv d(D_t) + d(FR_t)$

$NDCR_t$: Non-Debt Capital Receipts (EXOGENOUS)
$d(D_t)$: Change in government debt
$d(FR_t)$: Change in fiscal reserves. (EXOGENOUS)

Financing of fiscal deficit occurs through change in debt, $d(D)_t$, and change in fiscal reserves, $d(FR)_t$. Besides debt financing part of the fiscal deficit has been met through drawdown of cash balances in recent times.[18]

Market borrowing and other borrowings of the government add to the stock of debt. [19]

46) $d(D_t) \equiv MB_t + OB_t$

MB_t : market borrowing of the government

[16] Transfers include all subsidies of the government. In Bhanumurthy *et al* (2012) oil subsidy was endogenised and modeled as a function of oil price pass-through and international oil price. The linkages of oil sector to the macroeconomy could be integrated due to the flexible nature of the model. In the present version of the model this link is absent and subsidies are integrated with transfers, which in turn are assumed to be discretionary.
[17] Refer to *appendix B, Figure no.3*.
[18] With discontinuation of the 91-day tap treasury bills, the concept of conventional budget deficit has lost its relevance since April 1, 1997.
[19] Refer to *appendix B, Figure 7* on liability and debt-GDP ratio.

OB_t : other borrowing of the government such as the proportions of small savings and provident funds used to finance fiscal deficit (EXOGENOUS)[20]

Market borrowing is assumed to be a function of fiscal deficit

47) $MB_t = f(FD_t)$

Note that government debt to finance fiscal deficit is a subset of total government liabilities, the difference ranging from 7 to 15 per cent of GDP across years. In other words, debt is a part of total liabilities used for financing FD.

48) $LIAB_t \equiv D_t + OL_t$

$LIAB_t$: Stock of government liabilities outstanding in period t
OL_t : Other liabilities includes liabilities on account of NSSF, State Provident Funds, Other Accounts and reserve funds not accounted for in D_t (EXOGENOUS) [21]

Primary deficit (PD_t) is given by

49) $PD_t \equiv FD_t - INTERESTPAY_t$

MONETARY BLOCK

Repo rate is a policy parameter for the Central bank. With inflation control being the principal objective of the RBI, repo rate (REPO) is supposed to respond to the gap between actual and desired inflation rate. 5 per cent is the present desired benchmark inflation rate.

50) $REPO_t = f(PWPI_t)-.05, REPO_{t-1})$,

$PWPI_t$:Overall wholesale price index
$REPO_t$: Repo rate

The central bank responds to inflation and at the same time there is interest rate persistence. REPO rate transmits the monetary policy signals to the economy via other interest rates, namely the lending rate of commercial banks (INTRATE) and interest rate on government securities (ROIGSEC).
Interest rate on government securities is assumed directly to be a function of policy rate (Repo).

51) $ROIGSEC_t = f(REPO_t)$

Lending rate of commercial banks (INTRATE) is positively related to REPO and the government's market borrowing. The government being a large borrower, higher market borrowing by the government can cause upward pressure on lending rate. Crowding out presumes a buoyant demand for credit from the private sector.

52) $INTRATE_t = f(REPO_t , MB_t)$

Disbursal of non-food bank credit by the commercial banks is assumed to be demand determined. Higher the investment demand in the economy, higher the demand for non-food bank credit which is met through credit expansion by banks.

[20] *See* IPFS, 2012-13 *Table 4.7*
[21] Government Debt Status Paper, MoF 2013.

53) $BC_t = f(GIPU_t + GIPV_t)$

BC_t: Non-food credit disbursed by commercial banks

MACROECONOMIC BLOCK

Aggregate demand in the economy is given by the following identity:

54) $YMP_t = (CPR_t + CPU_t) + (GIPU_t + GIPV_t) + (X_t^G - M_t^G + NX_t^{SER}) + VALUABLES_t$

YMP_t: GDP at market prices
CPR_t: private consumption expenditure
CPU_t: public consumption expenditure
$GIPU_t$: gross public investment
$GIPV_t$: gross private investment
X_t^G: export of goods
M_t^G: import of goods
NX_t^{SER}: net export of services
$VALUABLES_t$: Investments on valuables and discrepancy (EXOGENOUS)

Valuables are a part of investment expenditure and consist of expensive durable goods acquired primarily as stores of value. It is considered as exogenous for the model. Discrepancy in the national income identity has been clubbed with the valuables.

Private sector consumption is a function of private disposable income. Private disposable income is estimated as nominal output minus direct tax plus transfer payments and interest payments.

55) $CPR_t = f(YMP_t - DTAX_t + TRANSFERS_t + INTERESTPAY_t)$

Public sector consumption is a function of other revenue expenditure.

56) $CPU_t = f(OTHECURR_t)$

$OTHECURR_t$: Other revenue expenditure of the government.

Gross public and private investments are given by the following two identities:

57) $GIPU_t \equiv GIPU_t^{AGRI} + GIPU_t^{INDUS} + GIPU_t^{SER} + GIPU_t^{INFRA}$

58) $GIPV_t \equiv GIPV_t^{AGRI} + GIPV_t^{INDUS} + GIPV_t^{SER} + GIPV_t^{INFRA}$

Finally, the overall price deflator is derived through aggregation of sectoral price deflators after applying the suitable weights, w_1, w_2, w_3 and w_4.

59) $P_t \equiv w_1 P_t^{AGRI} + w_2 P_t^{INDUS} + w_3 P_t^{SER} + w_4 P_t^{INFRA}$

A link equation connects GDP deflator (P_t) to the wholesale price index ($PWPI_t$).

60) $PWPI_t = f(P_t)$

III. Database and Methodology for Estimation

The model has been estimated using annual data for the period 1991-92 to 2012-13. In some cases, as the final NAS data for 2012-13 such as sectoral investments were not available at the time of estimations, the estimation is limited to 2011-12. The data definitions and the sources are presented in *appendix-A*. In terms of estimation procedures, simple OLS method has been used.

As the 2008 crisis has created instability in most of the parameters, to adjust its impact a dummy variable has been introduced. Structural dummies are introduced in order to capture the structural breaks in the dependent variables. Structural breaks were estimated using Bai-Perron test. To correct for autocorrelation, autoregressive (AR1) terms are introduced. However, in the estimated equations, there are some outliers in the errors, which could be for various unexplainable reasons and may not be explained by the theoretical variables. In order to minimise such errors and derive the robust parameters that can explain the underlying macroeconomic behaviour, outlier dummies are introduced. Such adjustments in outliers are largely similar to the Error Correction Mechanism models that help in deriving underlying long term behaviour after correcting for errors. The estimated equations are solved together by using Gauss-Seidel algorithm for the latest period, i.e., for 2009-2012. Depending on the extent of errors in the in-sample period, the model can be used for out of sample simulations.

Appendix C presents the regression results for the estimated equations of the model.

IV. Variables of Interest

All the estimated equations together with identities are solved for the recent period to assess the forecast performance of the whole model. The key policy variables in solving this model include revenue and capital expenditure, tax buoyancy, minimum support prices, the policy interest rates, and government borrowing. The important exogenous variables include the growth of output in OECD countries as a group as well as in the USA and the Middle East; world oil prices; exchange rate, depreciation rates, and the rainfall index. A scenario is designed by setting the value of both the policy variables as well as the exogenous variables. The outcome variables of interest in each scenario include the growth rate, the inflation rate and the total liability-GDP ratio as well as some other key macroeconomic ratios, i.e., the investment rate; the trade deficit and current account deficit relative to GDP; the tax-GDP ratio, the revenue deficit-GDP ratio and the fiscal deficit-GDP ratio.

Empirical Validation

The model has been estimated using annual data for the period 1991-92 to 2012-13, taking care of time series properties. The standard diagnostic tests have also been applied. The model has been solved for the sample period 2009-10 to 2012-13 and validated for this period. The root mean square percentage errors for all the key variables are shown in *table 1.* Except for net capital inflows and trade balance, which model shows slightly higher than acceptable RMSPE of 5 per cent, the rest of the variables RMSPE is within 5 percent. This suggests that the estimated model is robust and performs well against actual outcomes for the sample period. To see if the estimated model tracks the turning points, which is another key feature of a robust model, the plots of estimated outcome variables against their actual values in

the sample period are shown in *Graph-2*. It may be noted that the estimated model captures many though not all of the turning points in actual outcomes.

Table 1: Historical Validation of the Model

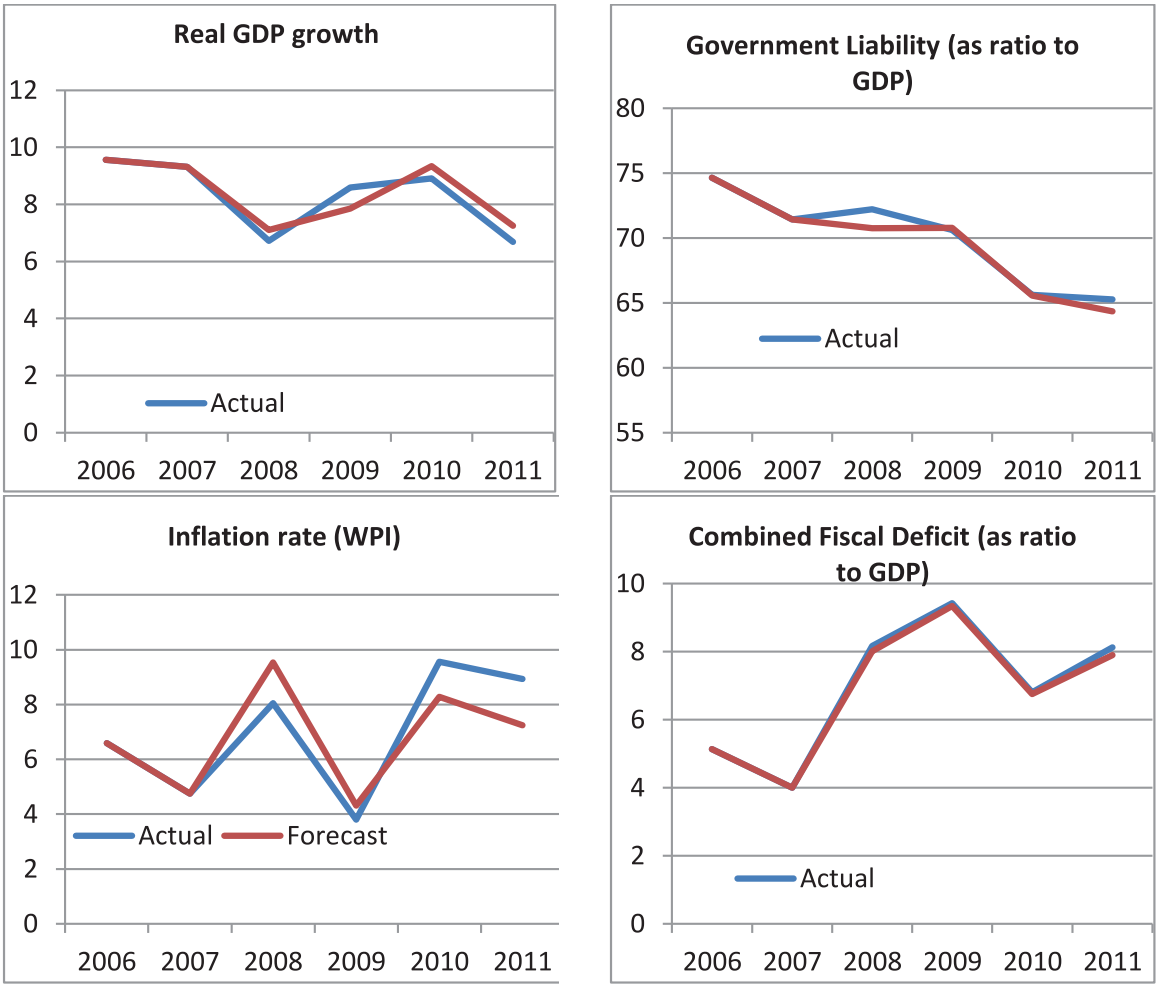
Description	RMSPE	Description	RMSPE
Private Consumption	0.957	Net Exports of Services	1.541
Government Consumption	1.601	Total Investment	3.436
Govt. Current Expenditure	0.890	Total Government Liability	1.240
Private Investment	4.336	Net Capital Inflows	5.359
Public Investment	1.035	Prime lending rate	1.860
Govt. Capital Expenditure	1.112	Revenue Deficit	2.521
Total Govt. Revenue	1.551	GDP Deflator	1.491
Fiscal Deficit	1.819	Inflation (WPI)	1.784
Primary Deficit	2.405	Trade Balance	5.676
Exports (only goods)	1.122	Nominal output (market price)	4.025
Imports (only goods)	3.868	Real output (factor cost)	0.716

Note: RMSPE=Root Mean Square Percentage Error (model generated)

Given that the estimated model is generating relatively low in-sample errors and also capturing majority of the turning points, this model can be used for out of sample simulations. In the next section, the simulations would be extended upto 2019-20, which is the last year of the 14th Finance Commission period. As such the present model is more of policy simulations model and less of forecasting model, here some policy simulations that are challenges for the Finance Commission may be attempted and compared with the baseline case, which is a business-as-usual case. The policy simulations attempted here are (i) shock due to 7th Pay Commission award, (ii) possibility of achieving 8 per cent GDP growth by the end of the 14th Finance Commission period (iii) targeting deficit and debt[22]. The next section discusses more about policy simulations and the transmission mechanisms through which the system could affect the variables of interest.

[22] In the full report that was submitted to 14th FC, some more policy scenarios (including the external shocks scenario) under slightly different assumptions than that was suggested by the FC were undertaken. The full report is available at http://www.nipfp.org.in/media/medialibrary/2015/05/Macroeconomic_Policy_Simulations.pdf

Graph-2: Comparison of Actual and Estimated Values of Outcome Variables



v. Challenges for Fiscal Policy in India: The Macro-Context

In this section we discuss a set of fiscal issues that are relevant for fiscal policy assessment over the 14th Finance Commission period. This provides a background and the transmission channels to the simulation exercises reported in the next section.

(a) Targeting Revenue Deficit

Fiscal rules were formally introduced in India with Fiscal Responsibility and Budget Management Act, 2003 (FRBMA) and FRBM Rules 2004. Elimination of revenue deficit was among the foremost targets, along with reduction in fiscal deficit and a check on Central Government borrowing from the RBI. Aimed at inter-generational equity in fiscal management and debt management consistent with fiscal sustainability, limits were placed on revenue deficit and fiscal deficit targets. For instance, for the centre, the mandate laid down included:

- Eliminating revenue deficit by 2008-09 by ensuring a minimum annual reduction of 0.5 per cent or more of GDP every year from 2004-05.

- Reducing fiscal deficit by at least 0.3 per cent of GDP annually from 2004-05, so that fiscal deficit is reduced to no more than 3 per cent of GDP at the end of 2008-09.

Similarly for the states, 12th Finance Commission recommended that each state enact Fiscal Responsibility Legislation (FRL) which should, at the minimum, provide for elimination of revenue deficit by 2008-09 and reduction of fiscal deficit to 3 per cent of GSDP or its equivalent defined as ratio of interest payment to revenue receipts to be brought down to 15 per cent[23]. Following this pre-condition stipulated by 12th Finance Commission, all states put in place FRL as per State Finances. Debt-relief was provided to the states working towards fiscal consolidation. The quantum of write-off was linked to the absolute amount by which the revenue deficit was reduced in each successive year during the award period.

Consequent to the buoyant economic growth and revenues in the years since 2003-04, fiscal rules brought about substantial improvements in fiscal balances. The performance of the center and states *vis-à-vis* the fiscal rules are summarized in *Table 2* and *Table 3* below. The global financial crisis, slowdown in domestic growth and need for countercyclical fiscal stimulus caused a temporary pause in fiscal consolidation.

[23] pp.87, 12th FC Report.

Table 2: Fiscal Rules and performance of Centre (per cent of GDP)

Fiscal Rules and Year	Revenue Deficit [+ sign denotes deficit]		Fiscal Deficit [+ sign denotes deficit]	Primary Deficit [(-) surplus and (+) deficit]	Liability-GDP Ratio
FRBM Rules (Effective from 2004)	Eliminating revenue deficit by 2009-10 (FRBM)		Reduce to 3 per cent of GDP by 31st March, 2010 (FRBM)	--	
Performance					
2004-05	2.4		3.9	-0.0	65.5
2005-06	2.5		4.0	0.4	63.9
2006-07	1.9		3.3	-0.2	61.4
2007-08	1.1		2.5	-0.9	58.9
2008-09	4.5		6.0	2.6	58.6
2009-10	5.2		6.5	3.2	56.3
13th Finance Commission's revision of targets (Effective from 2010)	Elimination of revenue deficit by 2013-14 and make revenue surplus of 0.5 per cent of GDP by 2014-15		Reduce fiscal deficit to 3 per cent of GDP by 2014-15	--	Reduce liability-GDP ratio to 45 per cent by 2014-15
Performance					
2010-11	3.2		4.8	1.8	52.1
2011-12	4.4		5.7	2.7	51.7
2012-13	3.6		4.8	1.8	51.7
2013-14	3.3		4.6	1.3	50.9
2014-15 (BE)	2.9		4.1	0.8	49.8
Kelkar Committees fiscal roadmap (Effective from 2012-13)	Reduce to 2 per cent of GDP by 2014-15	*Eliminate effective revenue deficit by 2014-15	Reduce to 4 per cent of GDP by 2014-15	Reduce to 1 per cent of GDP by 2014-15	Reduce to 43 per cent of GDP by 2014-15

Source: 12th FC &13th FC Reports and RBI Handbook of Statistics, 2013-14.

Note: a) Minus (-) sign indicates 'surplus'. P: Provisional actuals (unaudited)

b) Effective Revenue Deficit is the difference between revenue deficit and grants for creation of capital assets.

c) RBI 's debt is the total of external liabilities and internal liabilities, where internal liabilities include other liabilities of the central government(small savings, provident funds)

d) MoF's debt is the net of liabilities under MSS and towards NSSF not used for financing Central Government deficit.

* Effective revenue deficit is 1.8 per cent of GDP as per 2012-13(BE).

Table 3: Performance of States as per FC-XII and FC-XIII Targets

Year	Revenue Deficit	Fiscal Deficit	Primary Deficit	Debt Stock	Interest Payments as percentage to Revenue Receipts
FC-XII Targets	elimination by 2008-09	3 per cent of GSDP by 2008-09	--	28 per cent of GDP by 2008-09	15 per cent by 2008-09
Performance					
2004-05	1.2	3.3	0.7	31.3	23.8
2005-06	0.2	2.4	0.2	31.1	19.5
2006-07	-0.6	1.8	-0.4	28.9	17.6
2007-08	-0.9	1.5	-0.5	26.6	16.0
2008-09	-0.2	2.4	0.6	26.1	14.8
FC-XIII Targets	Maintain a Zero revenue deficit	2.4 per cent of GDP by 2014-15	--	25% of GDP by 2014-15	--
Performance					
2009-10	0.5	2.9	1.2	25.5	14.7
2010-11	-0.0	2.1	0.5	23.5	13.3
2011-12	-0.3	1.9	0.4	22.1	12.5
2012-13(RE)	-0.2	2.3	0.8	21.5	11.5
2013-14(BE)	-0.4	2.2	0.6	21.5	11.3

Source: Indian Public Finance Statistics, 2012-13, RBI Handbook of Statistics for data on debt and Reports of FC-XII and FC-XIII.
Note: Minus (-) sign indicates surplus.
Note: The state and central debt-GDP ratios do not add up to the combined debt-GDP target ratio of 68 per cent because of netting out of Centre's loans to States.

Subsequently, 13th Finance Commission proposed revised targets. The 13th Finance Commission took elimination of the revenue deficit as the long term and permanent target for the government. The fiscal consolidation path for the Central Government entailed a decline in the revenue deficit from 4.8 per cent of GDP as projected for the fiscal year 2009-10, to a revenue surplus of 0.5 per cent of GDP by 2014-15. This allowed for acceleration in capital expenditure of the center to 3.5 per cent of GDP (even more if there are disinvestment receipts). For the states, the target for fiscal deficit was 2.4 per cent of GDP by 2014-15, with surplus on the revenue account.

The emphasis on reduction in revenue deficit and increase in capital expenditure was renewed by the Kelkar Committee (2012. The Kelkar Committee endorsed elimination of effective revenue deficit rather than revenue deficit as the target. As explained in Fiscal Policy Strategy Statement, Union Budget, 2012-13 the effective revenue deficit reflects the structural component of imbalance in the revenue account. In a federal set up like India, large amount of transfer of resources from the Central Government takes place to States, local bodies and other scheme implementing agencies that are mandated to provide certain services. All of such transfers are shown as revenue/ current expenditure in the books of Central

Government. However, significant proportion of such transfers is specifically meant for creation of capital assets which are public goods in nature. To protect such expenditures, it was recommended that revenue deficit after netting out the above-kind of expenditures, may be targeted. Thus, Kelkar Committee, September 2012, on the fiscal roadmap of the Central Government recommended that fiscal deficit be reduced to 4 per cent of GDP, effective revenue deficit to be eliminated and revenue deficit to be reduced to 2 percent of GDP by 2014-15.Overall there was a shift in emphasis towards capital expenditure within the fiscal consolidation framework. This had empirical support in research studies. Bose and Bhanumurthy (2013) based on the previous NIPFP macroeconomic model had estimated the value of the capital expenditure multiplier to be greater than 2. Thus any increase in capital expenditure would cause the nominal incomes to more than double. Revenue expenditure multiplier on the other hand was close to 1.

While the emphasis on higher capital expenditure is well-placed there are genuine concerns about compression of revenue expenditure. For instance, an important question is how to treat expenditures on education and health. It has been argued that since development on account of health and education gets embodied in the beneficiaries once health standards improve or educational standards are stepped up, the expenditure incurred on these is more akin to investment and hence, it would be fair to treat it as capital expenditure. Moreover, in the absence of nurses, doctors and teachers, the capital expenditure incurred on hospital buildings or school buildings is of little use.[24] Thus, Rakshit (2010) notes that, "given the overarching requirement of non-negative revenue balance, clubbing HRD expenditures with current ones not only leaves little scope for enlarging investment in human capital, but the stipulated FRBM targets might in all probability be met through a slowdown in HRD spending".

ı) Debt Stabilization Issues

It is generally argued that a rise in the debt-GDP Ratio is a concern as large interest payments on public debt jeopardises the plan to raise development expenditure and also stands in the way of provision of essential public goods. Secondly, a higher market borrowing to finance the growing debt may lead to a higher rate of interest and thus crowd out private investment. Further, debt might be considered problematic for fiscal solvency. Two key factors affecting solvency are the response of primary balance (i.e. the budget balance net of interest payments on the debt) to increases in debts and the possibility of adverse shocks. It is assumed that when debt gets very large, it may be difficult to generate a primary balance that is sufficient to ensure sustainability, and that shocks can push countries beyond their debt limit (Chowdhury and Islam, 2010).

There are three important concepts regarding debt-GDP ratio: stability, sustainability and optimality. Stability implies a constant debt ratio with time. Sustainability means the returns from additional borrowing should be greater than or equal to cost of additional borrowing. Chronic excess of government expenditure over revenue receipts financed through borrowing from the public is said to be sustainable if in the long run the ratio of public debt to national income stabilizes or does not rise without limit. Optimality refers to debt level, beyond which there is a negative relationship with growth.

[24] The 13th FC recognized this issue, but didn't act upon it (*See*13th FC Report, pp.129).

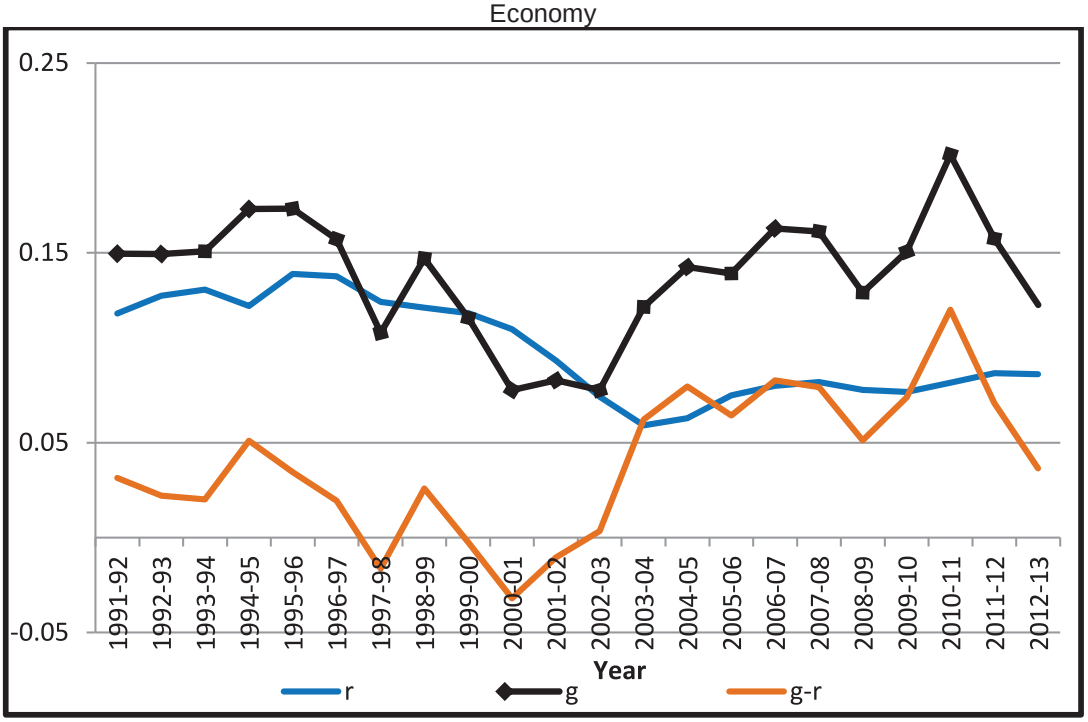
Some of the recent empirical literature has explored the relationship between debt-GDP and growth. An oft quoted paper by Reinhert and Rogoff (2010) seems to suggest that beyond 90 per cent there may be a negative relation between debt and growth. Reinhart and Rogoff, 2010 (RR henceforth) have categorized the countries in four public debt brackets (0-30, 30-60, 60-90, and above 90 per cent of GDP) across time and have noted the growth rate corresponding to the different debt levels. They calculate a composite growth rate for each debt category by assigning weights to countries. Composite growth rates are calculated for advanced economies and emerging market economies separately. The authors' claim that the median growth declines substantially beyond 90 per cent debt-GDP level and the average growth becomes negative beyond 90 per cent threshold for advanced economies. The same approach with emerging economies indicates lower median growth rate beyond 90 per cent, but the average growth rate after 90 per cent debt level is not found to be negative. The findings of RR were countered by, Herndon, Ash, and Pollin (2013) who identified coding errors and selective weighing in RR methodology. In fact, after carrying out some formal tests, Herndon, Ash, and Pollin (2013) report that differences in average GDP growth in the categories 30-60 percent, 60-90 percent, and 90-120 percent cannot be statistically distinguished.

The negative relationship between growth and debt levels become more suspect as it is driven by presence of a few strong outlier countries (with very high debt and low growth combinations) and the endogenity has not been controlled for. The latter is particularly important for developing countries. There is a strong positive empirically robust relationship between a few of the economic variables which government expenditure can largely influence (like initial years of schooling) and GDP growth (IMF, 2010). The growth-inhibiting effects of a given percentage increase in debt-to-GDP ratio can be easily overwhelmed by a given percentage increase in growth-promoting variables achieved through public spending. It is therefore argued that it is important to look at the composition of debt, instead of just focusing on the aggregate value of debt. (Chowdhury and Islam, 2010).

Domar (1944) put forward the sustainability condition for the debt-financing of government expenditure. According to Domar if the government finances part of its expenditure (amounting to a given fraction of full employment output) through borrowing, in a growing economy public debt and government's interest outgo as proportions of GDP will be stable in the long run provided the growth rate exceeds the interest rate. The implication is that when the Domar condition is satisfied, maintenance of full employment through debt-financing of fiscal deficits does not erode the fiscal deficit or produce a debt-trap.

In case of India, the differential between nominal growth rate and nominal interest rate has remained positive since 2002-03 as required by Domar's debt sustainability condition (*see Graph 3* below).

Graph 3: Differential between Nominal Growth Rate and Nominal Interest Rate for the Indian Economy



Source: Data for GDP from NAS, Statement 1 and rate of interest on Government securities is the simple average of weighted average of interest rate on state government and central government securieties.The data is from, RBI, HBS,2013.

Rangarajan and Srivastava (2005) have looked at debt-stabilization wherein debt-GDP ratio is unvarying across time. This requires a stricter set of condition on deficits than required by Domar. The necessary and sufficient conditions for debt-stability are discussed below:

Necessary Condition: The GDP growth rate is higher than interest rate (if the growth rate is equal to interest rate the debt ratio will rise linearly and if the growth rate is lesser than interest rate the debt ratio would raise exponentially).

Sufficient Condition: Primary deficit is equal or less than the debt stabilizing level of primary deficit. The debt-stabilizing primary deficit is derived as under from the debt-GDP equation, Equation (1).

$b_t = p_t + b_{t-1}[(1+i_t)/(1+g_t)]$ ------(1)

Where, b_t=Debt to GDP Ratio in period t.

p_t= Primary Deficit to GDP Ratio
i_t= rate of interest
g_t= Growth rate of GDP

For debt-GDP stability we require that $b_t = b_{t-1}$. If debt-GDP is stable then we have the debt-stabilizing primary deficit as follows from (1):

$p_t^s = b_{t-1} - b_{t-1}[(1+i_t)/(1+g_t)] = [1 - (1+i_t)/(1+g_t)]\ b_{t-1} = b_{t-1}(g_t - i_t)/(1+g_t)$ ----------(2)

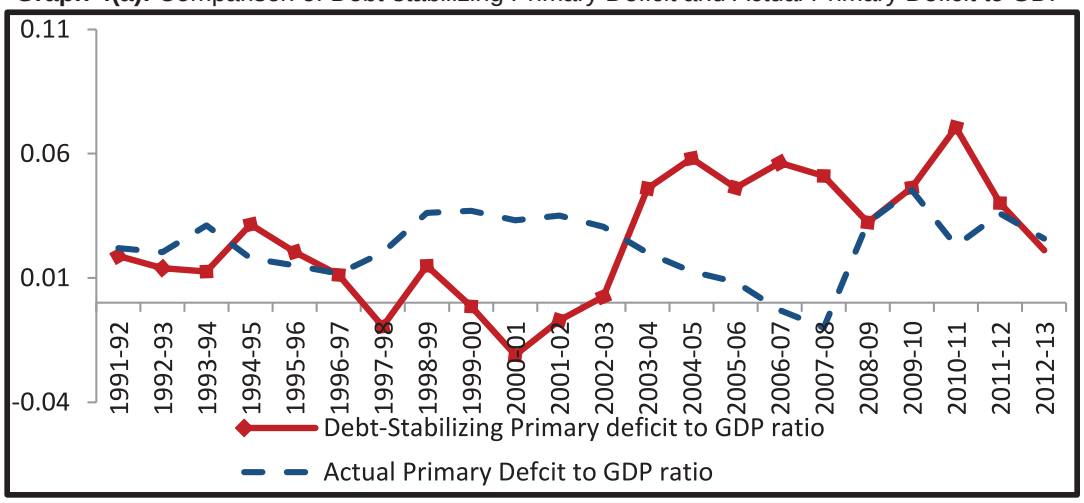
As long as p_t in any given year is equal to or less than p_t^s for that year, the debt-GDP ratio will not rise in that year compared to its level in previous year. Note that p_t^s depends on the previous year's debt-GDP ratio, growth rate and interest rate.

The debt-stabilizing primary deficit and actual primary deficit is compared with the help of *Graph 4a*. It can be observed from the comparison that actual primary deficit was more than p_t^s during 1991 to 1993 and during 1996 to 2002 and for rest of the period till 2012 the primary deficit is below p_t^s.

The debt-GDP ratio fell during the period when the primary deficit was below p_t^s. In other words, debt-GDP ratios shows an increasing trend for p_t more than p_t^s.

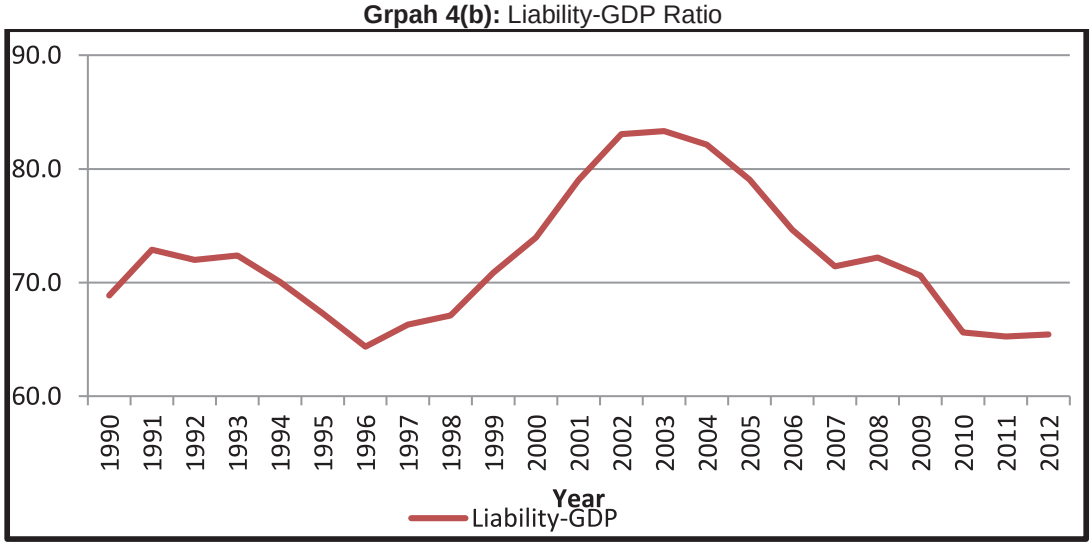
It is pertinent to note that the debt here is synonymous with total liabilities of the government[25]

Graph 4(a): Comparison of Debt-stabilizing Primary Deficit and Actual Primary Deficit to GDP



Source:IPFS,2013 and NAS,2013.

Grpah 4(b): Liability-GDP Ratio



Source: Liability: *Table 122*, RBI, HSIE. Liability refers to the total Liabilities of the combined government including internal debt, external debt and their liabilities.

[25] In Indian Public Finance **public debt** consists of internal debt of Centre and States as well as the external debt of Centre whereas t**otal liabilities** of the government include debt specified in the Consolidated Fund of India (defined as Public Debt) as well as liabilities in the Public Accounts. There is considerable variation between the two (Refer to *Figure 7* in *appendix B*).For a detail note on this issue, please see the full report submitted to 14th FC titled "Final Report on Macroeconomic Policy Simulations for the 14th Finance Commission" pp.53-57 available at http://www.nipfp.org.in/media/medialibrary/2015/05/Macroeconomic_Policy_Simulations.pdf

The debt-GDP stability condition can also be developed using the concept of fiscal deficit.Let us assume fiscal deficit in period t is defined as:

$FD_t = D_t - D_{t-1}$ ----(3)

where, D_t and D_{t-1} are Outstanding debt of government in period t and t-1 respectively.

Dividing (3) by GDP in perod t (y_t) we get,

$\frac{FD_t}{Y_t} = \frac{D_t}{Y_t} - \frac{D_{t-1}}{y_{t-1}} * \frac{1}{1+g_t}$ g_t is the growth rate of GDP in period t.

$\Rightarrow f_t = b_t - \frac{b_{t-1}}{1+g_t}$------(4)

Where, f_t, b_t symbolizes ratios of fiscal deficit and debt to GDP.

If b_t=b_{t-1}= b^*, then the debt-stabilizing fiscal deficit to GDP ratio is

$f^* = b_{t-1} \times \frac{g_t}{1+g_t}$ ----(5)

Also, the stable debt-GDP ratio in terms of stable fiscal deficit to GDP is

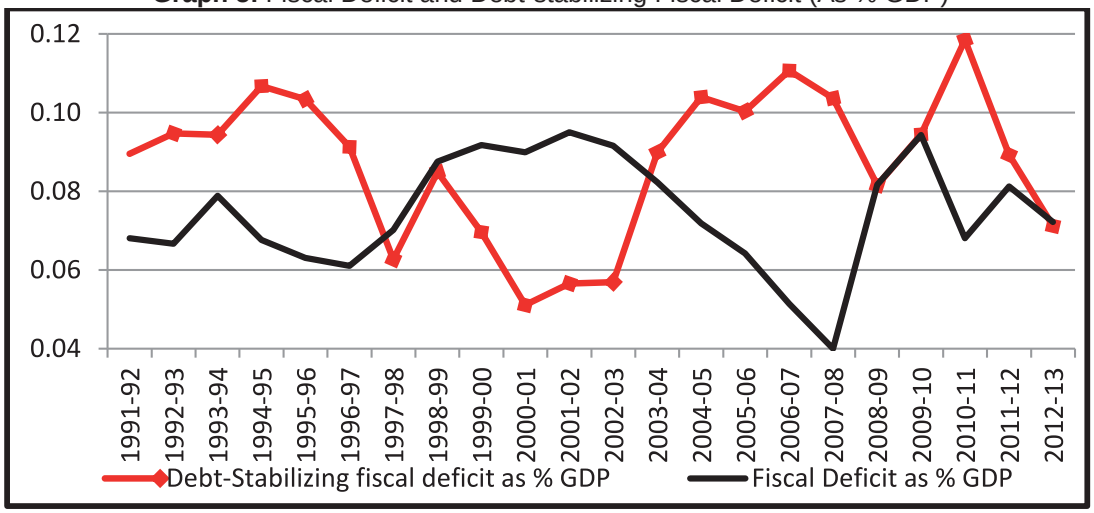
$b^* = f^* \frac{1+g_t}{g_t}$ ---------(6)

Numerical examples using the above relation (5) can be worked out as follows:(As % GDP)

Case	f_t	g_t	b^*
Case 1	6	12	56
Case 2	6	13	52
Case 3	7	13	57
Case 4	7	12	65

For fiscal deficit of 6 per cent and nominal growth rate of 12 per cent every year, the stable debt-GDP ratio is 56 per cent (case 1). Alternately, to arrive at a stable debt-ratio of 56 per cent, fiscal deficit cannot exceed 6 per cent. With 6 per cent fiscal deficit, higher nominal GDP growth by 1 percentage every year will stabilize the debt to GDP at 52 per cent (case 2). Where higher fiscal deficit can propel economic growth to be higher, like in case (3), the stable debt-GDP ratio remains almost at the same level as with lower fiscal deficit and lower growth combination (case 3 versus case 1). Higher fiscal deficit of 7 per cent of GDP with same nominal growth of GDP of 12 per cent implies that the stable debt-GDP ratio is higher at 65 per cent (case 4). Even in this case, the debt is stable, but it stabilizes at a higher proportion to GDP

Graph 5: Fiscal Deficit and Debt-stabilizing Fiscal Deficit (As % GDP)



Source: IPFS, 2013, NAS,2013 and calculation based on these data sources.

The *Graph 5* shows that fiscal deficit to GDP ratio is below the debt-stabilizing fiscal deficit to GDP ratio for the period from 1991-92 to 2012-13 except for the years from 1997-98 to 2002-03.

Can we set debt-GDP target based on the above analysis?

To fix the debt targets might be problematic since the fiscal adjustment path would in itself impact the macroeconomic performance, particularly the growth rate of the economy, which is a key determinant of the stable debt. Many researchers have pointed to this problem. Rakshit (2010) writes, "given the initial situation, fixing the terminal year debt target first and then constructing a debt deficit time path over the award period are in violation of economic logic; optimality requires that the terminal year target be derived simultaneously with yearly budget balance and end year debt stock. The reason is that given the prospective international scenarios and domestic parameters both the short run and long run macro-performance of the economy depend on the nature and scale of fiscal adjustment" (p. 41).

Most debt models start off by presuming a nominal growth rate and then use it to calculate the stable debt-ratio, with different configuration of fiscal deficit. Rangarajan & Srivastava (2005) obtain a stable debt-GDP ratio of 56 per cent using 6 per cent fiscal deficit to GDP ratio and nominal GDP growth of 12 per cent.[26] Based on the present and the terminal year difference, a debt-reduction plan is suggested. It is presumed that the debt reduction or fiscal adjustment will not affect growth or other macroeconomic variables. This whole exercise leads to shifting focus from the growth to debt reduction and economists are aware of that as pointed by Domar (1993). "The proper solution of the debt problem lies not in tying ourselves in to a financial straight jacket, but in achieving faster growth of the GNP, a result which is, of course desirable by itself (Domar, 1993)."

VI Some Simulation Results

The estimated model has been applied to assess the outcomes of policy options that are discussed in the previous section. This needs to be compared with

[26] Using the relation debt-GDP ratio (56%) = fiscal deficit to GDP target (6%) *[(1 + growth of nominal GDP at 12%)/ growth of nominal GDP at 12%]

the base case, which is the business-as-usual case. To derive the base case upto 2019-20, one has to extend the exogenous variables with certain assumptions. The assumptions on the exogenous variables are as follows:

1. On the external front, the growth rates of advanced countries, Middle East and the World GDP is assumed to grow as per the projections provided by the IMF. The import weighted average tariffs (duty) are assumed to remain at the same level as at present, i.e., 10 per cent. The exchange rate, which is the crucial variable in the external account, is assumed to be at 60. International oil price of USD 802 per MT has been assumed for 2013-14 based on RBI data. From 2014-15, international oil price is assumed at USD 720 per MT which is equivalent to $100 per barrel (approx.).

2. Depreciation rates at the sector level assumed to be at the 2012-13 level, which is the latest information that is available. The capital-output ratio in the industrial sector assumed to increase as per the trend growth. Given that India has a stable government at the moment, the credit rating is assumed to be positive.
3. Minimum support prices are assumed to increase at an average growth of 5 per cent. In the case of rainfall, except for 2014-15, which is assumed to be 10 per cent below normal, it is assumed to be normal for the rest of the period.
4. Oil price pass-through ratio is expected to increase from the current level of 60 per cent to 65 percent.
5. Share of valuables, which includes discrepancy, is assumed to be at 3.3 per cent of GDP, which is the last five years average. As valuables is mostly estimated as residual and highly volatile, modeling such behaviour is difficult.
6. Direct and indirect tax buoyancies are 1.48 and 1.42 respectively, for 2013-14 as per 2013-14(BE) and direct tax buoyancy and indirect tax buoyancy are assumed to be 1.1 from 2014-15 onwards. Non-debt capital receipts, which are largely disinvestment proceeds, are assumed to be at a modest level of 0.2 per cent of GDP based on recent trends. In the case of sectoral capital expenditures, the shares in the recent year are expected to continue for the rest of the forecast period. Similarly, for valuables (including discrepancy) and transfers within the revenue expenditures, its share in the GDP at market prices in 2012-13 is assumed for the forecast period.

Since there is no actual data available for 2013-14 and 2014-15, as per the 14 Finance Commission recommendations, the Budgeted numbers (on both deficits as well as revenue buoyancies) are used for these years.[27] In our view, going by the recent trends where the actual deficit numbers are higher than Budgeted (except in one year when there was windfall gains due to spectrum auction), such assumption itself could underestimate the fiscal numbers in the forecast period. Even the buoyancy assumption of over 1.4 for 2013-14 is also on the higher side as such higher buoyancies are experienced only in the pre-Crisis period.

[27] For the year 2013-14, revised estimates for total tax revenue (center plus state combined) is not available yet. However, comparable figures for the center indicate large differences between BE and RE figures for 2013-14. Center's direct tax buoyancy estimates are 1.13 (RE) versus 1.58 (BE). And center's indirect tax buoyancy estimates are 0.77 (RE) versus 1,55 (BE) in 2013-14.

In the baseline scenario (*Table 4*), the average GDP growth is expected to be 7 per cent, with inflation moderating to about 6 per cent on an average. Revival in growth with inflation moderating, translates to an average growth of nominal output at 13.5 per cent. The investment rate in the economy rises to 34 per cent by the terminal year. Besides the recovery in domestic investment, the overall recovery in growth in the 14th Finance Commission period is driven by the assumption in external sector growth (US growth, other advanced country growth and world GDP growth), which is expected to revive as per the IMF projections.

The external balance deteriorates marginally owing to the higher domestic growth. Current account deficit to GDP (in percentage) is, however, contained at less than 2.5 per cent of GDP, on an average. This could be largely due to assumption of lower world oil prices. There is an improvement in the fiscal indicators as well. Revenue balance improves as a percentage of GDP which reduces the fiscal deficit to GDP ratio. Improvement in fiscal deficit along with higher growth is responsible for lower liability-GDP ratios by the end of the period.

Table 4: Base Case Outcomes for 2015-16 to 2019-20(per cent)

Year	GDP Growth	WPI Inflation	Investment rate	CAB/ GDP	FD/ GDP	RD/ GDP	PD/ GDP	Liability/ GDP
2015-16	6.77	6.49	33.32	-2.27	6.76	2.92	1.94	66.73
2019-20	6.89	5.89	33.94	-2.53	6.29	2.46	1.51	64.53
14th FC Average	7.00	6.04	33.65	-2.44	6.52	2.69	1.71	65.68

During the 14th Finance Commission period, the 7th Pay Commission award would be announced. One therefore needs to endogenise the expected 7th Pay Commission award. Keeping the assumptions on other exogenous variables same, revised base case is presented in *Table 5*. A shock of 15 per cent in the growth of other revenue expenditures is assumed for 2016-17, the year of announcement of the award. Compared to the base case, in the revised base case, a real growth of 0.6 per cent along with higher inflation of 0.3 per cent is expected, on an average. However, the impact of such shocks on terminal year is minimal in both growth and inflation. Current account balance too is projected to worsen. And so does the fiscal indicators. Revenue deficit and the fiscal deficit rise by 0.9 per cent of GDP in the revised base case compared to the base case. Liability as a ratio to GDP is expected to increase by two percentage points by the terminal year.

Table 5 (SCENARIO 1): Revised Base Case with 7th Pay Commission Award
(15 per cent shock in growth of other revenue expenditure in 2016-17)

Year	GDP Growth	WPI Inflation	Investment rate	CAB/ GDP	FD/ GDP	RD/ GDP	PD/ GDP	Liability/ GDP
2015-16	6.77	6.49	33.32	-2.27	6.76	2.92	1.94	66.73
2019-20	6.99	6.01	33.96	-3.45	7.37	3.54	2.44	66.37
14th FC Average	7.59	6.31	33.65	-2.92	7.41	3.58	2.55	66.31

In the next scenario, public capital expenditure is increased from current level of about 4 per cent to 4.4 per cent (along with the pay commission award). That is, there is an increase in capital expenditure to GDP ratio from the prevailing level of 4 per cent of GDP in 2016-17 to 4.4 per cent by 2019-20 in a staggered manner. This increase in public capital expenditure is allowed only from 2017-18 as the fiscal space for increase in capital expenditure is limited until then due to higher allocation for

revenue expenditure following 7th Pay award in 2016-17. Increase in capital expenditure of the government and thereby public investment is found to be growth-enhancing. Investment rate crosses 35 per cent by 2019-20. Due to higher growth, the current account deficit worsens slightly compared to the revised base case while fiscal indicators improve due to higher growth and higher revenue collections.

Table 6 (Scenario 2): Increase in Capital Expenditure between 2017-18 to 2019-20
(10 per cent shock to capital expenditure to GDP ratio)

Year	GDP Growth	WPI Inflation	Investment rate	CAB /GDP	FD /GDP	RD /GDP	PD /GDP	Liability/ GDP
2015-16	6.77	6.49	33.32	-2.27	6.76	2.92	1.94	66.73
2019-20	7.66	6.83	35.43	-3.94	6.84	2.71	2.10	63.71
14th FC Average	7.96	6.68	34.21	-3.08	7.22	3.27	2.43	65.35

Note: 7th Pay Commission award is endogenised in this case.

One of the most important terms of reference to the 14th Finance Commission is to "review the state of the finances, deficit and debt levels of the Union and the States, keeping in view, in particular, the fiscal consolidation roadmap recommended by the Thirteenth Finance Commission, and suggest measures for maintaining a stable and sustainable fiscal environment consistent with equitable growth including suggestions to amend the Fiscal Responsibility Budget Management Acts currently in force…". The 13th Finance Commission recommended that public debt as a ratio to GDP should be about 68 per cent while suggesting for a fiscal deficit target of 5.4 per cent by the end of 2014-15 (3% for the Centre and 2.4% for the states). This was expected to be achieved through a reduction in revenue deficit culminating in revenue surplus of 0.5 per cent of GDP by 2014-15. While the total liability to GDP ratio has remained well-within the 13th FC targets, deficits have often breached the targeted levels. In view of the higher than targeted deficit levels, the Kelkar Committee (2012) suggested revised targets of 2 per cent and 4 per cent of GDP, respectively, for center's revenue deficit and fiscal deficit to be achieved by 2014-15. It is to be noted that the present levels of center's revenue deficit and fiscal deficit to GDP stands at 3.26 per cent and 4.62 per cent of GDP for 2013-14 (RE).[28] Also, both in Scenario 1 and 2, the fiscal deficit to GDP ratio exceeds 7 per cent of GDP on an average.

The next scenario looks at the fiscal adjustments required to achieve the 13th Finance Commission (overall, center and states) fiscal deficit targets by 2019-20, i.e. 5.4 per cent of GDP as the target for fiscal deficit. Compared to the preceding scenario, an expenditure reduction is brought about by reduction in transfers to GDP ratio to pre-crisis level (5.6 per cent to 4.4 per cent between 2015-16 and 2019-20). The reduction in transfers has been partially offset by increase in capital expenditure in a partial expenditure switching strategy.

Table 7 (Scenario 3): Targeting Deficit and Liability

Year	GDP Growth	WPI Inflation	Investment rate	CAB /GDP	FD /GDP	RD /GDP	PD /GDP	Liability /GDP
2015-16	6.46	6.42	33.36	-2.23	6.13	2.30	1.34	66.36
2019-20	7.44	6.65	35.44	-3.46	5.34	1.21	0.89	60.18
14th FC Average	7.61	6.52	34.23	-2.84	6.09	2.13	1.44	63.59

[28] For 2014-15, the Centre's revenue deficit to GDP and fiscal deficit to GDP are budgeted at 2.94 per cent and 4.13 per cent, respectively.

Note: 7th Pay Commission award is endogenised in this case. The shock to capital expenditure described in Scenario 2 has been retained.

Reduction in transfers by reducing the disposable income, compresses consumption and growth. Inflation rate declines. As compared to scenario 2, there is improvement in external balance and substantial gains in fiscal balance. Fiscal deficit is contained within 5.4 per cent, though revenue deficit remains positive at 1.2 per cent of GDP by the terminal year of 14th Finance Commission period. Liability to GDP ratio declines to 60 per cent in 2019-20.

VII. Conclusions

In this study, an attempt has been made to understand the dynamic relationship between fiscal policy and macroeconomic outcomes in the case of India. With the help of revised NIPFP Macroeconomic Policy Simulation Model, some preliminary policy simulations that are relevant to 14th Finance Commission have been carried out. Some of those issues are endogenizing 7th Pay Commission award, targeting debt-deficits as part of re-drawing fiscal consolidation road map, targeting higher growth, etc.

Our preliminary results suggest that while Pay Commission award indeed would result in slightly higher growth compared to the base case, this also results in higher inflation, fiscal-revenue deficits, current account deficit as well as higher government liability. Further simulation results suggest that expenditure switching policy, which is the core of expansionary fiscal consolidation mechanism, by increasing higher government capital expenditure and reducing the government transfers could result in higher growth with a manageable fiscal deficit of 5.4 per cent that also brings down the government liability to around 60 per cent by 2019-20. However, the decline in current account deficit is only marginal due to higher growth. This higher growth with lower fiscal deficit could be because of strong multiplier effect of government capital expenditure compared to revenue expenditures.

Our analysis suggests that there is enough scope for 'expansionary fiscal consolidation' strategy through expenditure switching in favour of higher capital expenditure. This strategy is expected to result in better macroeconomic outcomes. Significantly, the analysis also suggests that crowding-out impact of government revenue expenditures ambiguous as the interest rate channel appears to be weak in the post-Crisis period.

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CPR is Consumption by the Private Sector at current prices, in Rs. crores. Source is various issues of NAS.

CPU is Consumption by the Public Sector at current prices, in Rs. crores. Source is various issues of NAS.

CAPSTOCK refers to Net Capital Stock at constant prices, that is, Net Capital Stock figures at 2004-05 prices. Net Capital Stock figures include Net Fixed Capital Stock as well as stock of inventories, as on 31st March of the year. It is to be noted that the figures of Capital Stock for a year correspond to the figures of the variable at the beginning of the year. Source is various issues of NAS.

Depreciation (at Constant Prices) is the consumption of fixed capital in Rs. Crores. Source is various issues of NAS.

Debt is the sum of internal and external debt used to finance fiscal deficit. Calculated on the basis of Table No.4.7 of IPFS, 2012-13.

Direct Tax refers to the direct taxes of the Centre and states (combined) in Rs. Crores, including taxes like corporation tax, income tax, estate duty, interest tax, wealth tax, etc. Data from IPFS, various issues, Table 1.2 Combined Revenue Receipts of the Centre and the States.

DUTY is the import weighted average tariff rate. Data from the website of the Planning Commission of India, Data book for DCH, 2nd April, 2013.

ECAP AGRI comprises of capital expenditure on agriculture & allied services (5) and irrigation & flood control less of power projects (7-7a). Source IPFS Table 2.4.

ECAP DEF is the capital expenditure on defence (1) under non-developmental expenditure. Source IPFS Table 2.4

ECAP INDUSTRY comprises of capital expenditure on industry and minerals (6). Source IPFS Table 2.4

ECAP INFRA comprises of capital expenditure on border roads (2) under non-developmental expenditure, railways (1), posts & telecommunications (2), power projects (7a), transport & communication (8) and public works (9). Source IPFS Table 2.4

ECAP SERVICES comprises of fiscal services (3), others (4) under non-developmental expenditure and social and community services (3) and general economic services (4) under developmental expenditure. Source IPFS Table 2.4

ER is the nominal exchange rate of the Indian rupee vis-à-vis US Dollar (Rupees per unit of $, annual average). Source is RBI, DBIE

Export of Goods is export of merchandise in Rupees crores ((Table 143: Key Components of India's Balance of Payments), RBI, HSIE, 2012-13.

Export of Services is Non-factor Services, Receipts in Rs. Crores. Source: HSIE, 2012-13, RBI, TABLE 145.

Fiscal deficit (FD) in Rs. Crores: Combined (center and states) gross fiscal deficit. Table 4.3, IPFS, 2012-13.

Gross Capital Formation (at current prices), corresponds to total investment in the sector in Rs. Crores. Source is various issues of NAS.

Gross Capital Formation-Public (At Current Prices), corresponds to public investment in the sector in Rs. Crores Source is various issues of NAS.

Gross Capital Formation-Private (At Current Prices), corresponds to private investment in the sector in Rs. Crores, has been calculated residually by subtracting public sector gross capital formation from total gross capital formation in the sector.

Gross Capital Formation (at 2004-05 prices), corresponds to total investment in the sector in Rs. Crores. Source is various issues of NAS.

Gross Capital Formation - Public (At 2004-05 Prices), corresponds to public investment in the sector in Rs. Crores. Source is various issues of NAS.

Imports of Services is Non-factor Services, Payments in Rs. Crores. Source: RBI, HSIE, Table 145: Invisibles by Category of Transactions - Rupees

Indirect Tax refers to the indirect taxes of the Centre and states (combined) in Rs. Crores, including taxes like Customs, Union excise duties, Service tax, State excise duty, Stamp & registration fee, General sales tax, Taxes on vehicle, Entertainment tax, etc. Source: RBI, HSIE.

Interest Rate (WALR) or the Total Weighted Average Lending Rate is the weighted average nominal lending rate, total of all sectors. Source: Database on Indian Economy

Investment Income in Rs. crores corresponds to the net figures of Investment Income as given in the HSIE, 2012-13, Table 141: India's Overall Balance of Payments: Rupees.

Liabilities (LIAB) is public debt plus other liabilities of government (Centre and States) like small savings which is not used to finance fiscal deficit. Data from RBI, HSIE, Table 122: Combined Liabilities of the Central and State Governments.

MB is net market borrowing by the center and states combined in Rs Crores.Source: Table 118: Market Borrowings of the Central and States Governments. HSIE, 2012-13.

MSP is the weighted average of the Minimum Support Price of paddy and wheat (in Rs. Per quintal), taking the procurement of rice and wheat as the respective weights.Source: MSP for paddy and wheat in Rs per quintal from Handbook of Statistics on Indian Economy (HSIE), RBI, Table 25: Minimum Support Price for Foodgrains according to Crop Year.

Net Capital Flows refers to the Capital Account Balance, in Rs. Crores. Data from, RBI, HSIE, Table 143.

Non-Debt Capital Receipts determined residually from the Fiscal Deficit Identity.

Non-food gross bank credit in Rupees crores; Table 48: Sectoral Deployment of Non-Food Gross Bank Credit (Outstanding), RBI, HBS.

Non-Tax Revenue is revenue receipts less tax revenue.

Rainfall (% departure) refers to the percentage deviation between actual and normal rainfall, where rainfall is overall Rainfall from June-May (in millimeters).Source is Agricultural Statistics at a Glance, 2013, Table 20.3: All India Rainfall Distribution from 1992-93 to 2013-14.

Remittances equal net official transfers plus net private transfers, in Rs. crores. Data from RBI, HSIE, Table 145: Invisibles by Category of Transactions - Rupees. We have added the compensation of employees to it.

REPO is the RBI determined bank rate taken up to 2000-01 and repo rate thereafter. Data from Table 46, HSIE, 2012-13.

Revenue Deficit (RD) in Rs. Crores: Combined (Centre and states) revenue deficits. Source is Table 1.6 Overall Budgetary positions of The Centre and the States, IPFS, 2012-13.

Revenue Receipts in Rs. crores refer to the combined revenue receipts of the Centre and the states including tax and non-tax revenue, transfer from funds and adjustments on account of difference in figures of Centre and states transfers. Source: Data from IPFS, various issues, Table 1.2.

Total Government Borrowing from RBI (Combined) refers to the sum of net RBI credit to central and state governments in Rs. Crores.

Trade Balance is exports of goods and services minus imports of goods and services, in Rs. crores.

Transfers are the revenue expenditure of the government to the private consumption sector in the form of transfer payments. The data to calculate transfers is obtained from IPFS 2012-13, Table 1.3. It includes pension and other retirement benefits, relief on account of natural calamities (plan and non-plan), social security and welfare (plan and non-plan), food-subsidy, fertilizer subsidy.

Other Revenue Expenditure is determined residually by subtracting Interest Payments and Transfers from Revenue Expenditure (ECURR).

WPI_ All Commodities at 2004-05 base (2004-05=100) is the overall WPI for the entire basket of goods covered under it. Data from Office of the Economic Advisor to the Government of India.

YF The data for GDP at Factor Cost (Current Prices) in Rs. Crores. Source is various issues of NAS.

YMP Refers to GDP at Market Prices (at current prices) in Rs. Crores. Source is various issues of NAS.

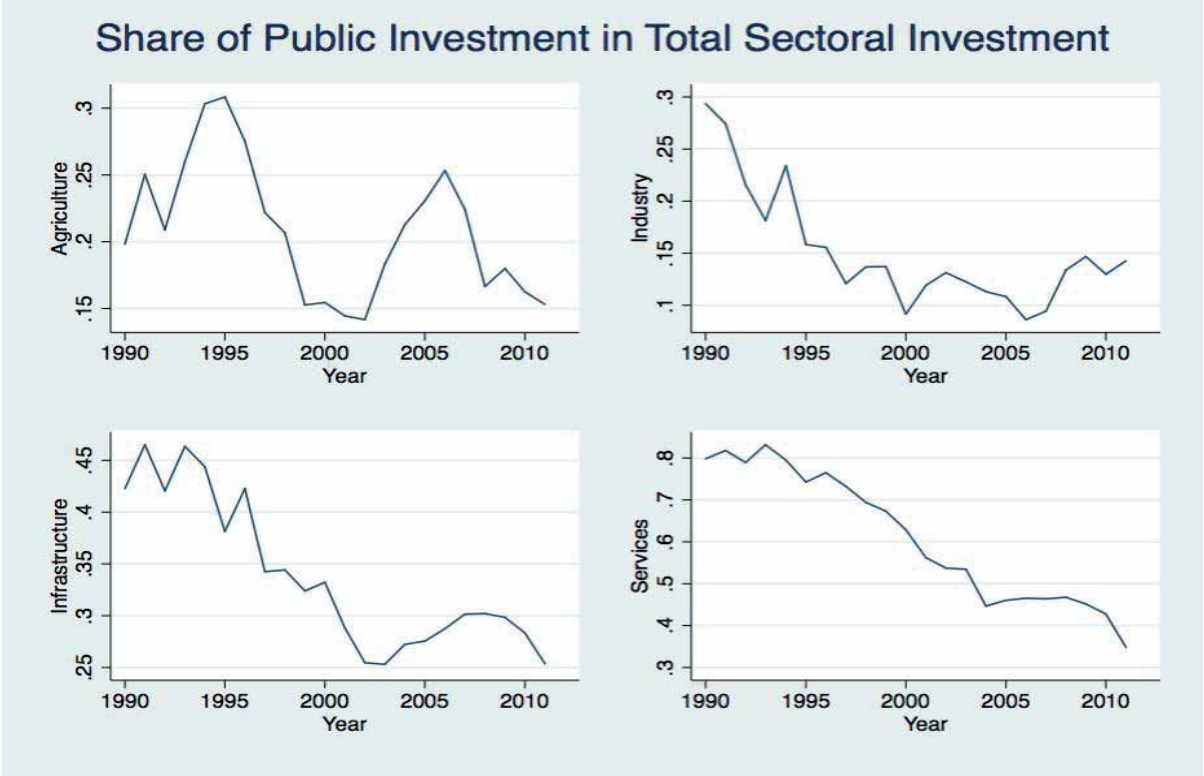
ZYF The data for GDP at Factor Cost (Constant Prices) in Rs. Crores. Source is various issues of NAS.
ZYMP Refers to GDP at Market Prices (at 2004-05 prices) in Rs. Crores. Source is various issues of NAS.

Financing of Fiscal Deficit of Central and State Governments

Year	Budgetary Deficit/Draw down of cash balances	Change in total Debt			Total
		Market Borrowing	Loans from the Centre (Net)	Other Liabilities	
	As proportion of total (per cent)				
1990-91	21.5	19.6	6	52.9	100
1991-92	15.4	22.8	11.8	49.9	100
1992-93	24.3	13.8	10.3	51.6	100
1993-94	17.7	46.3	7.2	28.8	100
1994-95	-3.2	35.7	5.1	62.5	100
1995-96	32.7	50.4	0.4	16.5	100
1996-97	15.1	30.5	3.4	51	100
1997-98	54.4	36.1	1	8.5	100
1998-99	-0.8	50.5	1.2	49.1	100
1999-00	-8.9	45.2	0.6	63.1	100
2000-01	-0.5	44	3.9	52.7	100
2001-02	28.2	46.4	2.5	22.9	100
2002-03	1.3	54.2	-5.1	49.7	100
2003-04	-5.4	58.2	-5.8	52.9	100
2004-05	-32.9	27.4	6.3	99.1	100
2005-06	11.7	46.4	3.2	38.7	100
2006-07	37.4	57.6	3.8	1.2	100
2007-08	-6.2	90.4	4.7	11.2	100
2008-09	32	74	2.4	-8.4	100
2009-10	-8.4	83	1.8	23.6	100
2010-11	-1.6	77.2	4.4	19.9	100
2011-12(BE)	14.4	80.4	1.4	3.8	100
2012-13(BE)	1.7	89.4	1.4	7.5	100

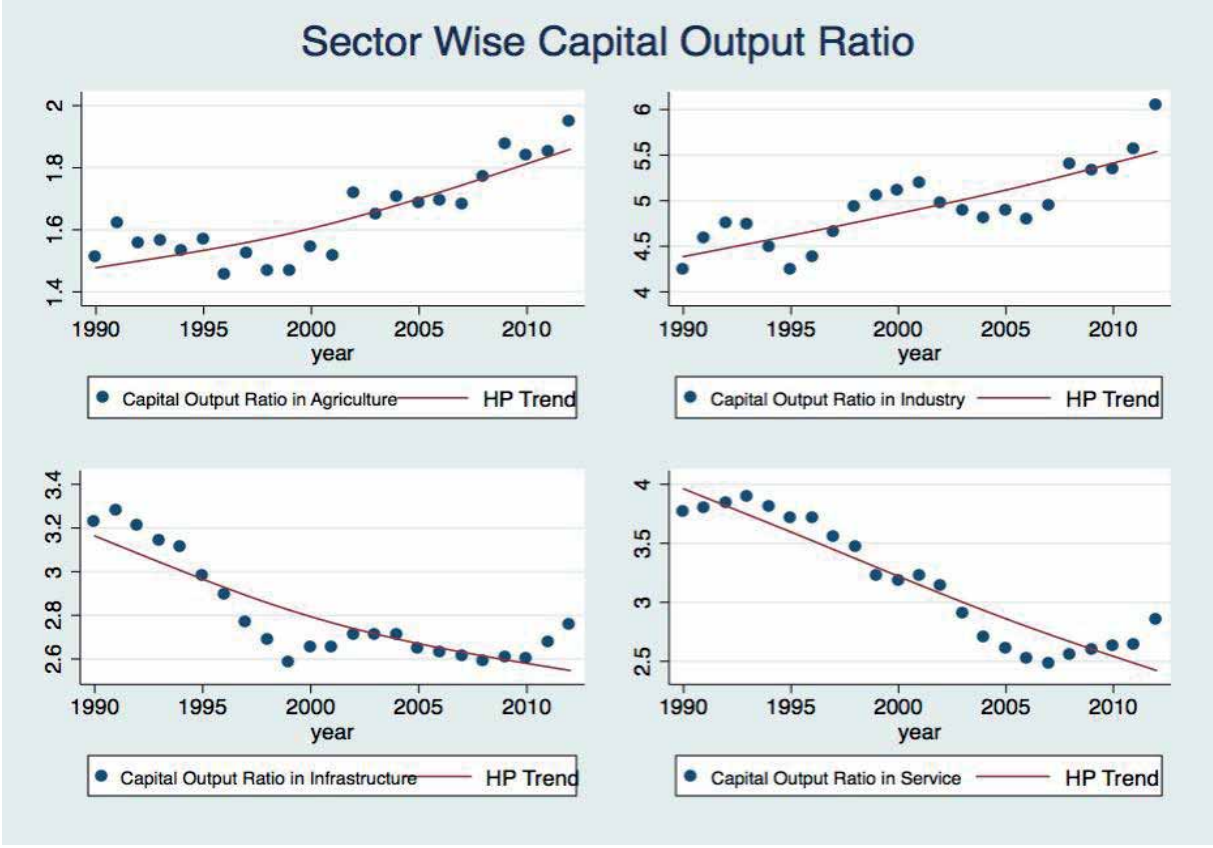
Source: IPFS, 2013

Figure No.1: Share of Public Investment in Total Sectoral Investment (Public and Private)



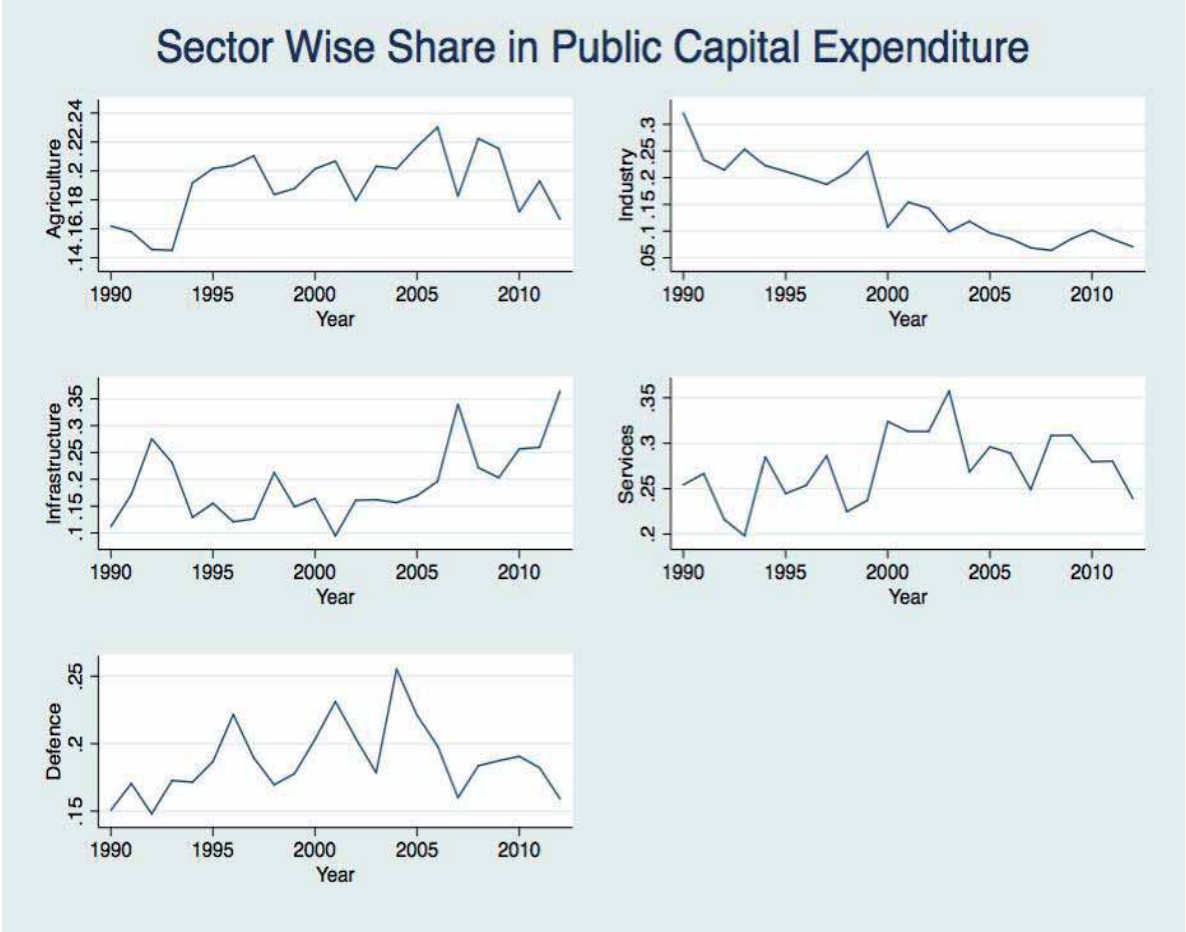
Source: NAS, 2005 and 2013.

Figure No.2: Sectoral Capital-Output Ratio (HP-Trend)



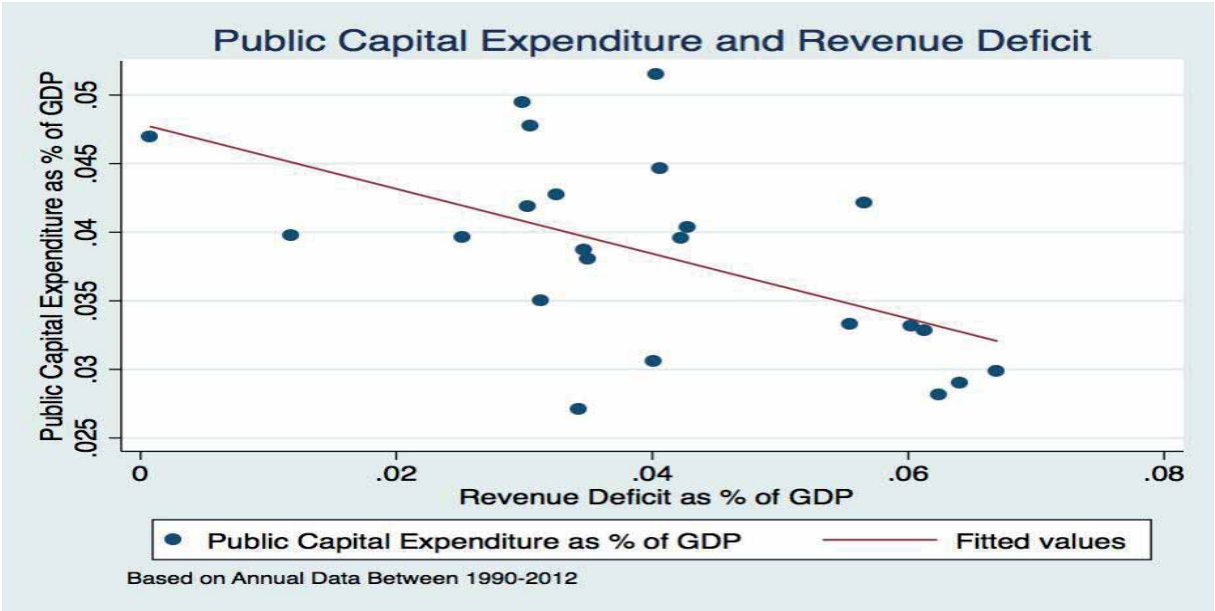
Source: NAS, 2013.

Figure No.3: Sector-wise Share in Public Capital Expenditure



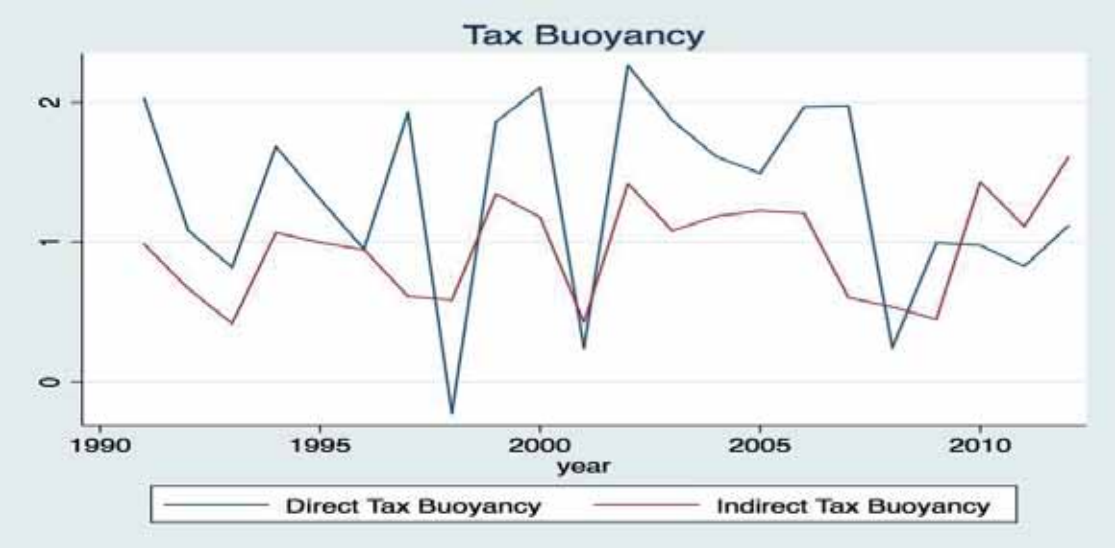
Source: NAS, 2013.

Figure No.4: Revenue Deficit and Capital Expenditure as % GDP



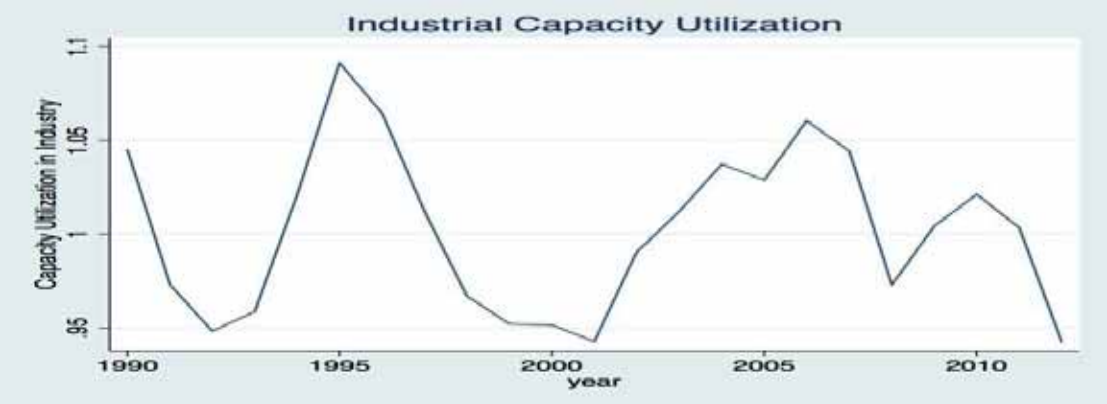
Source: IPFS, various issues.

Figure No.5: Tax Buoyancy



Source: Authors calculation based on IPFS

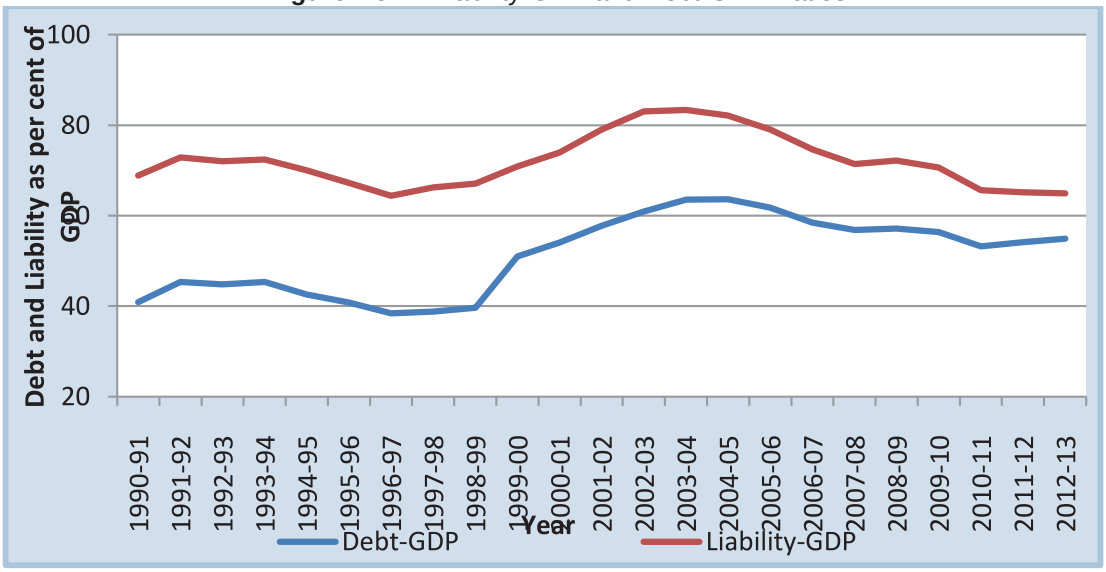
Figure No.6: Industrial Capacity Utilization



Source: NAS

Note: *See equation 11* in *section II*.

Figure No. 7: Liability-GDP and Debt-GDP Ratios



Source: Liability from RBI, HBS and debt computed as a sum of internal debt of Centre and States' and external debt of Centre (data taken from RBI, HBS).

1) Real agricultural output has been modeled as supply constrained variable. It is positively related to lag real capital stock, rain (% deviation from normal) and Minimum Support Price (MSP). Time trend is positive and significant. All the variables are statistically significant and the explained variation is more than 99 per cent.

ZYFAGRI = 313752.17 + 11590.38*@TREND + 0.10*ZNKSTOCKAGRI(-1) + 862.87*RAIN + 19.58*MSP +
(18.57) (11.23) (2.89) (4.07) (2.91)

+25043.51*DUMAGRI
(7.10)

Adj R^2 = 0.99 DW Stat=1.79

2) Real industrial output has been modeled presuming that it's a demand constrained variable. It is positively related to real investments and real export of goods. Time trend is positive and significant. Real industrial output series has a structural break in the year 2004 and the dummy for the same is negative and significant.

ZYFINDUS = 122106.57 + 6352.05*@TREND + 0.29*(IPV+IPU)/PINDUS + 0.27*EXPORT_G/PINDUS
(20.76) (8.43) (11.08) (6.51)
- 83889.33*SBDUMMY_04 +27311.79* DUMZYFINDUS
(-9.08) (7.66)

Adj R2 = 0.99 DW Stat=2.57

3) Real infrastructure has been modeled using both demand and supply side variable. It is positively related to real output and capital stock. The error in the above equation follows an AR (1) process and the AR (1) term is positive and significant.

ZYFINFRA = -196204.58 + 0.41*(YMP)/P + 0.06*ZNKSTOCKINFRA(-1) + 35252.97*DUMINFRA + [AR(1)=0.56]
(-9.79) (9.39) (1.59) (5.47) (2.59)

Adj R^2 =0.99 DW Stat=1.69

4) Real service output has been modeled presuming that it's a demand constrained variable. It is positively related to sum of private and public consumption and net exports of services.

ZYFSER = -156144.97 + 0.27*(CPU+CPR)/P + 0.97*NETEXPORTS/P + 28837.49*DUMZYFSER1 +
(-4.96) (22.78) (9.36) (9.47)
[AR(1)=0.84]
(7.06)

Adj R^2 = 0.99 DW Stat=1.49

Investment

5) Private investment in agriculture has been modeled on the lines of complementarities between private and public investment. Private investment in agriculture is positively related to public investment in agriculture, lag one of agricultural output and MSP. The results suggest that there is a crowding in situation in agricultural investment. The public investment broadens the base and invites twice more private investment.

GIPVAGRI = -62896.13+ 2.06*GIPUAGRI + 0.05*ZYFAGRI(-1) + 61.60*MSP + 29433.24*DUMGIPVAGRI

(-8.76) (15.56) (2.90) (29.54) (15.70)

+ [AR(1)=-0.48]
(-3.48)

Adj R^2 = 0.99 DW Stat=1.97

6) Private investment in Industry as fraction of nominal output is positively related to public investment in industry as a fraction of nominal output, positively related to capacity utilization and negatively related to interest rate. There is an evidence of public investment crowding in private investment.

GIPVINDUS/YMP = -0.03 + 1.41*GIPUINDUS/YMP - 0.01*INTRATE + 0.18*ZYFINDUS(-1)/ZYFINDUS_C(-1)
(-0.54) (2.62) (-5.71) (3.33)

+ 0.02*DUMGIPVINDUS1
(5.25)

Adj R^2 = 0.83 DW Stat=1.55

7) Private investment in infrastructure has been modeled on the lines of complementarities between private and public investment. Private investment in infrastructure is positively related to public investment in infrastructure and nominal output. The interest rate affects private investment negatively. The results suggest that there is a crowding in situation in infrastructural investment.

GIPVINFRA = -16969.69 + 0.81*GIPUINFRA + 53842.36*DUMGIPVINFRA - 3403.93*INTRATE + 0.08*YMP
(-0.38) (4.46) (9.62) (-1.34) (9.52)

Adj R^2 = 0.99 DW Stat=1.86

8) Private investment in service sector has been modeled on the lines of complementarities between private and public investment. Private investment in services is positively related to sum of public investment in service and infrastructure.

GIPVSER = -30345.63 + 0.64*(GIPUSER+GIPUINFRA) +53828.65 (DUMGIPVSER)
(-11.19) (57.678) (12.15)

Adj R^2 = 0.99 DW Stat=1.67

Prices

9) Agricultural price has been presumed to be dependent on output gap and the same has been calculated using the HP- filter. Agriculture prices are influenced by demand for agricultural products (proxied by private consumption) minimum support price for agricultural products. The variables have sign as expected.

D(PAGRI) = -0.001+ 8.10 e-08*D(CPR) - 4.53e-07*ZYFAGRI_CYCLIC + 7.23e-05*D(MSP) + 0.035*DUMPAGRI +
(-0.26) (4.23) (-3.78) (8.67) (11.61)

0.67*D(PAGRI(-1))
(9.51)

Adj R^2 = 0.99 DW Stat=1.68

10) Industrial prices are positively dependent on the prices of inputs (agricultural and oil prices) used by industries and negatively related to the money supply proxied by sum of net capital flows. The time trend is positive and significant. The error term follows AR(1) process and the same is significant.

PINDUS = 0.43 + 0.09*PAGRI + 0.00*POILWPI + 5.35E-08* (BC+NETCAPITALFLOWS)
(12.16) (1.63) (3.27) (3.20)

+ 0.03* DUMPINDUS + 0.01*@TREND

(2.32) (2.61)

Adj R^2 = 0.99 DW Stat=1.76

11) Price of infrastructure goods are positively related to price of industrial goods and one period lagged price of infrastructure goods.

PINFRA = -0.10 + 0.24*PINDUS + 0.83*PINFRA(-1)
(-1.33) (2.01) (6.86)

Adj R^2 = 0.99 DW Stat=2.09

12) Price of service sector goods are positively related to nominal output and one period lagged price of service sector goods.

PSER = 0.42 + 2.18e-08*YMP + 0.04*@TREND + 0.11*DUMPSER
(38.89) (4.16) (17.24) (6.05)

Adj R^2 = 0.99 DW Stat=1.20

13) The wholesale price index (WPI) is a subset of GDP deflator (P). Difference in WPI has been modeled as a function of difference in GDP deflator.

D(PWPI) = -0.34 + 102.96*D(P)+2.93*DUMWPI
(-0.80) (16.08) (5.24)

Adj R^2 = 0.93 DW Stat=1.46

14) Domestic oil price index is positively related to oil price ratio (pass-through ratio) and international crude oil prices. The oil price stickiness has been captured by lag of oil price. Lag oil price coefficient is positive and shows a high degree of persistence in oil prices.

POILWPI= -19.32+18.01*OILPRRATIO+0.06*OILPRUSD+0.89POILWPI(-1)
(-5.25) (5.47) (8.12) (30.75)
+14.66*DUMPOILWPI
(18.88)

Adj. R2= .99 D.W.=1.78

15) Export of goods is positively related to World GDP and exchange rate and negatively related to import weighted average tariff rate (DUTY).The relation is as expected by economic theory. The trend is negative and significant.

EXPORT_G = -814031.08 + 4465.07*WORLDGDP - 10360.19*D(DUTY) + 7504.31*ER
(-7.70) (19.66) (-5.35) (2.51)
+ 94277.66*DUMEXPORT_G - 175984.83*@TREND
(3.69) (-13.02)
Adj R^2 = 0.99 DW Stat=1.78

16) Import of goods is positively related to nominal output, oil prices, and is negatively related to exchange rate. This relation is as expected by economic theory.

IMPORT_G = 41205.19 + 0.11*YMP - 4540.19*ER + 218.67*OILPRUSD + 0.67*IMPORT_G(-1)
(0.86) (5.64) (-3.24) (1.75) (11.06)
+ 160598.84*DUMIMPORTG
(9.72)
Adj R^2 = 0.99 DW Stat=1.80

17) Net exports of services are positively related to export of goods and the GDP of US.

NETEXPORTS = -1021400.26 + 0.19*EXPORT_G + 1579.66*USGDP + 35349.32*DUMNETEXPORT_S
(-0.97) (9.18) (5.02) (14.06)
+ [AR(1)=0.98]
(43.27)
Adj R^2 = 0.99 DW Stat=1.93

18) Remittances are positively related to interest rate and sum of GDP of Middle East and Advanced Economies. Higher the income in the source countries, higher the remittance flows. Exchange rate didn't have a significant impact on remittance flows for the sample period.

REMIT = -173430.94 + 229.41*(MEGDP+ADVGDP) + 7267.37*INTRATE+16697.06*DUMREMIT
(-7.32) (36.79) (5.38) (4.24)
Adj R^2 = 0.99 DW Stat=1.02

19) Net investment income is negatively related to Net capital flows and exchange rate. The error follows AR(1) process and same is found to be significant.

NETINVESTINCOME = 46162.85 - 0.041*NETCAPITALFLOWS - 1468.53*ER + 60286.59*DUMINVESTINCOME
(2.22) (-3.74) (-3.18) (9.51)
+[AR(1)=0.65]
(4.81)
Adj R^2 = 0.97 DW Stat=2.09

20) Net capital flows are positively related to nominal output and credit rating one period before. Net capital flows series has Structural break in 2008 and the dummy for the same is found to be significant.

NETCAPITALFLOWS = -156251.43 + 0.10*YMP + 39055.56*CREDITRATING(-1) - 323901.21*SBDUMMY_08+
(-15.66) (30.61) (6.96) (-18.18)
70803.32*DUMNETCAPITALFLOWS
(11.55)
Adj R^2 = 0.99 DW Stat=1.57

Fiscal Block

21) Direct tax is positively related to direct tax buoyancy (elasticity of direct tax with respect to nominal output), difference of nominal output and lag one of direct tax.

DTAX = -15759.797+ 7149.89*B1 + 0.09*D(YMP) + 0.96*DTAX(-1)+38464.15DUMDTAX
(-12.16) (9.22) (19.70) (84.63) (22.54)
Adj R^2 = 0.99 DW Stat=2.03

22) Indirect tax is positively related to indirect tax buoyancy (elasticity of indirect tax with respect to nominal output), difference of nominal output and lag one of indirect tax.

INDTAX = -20130.84 + 19066.95*B2 + 0.12*D(YMP) + 1.00*INDTAX(-1)+58853.24DUMINDTAX
(-8.51) (8.00) (24.911) (130.92) (25.41)
Adj R^2 = 0.99 DW Stat=1.92

23) Non-Tax revenue is positively related to nominal output.

NONTAXREV = -4060.45 + 0.03*YMP + 53887.22*DUMNONTAX
(-3.47) (107.04) (19.65)
Adj R^2 = 0.99 DW Stat=1.22

24) Change in interest payment is positively related to change in government's liability (LIAB) and weighted average rate of interest on newly issued government securities.

D(INTEREST_PAY) = -13436.06 + 0.08*D(LIAB) + 1098.48.81*ROI_GSEC+7581.89*DUMINTPAY
(-7.34) (44.64) (7.53) (13.28)

Adj R^2 = 0.99 DW Stat=3.12

25) Market borrowing is positively related to fiscal deficit. With passage of time more and more of fiscal deficit is being financed through market borrowing. The error term follows AR(1) process and is statistically significant.

MB = -118598.00 + 1.01*FD +31184.06*DUMMB +[AR(1)=0.91]
(-2.21) (26.28) (8.45) (10.29)
Adj R^2 = 0.99 DW Stat=1.36

Monetary Block

26) Repo is a policy rate and is positively relate to inflation difference (defined as actual inflation-5 per cent target inflation) and lag one of Repo rate. The result suggests that there is policy rate persistence and at the same time central bank responds to inflation.

REPO = 1.01 + 22.77*(@PCH(PWPI)-.05) + 0.82*REPO(-1)+2.04*DUMREPO
(2.90) (7.20) (20.66) (8.51)

Adj R^2 = 0.97 DW Stat=2.21

27) Interest rate which is the weighted average lending rates of banks is positively related to lagged interest rate and policy rate (Repo). As the government's market borrowing is one of the demand side variables in determining interest rates, growth rate of market borrowing (MB) is used. The coefficient is found to positive and significant. The market borrowing in this equation also expected to capture crowding out mechanism due to higher fiscal deficits.

INTRATE = 0.39 + 0.84*INTRATE(-1) + 0.17*REPO +0.29*@PCH(MB)+1.07*DUMINTRATE
(1.20) (25.73) (5.46) (2.84) (8.86)

Adj R^2 = 0.99 DW Stat=2.13

28) Interest rate on government securities is positively related to lag one interest rate on government securities and policy rate (Repo).

ROI_GSEC = 0.82 + 0.26*REPO + 0.69*ROI_GSEC(-1) + 3.50*DUMROIGSEC
(2.39) (4.25) (12.72) (8.95)

Adj R^2 = 0.98 DW Stat=1.94

29) Bank credit (BC) has been modeled as a demand determined variable and is positively related to total investment in the economy.

BC = -283128.83 + 1.45*(IPV+IPU) +175462.85*DUMBC
(-46.86) (311.42) (27.74)

Adj R^2 = 0.99 DW Stat=1.73

Macroeconomic Block

30) Private sector consumption is positively related to the disposable income (defined as nominal output-direct tax +transfer payments +interest payments) and lag one of Private sector consumption.

CPR = 70193.61 + 0.31*(YMP-DTAX+TRANSFERS+INTEREST_PAY) + 0.47*CPR(-1) + 67208.80*DUMCPR
(8.35) (15.52) (10.72) (5.81)

Adj R^2 = 0.99 DW Stat=1.43

31) Public sector consumption is positively related to other revenue expenditure and lag one of public sector consumption.

CPU = 1249.78 + 0.66*OTH_ECURR_1 30953.85*DUMCPU + 0.32*CPU(-1)
(0.31) (7.69) (-4.58) (2.81)

Adj R^2 = 0.99 DW Stat=1.67

India's Experience with Sub-National Fiscal Responsibility Legislation: Performance and Challenges*

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Contents

1 Introduction

In this paper, we examine the working of fiscal responsibility legislation (FRL) in the states of India over the past 14 years. We look at the evolution of the macro-fiscal structure of the states taken collectively. We also look at dimensions of the budget and financial management that have implications for the overall integrity and structure of the general government public finances.

There is limited literature on the link between sub-national and national macro-fiscal management. Claeys et al. (2007), looking at the experience of European federations, find that sub-national governments tend to bear less than their fair share of the fiscal burden (though this effect is more pronounced in Europe than in the United States). Ahrend et al. (2013) also allude to the fact that sub-national governments tend to be more profligate as they expect to be bailed out by the national government, especially when they face special shocks such as natural disasters.

We analyse the Indian situation to assess whether such trends are indeed extant in India. In doing so, we also study features of debt dynamics that are particular to the sub-national government sector in India. Finally, we also look at whether state-specific characteristics display heterogeneity that may require our conclusions on the general government fiscal responsibility to be calibrated.

2 Fiscal Consolidation in the Post-FRL Period

The post-FRL period saw the sharpest ever sub-national fiscal consolidation in India. The consolidated deficit indicators of the states improved in each of the four years between 2003-04 and the onset of the global financial crisis in 2008-09. There was an equally dramatic fall in consolidated state liabilities and debt (see Table 1 for a summary of the fiscal trends during this period).

However, this improvement in state finances could have been driven by macro-fiscal factors that were concurrent to the implementation of the FRLs (see the reports of the Thirteenth and Fourteenth Finance Commissions for a detailed survey). These included (i) high economic growth and the consequent increase in central and state tax collections, (ii) a rise in the states' revenue collections due to the introduction of the value-added tax (VAT) by most states in 2005-06, (iii)

an increase in the devolution of central taxes to the states by the Twelfth Finance Commission, (iv) the Debt Consolidation and Relief Facility (DCRF) offered by the Twelfth Finance Commission that included both debt write-offs and restructuring, and (v) a liberal interest rate regime.

Given the positive economic scenario in pre-crisis years following the implementation of state-FRLs, it is hard to ascertain the extent to which the fiscal correction that followed can be attributed to an FRL-induced discipline in the fiscal conduct of the states. Nevertheless, some expenditure rationalisation efforts by the states deserve mention. For instance, to arrest the growing pension bill, many states increased the retirement age, introduced voluntary retirement schemes, imposed restrictions on new recruitments, and tweaked discount rates for the commutation of pensions. In addition, some states such as Tamil Nadu have taken steps towards the imposition of ceilings on guarantees while others have created sinking funds and guarantee redemption funds. It is also noteworthy that five states[1] enacted their FRLs even before the Twelfth Finance Commission had submitted its report.

2.1 Key Deficit Indicators of the States

To understand the causes behind the recent sub-national fiscal consolidation, we analyse the sources of the year-on-year changes in key deficit indicators of the state governments. Figure 1 decomposes the year-on-year changes in the fiscal deficit to GDP ratio into its revenue and expenditure components as follows.

$$\Delta\left(\frac{FD_t}{GDP_t}\right) = \Delta\left(\frac{Exp_t}{GDP_t}\right) - \Delta\left(\frac{Rev_t}{GDP_t}\right)$$

where Δ denotes the change from one year to the next.

In terms of the contribution of expenditure and receipts to the fiscal deficit, an increase in the revenue to GDP ratio would mean a lower deficit and its magnitude is shown below the x-axis in Figure 1. Likewise, a decrease in the expenditure to GDP ratio would be recorded below the x-axis. For example, in the year 2000-01, the fiscal deficit fell by 0.42 percent of GDP.

[1]These included Karnataka, Punjab, Kerala, Tamil Nadu and Uttar Pradesh.

Table 1: Sources of Sub-National Fiscal Consolidation: 2000-01 to 2015-16 (Percent of GDP)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
A. Total Revenue	10.68	10.59	10.79	10.88	11.21	11.67	12.35	12.51	12.34	11.86	12.02	12.57	12.58	12.15	14.46	14.82
I. Own Revenue	6.64	6.56	6.78	6.73	7.05	7.05	7.35	7.29	7.17	6.98	7.1	7.52	7.76	7.5	7.83	8.24
***i)* Own Tax Revenue**	5.22	5.23	5.39	5.42	5.61	5.75	5.88	5.75	5.72	5.6	5.92	6.38	6.58	6.32	6.54	6.87
***ii)* Own Non Tax Revenue**	1.42	1.33	1.38	1.31	1.44	1.3	1.47	1.55	1.45	1.38	1.18	1.13	1.18	1.18	1.29	1.38
II. Total Transfers	4.04	4.02	4.01	4.15	4.16	4.62	5	5.21	5.17	4.88	4.92	5.06	4.83	4.65	6.63	6.58
***i)* Share in Central Taxes**	2.33	2.22	2.23	2.36	2.42	2.55	2.8	3.04	2.86	2.55	2.82	2.93	2.93	2.82	2.93	3.58
***ii)* Grants**	1.71	1.81	1.78	1.79	1.74	2.08	2.2	2.18	2.31	2.33	2.1	2.13	1.9	1.83	3.7	3
B. Revenue Expenditure	13.22	13.15	13.04	13.11	12.42	11.86	11.77	11.65	12.11	12.34	11.98	12.3	12.38	12.24	14.61	14.42
***Of which:* Interest Payments**	2.34	2.61	2.72	2.83	2.67	2.27	2.17	2	1.83	1.74	1.6	1.57	1.51	1.5	1.54	1.61
C. Capital Expenditure	2.39	2.5	3.13	4.99	4.65	3.35	3.53	3.44	3.56	3.34	2.91	3.17	3.04	2.9	3.56	3.59
D. Total Expenditure	15.61	15.65	16.17	18.1	17.07	15.21	15.3	15.09	15.67	15.67	14.89	15.47	15.42	15.14	18.16	18.01
E. Gross Fiscal Deficit	4.04	4	3.93	4.25	3.32	2.44	1.8	1.51	2.39	2.91	2.07	1.93	1.96	2.2	2.93	2.46
F. Revenue Deficit	2.54	2.56	2.25	2.23	1.21	0.19	-0.58	-0.86	-0.23	0.48	-0.04	-0.27	-0.2	0.09	0.15	-0.4
G. Gross Primary Deficit	1.7	1.39	1.21	1.42	0.66	0.16	-0.36	-0.49	0.56	1.17	0.47	0.36	0.45	0.7	1.38	0.84
H. Primary Revenue Deficit	0.2	-0.05	-0.47	-0.6	-1.46	-2.09	-2.75	-2.86	-2.05	-1.26	-1.64	-1.84	-1.72	-1.4	-1.4	-2.01
I. Total Liabilities	27.29	29.32	31.01	31.79	31.28	31.08	28.91	26.63	26.11	25.45	23.50	22.82	22.17	21.92	22.30	22.87
***Of which:* Internal Debt**	8.22	10.38	12.85	16.78	18.35	18.92	17.79	16.53	16.59	16.57	15.37	15.14	14.63	14.52	15.14	15.96

Notes: Years denote the end of a financial year. For instance, data for 2001 pertains to data for the year 2000-01. Data for 2014-15 relate to Revised Estimates while 2015-16 are Budget Estimates. Data relate to 29 state Governments. Source: Handbook of the Indian Economy, Reserve Bank of India.

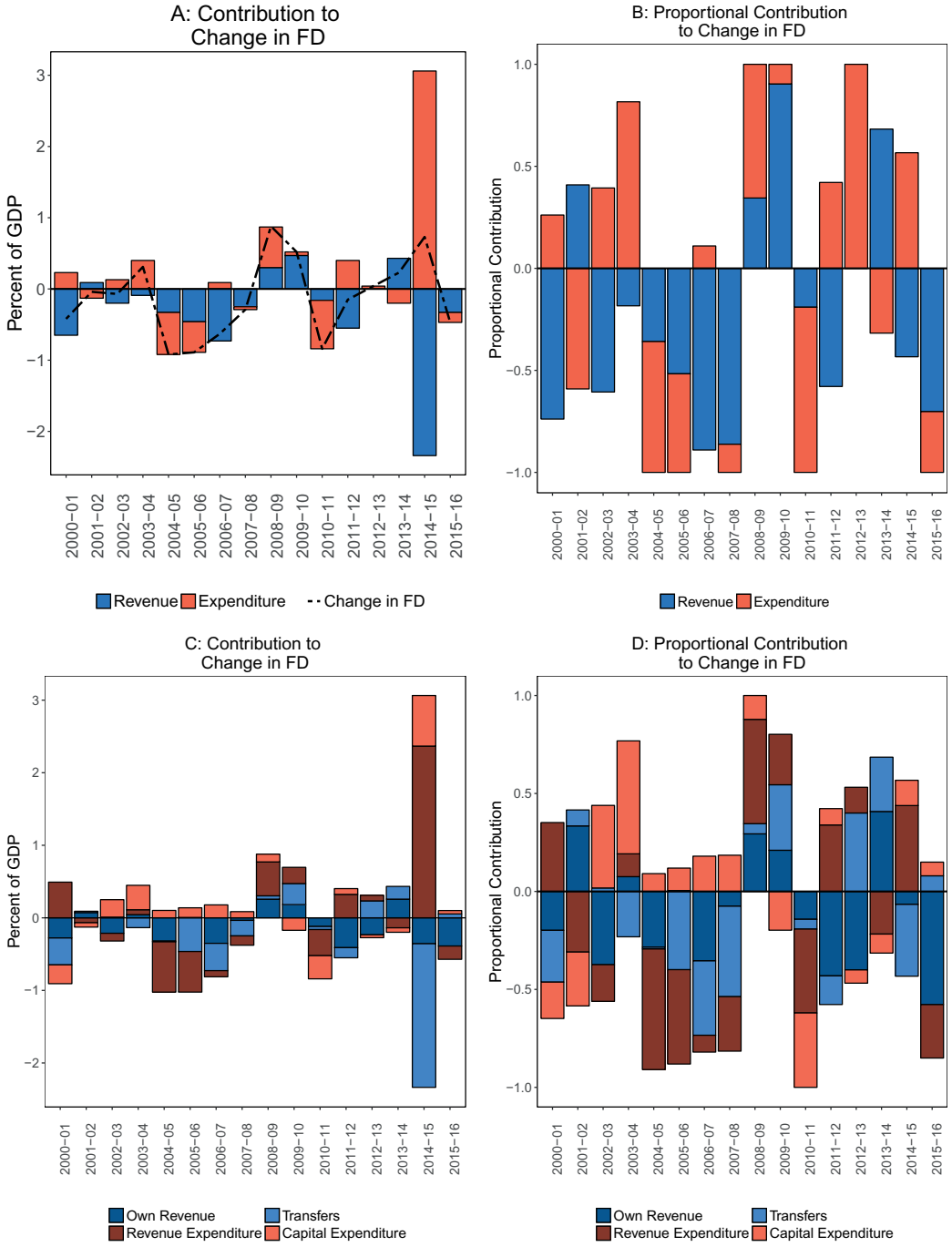
Figure 1 (A) shows that this fall in the fiscal deficit can be decomposed into a rise in the revenue to GDP ratio of 0.65 percent and a rise in the expenditure to GDP ratio of 0.23 percent of GDP. Thus, rising expenditures partly countervailed the downward impact of rising revenues on the fiscal deficit in that year. Panel 2 (B) shows the percent that each component contributes to changes in the fiscal deficit in each year. In 2000-01, about 74 percent of the total change in the fiscal deficit was due to higher revenues whereas rising expenditures contributed the residual 26 percent. Analogously, Figures 1 (C) and 1 (D) calculate the actual and proportional contributions of the sub-components of revenue and expenditure on the fiscal deficit.

It is evident from Figure 1 (B) that in the boom years, the sharp correction in sub-national fiscal deficits was on account of both buoyant revenues and expenditure control. It was not the case that state governments responded in good times by fully utilising their higher revenues to increase spending. In particular, revenue expenditure as a percent of GDP fell in each of these four years, even as capital expenditure was protected (see Panels (C) and (D) of Figure 1). Following the crisis, the fiscal deficit increased sharply after 2008-09. During this time, as part of its countercyclical measures, the Centre had raised the market borrowing limit of states by Rs. 30,000 crore in 2008-09. Additionally, the states were also allowed to exceed their fiscal deficit target by 0.50 percentage points, to 3.5 percent of GSDP in 2008-09. This limit was further revised to 4 percent of GSDP in 2009-10. It is clear that transfers played a limited role in the fiscal consolidation of the states whereas the improvement in own-revenues was not trivial across this period. In years of fiscal stress, such as 2010-11, the states were also not shy in cutting both revenue and capital expenditure.

These conclusions are confirmed by decomposing the year-on-year changes in the revenue deficit (see Figure 2). Importantly, panel 2(D) shows that, in addition to buoyant revenues and the interest rate windfall due to the debt-waiver, the compression of non-interest revenue expenditure contributed significantly to the reduction in revenue deficits in the 2000s.

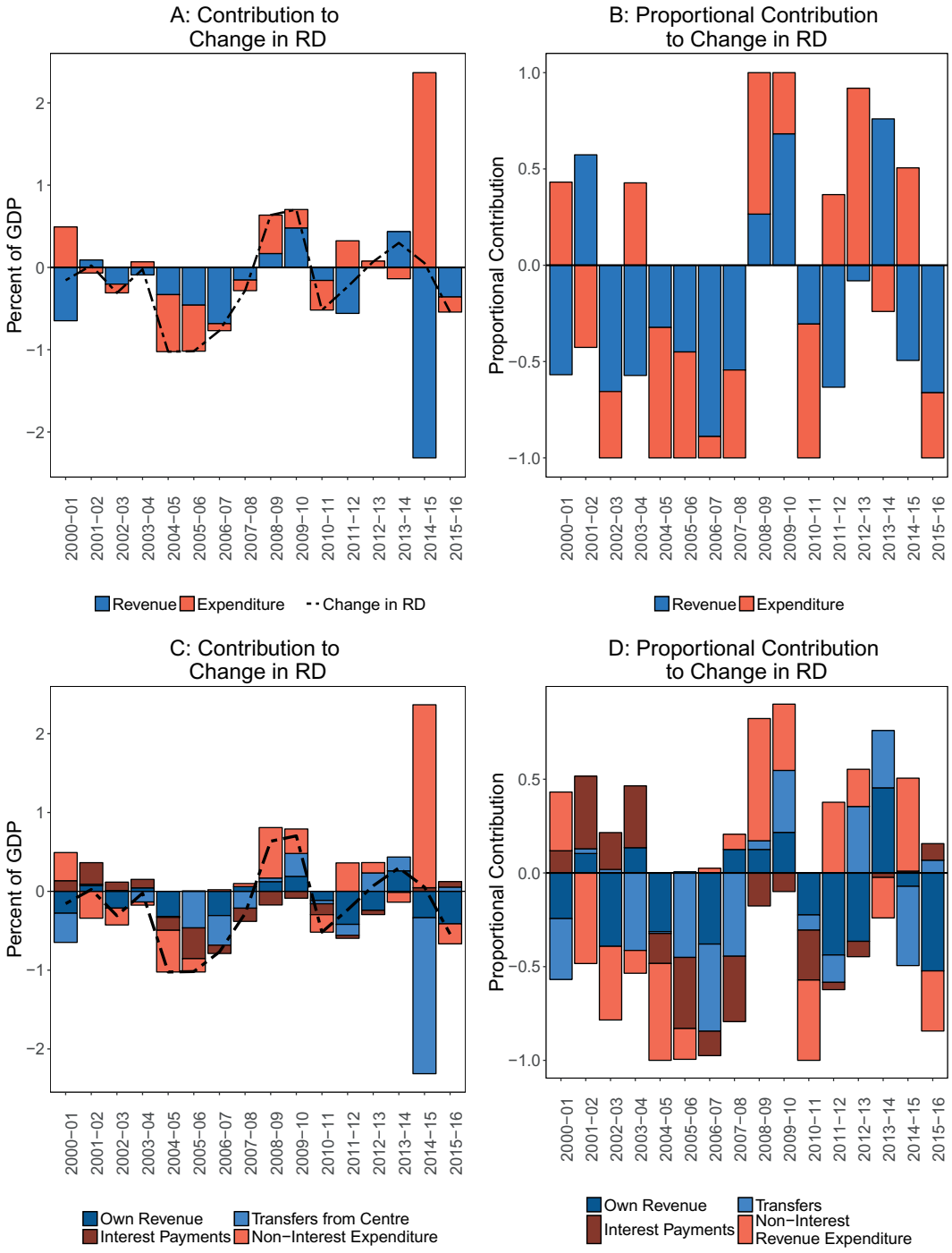
In addition to the above exercise, we also analyse the cross-section means and medians of key fiscal aggregates of the states as a percent of their respective GSDP over time (see Figures 3, 4, and Box 1). Figure 3 shows that the behaviour of the fiscal, revenue, and primary deficits are qualitatively similar, with each of these indicators peaking in the late 1990s and correcting sharply in the pre-crisis 2000s.

Figure 1: Year-on-Year Decomposition of the Fiscal Deficit
$\Delta\left(\frac{FD_t}{GDP_t}\right) = \Delta\left(\frac{Exp_t}{GDP_t}\right) - \Delta\left(\frac{Rev_t}{GDP_t}\right)$



Note: Data for 2014-15 relate to Revised Estimates while 2015-16 are Budget Estimates. Data relate to 29 state governments. Source: Handbook of the Indian Economy, Reserve Bank of India.

Figure 2: Year-on-Year Decomposition of the Revenue Deficit
$\Delta\left(\frac{RD_t}{GDP_t}\right) = \Delta\left(\frac{Exp_t}{GDP_t}\right) - \Delta\left(\frac{Rev_t}{GDP_t}\right)$



Note: Data for 2014-15 relate to Revised Estimates while 2015-16 are Budget Estimates. Data relate to 29 state governments. Source: Handbook of the Indian Economy, Reserve Bank of India.

Though the states largely managed to maintain fiscal prudence, even during and after the crisis, the mean primary and revenue deficit to GSDP ratios have been rising since 2010, though without breaching FRL ceilings.

Figure 3 also shows that there was a sharp fall in the mean of the revenue expenditure to GSDP ratio, led in large part, by the precipitous decline in interest payments. However, the same period saw a modest increase in the mean and median of the capital expenditure to GSDP ratio, showing the beneficial impact of the golden rule contained in the FRLs. Figure 4 shows the mean and median of various receipts as a ratio of GSDP. There was a marked increase in the tax to GSDP ratios since the early 2000s. Though both the components of tax revenues– own tax, as well as the share of central taxes increased, the former registered a sharper rise. In the same period, the mean of the non-tax revenue receipts to GSDP ratio saw a modest decline; however, it is interesting that their medians were unmoved.

Thus, the states as a whole seem to have a prudent approach to their finances and it would be incorrect to dismiss their improved fiscal performance as being primarily due to factors exogenous to their policy action. Of course, this judgement is based on collective measures taken by all the states and could not be said to universally apply to individual states.

Box 1. Figures 3 and 4: Methodology

Figures 3 and 4 have been adapted with modifications from Wacziarg and Welch (2008). Each green point is the cross-section sample mean of a fiscal variable as percent of GSDP at time t. For instance, in the first panel of Figure 3, the green points denote the sample means of the fiscal deficit to GSDP ratio for *all* the states in a particular year t, i.e. $\sum_{i=1}^{N}\left(\frac{FD_{it}}{GSDPit}\right)$. We fit a line through these points using a non-parametric, locally weighted scatter plot smoothing algorithm. Thus, the fitting is done *locally*. That is, for the fit at time t, the fit is made using points in a neighbourhood of t, weighted by their distance from from t. The shaded area around the line denotes the 95 percent confidence interval.

Analogously, the red triangles denote the cross-section sample median at time t. A line is fitted in the same manner as through the scatter plot of sample means.

Figure 3: Trends in the Deficit Indicators and Expenditure of the State Governments (● and ▲ denote cross section sample mean and median respectively)

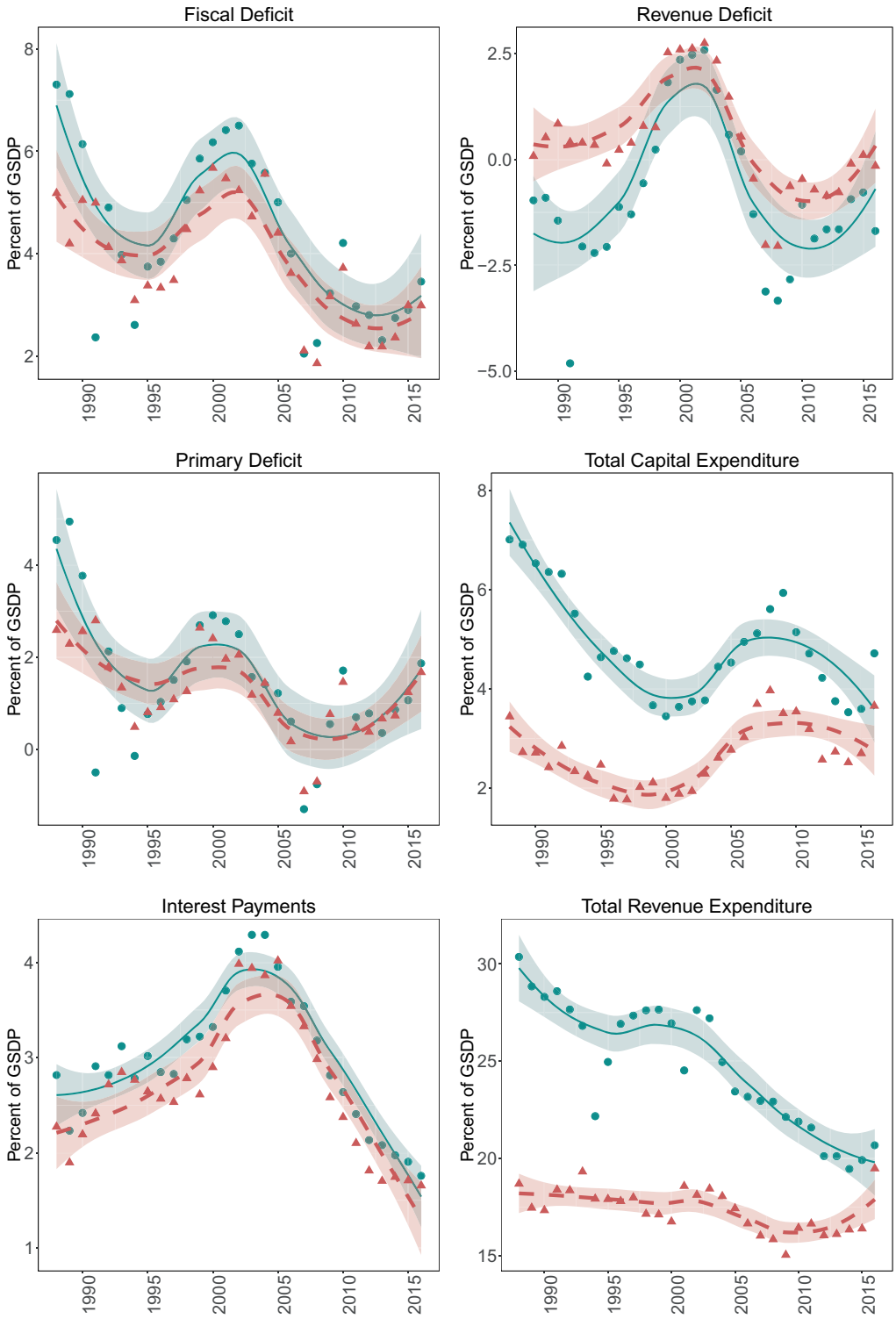


Figure 4: Trends in the Receipts of State Governments
(● and ▲ denote cross section sample mean and median respectively)

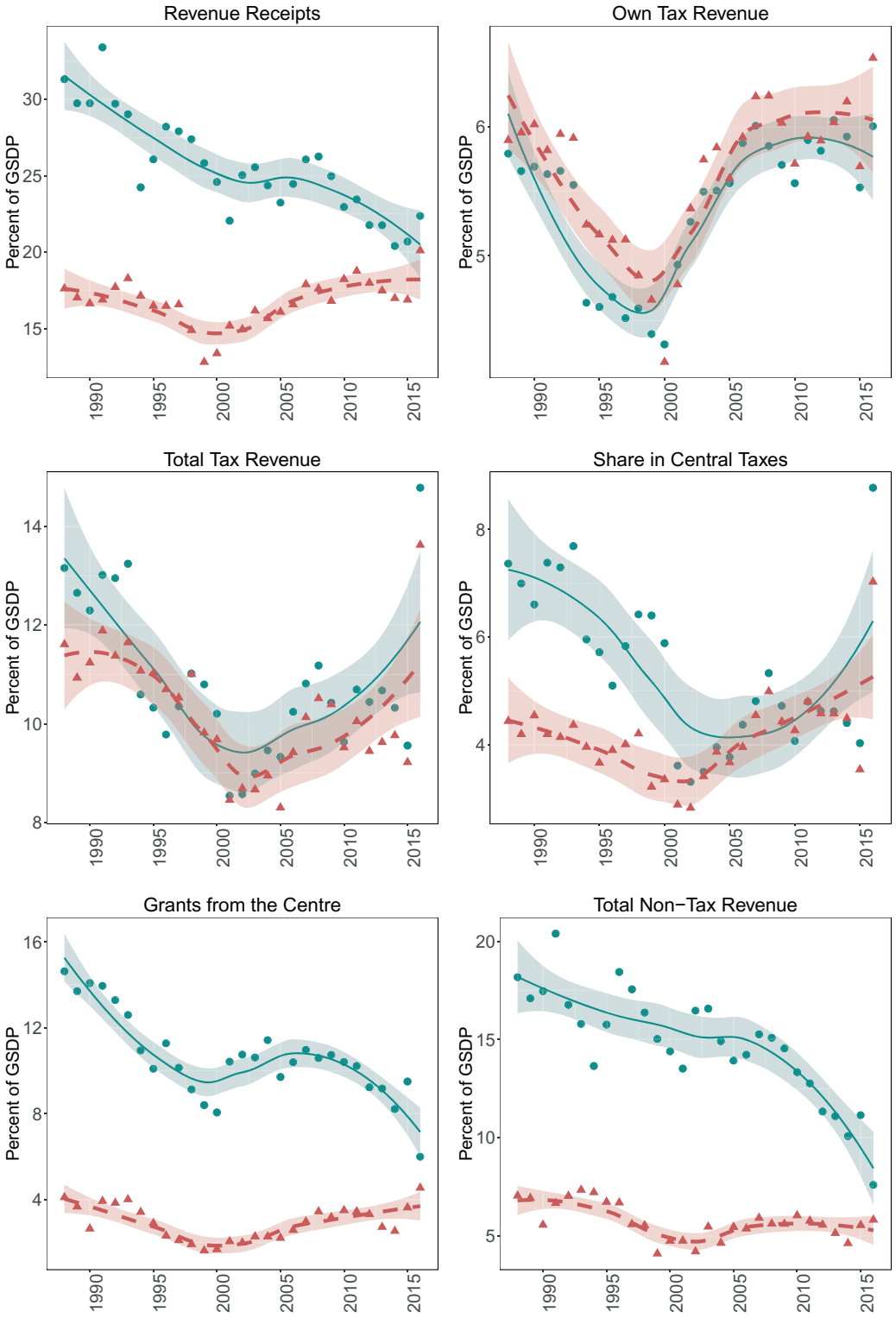


Table 2: Percentage Share of Non-SLR Bonds on account of UDAY in Total Outstanding Liabilities of the State

State	2015-16	2016-17
Rajasthan	26.22	12.50
Uttar Pradesh	8.17	4.52
Haryana	18.46	7.75
Bihar	1.53	0.68
Punjab	9.18	4.16
J&K	4.51	2.79
Chattisgarh	2.72	-
Jharkhand	14.63	-
Average	10.68	5.40

3 Consultations with the States

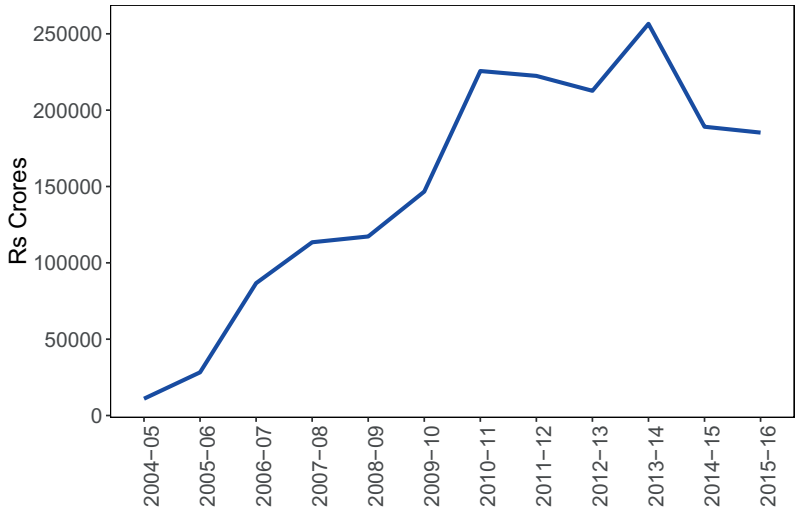
As part of wide-ranging consultation with experts and stakeholders, the FRBM Review Committee held two meetings with state Chief Secretaries and Finance Secretaries respectively. In this section, we discuss some of the issues that came up during this interaction.

3.1 UDAY

The UDAY Scheme may significantly impact the liabilities and revenue expenditure of the states. However, its impact is likely to vary substantially across different states. Table 2 shows the non-SLR bonds issued and consideration of the borrowings made by the states under earlier schemes (Financial Restructuring Package, 2012) with the consent of the Government of India under Article 293 (3) of the Constitution.

The states mentioned that apart from the higher debt burden, UDAY will raise the states' revenue expenditure on account of interest payments on the newly acquired DISCOM debt. In addition to making it harder for the states to adhere to their revenue deficit targets, this is also likely to make it harder for the states to achieve the target of a maximum of 10 percent for the interest payments to revenue receipts ratio.

Figure 5: Cash Balances in Investment Account (Rs. crores)



3.2 Cash Balances

Alongside the improvement in the fiscal position of the states, there has been a build-up of cash balances with them (see Figure 5). Most states held that cash balances are highly cyclical– showing a large surplus at the beginning of the financial year when funds are received from the central government. These surpluses reflect balances in accounts of various implementing agencies and parastatals and are drawn down as these agencies utilise this money during the course of the year.

Some states linked the issue of large cash surpluses to the uncertainties and irregularities in the transfer of central funds to the states. For instance, funds for centrally sponsored schemes (CSS) such as the Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA), the Sarv Shiksha Abhiyan (SSA), and the National Rural Health Mission (NRHM) are often released late by the Centre, prompting the states to set aside significant sums of money to pay salaries and wages. Some states suggested that the release of central funds, particularly for CSS, should be timely and in regular tranches.

3.3 Fiscal Discipline

A number of states held that limits on borrowing by them should be better calibrated to their fiscal performance and health. Thus, states that have the requisite fiscal room to borrow more should be allowed to do so. Further, in the present scheme of incentives, there is no distinction between the states that operate in the neighbourhood of the 3 percent target and those that have lower fiscal deficits due to prudent fiscal policy. Thus, states emphasized that limits on borrowing should be linked to their fiscal performance to provide the right incentives.

3.4 Off-budget Borrowings

Researchers, as well as official appraisers of the states' compliance with FRLs, have observed that there is some opacity in the manner in which the states report certain categories of public finance and budget data. In this light, the Committee sought the views of the states on the growing trend of off-budget public spending. Such spending is financed from off-budget borrowings where parastatals/state PSUs borrow funds from banks and development agencies but the repayment of the principal and interest for these loans are accommodated in the state budgets. However, these loans are not included in the state's debt or fiscal deficit limits.

Some states rationalised such practices by arguing that FRLs have limited the states' fiscal space which warrants the mobilization of off-budget resources to protect capital expenditure and infrastructure spending. The Finance secretaries candidly admitted that there is significant political pressure on this account. However, in principle, most of the states recognized that such practices lack a sound accounting foundation and should be discouraged.

The disclosure of off-budget borrowings remains unsatisfactory in most states. Off-budget borrowings through public sector undertakings (PSUs) and special purpose vehicles (SPVs) do not form a part of state government liabilities. Moreover, at present, the states do not collect or report information on public-private partnerships and other off-budget vehicles in a comprehensive manner.

The Finance Commission as well as the Comptroller and Auditor General of India (CAG), while appraising the states' compliance with FRLs have commented sharply on the above practices. The Fourteenth Finance Commission recommended that *"Keeping in mind the importance of risks arising from guaran-*

tees, off-budget borrowings and accumulated losses of financially weak public sector enterprises when assessing the debt position of the states, we recommend that both the Union and the state Governments adopt a template for collating, analysing and annually reporting the total extended public debt in their respective budgets as a supplement to the budget document[2] *".*

The CAG, in successive audits of the state budgets, has noted that even though off-budget borrowings are explicitly prohibited under Article 293(3), there is a general lack of transparency in reporting such borrowings practices. State governments have often been able to project that borrowed funds for state plan programs undertaken by public sector corporations would be met out of the resources mobilised by these entities, which are strictly outside the state budget. In reality, however, the borrowings of many of these undertakings turn out to be liabilities that are ultimately borne by the state government.

When government departments directly avail of institutional loans, they are as receipts in their budget accounts. In the case of SPVs and PSUs, such borrowings usually do not enter government accounts, however, the repayment of such borrowings by the state governments are booked as debit under MH-6003-Internal Debt sub-head, giving rise to an accounting anomaly of repayments exceeding loans advanced. In some cases, such repayments should be classified under revenue expenditure which is often not done, resulting in an understatement of revenue and fiscal deficit. Power Corporations, Urban Housing and Development and Agriculture, are some of the PSUs that engage in borrowings on behalf of the state governments.

4 Inter-State Heterogeneity

In the previous sections, we have looked at issues impacting the track record of fiscal responsibility of all states taken as a collective. The intention was to assess the impact of the fiscal management of states in the past decade on general government debt and deficit. It is important to see whether inter-state heterogeneity in any way affects our analytical conclusions that are drawn taking the states collectively as a component of the general government.

Recent Finance Commissions have typically used some measure of the inverse

[2]See pp. 201 of the Report of the Fourteenth Finance Commission.

of per-capita income, population, fiscal effort[3], and geographical area to determine inter-se shares of central transfers. As such, all the above may be seen as factors of heterogeneity among states. We focus on three factors that can cause significant heterogeneity in the fiscal dimension of the states and pose the following questions.

- How is the change in the per-capita income of a particular state correlated with the change in its liabilities to GSDP ratio and the level of fiscal deficit?
- How is the change in the size of a state government (the sum of its total tax revenues and fiscal deficit as a ratio of GSDP) correlated with a change in its liabilities to GSDP ratio?
- How is a state's share of own revenue in total revenue correlated with the change in its liabilities to GSDP ratio and the level of fiscal deficit?

Our aim is to estimate the correlation of state-specific characteristics on their fiscal performance. Instead of simple cross-section scatter plots, we estimate a regression specification over a four-year rolling sample which has the advantage of allowing us to utilise the time variation in our data, in addition to the cross-section variation which a scatter plot encapsulates. We can thus make inferences about the evolution of the relationship between state-specific characteristics and fiscal performance over time. We report our findings in Figures 6 and 7. Box 2 details the methodology employed.

In the case of the share of own-revenue in total revenues, we expect states with lower ratios to have higher fiscal deficits and liabilities, implying a negative correlation. As we can see from Figures 6 (B) and 7 (B), this is indeed largely true for the years in our sample.

With respect to the correlation between fiscal deficit/change in liabilities and the change in per-capita income, we find that it was the case until the commencement of state FRLs that lower income states tended to have higher fiscal deficits as a percent of GSDP. However, this has consistently not been the case since the early 2000s: this result indicates that the two are now barely correlated (see Figure 6 (A) and 7 (A)) and is perhaps an unexpected result of the implementation of state-level FRLs, an extremely laudable one. Poor and rich states are fiscally prudent with equal probability. In the case of the size of government too, we have

[3]Though not the Fourteenth Finance Commission.

Figure 6: Impact of State-Specific Factors on the Change in the Liabilities to GSDP Ratio

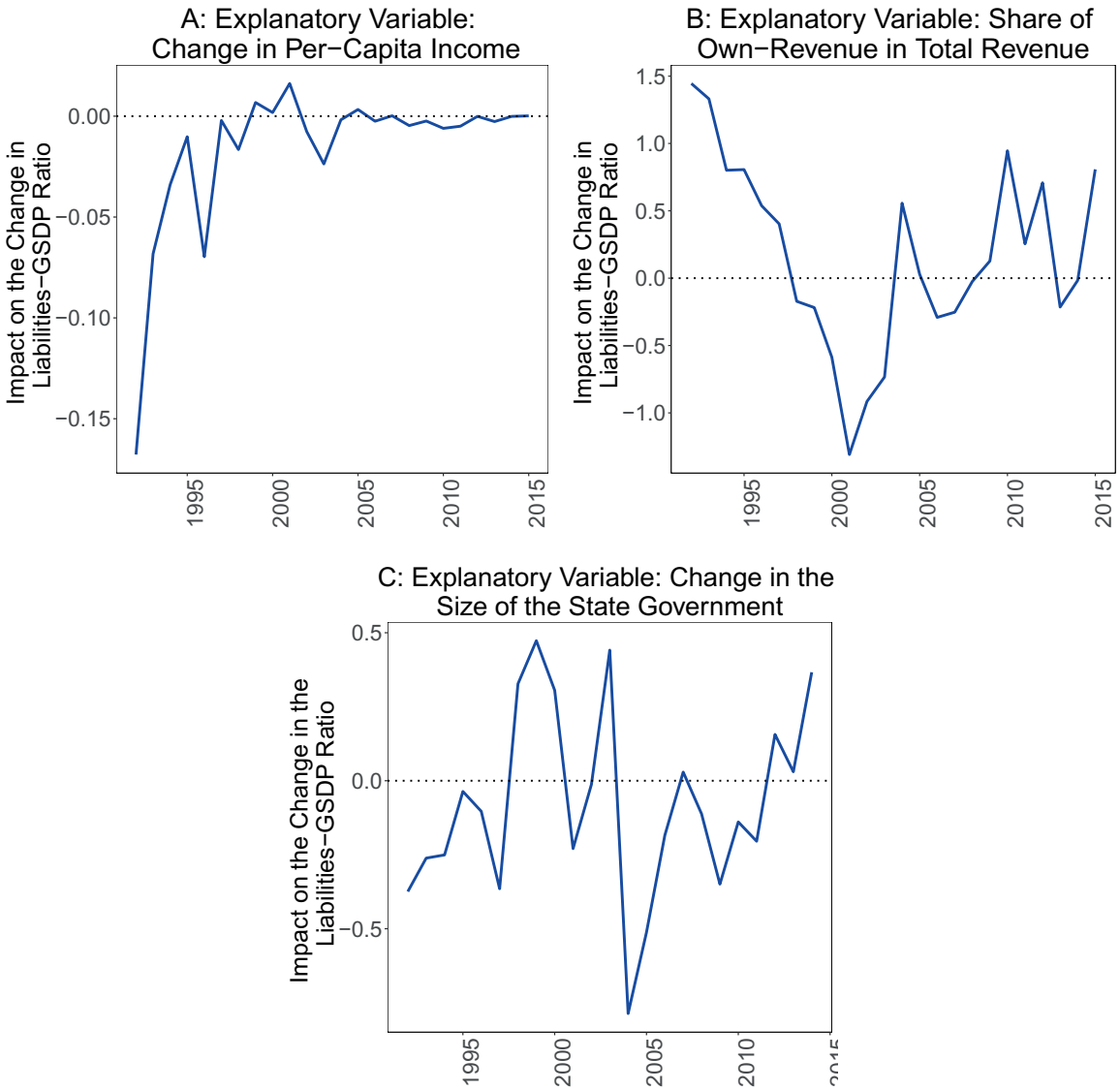
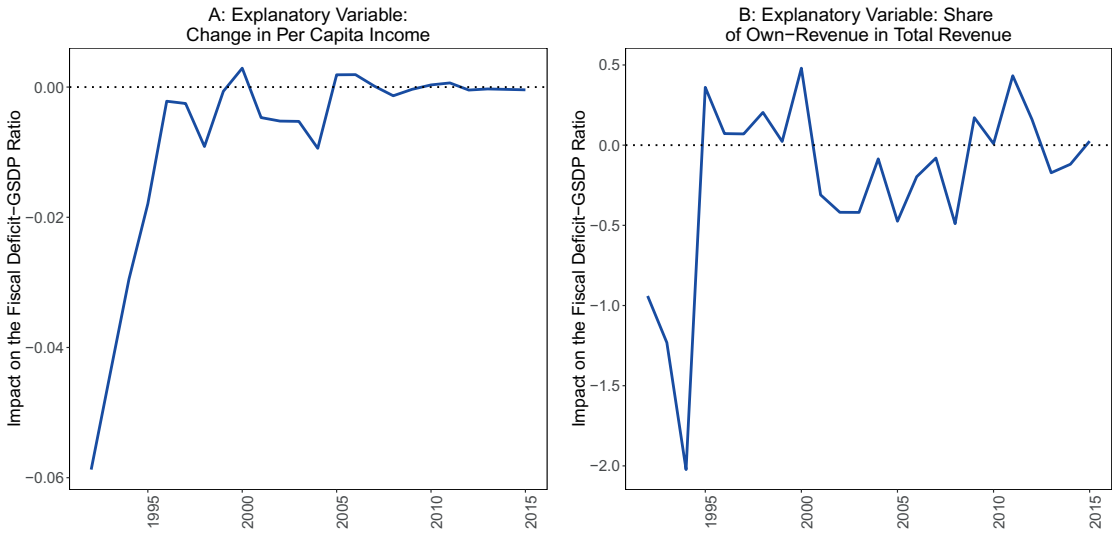


Figure 7: Impact of State-Specific Factors on the Fiscal Deficit to GSDP Ratio



the comforting result that the inverse correlation between the change in the size of a state government and the change in its liabilities during the 1990s has decreased in magnitude (see Figure 6 (C).

Hence it is possible for us to argue, at least on these three key macro-fiscal variables, that state-level heterogeneity does not detract from the reasoning we have given with respect to the fiscal consolidation proposed for the states as a collective, and its impact on the consolidation of general government finances as a whole.

Box 2. Methodology: Estimating Impact of State-Specific Characteristics on Fiscal Discipline

We estimate the following specification to quantify the impact of state-specific characteristics such as the size of government and per-capita income of the states on their fiscal performance.

$$Y_{it} = \alpha + \beta X_{it} + \eta_i + \rho_t + \varepsilon_{it}, \qquad (\text{for} \quad i = 1, ..., N; \quad t = 1, ...T) \tag{1}$$

where Y_{it} is either the ratio of the fiscal deficit to GSDP or the first difference of the liabilities to GSDP ratio; X_{it} denote our independent variables: the first difference of per capita income, the first difference of size of the state government, and the share of own-tax revenue in total state revenue; η_i and ρ_t are state and time fixed effects respectively; ε_{it} is the error term. Equation 1 is estimated on a five-year rolling-window sample:

1988-1992, 1989-1993,..., 2011-2015 using a Two-step System Generalised Methods of Moments estimator with Windmeijer (2005) corrected standard errors. Figures 6 and 7 plot the the slope-coefficients, (β in equation 1) of the three explanatory variables for these rolling-samples. The dynamic nature of our empirical model prevents us from obtaining

consistent estimates of the coefficients in equation (1) using Ordinary Least Squares (OLS) or Fixed Effects (FE) estimators (Nickel, 1981). To address these challenges, we choose to employ a two-step Blundell and Bond (1998) System Generalised Method of Moments (SYS-GMM) estimator. Apart from the Nickel bias, anther challenge we face is

that our sample size is modest as compared to the relative to the large micro-data sets to which such estimators are usually applied. The number of instruments in GMM models rise at a quadratic rate with the time dimension of the sample. This can lead to concerns regarding possible over-fitting in samples with a small cross-sectional dimension such as ours. Over-fitting may lead to biased estimates that converge to fixed effects estimates. Over-fitting may also significantly reduce the power of the Hansen test of the validity of instruments. We address this concern in two steps.

1. We use only certain lags of variables as instruments. All the GMM results presented here use lags $t-2$ and $t-4$ only.

2. We combine our instruments into smaller sets by collapsing the instrument set which contains one instrument for each lag distance and instrumenting variable, making the instrument count linear in the time dimension of the sample (See Roodman (2009) for details).

The above specification computes two-step SYS-GMM estimates with standard errors corrected with the Windmeijer (2005) procedure. We use the two-step standard error correction because the original variance formula has been shown to produce two-step standard errors that are implausibly smal.l

5 Debt Dynamics

In this section, we present projections for the debt to GDP ratios of the states, union and general governments for a range of primary and fiscal deficit trajectories[4].

Consider the standard equation of debt dynamics.

$$d_t = d_{t-1} + d_{t-1}\left(\frac{r-g}{1+g}\right) - p_t \tag{2}$$

where p_t is the primary balance to GDP ratio (thus, $p_t < 0$ denotes a deficit and $p_t > 0$ denotes a surplus), d_t denotes the debt to GDP ratio, r and g are the nominal interest rate and nominal GDP growth rate respectively and are assumed to be constant over time.

For convenience, we can define $\alpha = \left(\frac{r-g}{1+g}\right)$ and re-write Equation 2 as follows.

$$d_t = (1+\alpha)d_{t-1} - p_t \quad \text{or} \quad \Delta d_t = \alpha d_{t-1} - p_t \tag{3}$$

We can generalise Equation 3 to several periods as follows.

$$d_N - d_0 = \alpha \sum_{t=0}^{N-1} d_t - \sum_{t=1}^{N} p_t \tag{4}$$

Note that Equation 3 is a difference equation with the following solution. This is a convenient result to which we will return later.

$$d_N = d_0(1+\alpha)^N - \sum_{t=1}^{N}(1+\alpha)^{N-1}p_t \tag{5}$$

It is instructive to illustrate the path of the debt to GDP ratio of the union, state, and general governments for a range of assumptions for primary balance, interest rate, and GDP growth.

[4]See Escolano (2010) for a detailed discussion and extensions.

5.1 Scenario I: Primary balance required to maintain the debt to GDP ratio constant at its current level

How much primary deficit can each tier of the government afford if it was constrained to keep its debt to GDP ratio constant?

In Equation 3, let $d_t = d_{t-1} = d^*$ to get

$$p^* = \alpha d^* \tag{6}$$

where p^* is the primary surplus which will ensure that the debt ratio neither falls nor rises over time, i.e. it stays constant at d^*.

Table 3 shows such levels of primary balances for the general, union, and state governments and for different combinations of nominal interest rate (r) and nominal growth rate (g). These levels of primary balances, denoted p^*, will ensure that the debt to GDP ratios of the general, union and state governments stay constant at their present, 2016-17 levels[5] of 49.4, 19, and 68 percent of GDP respectively. For the states, we also consider the scenario of a higher debt stock of 21 percent due to the UDAY scheme.

Note that $p^*_{state(U)} > p^*_{state} > p^*_{union} > p^*_{GG}$ *for all values of* r *and* g. In fact, $p^*_{state(U)}$ is less than half in magnitude as compared to p^*_{union}. This implies that to maintain their present levels of combined debt to GDP ratio, the states must be appreciably more prudent in their fiscal conduct and run lower primary deficits as compared to the Union government.

This is the case because the Union government, which has a large debt stock of 49.4 percent of GDP, enjoys a greater downward pressure on its debt due to a favourable $(r - g)$. However, since the debt stock of the states is much smaller, (19-21 percent), the advantage that accrues to them on account of a favourable $(r - g)$ is lower than it is for the Union government. This implies that to bring

[5]The data for liabilities of the Union Government has been taken from Annex 5 (i) of the Receipts Budget 2016-17. Data for liabilities of the state and general governments has been taken from the Indian Public Finance Statistics, Ministry of Finance. The figure for state liabilities includes the debt of state power utilities taken over by the state governments under the UDAY scheme, but excludes the states' share of NSSF liabilities to avoid double counting as they are already included in the Centre's debt figure.

Table 3: Primary balances (as percent of GDP) which will keep debt-ratios constant over time

r	g	$r-g$	Implied α	p^*_{GG}	p^*_{union}	p^*_{state}	$p^*_{state(U)}$
7.3	10.5	-3.2	-0.029	-1.97	-1.43	-0.55	-0.61
7.3	11.0	-3.7	-0.033	-2.27	-1.65	-0.63	-0.70
7.3	11.5	-4.2	-0.038	-2.56	-1.86	-0.72	-0.79
7.3	12.0	-4.7	-0.042	-2.85	-2.07	-0.80	-0.88
8.0	10.5	-2.5	-0.023	-1.54	-1.12	-0.43	-0.48
8.0	11.0	-3.0	-0.027	-1.84	-1.34	-0.51	-0.57
8.0	11.5	-3.5	-0.031	-2.13	-1.55	-0.60	-0.66
8.0	12.0	-4.0	-0.036	-2.43	-1.76	-0.68	-0.75
8.5	10.5	-2.0	-0.018	-1.23	-0.89	-0.34	-0.38
8.5	11.0	-2.5	-0.023	-1.53	-1.11	-0.43	-0.47
8.5	11.5	-3.0	-0.027	-1.83	-1.33	-0.51	-0.57

Note: p^*_{GG}, p^*_{union}, p^*_{state}, and $p^*_{state(U)}$ denote the required primary balances for the general government, union government, and the states (with and without incorporating the impact of UDAY) respectively. $\alpha = (r-g)/(1+g)$ captures the net impact of the interest rate-growth differential $(r-g)$.

the level of their debt down by one percent, the states will have to run smaller (larger) primary deficits (surpluses) than the Union Government.

The states' combined primary deficit of around 1.3 percent of GDP is much higher than the Centre's primary deficit of 0.3 percent of GDP in 2016-17 (BE). This implies that the combined debt of the states is projected to rise even if they adhere to their FRBM targets. However, the analysis above raises another cause of concern for the states. The fact that their debt is already at fairly low levels implies that any further consolidation in their combined debt to GDP ratio would require them to run disproportionately low fiscal deficits. Indeed, a reduction in the fiscal deficit is required even to maintain their existing levels of debt.

5.2 Primary balances to meet a given debt ratio in finite time

How much primary deficit can each tier of the government afford if it was constrained to reduce its debt to GDP ratio to a fixed debt to GDP ceiling in a given period?

Let the target debt ratios be 60, 40, and 21 percent of GDP for the general,

union and state governments respectively. Table 4 presents the required primary balances (p^T) that will enable the general, union, and state governments to meet their target debt to GDP ratios by FY2025.

Let the required constant primary balance be p^T. From Equation 5 we can derive the following expression for p^T.

$$p^T = \left[\frac{\alpha}{(1+\alpha)^{-N}-1}\right]\left[(1+\alpha)^{-N}d^T - d^0\right] \tag{7}$$

That is, given an initial debt ratio (d^0), and a target debt ratio (d^T) to be achieved in N years, the constant primary balance (p^T) that reaches the target debt ratio, if maintained constant during periods $t = 1, ..., N$, is given by the expression above.

Table 4: Required primary balances (as a percent of GDP) to meet the target debt ratio by 2025

r	g	$r-g$	Implied α	p^T_{GG}	p^T_{union}	p^T_{states}	$p^T_{states(U)}$
7.3	10.5	-3.2	-0.029	-0.86	-0.13	-0.83	-0.61
7.3	11.0	-3.7	-0.033	-1.14	-0.33	-0.91	-0.70
7.3	11.5	-4.2	-0.038	-1.42	-0.52	-1.00	-0.79
7.3	12.0	-4.7	-0.042	-1.70	-0.71	-1.09	-0.88
8.0	10.5	-2.5	-0.023	-0.46	0.15	-0.70	-0.48
8.0	11.0	-3.0	-0.027	-0.74	-0.04	-0.79	-0.57
8.0	11.5	-3.5	-0.031	-1.02	-0.24	-0.88	-0.66
8.0	12.0	-4.0	-0.036	-1.30	-0.43	-0.96	-0.75
8.5	10.5	-2.0	-0.018	-0.17	0.36	-0.61	-0.38
8.5	11.0	-2.5	-0.023	-0.45	0.16	-0.70	-0.47
8.5	11.5	-3.0	-0.027	-0.73	-0.04	-0.79	-0.57
8.5	12.0	-3.5	-0.031	-1.01	-0.23	-0.87	-0.66

Note: p^T_{GG}, p^T_{union}, p^T_{state}, and $p^T_{state(U)}$ denote the required primary balances for the general government, union government, and the states (with and without incorporating the impact of UDAY) respectively. $\alpha = (r-g)/(1+g)$ captures the net impact of the interest rate-growth differential $(r-g)$.

In this scenario, the Centre has to consolidate its debt by over 9 percent of GDP (almost one-fifth of their existing stock of debt). Despite this significant

consolidation, Table 4 shows[6] that the Centre can afford a primary deficit of over 0.5 percent of GDP, which is larger than its present primary deficit. The states, on the other hand, are not required to reduce their debt to GDP ratio at all[7]. However, even to maintain their debt at existing levels, the states would be required to reduce their primary deficits below their present levels.

To see why this is the case, and also why $p^*_{state(U)} > p^*_{state} > p^*_{union} > p^*_{GG}$ in the previous section (see Table 3), note that there are two opposite forces that act on debt. Recall Equation 3.

$$\Delta d_t = \alpha d_{t-1} - p_t$$

Note that if $r < g$, we have that $\alpha < 0$[8], and as long as there is a primary deficit, we have that $p_t < 0$. Thus, *ceteris paribus*, a favourable α (i.e. when $r < g$) exerts a downward pressure on debt. *However, the negative impact of α depends on the level of debt itself.*

The Union government, which has a large debt stock of over 49 percent, enjoys a greater benefit from a favourable $r - g$, whereas the states, with much smaller debt levels (around 19-21 percent of GDP) are not as lucky. This implies that to bring the level of their debt to GDP ratios down by the same proportion within a fixed time period, the states will have to run smaller (larger) primary deficits (surpluses) than the Union Government.

Figures 8 illustrates this fact. Suppose we want the debt to GDP ratio of a government to come down by 20 percent of its initial value by FY 2030. Then Equation 7 provides an expression for the primary balance which would be required for $d^T_{2030} = 0.8d_0$, and $N = 13$. We assume $r = 8$ percent and $g = 11.5$ percent

[6]See the column that pertains to our baseline assumptions of a nominal GDP growth of 11.5 percent and an interest rate of 7.3 percent.

[7]In fact, if we don't incorporate the impact of UDAY, and take the debt to GDP ratio of the states at 19 percent in FY17, then the states can afford to raise their debt to GDP ratio by 2 percent of GDP.

[8]Recall from page 1 that $\alpha = \frac{r-g}{1+g}$. It captures the effect of two things. The first reflects the interest cost of financing the debt $\left[\left(\frac{r}{1+g}\right) d_{t-1}\right]$, and the second term relates to the erosion of the debt ratio that stems from the growth of output (the denominator in the debt ratio) $\left[-\left(\frac{g}{1+g}\right) d_{t-1}\right]$. Thus, $\alpha = \frac{r-g}{1+g} = \frac{r}{1+g} - \frac{g}{1+g}$. It is apparent that the difference between the interest rate and the rate of economic growth is a key determinant of changes in the debt-to-GDP ratio.

(i.e. $\alpha = -0.02691$).

Figure 8 presents a plot of Equation 7 in a three-dimensional space of d_0, N, and p_t as well as its contours in two dimensions. Each of the contour lines represents a fixed level of primary deficit. The negative slope of the contour lines implies that for a given level of primary deficit, there is an inverse relation between the initial level of debt to GDP ratio (d_0) and the time it takes to reach the target debt to GDP ratio (N)[9].

Thus, if two governments with the same primary deficit want to achieve the same proportional reduction in the debt to GDP ratio (say a 20 percent reduction from the initial level of debt), the government with a higher initial level of debt ratio will achieve the target faster. A corollary of this result is that if two governments want to achieve the same proportional reduction in the debt to GDP ratio in a given period, the government with the larger initial debt ratio can afford higher primary deficits (or smaller primary surpluses).

Thus, the Union government, which has a large debt stock of almost 50 percent enjoys a greater downward pressure on its debt due to a favourable $r-g$. However, since the debt stock of the states is much smaller, (21-23 percent), the advantage that accrues to them on account of a favourable $r - g$ is lower than it is for the Union government. This implies that to bring the level of their debt down by one percent, the states will have to run smaller (larger) primary deficits (surpluses) than the Union Government.

5.3 Trajectories of debt and deficits for the States

Having discussed the properties of debt dynamics for the different levels of the government, we now focus only on the states. The following analysis provides a better understanding of the consolidation required by the states if they were to maintain their debt-GDP ratios at the FY 2017 levels.

[9]The slope is naturally reversed in case of primary surplus.

Figure 8: Graph of $p^* = \left[\frac{\alpha}{(1+\alpha)^{-13}-1}\right][(1+\alpha)^{-13}(0.8d_0) - d_0]$ for $\alpha = -0.02691$

[*Note:* Primary balance is in percent of GDP, initial debt is as a ratio of GDP]

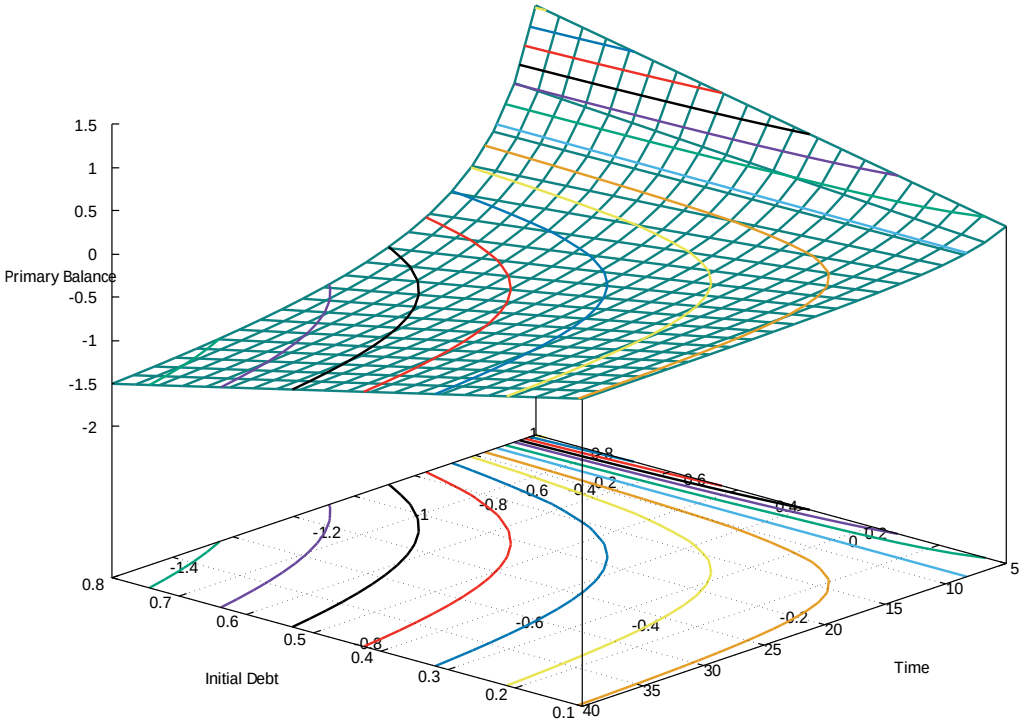


Table 5: FD path required to ensure that the debt to GDP ratio of the states in FY25 is the same as its present level of 21 percent of GDP

Year	Debt	Fiscal deficit	Annual Reduction in FD
FY17	21.00	2.98	0.16
FY18	21.65	2.82	0.16
FY19	22.08	2.66	0.16
FY20	22.30	2.50	0.16
FY21	22.34	2.34	0.16
FY22	22.22	2.18	0.16
FY23	21.95	2.02	0.16
FY24	21.54	1.86	0.16
FY25	21.02	1.70	0.16

As explained above, some fiscal correction (i.e. a reduction in the fiscal deficit to GDP ratio) will be required at the level of the states even if they were to maintain their debt to GDP ratios at their FY17 levels (21 percent of GDP). Rather than force this correction in one or two years, we allow for the fiscal deficit of the states taken as a collective to fall gradually by 0.16 percent of GDP in each year. As shown in Table 5, this would imply that the debt to GDP ratio of the states rises marginally in the short run but returns to its present level of 21 percent of GDP by FY25 (including the estimated impact of UDAY). Thus, in FY25, the general government debt anchor would be achieved with the Centre's debt down to 40 percent of GDP and the states collectively accounting for debt of around 21 percent of GDP.

As in the case of the Centre, this path is dependent on (a) the assumption that the nominal GDP grows at 11.5 percent (a lower growth rate would require more stringent consolidation or a postponement of the year by which the debt target is achieved) and (b) that the liabilities arising from the states' participation in UDAY will not be more than 2 percent of GDP, both in the present moment and in the future. If the incremental impact UDAY is less than 2 percent, then the fiscal consolidation will be easier and the required reduction in the fiscal deficit lower. The opposite is also true. Since the states can choose the extent to which they wish to avail of the fiscal relaxation under UDAY, they have, therefore, an inter-temporal policy choice to make.

Table 6: FD path required to ensure that the debt to GDP ratio of the states in FY25 decreases to 20 percent

Year	Debt	Fiscal deficit	Annual Reduction in FD
FY17	21.0	2.98	0.195
FY18	21.6	2.79	0.195
FY19	22.0	2.59	0.195
FY20	22.1	2.40	0.195
FY21	22.0	2.20	0.195
FY22	21.8	2.01	0.195
FY23	21.3	1.81	0.195
FY24	20.7	1.62	0.195
FY25	20.0	1.42	0.195

We also explored the possibility of the states reducing their debt to GDP ratios from the current estimated level of 21 percent to 20 percent by FY25 (see Table 6). This would entail a steeper reduction in fiscal deficits by 0.195 percent of GDP each year, implying that the fiscal deficit in FY25 reduces to less than half its present value.

6 Conclusion

We find that the states of India, taken collectively, have executed a remarkably successful fiscal consolidation since enacting their FRLs ten to fourteen years ago. Our examination of the sources of fiscal consolidation indicates that compliance with the three percent fiscal deficit ceiling and the target of zero revenue deficit were on account of buoyant revenues as well as active expenditure control. While the introduction of VAT and high growth indubitably helped keep revenues buoyant, the fact that we observe revenue buoyancy across rich and poor states indicates that there was collective effort to achieve revenue targets so as to facilitate FRL compliance. State governments did not fully utilise their higher revenues to increase expenditures in good times, a course of action that is politically very attractive. Rather, they exercised political will and executive restraint. Understandably, in crisis years, when revenues fell, expenditure was not curtailed, but this was consistent with the 0.5 percent relaxation in state-FRL limits by the centre. Collectively, the states managed to successfully consolidate their fiscal position after the crisis,

unlike the centre. While transfers helped the states in securing their FRL targets, it is clear from our analysis that they played a limited role; improvement in own revenues was not trivial across the period of analysis.

We have also found that state-specific characteristics such as the level of per-capita income, the size of the state government, and the level of the states' own revenue, do not have a significant impact on debt and deficit control by individual states. In fact, we find that following the execution of state FRLs, the correlation between fiscal performance (fiscal deficit and the change in liabilities) and state-specific characteristics such as per-capita income and the size of the state governments has reduced sharply; poor and rich states are equally fiscally prudent. Further, states that spend more can find the resources to do so within their FRL constraints and without jeopardising macro-fiscal parameters.

The recent fiscal consolidation by the states assumes structural significance when one looks at the combined size of the state governments relative to that of the general government. Figure 9 (A) shows that since the late 1980s, this share has grown continuously, peaking at 53.6 percent in 2003-04. However, in subsequent years, with the implementation of state FRLs, the share of the state governments in the size of the general government fell sharply to about 43.8 percent in 2008-09. Since then, the share has again begun to increase and stands at 52.3 percent as of 2014-15.

Figure 10 illustrates that the reduction of the states' share in the size of the general government was a direct consequence of the better implementation of fiscal responsibility laws by the states relative to the central government. The share of the states' combined borrowing in general government borrowing halved from 2004-05 to 2008-09. On the other hand, the share of sub-national tax receipts in general government tax receipts decreased only marginally in this period.

The success of fiscal consolidation and the consequent reduction of the states' share in size means that the they have given up fiscal space to the centre. This would have inevitably limited their ability to increase public spending in critical areas where they have principal public policy responsibility, such as health education, sanitation, and rural roads. In addition, even with the recent increase in the size of the sub-national government, the share of the total liabilities of the states in total general government liabilities continues to decline (see Figure 9 (B)). Therefore, it would be unreasonable to expect more heavy-lifting for the reduction of the general government debt to be done by the states.

Figure 9: The Size and Liabilities of the State Governments as a Share of the Liabilities and Size of the General Government

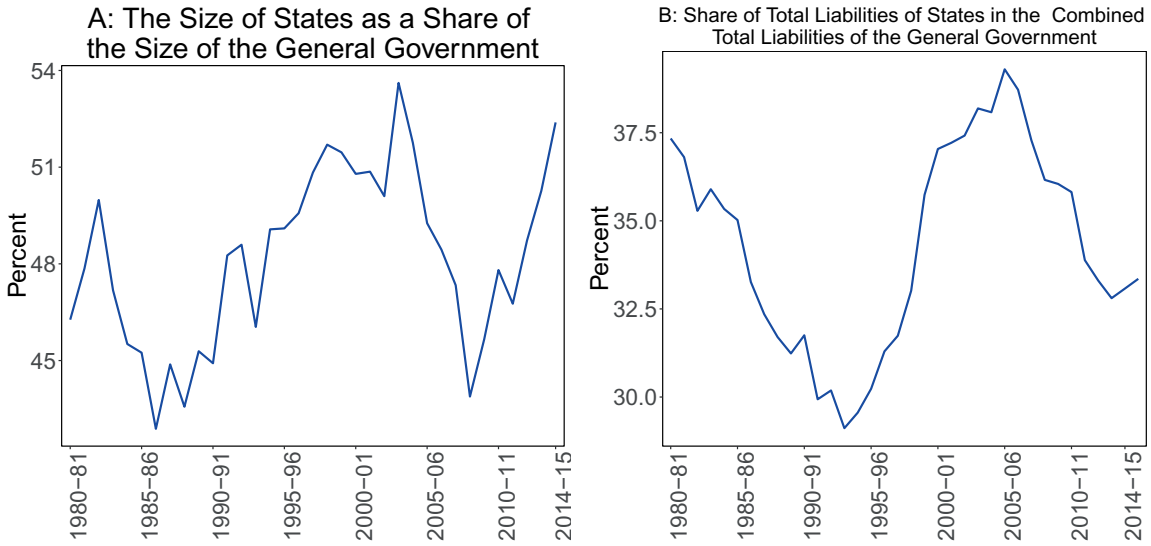
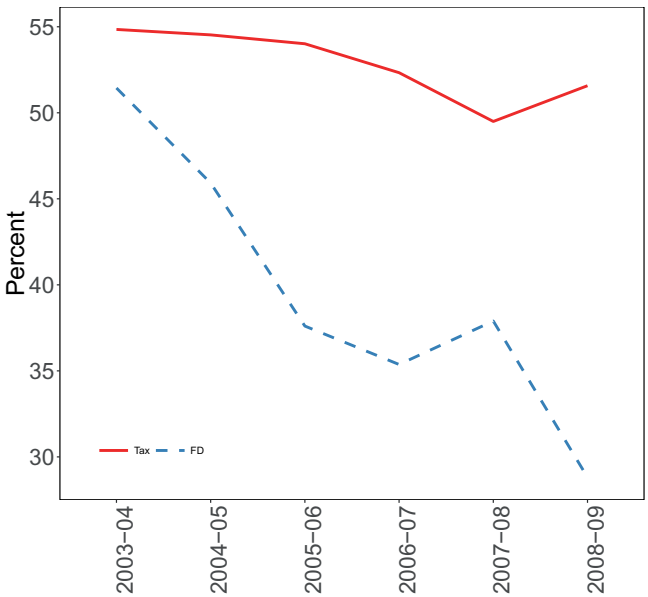


Figure 10: Components of the Size of the Government: The share of States' Borrowings and Tax Revenues in the General Government



An examination of the primary deficit to GDP ratios of the states and centre respectively indicate that the states have run relatively higher primary deficits in recent times as compared to the centre. However, this is because the states have a far lower initial level of debt than the centre due to a historically greater fiscal consolidation. As a consequence, the bulk of the fiscal space available to the states is used to undertake fresh capital expenditure since the interest payments of the states are very small. Thus, it would be unreasonable to expect the states collectively to reduce their debt-GDP ratio purely by the fact that their primary deficit to GDP ratio is higher than that of the centre.

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SECTION 3:

INTERPLAY OF FISCAL AND MONETARY POLICY

Fiscal Policy and Economic Reforms

Y.V.Reddy

Working Paper 2008-53

May 2008

National Institute of Public Finance and Policy
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Fiscal Policy and Economic Reforms

Y.V. Reddy[1]

Respected Professor Govinda Rao and distinguished scholars,

I am honoured by my friend, Prof. Govinda Rao's, kind invitation to me to visit the National Institute of Public Finance and Policy (NIPFP). I had the opportunity of working very closely with the NIPFP on several occasions. Apart from my personal affinity to the NIPFP, there is a close relationship between the Reserve Bank of India (RBI) and the NIPFP, from an institutional point of view also. For instance, Prof. Govinda Rao is a Member of the Southern Local Board of RBI.

Initially, I thought of speaking on fiscal policy and economic reforms from a central banker's perspective. I realised later that while I have been working as a central banker over the last one decade, I had worked for most parts of the three decades prior to that in the Ministry of Finance, in the Government of India as well as in the Government of Andhra Pradesh. So it was a difficult choice for me as to whether I should give a fiscal view of the monetary policy or a monetary view of the fiscal policy. I have worked for a short period in the World Bank, which gives a global governments' view and also in the IMF, which gives a global monetary authority's view. As a via-media, I have opted to give a practitioner's perspective of fiscal policy, and economic reforms.

India's Fiscal Situation: A Brief Prelude

Broadly, during the first 30 years of independence, between 1950 and 1980, the fiscal deficits of both the central and the state governments were not excessive. This was a period of revenue surplus in general. However, automatic monetisation of government deficit by the RBI, which started as an exception during the mid 1950s, became a regular practice thereafter. Simultaneously, there was also a distinct shift in the management of the financial sector with the nationalisation of major commercial banks in 1969 and 1980. These two developments had a significant bearing on the relationship between the monetary authority (RBI) and the fiscal authority (Government).

There was a significant deterioration in the fiscal situation in the 1980s, accompanied by large and automatic monetisation of government deficits. The process involved issue of ad-hoc Treasury bills at rates initially on par with 91- day Treasury Bills. Since July 1974, the ad-hoc Treasury bills were offered at off-market discount rate of 4.6 percent which was less than half of the prevailing market rates. There were two immediate consequences. One, when large government deficits were monetised, there was excess liquidity in the system, which prompted the monetary authorities to increase the cash reserve ratio (CRR) for banks at regular intervals with a view to mop up the excess liquidity. Two, to facilitate the central government to borrow comfortably, the monetary authority, which is also the debt manager for the government, periodically increased the statutory liquidity

[1] Address by Governor, Reserve Bank of India at the National Institute of Public Finance and Policy (NIPFP) on May 26, 2008 (edited transcript).

ratio (SLR) to be maintained by banks. This process went on to an extent that CRR and SLR, together, pre-empted more than 50 percent of banking sector liabilities, for a period. In other words, more than 50 percent of the resources of the banking sector were pre-empted to primarily finance the budget deficits of the governments. Further, the deposit and lending rates of banks were, for most part, administered. This situation impacted the health of the banking system and the consequential adjustments during the banking sector reform process were, naturally, somewhat complex.

The large fiscal deficit and its monetisation had some spill-over effect on the external sector, which reflected in the widening current account deficit in the late 1980s and early 1990s. Triggered by the balance of payments crisis in the early 1990s, when our foreign currency assets depleted rapidly to the extent that it could barely finance just two weeks of imports, we started the reform process in 1991-92. A credible macroeconomic structural and stabilisation programme encompassing trade, industry, foreign investment, exchange rate, public finance and financial sector was put in place, which created an environment that was conducive for the expansion of trade and investment. Simultaneously, several reform measures towards the marketisation of government borrowings were initiated.

At the instance of Dr. Rangarajan, one of my illustrious predecessors as Governor, the RBI entered into the first agreement with the government in 1994 to place a limit on automatic monetisation. The First Supplemental Agreement between the RBI and the Government of India was signed in 1994 setting out a system of limits for creation of ad hoc treasury bills during the three-year period ending 1996-97. Then in 1997, soon after I moved to the RBI, the second agreement with the government was signed, where

Mr. Montek Singh Ahluwalia represented the government. In pursuance of this Second Supplemental Agreement between the RBI and the Government of India on March 6, 1997, the ad hoc Treasury Bills were completely phased out from April 1997, replaced by a scheme of Ways and Means Advances, subject to limits. In order to smoothen the transition, the Government of India was allowed to incur also an overdraft, but at an interest rate higher than the rate applicable for Ways and Means Advances (WMA). With effect from April 1, 1999 these overdrafts were allowed only for a maximum of ten working days. These features placed the Central Government on par with the State governments which were brought under an 'Overdraft Regulation Scheme' since 1985. Furthermore, it was agreed that the RBI would trigger fresh floatation of Government securities whenever 75 percent of the WMA limit was reached. It was also agreed that the government's surplus cash balances with the RBI, beyond an agreed level, would be invested by it in government securities. While the transition to a full-fledged WMA and overdraft mechanism was gradual, non-disruptive and consensual, the successful implementation of this mechanism made it possible to incorporate some of these practices into a law – the Fiscal Responsibility and Budget Management Act (FRBM Act). It is noteworthy that this law also practically prohibited RBI from participating in primary issues of all government securities.

As a result of the concerted efforts to restore fiscal balance through tax reforms, expenditure management, institutional reforms and financial sector reforms in the first half of the 1990s, there was significant reduction in the magnitude of fiscal deficit and the proportion of debt relative to GDP during the period 1991 to 1997. However, during the period 1997 to 2003, there was a reversal in the trend of fiscal consolidation, and the cumulative impact of industrial slowdown, fifth pay

commission award, and a lower than expected revenue buoyancy culminated in fiscal deterioration. This deterioration in the Indian fiscal position happened at an inopportune time when there was fiscal improvement the world over and India was trying to globalize. It is important to remember that India's fiscal situation has been significantly divergent from the global fiscal situation and continues to be so even now. I think, this is the background we have to keep in view whenever we discuss the pace and the content of economic reforms in India. The coming into force of the FRBM Act, 2003 on July 5, 2004, which established a framework for a rule based fiscal consolidation, should be viewed in this background.

In the period subsequent to 2003, the central government's fiscal position has been improving, though there are several underlying fiscal pressures that are not entirely evident in the numbers, as will be explained later. The states' fiscal positions have also improved significantly during this period and their revenue deficits are close to being virtually eliminated. However, as in the case of the Centre, there are some underlying pressures that are not reflected in the fiscal numbers of the States.

Despite considerable improvement in the fiscal scenario, both at the centre and in the states, India's combined fiscal deficit (centre and state), as a percentage of GDP, still continues to be one of the highest in the world. Prof. Rao would also be able to explain to you separately in detail that India's public debt, including the external debt, as a percentage of GDP, is one of the highest in the world. In this context, the U.K. based weekly the *Economist* (dated November 17, 2007 – Pages 75-77) ranked India, along with Turkey and Hungary, as the riskiest economies among select leading emerging market economies. The *Economist* based its conclusion on standard parameters such as current account balance, budget balance, inflation and growth in bank lending, for assessing the degree of risk. One cannot disagree with the relevance of these parameters in assessing risks. Yet it is noteworthy that most of these risky elements were present in the Indian economy for several years, almost all through the reform period, and yet the economy exhibited macro-stability and impressive growth even while withstanding some significant domestic and global shocks. In view of this evidence, we need to explore the reasons for such risks not de-stabilising our economy so far; and the measures that are needed, in future, for insulating the economy from such de-stabilising effects, to the extent feasible. I think it is important that this big picture be reckoned while we analyse the pace and intent of reforms, despite some agreement on the destination as well as direction of economic reforms.

Role of RBI in Fiscal Reforms

Now, let me briefly explain the role of RBI in fiscal reforms. As a central bank, we are generally sensitive to the fiscal situation. It is not true that the RBI was not aware of the implications of what was happening on the fiscal front during the first three decades (1950 to 1980). Given the institutional arrangement, the RBI's primary objective is to maintain monetary stability. It was clear that the fiscal situation was something that was decided and determined by the sovereign. Once the fiscal situation was decided and determined by the sovereign, it was the central bank's responsibility to ensure that monetary stability was maintained and the government's borrowing programme was managed with minimum disruptions, in terms of stability. Some argue that accommodating the fiscal pressure through monetary action is like, what some people call, a soft-budget

constraint.

Let me revert to the reform process and how we got rid of the remnants of automatic monetisation of the previous years. The stock of ad hoc Treasury bills, when we put an end to issue of such bills, was over Rs. 1,00,000 crore. This stock was in fact public debt in perpetuity, held by the RBI, bearing a discount rate of 4.6 percent though the market rates were far higher. In coordination with the government, it was agreed that these papers will be converted into dated marketable securities at market related rates, in phases, depending on the market conditions warranting open market operations by the RBI. Thus, the stock of the ad hoc treasury bills has been wiped-out. This is an evidence of the varieties of ways in which the RBI conceives and implements the process of reforms, in a non-disruptible fashion, in coordination with the government.

Let me share a story related to the FRBM Act with you. One day, Governor Jalan said that the Finance Minister is making an announcement on introduction of Fiscal Responsibility Bill (which was the then proposed nomenclature). Governor Jalan said that he had discussed with the Minister and that they had decided that I will be named the Chairman of a Committee that would draft the Fiscal Responsibility Bill. I submitted that the government officials should be working on the legislation relating to fiscal issues and that the RBI should not be involved, as the ownership of the Fiscal Responsibility Bill should be with the government. Governor Jalan did not relent and said "No, it has been decided that you do it". So finally, we arrived at a compromise. A main formal Committee was set up in 2000 with the then Secretary, Economic Affairs, Dr. E.A.S. Sarma as the Chairman and Dr. Ashok Lahiri as one of the members; and a working group comprising of RBI officials was set-up under my Chairmanship to provide technical assistance to the main Committee on several aspects for drafting the Fiscal Responsibility Bill. The RBI Working Group was actively involved in the Sarma Committee to draft the Fiscal Responsibility Bill. Mr. Prem Chand of the IMF, at our invitation, spent some time advising us on the international best practices in this regard. At this stage, we advised the Government that without incorporating transparent budget management rules and medium term fiscal framework, the objective of fiscal responsibility would not be achieved. Therefore, the name of the Bill was changed to "Fiscal Responsibility and Budget Management Bill" incorporating additional features. In short, I am illustrating that the RBI has been actively collaborating with the government, whenever sought, but with appropriate propriety.

Our experience shows that the FRBM Act has a positive effect of focusing attention on fiscal issues. At the same time, it may, sometimes, unintentionally lead to increased recourse to expanding off-budget fiscal liabilities. Such a practice is not entirely uncommon in many countries, but the magnitudes involved and the persistence in resorting to off-budget liabilities in India are noteworthy. The issue is not merely one of transparency in fiscal operations or a *de facto* larger borrowing programme of the Government than admitted, but one with significant implications for the Government debt market and monetary management.

Past experience clearly suggests that recourse to such off-budget items is not *ad hoc* or one-time only. The repeated recourse to issue of Government bonds has been exercised not only for fuel, food and fertilizers for financing subsidies, but also for financing deferred liabilities in regard to bank loan waivers

and contribution to the capital of public sector banks. Hence, unless there is a noticeable change in global prices or a change in policy towards recurrent subsidies and deferred liabilities, continuation of such special bonds may not be ruled out. The significant quasi-fiscal transactions to finance recurrent revenue expenditures through *de facto* borrowings pose challenges in managing the links between fiscal, external and monetary management.

The RBI has rendered advice on FRBM to the state governments also. A forum has been provided by the RBI, which brings together the Finance Secretaries of state governments, for exchange of ideas and sorting out the issues. The bi-annual conference of State Finance Secretaries hosted by the RBI, initiated in 1996, is also attended by the Secretaries in the Ministry of Finance, Government of India, representatives from the Planning Commission, the Comptroller and Auditor General of Accounts (CAG) and the Controller General of Accounts (CGA). The deliberations in these bi-annual conferences have proved very useful in identifying the common issues and developing best practices in regard to state government finances. A number of important initiatives relating to ways and means advances, approach to market borrowing programme, investment of surpluses, ceilings on state government guarantees, model scheme for state level fiscal legislations, apart from changes in the content and format for reporting budget related documents to ensure transparency etc. have emanated and taken shape as a result of interactions in these meetings. The RBI has, through this forum, also helped the state governments prepare the state level FRBM legislations.

Incidentally, the first research and policy paper on pension funds in India was prepared by Dr. Urjit Patel, who used to work with us. In those days, it was so hard to get any data that we had to tap our informal links in the various offices in Delhi, including some of my old colleagues, to give him some access to relevant information. Dr. Urjit Patel did a very good job and then he published an article in the *Economic & Political Weekly.* Thus, the public policy on pensions was, in a sense, triggered by the work done by a consultant in RBI, at our request. RBI also worked on a Report on Pensions for state government employees. This is another evidence of the collaboration between the RBI and the governments and often our views are accepted. Now, let me come to the fiscal and monetary management issues.

Fiscal and Monetary Management

Let me clarify the general approach of RBI in its relations with the government on matters relating to monetary management. As illustrated in the case of preparation of the Fiscal Responsibility and Budget Management Bill, coordination between the government and the RBI is essential for structural reforms, especially when legal and institutional changes are involved. In regard to operational issues relating to monetary policy, there is some element of freedom but, in view of the fiscal dominance in the economy, the overriding approach has been harmonization of monetary policy with fiscal policy for ensuring stability. Within this framework, through mutual cooperation, several reform measures have been undertaken by the government and the RBI and I will provide a few illustrations.

First, the Statutory Liquidity Ratio (SLR) has been gradually reduced to the then statutory minimum of 25 percent, effective October 21, 1997. Also, the CRR has

been reduced gradually, depending on the liquidity conditions, as a first step, with the objective of ultimately reducing it to the statutory minimum of three percent. In the meantime, RBI's commitment to the removal of the statutory prescriptions of minimum reserve and liquidity requirements was demonstrated by its proposal to the Government for legislative amendments to remove the minima. These legislations have since been passed. Now, there is no minimum statutory stipulation for SLR and CRR.

The challenge now is to reduce the CRR and the SLR stipulations, as we go along. The reduction in CRR will be contingent upon liquidity conditions and the need for using it as an instrument of sterilisation along with other instruments. The reduction in SLR will primarily be governed by the fiscal situation of the government. The issue is not one of desirable destination but one of negotiating the path in an optimal way. RBI has two options for proceeding in this regard. Either we accept the fiscal situation and wait for it to improve, to effect any further reductions in SLR or reduce prescriptions gradually consistent with fiscal situation and market development. So that is the type of choices we are facing at this juncture and RBI prefers to assess the fiscal situation and proceed with the reductions in a cautious manner.

Second, an issue that has come to the fore in the recent period pertains to higher volatility in government's cash balances maintained with the RBI, which impacts the liquidity conditions in the financial markets. Volatility in Government's cash balances is not unique to the Indian situation and is an issue even in other countries, but in our situation, it has become increasingly prominent now. It so happens that, at times, government's cash balances and the external situation move in different directions and they create very little net impact on liquidity from the perspective of overall monetary management. However, there are occasions when they move in the same direction, in which case the volatility in the liquidity conditions is much higher. This is one major current issue in monetary management which could be linked to cash management in the government. The link becomes critical for maintaining orderly liquidity conditions in the money market and effectively using short term overnight interest rates for monetary operations.

Third, the magnitude of the combined fiscal deficit of the centre and the states is close to half of the households' financial savings, which is the largest component of domestic savings. If fifty percent of households' financial savings are taken away by the government sector, it has vital implications for ensuring stability in the financial markets because the demand for funds from the non-government productive sectors of the economy has to be met simultaneously.

Fourth, India is still a bank-dominated system and about 70 percent of our banks (in terms of business) are owned by the government. Thus, we could have a situation when the objective of monetary policy and the objective of broader public policy dealings with banking converge, in which case the monetary policy could be very effective. Sometimes, it could happen that the objective of monetary policy and the objective of broader public policy may not converge, in which case monetary policy may not be that effective. In other words, the effectiveness of the monetary policy depends not only on the actions of the monetary authority, but also on other public policy postures. This certainly complicates monetary management. Of course, the issue of conflict of interest in public sector banking

and government ownership is yet another issue. The issue of conflict of interest in private sector banks arises when the owner of the bank borrows from his own bank. The single largest source of borrowing for the government being the government-owned banks themselves, this conflict is rather apparent.

Fifth, one of the factors imparting rigidity to the interest rate structure in India is the administered interest rates, particularly on small savings instruments. In this context, administered interest rates fixed by the Government on a number of small saving schemes and provident funds are of special relevance as they have generally offered a rate different from those on corresponding instruments available in the market, in some cases along with tax incentives. The administered interest rates significantly impact the level and allocation of savings. On the lending side also, there are some administrative prescriptions for banks. Depending on how it is calculated, on both the savings and the lending sides, the administered structure of interest rate would apply to about 25 to 40 percent. In this context, it is pertinent to note that the monetary policy mainly operates through interest rates and interest rate signals, and constraints posed by administered interest rates have to be duly recognized while dealing with issues relating to monetary policy transmission mechanisms.

Sixth, theoretically it is well recognised that monetary policy is generally a more effective counter-cyclical policy instrument than fiscal policy because interest rate changes can be made and reversed quickly. However, monetary policy adjustments may take longer than fiscal policy adjustments to affect aggregate demand. It is also recognized that fiscal policy contributes to broader-based stabilization through the impact of taxes and government spending on income-sensitive (in addition to interest-sensitive) components of aggregate demand. When monetary policy is thus constrained in responding to output variations, fiscal policy should normally take a more central role. Thus, effective co-ordination between the fiscal policy and monetary policy is important. At a more aggregate level, in the context of our capacity to respond to global developments, if we have a counter-cyclical policy approach, not only the monetary policy but also the fiscal policy should be counter-cyclical. If the fiscal policy continues to be unidirectional, as we have in our case, with persisting deficits, then the fiscal policy is not in a position to produce a reasonable counter-cyclical impact. In these circumstances, the monetary policy has a challenge in designing and implementing appropriate counter-cyclical policies, that has the added burden of off-setting the impact of the fiscal policy. Well, despite these challenges, the RBI has managed the situation reasonably well and we have the confidence that we would be able to continue to manage. However, it is important to recognize that, at times, unorthodox policies have assured the stability of the Indian financial system despite fiscal stress, which is a desirable outcome rather than achieving ritualistic compliance with pre-set rules.

By and large, these are some illustrations of the links that exist between fiscal and monetary management. We are continuously refining the monetary policy framework and the conduct of the monetary policy, taking into account the progress in fiscal consolidation. The reform of the monetary policy framework and the conduct of monetary policy have to recognise the fiscal, and the related institutional as well as policy constraints. That is the limited point I want to make to those who are impatient with the current monetary management framework.

Now let me go to fiscal and the financial market.

Fiscal and Financial Markets

First, the foremost link between the fiscal and financial markets is through the government securities market. As has already been explained in detail, the central government's borrowing programme was significantly monetized in earlier days. It may be of interest to all of you to know that since a large part of the borrowing programme has to be completed in the first half of the fiscal year, in view of seasonality of demand for credit on private account, the monthly average gross market borrowings by the centre is around three-quarters of a percent of GDP in recent years. Despite this high level of government borrowing programme, the RBI, as debt manager, has been able to successfully complete the market borrowing programme, over the years, while pursuing its interest rate objectives without jeopardizing external balance, by taking recourse to several initiatives in terms of institution, instruments, incentives and strategies.

Second, an important issue that remains is that we cannot claim that there is a genuine market for government securities in India, when we have a statutory liquidity ratio prescription of 25 percent. The question is that can we really proceed on the assumption that there is a genuine government securities market, and hence reinforce more marketisation by rapidly reducing SLR or do we ensure a viable market borrowing programme and reduce SLR in tandem? Here again RBI has to assess the sensitivity of the fiscal to interest rate burden, in case SLR is reduced rapidly? The importance of SLR status for bonds issued by government has come to the fore recently when oil bonds issued by Government of India turned out to be illiquid despite carrying a higher yield of 25 basis points over SLR-eligible bonds of similar maturity. The reform of debt markets in India, as we go along, should recognise these realities.

Third, in the case of state governments, when we tried to marketise the individual state's borrowing programme, many of the states were not comfortable. They were not sure whether they would be able to get subscriptions for their bonds unless RBI manages the borrowing programme of all the states in a coordinated fashion with uniform terms and conditions for all states. Knowing that banks cannot be compelled to subscribe to the programme, RBI provides the investors a a higher yield for states' paper over the centre's paper of comparable maturity. Subsequently, we encouraged some states to go through auction route on a stand-alone basis. Now it has become possible for the RBI to conduct the borrowing programme of each state without serious disruption in the markets, through the auction route. As a result, some states have also begun to take initiatives to improve their fiscal profile and discharge their liabilities promptly to banks, and, consequently, gain comparatively favourable treatment in the debt market. It took about six to seven years for RBI to equip the state governments and the markets to get used to this kind of discipline. This was perhaps possible because RBI commands the trust of state governments as an apolitical and a professional public institution.

Fourth, another aspect worth exploring is the fiscal implications of failure of financial institutions and markets. The RBI, as the central bank of the country, is also responsible for ensuring financial stability. Broadly, one can say that when a country's fiscal position is strong, its capacity to take on the risks arising

from the failure of financial institutions is higher. On the other hand, with a weak fiscal situation, the capacity to take care of a financial or banking crisis is rather limited. More important, whenever pockets of vulnerability arise in the financial sector, the headroom available in the fiscal position to provide succour to financial entities needs to be assessed. In this context, one important source of strength as well as vulnerability remains the publicly owned financial institutions, which may have fiscal implications. They contribute heavily as a source of tax revenue. Another source of linkage is the cross subsidies and we have to identify the areas of maximum cross subsidies in public sector entities. The sources of indirect subsidies through and by financial intermediaries are also important. A reading of the several budget speeches of the Finance Ministers in recent years would show the extent to which activities of public sector financial intermediaries operate as instruments of fiscal policy though these entities are competing in the market with private sector on all fronts. These public policy oriented operations of the public enterprises at the instance of fiscal seriously limit the efficient price discovery, depth and vibrancy in different segments of the financial markets. Thus, it is evident that while analysing the link between the fiscal and the public sector, perhaps, one should not confine to public sector borrowing requirements only.

Fifth, as regards further reforms in the financial markets, it is very clear that the development of insurance and pension sectors are very important especially for the government debt market and the corporate debt market. However, there are some challenges in this regard. The tax treatment of investment in debt and equity is quite asymmetrical in India with a favourable tilt towards investment in equity. There are limited incentives for encouraging contractual savings. Hence, some of the areas that have to be looked at, as we move forward, relate not only to the demand side which advocates development of financial markets, but also to the supply side through policies that promote contractual savings, especially through pension and life insurance funds.

Now let me move to the fiscal and the external sector.

Fiscal and the External Sector

In the context of the external sector, there are certain issues from the perspective of fiscal policy that are of contextual relevance.

The first issue pertains to the opening-up of government debt market to nonresidents through, what we may call foreign currency sovereign debt. In fact, about a decade ago, several arguments were put forward in favour of issuing foreign currency sovereign debt when the government's intention to take recourse to sovereign borrowings in the international markets was formally announced by the Hon'ble Finance Minister. Several academics argued in favour of the proposal since they felt that it may be more economical for the government to raise funds abroad. However, such borrowings may entail foreign currency exposure and hence the foreign currency risk, which was not built into the analysis of benefits. Another line of argument that was put forward in favour of foreign currency sovereign borrowings was that the government's borrowing abroad would help develop a benchmark for the private sector foreign currency debt. However, now weightage for sovereign risk is assigned to a private sector debt even without the sovereign

benchmark, after taking into account the sovereign risks. Moreover, the issue is that there are always political and economic temptations, as happened in many other countries, to raise foreign currency sovereign debt, when credit market sentiment is favourable probably without factoring-in the likely situation that may prevail when the sentiment turns unfavourable.

The RBI worked along with the government when this issue came up and came to the conclusion that, at that point of time, it might not have been desirable to issue foreign currency sovereign bonds. One of the arguments against approaching the international markets for sovereign bonds was the persistence of a large revenue deficit of the government. Thus, in the above context, the point to be considered is that, given the magnitude of the public debt as a percentage of GDP and the magnitude of fiscal deficit, whether public policy would have the same manoeuvrability for maintaining stability if the debt is denominated in foreign currency and held by the non-residents.

In the above backdrop, it may be concluded that, given the fiscal situation, the health of financial institutions, and the stage of development of financial markets, the scope for non-resident participation in the government securities market particularly foreign currency denominated bonds may be expanded only gradually. However, the pace of opening up of foreign currency sovereign debt for non-residents would be dependent upon the pace of progress on the fiscal, institutional, and market fronts.

Second, another key issue basically from the practitioner's perspective is the fiscal cost of market stabilization scheme (MSS). Perhaps I should explain the background and story, since this is an academic forum. Around the end of 2003, when I joined as Governor, we looked at the macroeconomic parameters and we anticipated large capital inflows. During the late 2003 to early January 2004, two Groups were constituted in the RBI, one was on the issue of sterilisation and the other was for review of liquidity adjustment facility (LAF) which was in operation since 2001 as part of the monetary policy operating framework. The draft reports of these two Technical Groups and their deliberations were placed in the public domain on the RBI website and were intensely debated. Anticipating enhanced capital inflows in future and the possible volatility in liquidity, while MSS was introduced as a new instrument of sterilisation, the focus of LAF was shifted by the RBI to management of the day to day liquidity fluctuations.

The related issues that surfaced were that if there is accumulation of foreign exchange due to market interventions, whether to sterilise or not to sterilise and finally if we decide to sterilise, how much to sterilise and who should bear the sterilisation cost. One view was that, similar to the practice in some other countries, the central banks may take decisions not only on intervention but also on sterilisation and accordingly the central bank may issue its own bonds. As a prudential requirement, the RBI is prohibited from such bond issuances. As a result, the MSS was introduced whereby sterilisation was through issuance of government securities.

Simultaneously, given the larger public policy implications of the exchange rate in the Indian context, it was deliberated whether it was desirable for the central

bank alone to take a view on the extent of sterilisation. After considerable debate between and within Government and RBI, it was agreed in march 2004, that the limit for Market Stabilisation Scheme (MSS) would be prescribed by the Government from time to time in the light of proposals from RBI. This implies that by prescribing the limits for the MSS, the Government was recognising the fiscal cost that it was ready to bear in the context of external sector management.

Third, the related issue was whether the fiscal cost of sterilization should be borne by the central bank or by the Government. We were unique in showing it as a part of Government's budget unlike the practice followed in some other countries. It would be pertinent to mention that the practice of taking quasi fiscal cost on the central bank balance sheet has led to erosion of capital base of many central banks. Although these central banks operate autonomously, the consequences were erosion of capital and subsequent recourse to the government for infusion of capital. Thus, in the Indian context, the major fiscal cost attributable to sterilisation in the context of external sector management is clearly shown in the government's budget, through the mechanism of MSS, which adds to fiscal transparency. Incidentally, the desirability of MSS was discussed afresh with the Government after June 2004, when a new Cabinet was sworn in and they reconfirmed the MSS arrangement as a desirable one.

Fourth, contextually, there have been some studies by the IMF and the ICRIER on the quasi fiscal cost of sterilization in India. Technically, it is possible to look at total accounting returns. However, to assume that whenever central bank accumulates reserves it has an adverse impact on the balance sheet, may, however, not turn out to be universally right. For instance, till the last year, China's domestic interest rates were lower than the return on foreign currency assets. In that case, the carrying cost of reserves was negative for the Chinese central bank, resulting in a quasi fiscal benefit.

Fifth, a related issue in this regard is valuation of forex reserves on a marked-tomarket basis on the balance sheet of RBI. An appreciation of the reserve currency translates into losses. But in some senses one can argue that such loss is notional. Again, every central bank has different ways of accounting. Most of the central banks and, definitely, the RBI, adopt a conservative accounting practice so that unrealised gains are not shown. The issue here is how one calculates the cost of holding reserves or even "excess" reserves. Since this is essentially an opportunity cost, the only way that it canbe calculated reasonably is in terms of interest rates on local currency assets vis-à-vis those for foreign currency assets. But interestingly, the question that arises is how to account for the macroeconomic benefits. Many central banks, with or without the concurrence of the government, are adding to the reserves or are holding on to the reserves even though they incur a quasi fiscal cost. This clearly suggests that there must be some benefits of such a widely adopted practice and if so, what are these benefits? My submission is that these benefits unfortunately are not quantifiable. But just because they are not quantifiable, I do not think it is appropriate to ignore them. The list of benefits can be summarised as follows. One, it enhances the confidence in the economy, particularly of the emerging market economies and results in a better sovereign rating. This, in turn, translates into finer spreads at which both public and private sector can raise money. Two, it enhances the capacity to absorb shocks. The shocks can be of two types: the real sector shocks in terms of oil shocks, food

grain shock or both of them and the financial shocks in terms of the financial flows. On both, the real sector and the financial sector, there is scope for smoothening volatility when there are adequate reserves. Apart from these, one arguably fundamental issue is whether some excess volatility can be moderated in order to avoid the destabilising effects on growth and employment. Therefore, we have to recognise not only the costs – the cost of holding reserves may be negative or positive – which are quantifiable but also the benefits which are not quantifiable. These have public policy implications as there is a fiscal policy element, namely the quasi-fiscal cost of reserves.

Sixth, there is another link between fiscal policy and reserves. If one reads the rating agencies' sovereign rating, one may find a mention of how forex reserves are perceived to provide a cushion against fiscal conditions. In some sense, therefore, even if there is a fiscal cost of carrying reserves, they also give a benefit to the fiscal and this is recognized by analysts. Maintaining orderly conditions in forex markets can be viewed, in some senses, as a public good and if the provision of such a public good to market participants involved addition to or depletion of forex reserves, incurring of the attendant fiscal costs, if any, of holding reserves may be justifiable.

Let me now come to the concluding section on the RBI's approach to fiscal policy.

RBI's Perspectives on Fiscal Policy

The RBI's approach to fiscal reforms is that while we agree on the need to eliminate the revenue deficit, and agree on a nominal limit for fiscal deficit, what is even more important is the mode of financing the fiscal deficit and the use that the resources so raised are put to. In addition, we focus on fiscal empowerment which was clearly articulated around 2000 in the Annual Report of the Board of Directors of the RBI. Exclusive focus on fiscal deficit may tend to reduce the role of the Government, and consequently, it will not be in a position to aid the process of growth, in particular, inclusive growth. Re-prioritisation of expenditure may be achieved through reduction or elimination of subsidies and deployment of resources thus released to the more needy sectors. Higher level of resources may also be available through reduction in tax exemption.

So the whole idea is that, in an economy like ours which requires structural transformation and investment in social and financial infrastructure, we should strive for an appropriate level of fiscal activity particularly because public goods have to be provided and that would enable us to maintain fiscal discipline and macro-stability rather than aim for a mechanical reduction in fiscal and revenue deficits at a lower level of fiscal activity.

In the light of financial turbulence across the world in the recent period, the relevance of the fiscal in the management of the macro economy has become even more important. When we have not seen such financial turbulence in our country, it is important to remember that when all else fails, it is only the fiscal that has to take the hit and come to the rescue.

I would like to read out a sentence from one of the rating agencies and then make my comment, to conclude. It says, "India's monetary management is

conservative and prudent, together with its low external debt position and relative ease in local currency funding, this helps alleviate its fiscal weakness." The important point here is if RBI's policy is helping to alleviate fiscal weakness, how can it be conservative? It perhaps needs to be described as 'appropriate'.

This address is dedicated to Mr. S.L.N. Simha, at whose instance the transcript has been edited for publication. Mr. Simha, the *de facto* author of Volume One of the History of Reserve Bank of India (1935-1951), and a highly respected central banker takes lively interest in theory and practice of central banking even at the age of ninety. Reserve Bank owes a lot to distinguished employees like him for its current status as a respected public institution in India.

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Challenges of Effective Monetary Policy in Emerging Economies*

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DEPARTMENT OF ECONOMIC AND POLICY RESEARCH
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Challenges of Effective Monetary Policy in Emerging Economies*

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Abstract

Monetary policymaking in emerging economies have their own particular challenges. The compulsions of unique institutional details as well as the thinness of financial markets in the backdrop of increasing global integration often tends to render the monetary transmission mechanism unstable. This paper first fleshes out a number of these confounding institutional and legacy issues in the context of India. We then illustrate the consequences of these frictions for the monetary transmission mechanism with two features of the policy environment in India: statutory liquidity ratio requirements imposed on banks and chronic fiscal deficits. We show that these frictions can completely invert the monetary transmission mechanism: when the constraint binds, under some stylized conditions, a reduction in the policy rate can end up raising lending spreads and thereby cause a contraction instead of an expansion in the economy.

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1 Introduction

Modern monetary policy theory and practice have been heavily influenced by the experiences of developed countries, both large and small. A number of these ideas have also made their way into policymaking at central banks in emerging economies, mostly due to the absence of local intellectual alternatives. However, the realities of emerging economies are often at odds with the circumstances of developed economies that provide the backdrop for the intellectual underpinning of modern central banking. Specifically, the compulsions of unique institutional details as well as the thinness of financial markets in the context of increasing global integration often tends to render the monetary transmission mechanism in emerging economies both unstable and non-standard.

The goal of this paper is to highlight the implications of specific institutional constraints and inherited practices that characterize emerging economies. We do so by focusing on India and fleshing out a number of confounding institutional and legacy issues that characterize the policy environment in the country. We then illustrate the consequences of these frictions for the monetary transmission mechanism by examining two features of the policy environment in India: the statutory liquidity ratio (SLR) requirements imposed on banks and long standing chronic fiscal deficits of the government. The SLR forces banks to hold a minimum fraction of their deposits in the form of government bonds.

We show that the SLR requirement can completely invert the monetary transmission mechanism: a reduction in the policy rate can end up raising lending spreads and thereby cause a contraction instead of an expansion in the economy. Effectively, a binding SLR requirement removes all substitutability between bank assets: banks are forced to keep loans to the private sector and to the government in fixed proportions. Consequently, the reduction in the deposit base that is induced by a fall in the interest rate then forces a reduction of loans to the private sector as well. We also show that in environments where the monetary authority is forced to monetize the fiscal deficit due to dominance of the fiscal authority, a binding SLR requirement renders both output and employment *independent* of the policy rate: monetary policy has no real effects.

These results are very stark due to the admittedly stylized nature of the model. However,

they illustrate quite vividly the consequences of the policy induced SLR friction in the financial system. In general, when the SLR is binding it is a form of financial repression. A lowering of the rate on government bonds in such an environment is tantamount to increasing the tax on banks since the rate on government bonds is lower than the lending rate to the private sector. Consequently, it can have the effect of causing a shrinking of bank balance sheets with the resultant contractionary effect on credit.

The more general message of our results is that the choice of policy goals cannot be divorced from the specifics of the monetary transmission mechanism as it operates in the country in question, both in terms of its theoretical and quantitative linkages. Country or region-specific factors that impact the transmission mechanism will have implications for which variables should or should not be targeted by policy in addition to dictating the quantitative magnitudes of the changes in the policy instrument that are required for attaining the policy target. The mapping between the policy instrument and the policy targets are susceptible to institutional design, market structure and penetration of capital markets, international linkages and global business cycle considerations. Our discussion of the challenges of monetary policy conduct in emerging economies like India will focus on a detailed breakdown of the specific issues surrounding the transmission mechanism from the policy instrument to each of the three stages and their sub-components.

In the next section we describe and discuss in some details some of the unique and confounding aspects of the institutional setting within which monetary policy is conducted in India. In Section 3 we formalize a standard model of an open economy with banks and formalize the impact of monetary policy in this benchmark economy. In Section 4 we illustrate the effect on the monetary transmission mechanism of imposing a statutory liquidity ratio requirement (SLR) on the banking sector in our model economy. In section 5 we examine the effect of an exogenous fiscal spending constraint on this economy over and above the SLR requirement. We then examine the evidence on the behavior of banks in India with respect to their SLR holdings in section 6. The last section contains concluding thoughts.

2 An overview of the issues

The conduct of monetary policy in emerging economies is problematic along (at least) three dimensions. First, the policy and institutional environment is characterized by an inordinate number of constraints as well as large and persistent shocks. Second, the scope and capacity for (first-best) implementation of policies is circumscribed by legacy structures, cross-cutting objectives and a dearth of analytical and practical tools. Third, the reality of external financing for funding the current account deficit and investment needs, implies that foreign analysts' world view regarding conduct of monetary/macroeconomic policy cannot be wished away, i.e., it has to, willy-nilly, be internalized, or, taken as given. Bond investors typically look for an anchor to predict the interest rate path.

There are two inter-related sets of drivers for a reinforced focus on its central bank in respect of policy conduct and concomitant outcomes. It is apparent that between 2007 and 2013, inflation has come unhinged. In recent years India has emerged as an outlier compared to its own past (see Darbha and Patel (2012), for example); inflation as measured by consumers cost of living has averaged 9 percent over the last six years. Even the much narrower wholesale price index inflation has, for an extended length of time since 2009, been well above the RBI's erstwhile "comfort level" of 5 percent. India's performance along this metric stands in contrast to other comparable emerging economies which appear to have managed better the challenges associated with keeping inflation under check. This point has been forcefully made by the expert panel in RBI (2014) in its far reaching recommendations for changing the monetary policy framework in India. The concern with chronically high inflation should not be viewed solely as a concern of academics and policy hawks. Opinion polls around the May 2014 national elections confirmed and reinforced the Indian voters' traditional aversion to high inflation and priority on price stability (see Pew (2014)).

In January 2014 the central bank undertook a formal root and branch review of the monetary policy framework. Since the last such comprehensive review in 1985, the Indian economy has undergone a sea change. For one, it is unrecognizably more open to international trade and capital flows, a process set in motion since the early 1990s. Recent debates on inflation control in India have centered around a gamut of issues. For instance, whether it

is even possible to manage/control inflation as measured by the CPI, or, whether a "core" measure without food and some other items should be considered, or, deploy the wholesale price index which has no services component despite the latter constituting over 60 percent of the economy (perhaps retrograde?). Some have averred that India is *sui generis*, hence lower policy rates will bring about lower inflation,which is a monetary policy analogue of the Laffer curve argument. The same line of thinking has also advocated that a nominal anchor for the central bank is a luxury that the Indian economy cannot afford. In other words, the central bank can afford not to strive for price stability as a primary objective.

In light of the above, an important motivation for this Chapter is to understand the context for monetary policy conduct in EMEs generally, and India more specifically. This encompasses four themes, viz., theory, policy, institutions and practical aspects. We would like our discussion in this Chapter to spur debate around two broad areas: (a) how important is it for the RBI to re-balance its reform agenda from high profile subjects like a monetary policy framework to addressing relatively more mundane policy-induced impediments/distortions that undermine monetary policy efficacy/transmission; and (b) whether it would be better to possibly have a central bank that is tasked with a somewhat narrower remit that is more internally consistent given the institutional environment within which policy is conducted in India. .

2.1 The elephant in the room

When we started writing this paper in early September of 2014, it coincided with the season of visits by rating agencies to India for their annual review of the economy. Some areas of usual concern in recent years like the current account deficit and declining growth have been reassessed, but observations on the fiscal side and inflation were cited by some as the main reasons standing in the way of a further rating upgrade.

At a conceptual level, the fiscal deficit is a concern for any economy on three dimensions: (i) solvency; (ii) crowding out; and (iii) spillover into unsustainable external imbalances. From the perspective of the RBI, two more can be added: (i) the entailed financial repression and associated repercussions for allocative efficiency on account of RBI's twin roles in this context, viz., as merchant banker to the government & in developing the government debt

market; and (ii) the quantum of monetization.

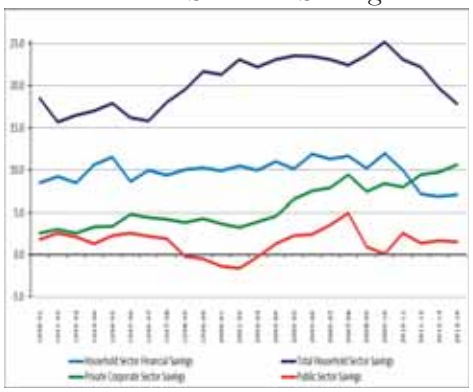
Only once in the last 40 years has the central government's fiscal deficit been as low as 3 percent of GDP (2007/08). This is sobering given that several government consolidation plans since the early 1990s have had a terminal date target of this magnitude. It has been exceedingly uncommon for India's general government fiscal deficit to be lower than 6 percent of GDP over the last four decades or so (see Figure 1 (a)). As a corollary, not surprisingly, in recent years the public sector's contribution to the country's savings rate has been modest, at best (see Figure 1 (b)). The extant challenge on the fiscal front has its antecedents in the post-2007/08 stimulus packages (see Buiter and Patel (2012) for a discussion of this); the general government fiscal deficit more than doubled during the course of one year from 4 percent of GDP in 2007/08 to 8.3 percent in 2008/09 and further to 9.3 percent of GDP in 2009/10. While some adjustment was undertaken in subsequent years, it was only in late 2012 that a multi-year path for central government fiscal consolidation was put in place (see Kelkar (2012)). It is widely recognized that, at least in part, an important factor behind this was the possibility of a credit rating reassessment against the backdrop of a large and widening current account deficit, which crossed 4 percent of GDP in 2011/12. For the first time since the 1997 Asian crisis, questions were raised by some about India's external payments sustainability in light of tapering of the Fed's US$ 85 billion per month asset purchase program.

2.2 Fiscal dominance: Upshot of "Sophie's Choice" confronted by the central bank?

Sargent (1986) formally poses the aforementioned choice between a rock and a hard place as a game of Chicken. The question is who blinks between a monetary authority that is adhering to price stability while also being apprehensive about financial stability and the fiscal authority, who, while appreciating price and financial stability, is not keen to correct an unsustainable primary fiscal deficit through spending cuts or tax increases (including normal

Figure 1: Fiscal deficits, SLR requirements and Sectoral Saving

(a) Fiscal deficit and SLR



(b) Saving rates, by sector

Notes: Panel (a) of the figure shows the general Government (Central and State Governments' consolidated) fiscal deficit (as % of GDP) on the left axis and the prescribed SLR of on the right axis. Panel (b) shows the sectoral saving rates in India (Saving-GDP ratio in percent).

and ad hoc transfers from the central bank) and prefers to have the monetary authority directly monetise (accommodate) the public debt. If neither caves in, the deficit is financed by debt issuance and a confrontational outcome ensues. If the central bank does not monetise the fiscal deficit and the sovereign defaults, banks holding large amounts of sovereign debt may collapse, triggering a financial crisis with serious attendant spillovers to the rest of the economy. A monetary authority is unlikely to let this happen; the central bank will instead monetise the public debt and deficits. This is well known as Fiscal Dominance (see, e.g., Buiter (2010)). There are two reasons – one institutional, and the other practical – for this (almost) inevitable outcome. Firstly, regardless of the extant legal position of the central bank, the sovereign has the political sway to compel the central bank to do its bidding. Second, the central bank when it assesses which "mess" is larger/more difficult to clean up, viz., the default of the sovereign, or, higher inflation, it may conclude that the latter is relatively easier to deal with in the larger scheme of things.[1] In contrast, monetary dominance occurs if the fiscal authority gives in and cuts public spending and/or raises taxes to stabilise or reduce the public debt to GDP ratio. In extreme situations, the central bank may be forced to "accommodate" up to the seigniorage-maximizing rate of inflation.

[1]In this context, it is pertinent to recall the observation of Ben Bernanke, the former Chairman of the Federal Reserve Board, that central banks cannot be in the business of brinkmanship.

Even if the aforementioned extreme scenario is not reached, frictions associated with large fiscal deficits are felt strongly in the Indian context. Policy induced frictions are primarily on account of the Statutory Liquidity Ratio (SLR), which earmarks a fraction of liabilities of banks for investment in central and state government securities. This has been a long standing feature of the Indian economic landscape. As shown in Figure 1, the SLR was consistently upwards of 30 percent till the late 1990s. Despite a reduction in recent years it is still at a remarkably high 21.5 percent currently. Given the nature of the SLR requirement, it is a far cry from the Liquidity Coverage Ratio (LCR) envisaged as a form of prudential regulation under Basel III – a potential liquidity fallback during times of stress.

The friction in credit allocation induced by the SLR requirement has come about on account of the importance accorded to the placement of government debt at the most economical interest rate possible. This compromises the financial viability of the banking sector as an apposite risk-aligned return/yield is not forthcoming on a large part of banks' balance sheets. It bears repetition that this is only one example of factors that undermine the banking sector, particularly public sector banks. The recent rise in the share of non-performing-loans (NPAs) of public sector banks is yet another symptom of the role of frictions introduced by the complex institutional setting in which the banking sector operates in India. Moreover, since these frictions feed off each other operationally on a day-to-day basis they, almost inevitably, albeit through no fault of anyone, undermine the effectiveness of the central bank's policy instruments. Ultimately, the sanctity of the central bank's publicly announced policy goal posts may also start to be questioned by financial markets. In other words, the disjunction between number of instruments and targets becomes too hard to sustain.

Another adverse upshot of the government's long-standing fiscal stance is that provident & pension fund, as well as insurance company investment guidelines favour lending to government. Since long-term (usually 10-year) paper is favoured, much of the long-term investment appetite of these entities is met through this. Asset-liability maturity mismatches, which are borne by commercial banks on long gestation highly cyclical projects (for example, most infrastructure projects) could be mitigated if financial institutions specialising in long-term savings products had more elbowroom to invest in these assets. Crowding out of funding has been a feature. At least in part, the increase in external commercial borrowing in the

mid-2000s coincided with the escalation in the infrastructure investment-GDP ratio during that period.

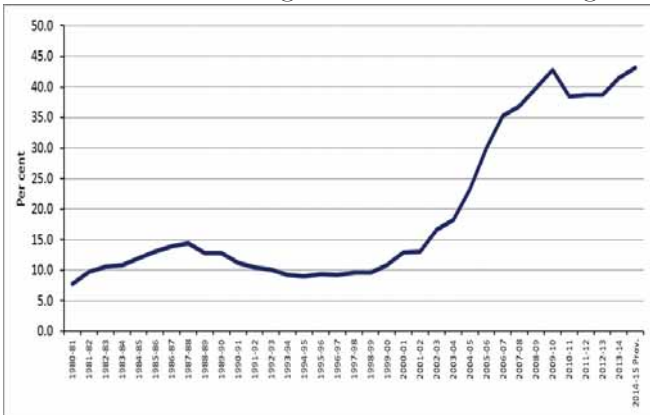
2.3 Subsidised agricultural credit

Beyond the distortions implicit in SLR requirements, the dictates of priority sector lending have imparted an additional friction in the credit allocation process in the country. One example of this is agricultural credit allocation. The last 15 years has seen a policy driven sharp uptick in agriculture credit provision. In fact, in June 2004 the central government announced a "Comprehensive Credit Policy", which sought to double agriculture credit in a span of three years. Subsequent Union budgets established targets for credit to agriculture; since 2003/04 flow of credit to agriculture has consistently exceeded the budgeted targets. In 2006/07 the government implemented an Interest Subvention Scheme to make short-term crop loans of up to Rs. 3 lakhs to farmers at an interest rate of 7 percent per year. Recent modifications to these subvention laws based on timely repayment of loans have reduced the effective cost of the loan for farmers to 4 percent. Furthermore, state government subventions take the interest even lower. Combined with the loan waiver scheme in 2008/09, the moral hazard that has been imparted into the agriculture credit sub category (undermining incentives for both borrowers and bankers) is possibly unprecedented. Over the last decade and a half, agricultural credit grew by 21 percent/annum compared to about 11 percent/annum in the previous decade. Accordingly, the credit-GDP ratio in the agriculture sector witnessed a sharp increase; the ratio of outstanding agriculture loans to agriculture GDP increased from 9.8 percent in the 1990s to 13 percent in 2001/02 to 38.7 percent in 2012/13 (see Figure 2).

It is unclear however whether this increase in credit allocation to agriculture has helped achieve the socio-economic policy objectives of enhancing crop productivity and helping small and marginal farmers, especially given the indirect evidence of leakage. For one, the share of indirect credit in total agriculture credit has increased. Moreover, the share of large borrowers in both direct and indirect credit to agricultural has also risen. Given the scarcity of overall credit supply, the distortions implicit in the subsidised credit extension to agriculture would appear to have possibly compromised both the monetary policy and financial stability objectives of the Reserve Bank. The fact that there is scarce (if any)

evidence on the productivity effects of subsidized agricultural credit allocation through banks makes these policies even more problematic from a public policy standpoint.

Figure 2: Total Bank Credit to Agriculture as Ratio to Agricultural GDP



Note: The figure shows Scheduled Commercial Banks' (SCBs) Total Credit Outstanding to Agriculture & Allied Activities as Ratio to GDP from Agriculture & Allied Activites at current market prices.

2.4 Administered interest rates

We would be remiss if we didn't mention an additional dimension, which is quasi-fiscal in nature, to the impediment of the monetary transmission mechanism, viz., the panoply of savings instruments whose interest rates are administered by the government (see Table 1). While yields on most of these instruments are broadly linked to government securities, the reset is annual and hence hinder the timely transmission of changes in policy rates to the liabilities' side of banks and financial institutions. It would seem that a quarterly or monthly reset based on, say, the average of market closing yields recorded over the last five days, would hasten and assist the transmission. Presently, banks are, to an extent, constrained on lowering deposit rates by the effective floor on rates that the system of administered rates on savings instruments imposes at the margin on the entire financial sector.

In the next few sections we shall outline the implications of a couple of these institutional distortions for the conduct of monetary policy. Specifically, we shall examine the

Table 1: Administered saving rates

Scheme	Formula		Announced rate	Tax deductions allowed
	Benchmark	Spread		
Post Office Savings Deposits	No benchmark		4	No
1-year Post Office Time Deposits	364-day T-Bill cut-off	0.25	8.4	No
2-year Post Office Time Deposits	Linear Interpolation	0.25	8.4	No
3-year Post Office Time Deposits	Linear Interpolation	0.25	8.4	No
5-year Post Office Time Deposits	5 year G-sec yield	0.25	8.5	Yes
5-year recurring deposit	5 year G-sec yield	0.25	8.4	No
5-year Senior Citizens Savings Scheme	5 year G-sec yield	1	9.3	Yes
5-Year Monthly Income Scheme	5 year G-sec yield	0.25	8.4	No
5-year National Savings Certificate (NSC)	5 year G-sec yield	0.25	8.5	Yes
10-year NSC	10 year G-sec yield	0.5	8.8	Yes
Public Provident Fund – 15 years	10 year G-sec yield	0.25	8.7	Yes
Kisan Vikas Patra – 8 years 4 months	New Scheme		8.7	No
Sukanya Samridhi Account- 21 years	New Scheme		9.2	Yes

Notes. 1. Interest rates applicable on small savings schemes are reset annually by the Government of India at the start of each financial year (FY).
2. G-sec yields are computed based on average of month-end yields (January to December).
3. PPF accumulation and withdrawal are also exempt under Section 10 of IT Act.
4. Interpolated rate is the linear interpolation between 364-day T-Bill and 5-year G-sec rates.
5. Post Office Savings Deposits interest income above Rs. 10,000 is taxable.
6. Tax deductions if permitted are under Sec. 80C of the Income Tax Act.
7. All interest rates are in percent per annum.

consequences of a binding SLR requirement in banks in an environment of chronically high and exogenously given fiscal spending levels on the monetary transmission mechanism.

3 Model

The goal of the model we develop here is to highlight two key aspects of monetary policy conduct and its transmission in India. The first is the effect of policy induced institutional constraints on the transmission process. The specific constraint we shall use to illustrate the resulting complications is the Statutory Liquidity Ratio (SLR) provision which forces banks to hold a fraction of their deposits in the form of government bonds. The second is the role played by fiscal dominance on the transmission mechanism in small economies. The model we use is a variant of the structure formalized in Lahiri and Vegh (2007).

Consider a small open economy producing and consuming a single tradable good. Assume that the economy is perfectly integrated in goods markets so that $P_t = E_t P_t^*$ where P is the domestic currency price of the good, E is the nominal exchange rate (rupees/dollar) and P^* is the dollar price of the good. For convenience we set $P_t^* = 1$ for all t which is just a normalization. Time is continuous and there is no uncertainty. The economy consists of four actors: households, banks, firms and a government (which is an integrated fiscal and

monetary entity).

There is a continuum of identical households in the economy. We normalize the households to be of measure one. Private agents can access perfectly competitive international capital markets where they can buy and sell real bonds denominated in terms of the traded good at an constant world real interest rate r. Households own international bonds and also hold deposits in banks which pay interest i^d at every instant. Deposits can be used for carrying out domestic transactions. Transactions are costly and can be reduced by using deposits.

3.1 Households

With no loss of generality we shall analyze the behavior of the representative household. The representative household maximizes lifetime utility

$$V = \int_{t=0}^{\infty} e^{-\rho t} u\left(c - \zeta x^{\nu}\right) dt \tag{3.1}$$

where ρ is the rate of time preference, c is consumption and x is labor supply. Here we have suppressed time subscripts to economize on notation. In the following we shall continue with this convention wherever there is no risk of confusion. The utility function $u\left(.\right)$ is twice-differentiable and concave in its argument.[2] The household's flow budget constraint in real terms is

$$\dot{b} = rb + wx + \tau - c - \dot{d} + \left(i^d - \pi\right) d - s\left(d\right) + \Omega^b + \Omega^f \tag{3.2}$$

where b denotes international bonds, d denotes demand deposits, w is the real wage, τ are lump-sum transfers received from the government, π is the rate of inflation (also the rate of depreciation in this one good model), Ω^b and Ω^f are dividends received from banks and firms which the households own. $s\left(d\right)$ is the transactions cost technology. We assume that $s' < 0$ and $s'' > 0$ implying that these costs are decreasing and convex in the household's

[2] Our utility specification, also known as GHH preferences due to their formalization in Greenwood, Hercowitz, and Huffman (1988), imply that labor supply only depends on the wage rate and is independent of any wealth effects. We employ these preferences here since they greatly enhance the analytical tractability of the model. We should add that this abstraction does not come at a great cost of realism since there is scant micro evidence that suggests the presence of significant wealth effects on labor supply.

holding of demand deposits. A dot over a variable indicates its time derivative. Defining $a \equiv b + d$ and $i = r + \pi$ (the nominal interest rate), we can rewrite this flow constraint as

$$\dot{a} = ra + wx + \tau - c + \left(i^d - i\right) d - s\left(d\right) + \Omega^b + \Omega^f$$

The household chooses perfect foresight paths for c, x, b and d to maximize lifetime welfare subject to its flow budget constraint taking as given the paths for $\tau, w, i^d, i, \Omega^b$ and Ω^f. The first-order-conditions for household optimality are

$$u'\left(c - \zeta x^{\nu}\right) = \lambda \tag{3.3}$$

$$\nu\zeta x^{\nu-1} = w \tag{3.4}$$

$$-s'\left(d\right) = i - i^d \tag{3.5}$$

$$\dot{\lambda} = \left(\rho - r\right)\lambda \tag{3.6}$$

In the following we shall maintain the standard small open economy assumption $\rho = r$ to prevent secular trends in marginal utility. Hence, $\dot{\lambda}_t = 0$ for all t. These first-order conditions imply two key relations:

$$d = S\left(I^d\right),\ S' < 0,\ I^d \equiv i - i^d \tag{3.7}$$

$$x = \left(\frac{w}{\nu\zeta}\right)^{\frac{1}{\nu-1}} \tag{3.8}$$

Equation (3.7) gives deposit demand as a decreasing function of the opportunity cost of holding deposits I^d while equation (3.8) gives labor supply as an increasing function of the wage rate. The wage elasticity of labor supply in this formulation is $\frac{1}{\nu-1}$. We shall maintain the assumption throughout the paper that $\nu > 1$.

3.2 Firms

Firms hire labor to produce output using the technology

$$y = Ax$$

where A is productivity. To introduce a productive role for credit, we assume that firms also face a credit-in-advance constraint to finance the wage bill:

$$n = \phi w x$$

where ϕ is the fraction of wages that have to be paid before the realization of output. This fraction has to be financed through a working capital loan from banks. Firms maximize

$$\Omega^f = Ax - wx - \left(i^l - i\right) n$$

The first-order condition for the firm's problem is

$$A = \left(1 + \phi I^l\right) w \tag{3.9}$$

where $I^l \equiv i^l - i$ is the real lending spread.

3.3 Banks

Banks in this economy perform four functions: they accept deposits from households, they lend to firms, they hold as required reserves a fraction δ of deposits and they buy government bonds. The key restriction we impose is that banks are not allowed to access international capital markets, i.e., this is a banking system that is closed to international capital flows. This restriction will allow us to break interest parity between international bonds and government bonds. More specifically, the assumption introduces a sheltered domestic market for government bonds in which these bonds can trade at a price different from the international interest rate on similar bonds.[3]

Let Z denote nominal government bonds held by the bank and M denote required reserves that the bank is mandatorily required to hold. Their real counterparts are given by $z = \frac{D}{P}$

[3] In these small open economy environments, one has to break interest parity on government bonds in order to have an independent interest policy in the model. Our assumption that the banks hold government bonds and are also closed to international capital markets is an extreme way of achieving this. Less restrictive approaches to achieving this same goal would be to introduce costly banking along the lines of Diaz-Gimenez, Prescott, Fitzgerald, and Alvarez (1992), Edwards and Vegh (1997) and Hnatkovska, Lahiri, and Vegh (2013). Our approach here is analytically simpler.

and $m = \frac{M}{P}$. The closed banking system implies that the bank's balance sheet identity is

$$n + z + m = d$$

The bank's flow constraint (in real terms) is

$$\dot{n} + \dot{z} + \dot{m} - \dot{d} = \left(i^l - \pi\right) n + \left(i^g - \pi\right) z + \left(\pi - i^d\right) d - \pi m - \Omega^b$$

Adding and subtracting $r\left(n + z + m - d\right)$ from the right hand side and using the bank's balance sheet identity, this reduces to

$$\Omega^b = \left(i^l - i\right) n + \left(i^g - i\right) z + \left(i - i^d\right) d - i\delta d$$

where we have used the fact that $m = \delta d$. This is assuming that the reserve requirement constraint is always binding on the bank. Since reserves are non-interest bearing, this will hold as long as $i > 0$, i.e., the cost of holding reserves is positive.

$$\Omega^b = \left(i^l - i\right) n + \left(i^g - i\right) z + \left[i\left(1 - \delta\right) - i^d\right] \left(\frac{n + z}{1 - \delta}\right)$$

It is easy to check that bank optimality dictates that we must have

$$i^l = i^g \tag{3.10}$$

$$i^d = \left(1 - \delta\right) i^g \tag{3.11}$$

The intuition behind these conditions is straightforward. Since loans and government bonds are perfect substitutes for the bank, at an optimum they will demand the same returns from each, which gives equation (3.10). Moreover, for every dollar of deposits the bank receives it can only lend out a fraction $1 - \delta$ which earns the going return on bank assets i^g. Under a competitive banking system, zero profits for banks then dictates that the deposit rate must equal the loan rate net of the reserve requirement ratio. Before proceeding, it is useful to note that any changes in i^g are transmitted fully to both the lending and deposit rates, i.e.,

the monetary transmission mechanism is seamless.

3.4 Government

The central bank in this economy prints money, holds international reserves and issues government bonds. The fiscal authority makes transfers to households. The government's flow constraint is given by

$$\dot{R} = rR + \dot{m} + \pi m + \dot{z} - (i^g - \pi)\, z - \tau \tag{3.12}$$

The central bank's balance sheet identity is $R + q = m$ where q denotes real net domestic credit. Since we will be considering flexible exchange rate regimes, the central bank doesn't intervene in the foreign exchange market so that $\dot{R} = 0$. Without loss of generality we also assume that $R = 0$.

Given the flexible exchange rate regime, the government in this economy has potentially three policy instruments available to it – $\tau, \dot{Q}/Q$ and i^g where Q is nominal domestic credit. Of these only two can be freely chosen and the fourth will get determined from equation (3.12). We assume that the government sets i^g and $\dot{Q}/Q = \bar{\pi}$, while τ adjusts endogenously to make equation (3.12) hold. Notice that this assumption precludes any fiscal dominance. This is an issue that we shall return to below.

3.5 Equilibrium relations

We now combine the optimality conditions of households, firms and banks to derive the key macroeconomic equilibrium relationships. First, combining the household and firm conditions for optimal labor supply and demand, equations (3.4) and (3.9) respectively, gives

$$x = \left[\frac{A}{\nu\zeta\left(1 + \phi I^l\right)}\right]^{\frac{1}{\nu-1}} \equiv \tilde{x}\left(I^l\right) \tag{3.13}$$

$$n = \phi\nu\zeta\left[\frac{A}{\nu\zeta\left(1 + \phi I^l\right)}\right]^{\frac{\nu}{\nu-1}} \equiv \tilde{n}\left(I^l\right) \tag{3.14}$$

where $I^l = i^l - i$ is the real lending spread. Note that the equilibrium condition $i^l = i^g$ also implies that $I^l = I^g$ where $I^g \equiv i^g - i$ is the real spread on government bonds.

Lastly, combining the flow constraints of households, firms, banks and the consolidated government gives the evolution equation of net country assets

$$\dot{f} = rf + Ax - c - s\,(d) \tag{3.15}$$

where $f = b + R$ denotes net country assets. The right hand side of equation (3.15) is also the current account equation for this economy.

It is straightforward to show that under flexible exchange rates with constant domestic credit growth $\bar{\mu}$ and interest rate i^g, this is a stationary economy that jumps to its steady state immediately at date 0. The steady state inflation rate is just the rate of growth of money which the economy attains immediately. Consequently, i jumps to its constant long run steady state level $\bar{\imath} = r + \bar{\mu}$ at date 0 itself.

3.6 Some comparative statics

What are the effects of monetary policy innovations in this economy? There are three independent instruments that the central bank can potentially use to affect the economy: i^g, μ and the reserve requirement ratio δ. The effects of changing the policy rate i^g are straightforward. A permanent, one time, unanticipated *reduction* in i^g reduces I^g and I^l, raises I^d while leaving the rate of inflation unchanged at $\bar{\mu}$. The fall in I^l causes loans, output and employment to rise while deposits decline due to the rise in the opportunity cost of holding them. Banks rebalance their portfolios by reducing their holdings of government bonds z to accommodate the rise in n in the face of a reduction in deposits. Clearly, a reduction in the policy rate is expansionary.

The second policy instrument available to the policymaker is the rate of money growth μ. A reduction in μ reduces inflation immediately. For a given and unchanging i^g, this causes both I^g and I^l to rise while the deposit spread I^d declines. Consequently, loans, employment and output all fall while deposits and bank holdings of government bonds rise. Intuitively, the opportunity cost of loans rises due to the lower inflation rate which raises the cost of

working capital for firms. As a result firms reduce their employment levels and output. Hence, a cut in the money growth rate in this economy is also contractionary.

The third instrument that the central bank can use to affect the economy is the required reserve ratio δ. An unanticipated, permanent increase in δ reduces the deposit rate i^d. Since, μ is unchanged, the nominal interest rate i also remains unchanged. Hence, with unchanged i^g and μ, an increase in δ raises the deposit spread $I^d = i - i^d$ but leaves I^g and I^l unchanged. Deposits fall but loans, employment and output stay unchanged. Banks respond to the lower level of deposits in the system by reducing their holdings of government bonds z.

4 Statutory Liquidity Ratio

We now consider a different environment relative to the one analyzed above. Suppose banks face an additional constraint wherein they have to hold at least a fraction β of their deposits in government bonds. In India this is known as the *Statutory Liquidity Ratio* (SLR). The constraint can be written as $z \geq \beta d = \frac{\beta}{1-\delta}(n+z)$ where the second equality follows from the bank balance sheet identity and the fact that $m = \delta d$. The SLR constraint can be rewritten as

$$z \geq \frac{\beta}{1-\beta-\delta} n \tag{4.16}$$

The representative bank's problem is to maximize

$$\Omega^b = \left(i^l - i\right) n + \left(i^g - i\right) z + \left[i\left(1-\delta\right) - i^d\right] \left(\frac{n+z}{1-\delta}\right)$$

subject to the inequality constraint given by equation (4.16). The optimality conditions for this problem are

$$i^l - \frac{i^d}{1-\delta} = \kappa \frac{\beta}{1-\beta-\delta} \tag{4.17}$$

$$i^g - \frac{i^d}{1-\delta} + \kappa = 0 \tag{4.18}$$

$$\kappa \left[z - \frac{\beta}{1-\beta-\delta} n \right] = 0 \tag{4.19}$$

where $\kappa \geq 0$ is the Kuhn-Tucker multiplier on equation (4.16). Note that $\kappa = 0$ when the constraint is not binding and $\kappa > 0$ when equation (4.16) binds.

When the constraint is binding, we can combine the two first order conditions to eliminate κ and get

$$i^d = \beta i^g + (1 - \beta - \delta)\, i^l \tag{4.20}$$

Equation (4.20) must hold along all paths where the SLR requirement binds. The condition says that at an optimum banks will set the deposit rate equal to a weighted average of the returns from its two assets. In contrast to the case without any SLR requirement in which $i^d = (1 - \delta)\, i^g$, here the bank's return on its portfolio reflects the share of each component in the bank's portfolio. Out of every rupee of deposits, the bank has to put aside a fraction β in government bonds which earns the nominal rate i^g. A fraction $1 - \beta - \delta$ of every unit of deposits is available to be lent out to the private sector which earns the going nominal lending rate i^l. One can now immediately begin to see that changes in i^g may not be transmitted seamlessly to deposit rates in this environment.

Under a binding SLR requirement we have

$$z = \beta d \tag{4.21}$$

Further, since $z + n = (1 - \delta)\, d$, we also have

$$d = \frac{n}{1 - \beta - \delta} \tag{4.22}$$

For future reference, it is useful to rewrite equation (4.20) as

$$I^d = \delta i - \beta I^g - (1 - \beta - \delta)\, I^l \tag{4.23}$$

where, as before, $I^d = i - i^d$ and $I^l = i^l - i$.

Since we know that $z = \frac{\beta n}{1-\beta-\delta}$ and $d = \frac{n}{1-\beta-\delta}$ we can use the solution for loans given in

equation 3.14 to get

$$z = \left(\frac{\beta}{1-\beta-\delta}\right)\phi\nu\zeta\left[\frac{A}{\nu\zeta\left(1+\phi I^l\right)}\right]^{\frac{\nu}{\nu-1}} \equiv D\left(I^l\right) \tag{4.24}$$

$$d = \left(\frac{\phi\nu\zeta}{1-\beta-\delta}\right)\left[\frac{A}{\nu\zeta\left(1+\phi I^l\right)}\right]^{\frac{\nu}{\nu-1}} \tag{4.25}$$

Recall from the household's optimal choice of demand deposits we also have the relation $d = S\left(I^d\right)$ which, when combined with equation (4.23), gives

$$d = S\left((\delta+\beta)i - \beta i^g - (1-\beta-\delta)\,I^l\right) \equiv S\left(I^l; i^g, i\right) \tag{4.26}$$

We interpret equation (4.25), which is derived from the demand for loans by firms n, as the demand function for loanable funds $D\left(I^l\right)$. It is declining in the lending spread I^l. Conversely, equation (4.26) can be interpreted as the supply function of loanable funds $S\left(I^d\right)$ as it is derived directly from the supply of deposits by households. It is increasing in both I^l and i^g. We call it the supply function of loanable funds because an increased supply of deposits creates larger balance sheets of banks who look for opportunities to invest in loans. The equilibrium in the loan market will be at the intersection of the two functions.

Since i is determined by the rate of money growth, once I^l is known I^d is known as well. Hence, the individual interest rates in this economy (i^d, i^l, i^g and i) are known. All the other endogenous variables in the model are functions of these interest rates and/or productivity. Consequently, they are determined too. Solving for the equilibrium I^l as a function of parameters of the model and the policy variables i^g and μ thus solves the entire model.

The rest of the equilibrium relations remain unchanged relative to the no-SLR case as does the fact that the dynamics of the economy around the steady state are unstable implying that the only feasible perfect foresight equilibrium paths in this economy are those with a constant inflation rate π which equals the rate of money growth μ at all points in time. We can now analyze the effects of three shocks in this economy: (a) a decrease in the policy interest rate i^g; (b) an increase in the money growth rate μ; and (c) an increase in the SLR β.

4.0.1 Decrease in i^g

Suppose, starting from an initial steady state, the government permanently cuts the interest rate on government bonds. A decrease in i^g leaves the demand function for loans unaffected but reduces the supply of loans S. Consequently, the equilibrium I^l rises. Given that the nominal interest rate i is unchanged, this implies that the lending rate i^l must rise. As a result employment, output, deposits, loans and holdings of government bonds all decline. This is a remarkable result since it shows that under a binding SLR constraint, a cut in the policy rate can be highly contractionary.

Intuitively, the cut in i^g causes the deposit spread I^d to rise (see equation (4.20) above). This reduces the demand for deposits, or the supply of loanable funds available with the banking system. Under a binding SLR, loans and government bonds have to always be in a fixed proportion. Hence, they must both fall in order to accommodate the smaller deposit base of the bank. Consequently I^l has to rise rise since loan demand is a function of the lending spread.

To understand these results better, recall that in the environment without a binding SLR requirement, a cut in i^g simultaneously induced a fall in demand deposits and a rise in loans to firms. The expansion in loans by banks despite a fall in the deposit base was facilitated by a reduction of bank holdings of government bonds z. This was possible due to perfect substitutability between the two components of bank assets. Once the SLR constraint binds however, government bonds and loans to firms have to move in fixed proportions to each other, i.e., there is no substitutability between the two assets at all. Consequently, a fall in bank deposits has to be met with an accompanying decline in both components of bank assets, i.e., n and z both fall. An alternative way of making the point is to note that under a binding SLR constraint, reducing the interest rate on government bonds acts like a higher tax on banks. Consequently, they respond by reducing the size of their balance sheet.

4.0.2 An increase in the rate of money growth

Now consider an unanticipated and permanent increase in the rate of money growth μ. This shock raises the market nominal interest rate i which increases the deposit spread

I^d. Consequently, the supply of loanable funds S to the market falls. The lower supply of loanable funds along with an unchanged demand for loans implies that the lending spread I^l has to rise in order to ration the lower supply of funds to the market. This is again a counter-intuitive result in that an expansionary monetary shock causes deposits, loans, output, employment and consumption to decline!

4.0.3 Rise in the SLR β

Suppose the government permanently raises the statutory liquidity ratio β. This unambiguously raises the demand for loanable funds (see equation (4.24)). The effect on the supply of loanable funds is however ambiguous and depends on parameters. If $i^l > i^g$ (which is the typical case in the data) then the supply of funds declines. In this case the lending spread unambiguously rises. However, the equilibrium effect on deposits is ambiguous.

The upshot of this though is that when the SLR constraint is binding the monetary transmission mechanism becomes so scrambled that it can end up inverting the effects of changes in the policy rate on the key interest rate spreads – raising the policy rate could reduce lending spreads while lowering rates could raise the lending spread. In such circumstances, changing the SLR level (β in our model) itself is more likely to yield conventional effects of monetary policy, i.e., a fall in β would act like a monetary expansion while an increase in β would be a monetary contraction.

5 Fiscal Dominance

A recurrent issue that plagues monetary authorities everywhere is its relationship with the fiscal authority. The tendency of the fiscal authority moving unilaterally to set a path for the fiscal deficit and forcing the monetary authority to validate that path through an accommodative monetary stance has led to movements in many countries to institutionalize the independence of the central bank from the fiscal authority. This movement though still remains incomplete with central bank governors in many countries, including India, still reporting to the treasury/finance wing of the government. Effectively, this tends to create conflicting objectives for the central bank.

Fiscal dominance has three important consequences. First, if the government runs a fiscal deficit then it tends to get monetised by the central bank and consequently leads to inflation. Second, the existence of a fiscal deficit itself can induce inflationary expectations (independent of whether or not the fiscal authority actually expects the central bank to accommodate the deficit or not) and thereby put upward pressure on inflation immediately. Third, in the presence of fiscal dominance the monetary transmission mechanism tends to get scrambled. An example of this is the well known "unpleasant monetarist arithmetic" wherein a tightening of monetary policy could end up raising inflation rather than the intended goal of reducing it.

We illustrate the issues involved by introducing an exogenous fiscal constraint in the model above. Recall that the model thus far had fiscal spending τ adjusting endogenously to balance the government budget. Suppose instead that τ is exogenously given at the constant level $\bar{\tau}$. In effect we are now assuming that fiscal authority moves first and chooses fiscal spending $\bar{\tau}$. The monetary authority reacts by choosing monetary policy to balance the budget taking the fiscal stance as given.

The change in model specification leaves the optimization problem of households, firms and banks unaffected and thereby leaving the optimality conditions derived above unchanged. The crucial change is in the government's problem. Recall that the consolidated government's flow budget constraint (in real terms) is given by

$$\dot{R} = rR + \dot{m} + \pi m + \dot{z} - (i^g - \pi)\, z - \bar{\tau}$$

The government's potential policy choices are the exchange rate regime, the money growth rate μ, the interest rate i^g and fiscal spending τ. Given the assumptions of perfect capital mobility and a flexible exchange rate regime we must have $\dot{R} = 0$. The remaining choices for the government are μ, i^g and τ. Previously, under an endogenous τ, the government could choose μ and i^g while τ would adjust to make the flow constraint hold at every date.

When $\tau_t = \bar{\tau}$ for all t, only one out of i^g and μ are exogenous. Indeed, without a domestic interest bearing bond, an exogenous τ would immediately imply an endogenous rate of money growth μ. However, here the central bank can choose one out of i^g and μ freely. In keeping

with modern central banking practices, we shall assume that i^g is chosen independently by the central bank while μ adjusts endogenously to make the flow constraint hold at every point in time.

The central bank balance sheet identity implies that $\dot{R} + \dot{q} = \dot{m}$ where q denotes real domestic credit. Substituting this in to the consolidated government's flow constraint and rearranging the result gives

$$\delta \dot{d} = \bar{\tau} - rR - \pi\delta d - \dot{z} + (i^g - \pi)\, z$$

where we have used the fact that real money balances (or high powered money) in this economy are just required reserves held by the banking system since there is no cash by assumption, i.e., $m = \delta d$. As before, we continue to assume, without loss of generality, that $R = 0$. Using this and the SLR requirement $z = \beta d$, the above reduces to

$$\dot{d} = \frac{\bar{\tau}}{\delta + \beta} + \left(\frac{\beta i^g}{\delta + \beta} - \pi \right) d$$

To determine the dynamic behavior of this economy, differentiate the first order condition for optimal deposit demand to get $\dot{d} = \frac{\dot{I}^d}{-s''(d)}$. Substituting this in the above and rearranging the result yields

$$\dot{I}^d = -s''(d) \left[\frac{\bar{\tau}}{\delta + \beta} + \left(\frac{\beta i^g}{\delta + \beta} - \pi \right) S\left(I^d\right) \right]$$

where we have used the relation $d = S\left(I^d\right)$ from equation (3.7) above.

Recall that $I^d = (\delta + \beta)(r + \pi) - \beta i^g - (1 - \beta - \delta) I^l$ from the bank first order condition given by equation (4.20).[4] Differentiating this expression with respect to time gives

$$\dot{I}^d = (\delta + \beta)\, \dot{\pi} - (1 - \delta - \beta)\, \dot{I}^l$$

where we have again retained the operating assumption that i^g is exogenously chosen by the government at a constant level. The lending spread I^l is also a function of I^d which can be seen from the fact that the bank balance sheet identity combined with a binding SLR

[4] In deriving this we have also used the relation $I^g = i^g - i$ and the interest parity condition $i = r + \pi$.

constraint implies that $n = (1 - \delta - \beta)\, d$. Totally differentiating this expression and noting that the equilibrium levels of d and n are given by equations (3.7) and (3.14), respectively, we can solve for I^l as an implicit function of I^d: $I^l = \Gamma\left(I^d\right)$ with

$$\Gamma'\left(I^d\right) = (1 - \delta - \beta)\,\frac{\tilde{d}'}{\tilde{n}'} > 0 \tag{5.27}$$

Using this in the expression for $\dot{I}^d$ above gives

$$\dot{I}^d = \left(\frac{\delta + \beta}{1 + (1 - \delta - \beta)^2\,\frac{\tilde{d}'}{\tilde{n}'}}\right)\dot{\pi}$$

Further, we can use the function Γ in the expression $I^d = (\delta + \beta)(r + \pi) - \beta i^g - (1 - \beta - \delta)\, I^l$ to derive the implicit solution for I^d as a function of π and i^g: $I^d = p(\pi, i^g)$ with

$$p_\pi = \frac{\partial p}{\partial \pi} = \frac{\delta + \beta}{1 + (1 - \delta - \beta)\,\Gamma'} > 0; \quad p_{i^g} = \frac{\partial p}{\partial i^g} = \frac{-\beta}{1 + (1 - \delta - \beta)\,\Gamma'} < 0 \tag{5.28}$$

We can now combine this with the differential equation for I^d derived above and rearrange the result to get

$$\dot{\pi} = \chi\left[\left(\pi - \frac{\beta i^g}{\delta + \beta}\right) S\left(p\left(\pi, i^g\right)\right) - \frac{\bar{\tau}}{\delta + \beta}\right] \tag{5.29}$$

where $\chi \equiv s''(d)\left(\frac{1 + (1 - \delta - \beta)\Gamma'}{\delta + \beta}\right) > 0$. Equation (5.29) is the equilibrium differential equation in π that describes the equilibrium dynamics of this economy. Note that i^g and $\bar{\tau}$ are both exogenous policy variables that are assumed to be constant over time. Setting $\dot{\pi} = 0$, It is easy to check that the steady state equilibrium level of inflation is defined implicitly by the expression:

$$\left(\hat{\pi} - \frac{\beta i^g}{\delta + \beta}\right) S\left(p\left(\hat{\pi}, i^g\right)\right) = \frac{\bar{\tau}}{\delta + \beta} \tag{5.30}$$

In this model, the key endogenous variable is π. Once the equilibrium path for π is determined, the equilibrium levels of all the other endogenous variables can be determined recursively. To see this more clearly, recall that employment, output and deposit demand are functions I^l and I^d while consumption is determined from the country resource constraint which is obtained by combining the flow constraints for households, banks, firms and the

government:

$$\dot{f} = rf + A\tilde{x}\left(I^l\right) - c - s\left(S\left(I^d\right)\right) \tag{5.31}$$

where $f = b + b^f + R$ denotes net country assets. Given that $I^l = \Gamma\left(I^d\right)$ and $I^d = p\left(\pi, i^g\right)$, given an exogenous level of i^g, determining π determines all the other endogenous variables of the system.

To determine the equilibrium dynamics, we differentiate equation (5.29) with respect to π. Evaluating it around the steady state inflation rate $\hat{\pi}$ gives

$$\left.\frac{\partial \dot{\pi}}{\partial \pi}\right|_{\pi=\hat{\pi}} = \chi\left[1 - \left\{\frac{\hat{\pi} - \frac{\beta}{\delta+\beta}i^g}{p\left(\hat{\pi}, i^g\right)}\right\}\eta_d p_\pi\right] S\left(p\left(\hat{\pi}, i^g\right)\right) \tag{5.32}$$

where $\eta_d \equiv -\frac{S'\left(I^d\right)}{d} I^d$ denotes the elasticity of deposit demand with respect I^d (which is opportunity cost of holding deposits). The dynamic behavior of π depends on the sign of $\left.\frac{\partial \dot{\pi}}{\partial \pi}\right|_{\pi=\hat{\pi}}$. If this derivative is positive then equation (5.29) defines an unstable differential equation associated with explosive dynamics. As is standard in monetary models of this type, we shall impose the condition

$$1 > \left\{\frac{\hat{\pi} - \frac{\beta}{\delta+\beta}i^g}{p\left(\hat{\pi}, i^g\right)}\right\}\eta_d p_\pi \tag{5.33}$$

throughout, which will guarantee that equation (5.29) is unstable. Hence, all perfect foresight equilibrium paths must have a constant π, i.e., the inflation rate must jump to its long run steady state level at $t = 0$. If this condition fails to hold then the model will permit indeterminacy of equilibrium all of which converge to the same steady state.

5.1 Effect of raising the interest rate

The key question that we would like to address is about the effect of the policy rate i^g on this economy. As before, our focus of attention is on the effect of monetary policy on output and employment. However, in contrast to the economy with an endogenous fiscal spending level, here $\bar{\tau}$ is exogenous and consequently, the rate of inflation is also endogenous. Hence, we are also interested in the effect of changes in the policy rate on inflation along with its

effects on loans, employment and output. Proposition 5.1 illustrates the key result[5]:

Proposition 5.1 *Under a binding SLR constraint and exogenous fiscal spending $\bar{\tau}$, deposits and loans to firms are both independent of the policy rate i^g. Consequently, employment and output are unaffected by changes in the policy rate. The inflation rate is strictly increasing in the policy rate.*

Proof The government flow constraint is, as before, $\bar{\tau} = \pi m - (i^g - \pi) z$. Since $m = \delta d$ and $z = \beta d$, this can be rewritten as $\bar{\tau} = [(\delta + \beta) \pi - \beta i^g] d$. The bank optimality condition (equation (4.20)) can be rewritten as $I^d + (1 - \beta - \delta) I^l - (\delta + \beta) r = (\delta + \beta) \pi - \beta i^g$. Using the expression for $\bar{\tau}$ derived above this reduces to $\left[I^d + (1 - \beta - \delta) I^l - (\delta + \beta) r\right] d = \bar{\tau}$. From equations 3.7 and 3.14 we know that $d = S\left(I^d\right)$ and $n = \tilde{n}\left(I^l\right)$. The SLR constraint is $n = \beta d$. These three relationships jointly imply $I^l = \Gamma\left(I^d\right)$. Consequently, we have $\left[I^d + (1 - \beta - \delta) \Gamma\left(I^d\right) - (\delta + \beta) r\right] S\left(I^d\right) = \bar{\tau}$. The left hand side of this equation only depends on I^d. Hence, the equilibrium deposit spread I^d only depends on $\bar{\tau}$ and the other parameters. Consequently, both I^d and I^l are independent of i^g. Lastly, differentiating both sides of $I^d + (1 - \beta - \delta) I^l - (\delta + \beta) r = (\delta + \beta) \pi - \beta i^g$ with respect to i^g gives $\frac{d\pi}{di^g} = \frac{\beta}{\delta + \beta} > 0$ where we have used the the independence of I^d and I^l from i^g. Since $\frac{d\left(i - i^d\right)}{di^g} = 0$ it follows that $\frac{di^d}{di^g} = \frac{d\pi}{di^g} = \frac{\beta}{\delta + \beta}$. ■

The proposition is stark along two margins. First, in the joint presence of an exogenous fiscal constraint and a binding SLR, interest rate policy has no effect on employment and output since the lending spread is independent of i^g. Intuitively, the government budget dictates a unique deposit spread in order to finance the fiscal spending which, through the SLR constraint, renders the lending spread invariant to changes in the policy rate as well. Effectively, the imposition of an exogenous fiscal spending on top of the binding SLR constraint removes all degrees of freedom from the banking sector.

To understand this result better, note that $\frac{d\left(i^l - i\right)}{di^g} = 0$ implies that $\frac{d\left(i^l - i^g\right)}{di^g} = \frac{-\delta}{\delta + \beta}$ where we have used the fact that $\frac{di}{di^g} = \frac{d\pi}{di^g} = \frac{\beta}{\delta + \beta}$. Clearly the wedge between the lending rate to firms and the rate on government bonds declines as i^g rises. Moreover, recall that the bank optimality conditions in this case are $i^l - \frac{i^d}{1 - \delta} = \kappa \frac{\beta}{1 - \beta - \delta}$ and $i^g - \frac{i^d}{1 - \delta} + \kappa = 0$ which imply that $i^l - i^g = \left(\frac{1 - \delta}{1 - \beta - \delta}\right) \kappa$. Differentiating these with respect to i^g gives $\frac{d\left(i^l - i^g\right)}{di^g} = \left(\frac{1 - \delta}{1 - \beta - \delta}\right) \frac{d\kappa}{di^g}$. Com-

[5] We are indebted to Rajesh Singh for pointing out and proving the results in this proposition.

bining these two expressions for $\frac{d\left(i^l - i^g\right)}{di^g}$ implies that the Kuhn-Tucker multiplier κ declines secularly as i^g rises since $\frac{d\kappa}{di^g} = -\left(\frac{\delta}{1-\delta}\right)\left(\frac{1-\delta-\beta}{\delta+\beta}\right) < 0$. Hence, there exists a threshold upper level of i^g beyond which the SLR constraint ceases to bind. Intuitively, the return on government bonds becomes so high that banks voluntarily choose to hold excess SLRs.

Second, in this environment raising the policy rate i^g unambiguously *raises* the inflation rate. This again runs contrary to the accepted wisdom regarding monetary transmission wherein a rise in the policy rate depresses aggregate demand and consequently reduces the domestic inflation rate. This is a type of unpleasant monetary arithmetic result that has been made by many authors before (see, amongst others, Sargent and Wallace (1981) and Hnatkovska, Lahiri, and Vegh (2013)).

In summary, our results indicate that in the presence of a binding SLR, the transmission of monetary policy in general becomes scrambled with cuts in policy rates generating inducing hikes in lending rates and contractions in real activity. When a binding SLR requirement is combined with a situation of fiscal dominance by the fiscal authority, the transmission of monetary policy to the economy becomes even more scrambled with inflation also potentially responding to changes in the policy rate in non-standard ways.

6 Some Confounding Evidence

The analysis in the model above was conducted based on a binding SLR requirement. It is instructive to note that in contrast with the case of no SLR constraint analyzed in Section 3 above (or equivalently, the case where the SLR constraint doesn't bind), under a binding SLR constraint when $\kappa > 0$, equations (4.17) and (4.18) in Section (4) imply that $i^l > \frac{i^d}{1-\delta} > i^g$. This contrasts with the case where the constraint doesn't bind when $i^l = i^g$. The upshot of this is that in environments where the SLR constraint is binding the lending rate should be strictly greater than the rate on government bonds while in situations where the constraint is not binding the two rates should be equated.

What does data pertaining to the Indian experience with SLR requirements reveal about the trade-offs identified by the model? Figure 3 below shows the excess SLR held by public sector and private sector banks separately since March 2002. The excess SLR is computed as

difference between the ratio of the actual SLR held by the bank to its net demand and time liabilities (NDTL) and the ratio required by policy. Three key features of the data are worth pointing out: (a) the amount of the excess SLR held by the banking system overall declined between 2002 and 2010 but started rising from 2011 onwards; (b) the amount of excess SLR held by public sector banks (around 6.8 percent on average) has consistently exceeded that of private sector banks (around 3.3 percent on average) throughout this period; and (c) the difference between public and private sector banks in their holdings of excess SLRs had almost disappeared between 2007 and 2010 but the period since 2010 has witnessed a faster increase in the excess SLR holdings of the public sector banks. Thus, the average excess SLR holdings of public sector banks has averaged 3.5 percent since 2010 while private banks have held only 2.4 percent excess SLRs during this period.

Figure 3: Excess SLR held by Scheduled Commercial Banks

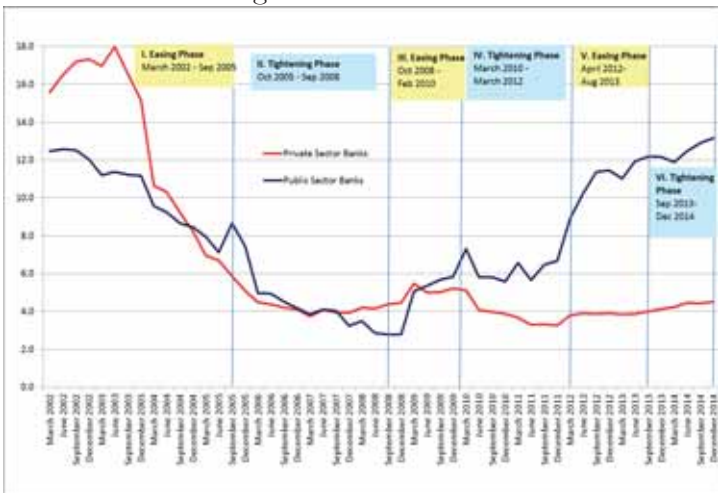
We should point out that since scheduled commercial banks can borrow from the Marginal Standing Facility (at a 100 basis points premium over the repo rate) against its excess SLR over and above what they can borrow from the repo market, there is a well defined precautionary liquidity management reason for banks to hold some excess SLRs. This can possibly explain the 1 to 2 percent excess SLRs that have been typically held by private banks. The puzzle though is the rather high excess SLRs holdings of public sector banks (which have now reached 5.5 percent). It is worth pointing out that given the approximately

4 percentage point spread between the average lending rate of public sector banks and 10-year government securities, the back-of-the-envelope (risk unadjusted) losses implicit in these excess SLR holding of public sector banks in the fiscal year 2014-15 amounted to around $17 billion (Rs. 102 billion). To put this number in perspective, the combined profits of public sector banks in 2013-14 was about $6 billion.

One explanation for these excess SLR holdings could be that the return on bank loans to the private sector are sufficiently close to those on government securities so that banks choose to hold their assets in relatively safer government bonds. However, this is not borne out in the data. The weighted average lending rates of public sector banks in 2014-15 have been in the range 12.01-12.13 percent while the return on ten year government securities has been in the range 7.68-9.15 percent. For comparison purposes, the average lending rates of private sector banks this year have been in the range 12.25-12.56 percent. Clearly, lending rates are greater than the rates on government securities for both groups, and by around the same amount. The data suggests some degree of non-optimizing behavior on the part of public sector banks.

A potential rationalization for the hesitance of the public sector banks to extend credit to non-government entities is the quality of its existing asset portfolio. Figure 4 shows the non-performing assets (NPA) of public and private sector banks as a proportion of their assets. The striking feature of the figure is the sharp increase in the share of non-performing loans of public sector banks since 2009 while the corresponding NPAs of private sector banks have stayed relatively unchanged. This is precisely the period when the excess SLR holdings of public sector banks has also increased sharply. A working hypothesis then is that public sector banks have chosen to increase their SLR holdings at lower interest rates instead of lending on account of the overhang of NPAs on their balance sheets. This, of course, is costly to the tax payer as the banks are potentially losing profits that they could make while they are also contributing to a liquidity squeeze in the economy. A third deleterious effect of this banking strategy is that the lower return on bank assets tends to get passed on to bank depositors as lower deposit rates and consequently tends to lower saving rates as well. In a developing economy that is starved for investable funds, this is very damaging.

Figure 4: Non-Performing Assets of Scheduled Commercial Banks



Note: The figure shows the Gross Non-Performing Assets & Restructured Advances of PSBs & Private Sector Banks as percent of Gross Advances.

7 Conclusion

The primary motivation for the paper was to highlight the effects of policy-induced frictions, particularly those that are likely to impact open emerging economies like India, in the transmission of monetary policy, with consequent implications for the efficacy of policy action. These include, inter alia, interest rate subventions/subsidies, slow adjusting administered floors on diverse savings instruments, intermittent loan waivers to specific sectors and allocative guidelines to banks (the distortions are multidimensional and affect both the assets and liabilities side of bank balance sheets). In the last category, the paper sought to formally explore, specifically, the implications of "regulatory" instruments that are designed to facilitate government borrowing. The statutory liquidity ratio (SLR) is particularly insidious given its size, viz., 21.5 percent of an individual bank's net demand and time liabilities have to be earmarked for buying government securities. Back-of-the-envelope cost to banks of the SLR presented in the paper is not insignificant.

The theoretical model that has been sketched in the paper allows us to make several formal inferences:

- The possibility of inverted monetary policy outcomes in the presence of a binding SLR.

For example, a cut in the policy rate (government bond yield) reduces the demand for deposits (by the same token, the supply function of loans shifts to the left). A binding SLR implies that banks cannot reallocate the scarce deposits between higher return private loans and government bonds. The constraint implies that assets have to be held in fixed proportions (like a Leontief technology) which causes both components of bank assets to fall. The fall in loans implies output and aggregate demand gets depressed in response to the interest rate reduction. A lower interest rate on government bonds effectively acts like a higher tax on the banking sector in the presence of a binding SLR constraint. Consequently, their balance sheets contract.

- An exogenous fiscal constraint and a binding SLR may result, under some conditions, to inflation rising in response to an increase in the policy rate. However, the additional constraint of an exogenous fiscal spending also implies that interest rate changes have no real effects whatsoever as the both the deposit spread and the lending spread remain invariant. This is an even starker illustration of the scrambling effects of SLR requirements on monetary policy transmission.

- When the SLR is binding, a conventional outcome is more likely to emerge by changing the SLR rather than tweaking the policy rate.

The scrambled outcomes that are shown to be possible underscore the importance of formally modelling and understanding the succession choices made by various stakeholders, including banks optimizing in the midst of profound regulations.

Among other extensions that may be helpful in understanding the process better, introduction of policy driven interest caps/floors on financial intermediation, asymmetry between the objectives of public sector banks ("blunter" top-line driven orientation) and those of private sector banks ("sharper" bottom-line driven orientation), and the role of benchmarks formula that links the policy rate with lending rates. In exploring the chain that constitutes monetary policy transmission, it is not inconceivable that (a sort of) general equilibrium approach that is rich in regulatory details, in combination with distortions and skewed incentives may throw up more surprises. Further, against the background of large fiscal deficits

the "optimum" choice between taxing banks versus recourse to the printing presses of the central bank is an interesting subject for closer scrutiny.

For the central bank, the tasks ahead are two-fold. First, perhaps re-balance the reform agenda from high profile subjects such as legislative amendments, like a monetary policy framework and associated institutional changes, to addressing policy-induced distortions that undermine monetary policy efficacy and transmission. Second, address the challenge of multiple roles/objectives and limited instruments.

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FRBM law is irrational. Amend it

S. Gurumurthy

Banks, not government

The way economists have made simple theories into complex mathematical equations has made monetary economics seem difficult to comprehend. Well-known economists including Nobel Laureate Robert Schiller and Prof Bradford Delong have already protested at this distortion of economics. Monetary economics is the story and dynamics of money. Money is to the economy what blood and medicine are to human body. If the economy is short financed, its growth will slacken. If it is starved of money it may even collapse. If it is excessively financed, it will lead to inflation. Originally, the state controlled the entire money supply. It is actually the other way round now. It is not governments but banks create most of the money. Bank of England Quarterly Bulletin [Q1 2014] stated that 97pc money is generated by banks, almost unregulated. Globally, governments have printed $7 trillion but the banking system has created $700 trillion — 100 times more. In India banks are fully regulated. They generate less money than their western counterparts. But still they create and control more than half the money in the economy The Reserve Bank of India regulates this entire money stock of money. All that the Indian government is left with is its revenues. If it needed more money to finance its deficit in budgets, it has to borrow from the money created by banks.

India and West

The quality of money supply in the West and in India differ. In the West, cash balances and bank deposits [technically known as M3 or broad money] constitutes money supply by banks to the economy. But in India, the broad money has to be reduced by 21.5 percent Statutory Liquidity Ratio [SLR] which the banks have to keep invested in government securities [known as Statutory Liquidity Ratio], to arrive at the actual money supply available with banks. The appropriate test for India, therefore, is the demand for credit from business in particular. But to measure the demand for credit there is no debt or credit market in India. Credit is allocated by banks, mostly by PSU Banks. The gap between credit demanded and credit provided is not known. The only yardstick available is credit expansion. The theory of money broadly followed by the guild of economists world over is that money is critical for growth and without adequate money growth will suffer. While Milton Friedman, the celebrated Noble laureate talked about adequate supply of money as the cause of the Great Depression in 1930s, James Tobin spoke about inadequate demand for money as the cause. There is no doubt that either can weaken the economy.

Money supply falls

Currently, Broad Money supply in India [M3 as explained earlier] is falling year on year with more than proportionate fall in credit expansion, indicating that both the Milton phenomenon of inadequate money supply and the Tobin theory of inadequate credit expansion [taking credit expansion as equal to demand for money] are operating in the Indian economy. Time series data shows that during the period of 11 years ending 2010-11, M3 supply growth averaged 17.8pc. It began to come down from an average of 16.5pc in the two years ending 2010-11 to an average

of 13.5pc pc in the three years ending 2013-14. In 2014-15 it has come down to 11.5pc. This is far less than the growth of nominal GDP for the year. The fall is over 45pc as compared to 2010-11. One explanation for the fall, coupled with the growth in the economy now, could be the role of in black money. The disproportionate rise of high denomination notes [Re500/1000] in the total currency in circulation, from Rs 5lac cr in 2008-9 to over Rs 12 lac cr [85pc of the total] in 2014-15 points to the more space for the informal monetary system. According to Economic Census [2013] micro businesses, which add substantially to GDP — are funded to the extent of Rs 12 lac crore, of which only 4pc [Rs 48000 alone] comes from banks — the balance being funded by informal monetary system.

Credit growth slides

Yet, even though gross money supply [M3] has come down in recent years, it does not appear that the banks do not have money to lend. A comparison of rise in credit to rise in deposit shows that credit rise was 112pc of the deposit rise in the three years ending 2012-13 — which came down to 97pc in 2013-14, finally to 82pc in 2014-15. The conclusion is also reinforced by the rise in bank deposit and bank credit as a proportion of the nominal GDP. In the two years ending 2010-11, the rise in deposit and credit as a proportion of nominal GDP was almost equal — 100pc. The average ratio for the next years is 93pc — that is the credit rise to deposit rise in relation to GDP was 93pc. In the year 20014-15, the ratio of credit rise to GDP fell also to almost half [54pc] of the ratio deposit rise to GDP. This shows that the monetary mechanism — bank credit is fatiguing and falling as a proportion of deposit and GDP. The money needed to grow the economy is not in circulation.

FRBM irrational

And now come to deficit financing and how the FRBM law, with its faked limits, acts against growth. The empirical data — of fall credit rise to deposit rise as proportion of GDP — shows that the 5 percent financial savings, which the economists say will “go” to the business sector, is not wanted by them as their risk appetite is less. Annual credit growth has halved from 16.7pc in 2009-10 to less than 8pc. This is despite the fact that the economy has started growing from 2014-15 which means that more money is needed now for growth than in the earlier years [2012-13/2013-14] when the growth was far less. This additional money can only be supplied through fiscal expansion immediately.

Experts object to fiscal deficit because government borrowing for fiscal deficit crowds out private corporate credit needs and affect growth. The experts seem to be wrong on facts. Commercial banks, which have to invest 21.5pc of their deposits in government securities [SLR] have actually invested year after year far in excess — by more than a third over and above the SLR limit. This shows that the banks — read PSBs — have no avenue to lend. Or they are unwilling to lend. Empirical evidence also points to the possibility that the credit growth does not fully explain the demand for money and there is a gap between demand for money and credit growth as the PSBs do not want to take risk. Evidently there is money with banks but the banks, particularly Public Sector Banks [PSBs] are not lending. Banks in India means largely PSBs which hold 80pc deposits of commercial banks. PSB officials cannot exercise their free judgement, when four institutions — Vigilance, RBI, CVC and CBI — are out to fault the lending on wisdom bestowed

by adverse turn of events. The first banking reform needed is to retrain the PSB officials and make them exercise free judgement without coercive investigation.

Deficit funds growth

With credit growth falling in proportion to growth, it is the fiscal deficit which is supplementing the falling credit expansion and aiding growth. The economy seems to be running after all on the fuel of fiscal deficit, which is demonised by all. With the FRBM law virtually banning the government from creating money, the government only borrows money from the financial system and meets the fiscal deficit. This does not add to money supply. The money that shifts from banks to government is actually money not lent and lying idle with the banks. When money is lying idle with banks, fiscal expansion is not only welcome, but necessary to activate the economy. The aggregate of the credit expansion [by banks and fiscal expansion [fiscal deficit of government] which constitutes money put into he economy amounted to 14.6 of the nominal GDP in 2010-11 and 14pc in 2011-12. Even this combined number started falling later, to 12pc in 1012-13, 10.5pc in 2013-14 and just 8pc in 2014-15. It means that the aggregate of monetary expansion [credit growth] and fiscal expansion [fiscal deficit] too has gone down in proportion to GDP by 55pc. And yet the economy has started growing. Imagine the growth is adequately funded, how much more it can grow.

Look at it another way. Had the fiscal expansion has not taken place the economy would have been starved of the money needed. For example in the year 2012-13 the credit growth was only 6pc, far short of the money needed to sustain the nominal GDP growth of 12.5pc. But for the fiscal deficit of 4.5pc the growth could not have been achieved. The lesson is that when the credit expansion fails, for whatever reason, fiscal expansion [fiscal deficit] has to fill the gap. Otherwise, it may well be an invitation to recession, or even depression as it happened in US in 1930s. Aligning fiscal economy [budget deficit] to monetary economy [banking credit] does not mean bringing down fiscal deficit to the magic figure of ‘3’percent. It means that when the monetary mechanism fails, the fiscal mechanism has to be activated.

Another issue for debate. When there is significant fall in the aggregate money supply [M3] by 45pc, with the economy on the rise, there is need to borrow money from the RBI to fill the gap between growth and money supply. When FRBM was formulated M3 was on the rise and ruled above 17pc. Situation has turned the other way with falling M3. The prohibition in FRBM on creating money is hampering growth when the growth of broad money supply is falling. Yes, inflation is definitely an issue. Inflation is an issue whether money gets into the economy by credit expansion or by fiscal expansion. But, when the economy is rising, growth is a short term as well as the long term answer to it. In 2012-13 and 2013-14 the economy was not growing. Not growth has started. If growth impulses, suffer for want of money, bigger problem than inflation will hit the economy. Will the experts rethink? Will they commend amending the irrational FRBM law, drop the ‘3’ mandated fiscal deficit and also allow borrowing from RBI whenever there is clear trend of falling credit expansion or broad money supply? Are they listening?

Post Script: Surprisingly an expert who opposed the FRBM law in 2004 was P Chidambaram. But he was the one to fast forward its implementation in 2005.

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Economic Research
January 2017

Presentation to the FRBM Committee: debt dynamics and the interplay of fiscal and monetary policy

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Updated: January 2017

Overview (1)

- ***Much of the improvement in debt dynamics over the last decade was underpinned by high inflation and negative real interest rates***
- ***But the new inflation targeting framework and move to positive real policy rates – needed for macro stability – has induced a structural change in the relationship between financing costs and growth (R-G)***
- ***It is therefore increasingly important that policy makers ensure that "term premia" do not spike, to ensure that borrowing costs – and therefore debt dynamics – do not get unfavorable***
- ***History suggests that unpleasant fiscal surprises have caused premia to jump sharply, with state borrowing costs suffering from collateral damage (e.g. February 2016)***
- ***But there are also examples in which modest, credible deviations with a clear return path – and where markets were prepared – have seen minimal impact (e.g. February 2015); anchoring market expectations is therefore key***

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Overview (2)

- *Since demonetization, the influx of deposits into banks – and the fact that a significant fraction is expected to remain permanent – has contributed to a sharp bond rally*
- *Even as every other Emerging Market has experienced a bond sell-off after the U.S. election, Indian bonds have rallied sharply*
- *To the extent that some of these deposits will permanently remain with banks, the level effect will keep the long end of the yield curve supported*
- *Ceteris paribus, this should help debt dynamics*
- *In contrast, the main risks to debt dynamics are state finances: state primary deficits have widened meaningfully in recent years, despite higher transfers under the 14th Finance Commission*

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Quick recap of debt dynamics

$$D_{t+1} = D_t * (1+r) - PB_{t+1}$$

$$\Delta d_{t+1} = d_{t+1} - d_t = \frac{D_{t+1}}{Y_{t+1}} - \frac{D_t}{Y_t} = d_t * \frac{r-g}{(1+g)} + pd_{t+1}$$

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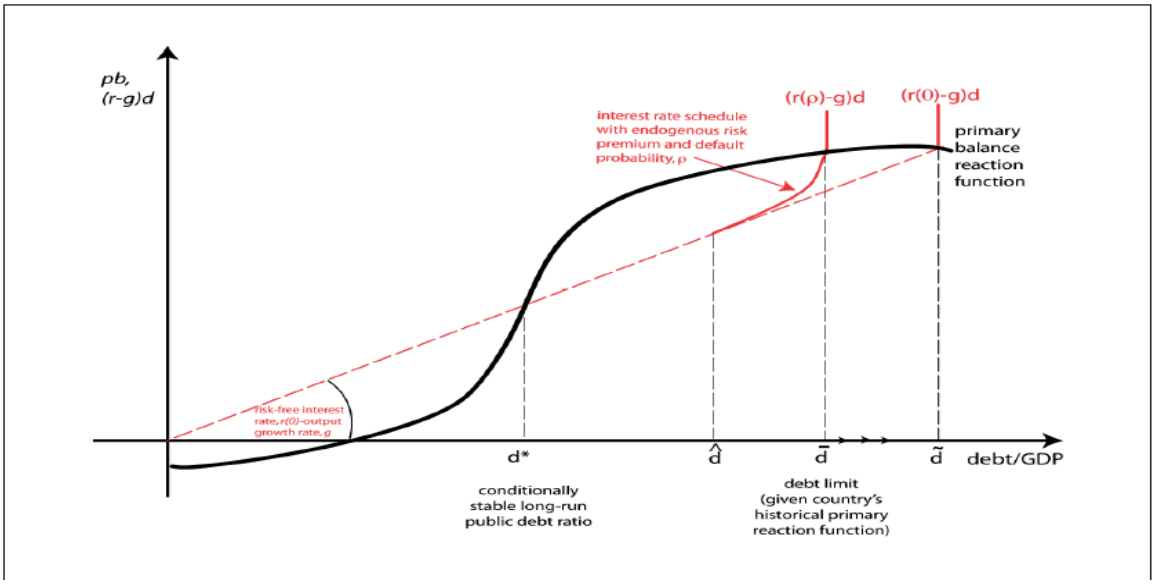
Does the primary deficit auto-correct?

Figure 1. Determination of Debt Limit



Source: Ostry et al . (2015)

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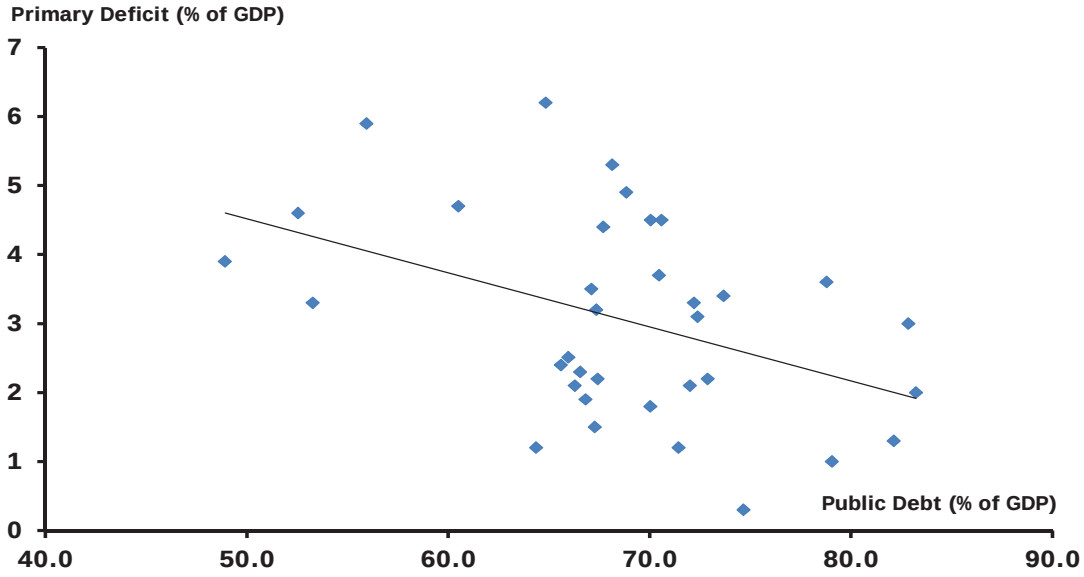
Tantalizing signs of auto-correction in India?



Source: Bloomberg, J.P. Morgan calculations, RBI, Budget Documents

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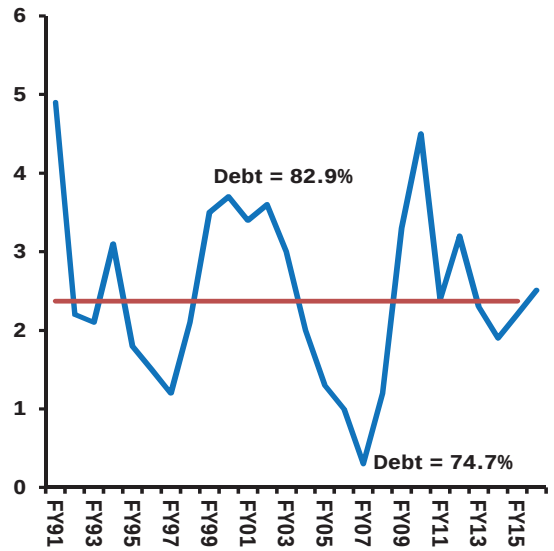
It's a spurious correlation

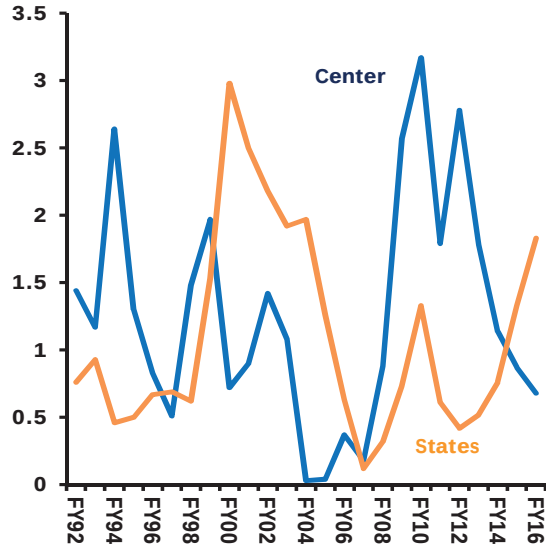
Combined primary deficit

% of GDP



Primary deficit: center versus states

% of GDP



Source: Bloomberg, J.P. Morgan calculations, RBI, Budget documents

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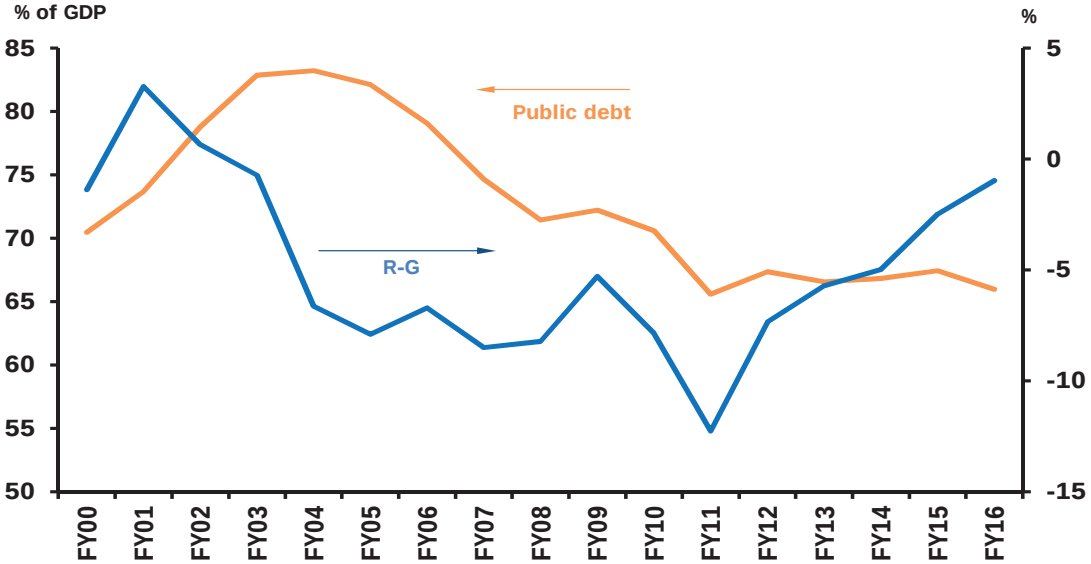
So far a very negative "R-G" has done the heavy lifting

Public debt and sustainability of debt



Source: Bloomberg, J.P. Morgan calculations, RBI, Budget documents

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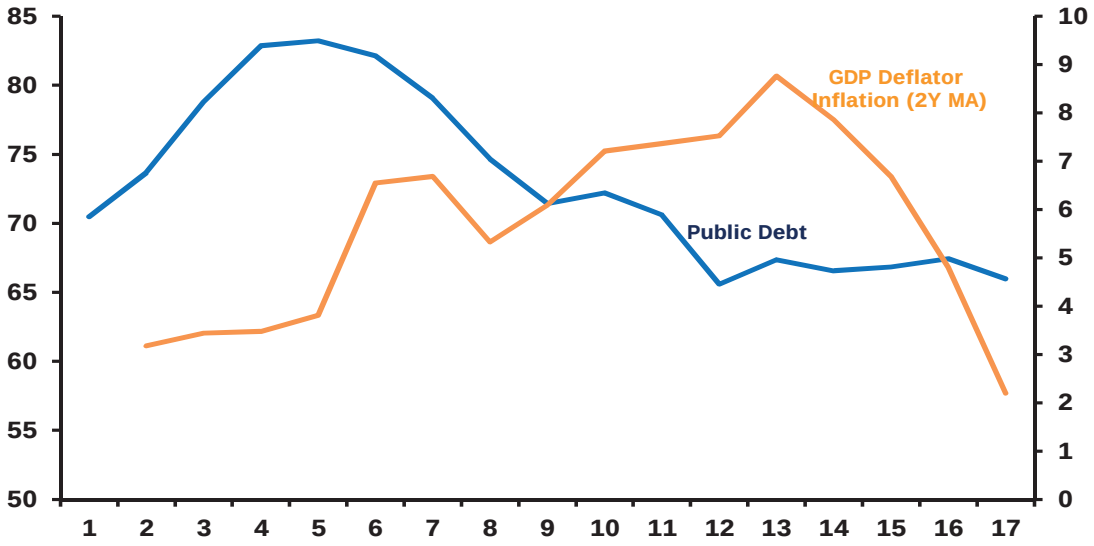
Under the new monetary policy framework, inflating the debt is not a policy choice anymore

Public Debt and Inflation



Source: Bloomberg, J.P. Morgan calculations, RBI, Budget documents, CSO

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Decomposing "R-G"

R – G = (Nominal borrowing cost – Nominal GDP Growth)

R = Nominal Policy Rate (P) + Term Premia
= Real Policy Rate (R) + Inflation + Term Premia*

G = Real GDP Growth (G) + Inflation*

R – G = R + Inflation + Term Premia – G* - Inflation*

= R- G* + Term Premia*

Note: This assumes CPI and GDP deflator converge in the medium term

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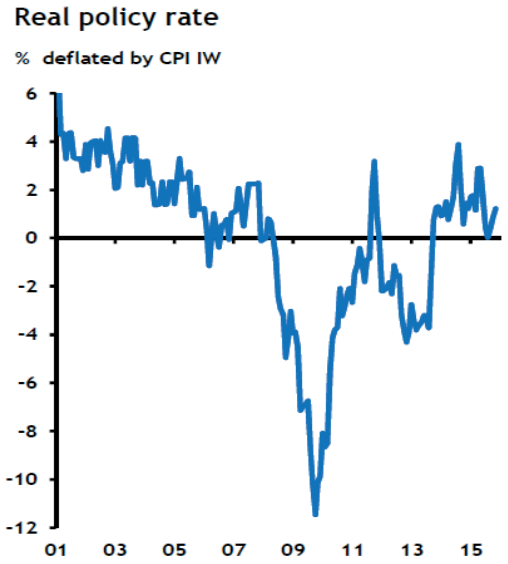
The interplay of fiscal and monetary policy



Source: Bloomberg, J.P. Morgan calculations, RBI. CSO

- *R* (real policy rate) will be positive under new inflation targeting; was negative for long periods of time, leading to severe macroeconomic distortions (move from financial to physical assets and gold; bloated CAD)*
- *So R*-G* is expected to be structurally higher under the new monetary policy framework (and has been so since 2014) to preserve macro stability*
- *Minimizing term premia is therefore the key to keeping borrowing costs contained*

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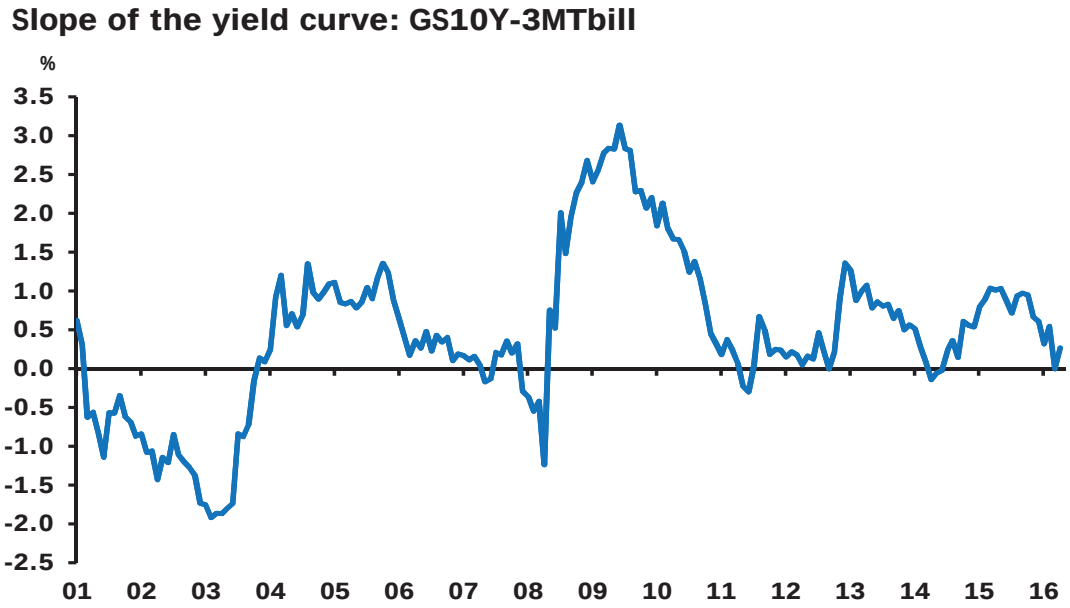
Term premia have ebbed and flowed on domestic and global impulses



Source: Bloomberg, J.P. Morgan calculations, RBI

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Why does the cost of borrowing matter so much?

- *Debt dynamics can change dramatically with small shocks to the cost of borrowing*
- *Crowding out is a direct function of how much private sector borrowing costs go up*
  - *corporate bond yields are a "spread" over the 10-Y Gsec yield; the latter mechanically pushes up the former;*
  - *banks are disincentivized to cut lending rates if the "opportunity cost" for corporates (corporate bond yields) are higher*
- *Apart from debt dynamics, ratings agencies give special consideration to interest burden (as a function of revenues)*
  - *Fitch:*
    - *Budget balance weight: 3.7%*
    - *Interest payments to revenues: 4%!*

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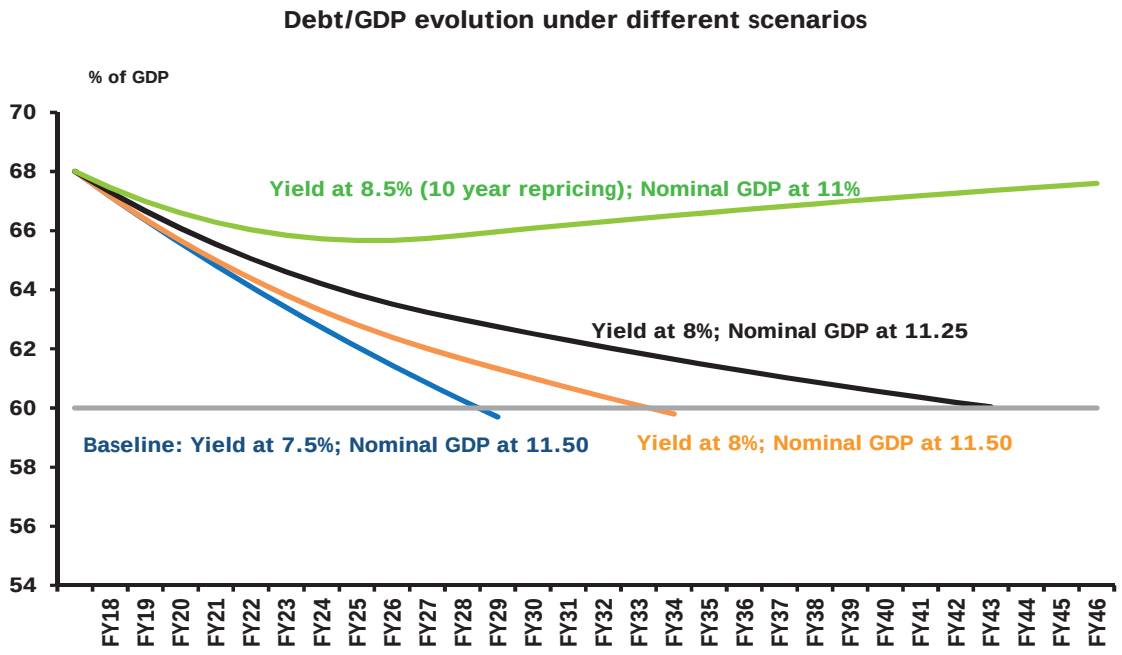
Illustrative impact on debt dynamics from a shock to yields



Source: J.P. Morgan calculations

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Regressions are misleading; conflate expected and unexpected fiscal changes

Dependent Variable: G-SEC 10 Year
Method: Dynamic Least Squares (DOLS)
Sample (adjusted): 2011M01 2015M12
Fixed leads and lags specification (lead=3, lag=3)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Co-eff	5.73	0.87	6.61	0.00
Inflation (YoY)	0.08	0.03	2.73	0.02
Market Borrowing (as % of GDP)	0.15	0.74	2.35	0.03
Forward Premia (12 Month)	0.13	0.06	2.19	0.04
US Treasury (3 Month)	0.60	0.19	3.09	0.01
India Treasury Bill (3 Month)	-0.13	0.17	-0.79	0.44

- *Regressions suggest a very small impact: 1% of GDP slippage pushes up yields by only 15bp; but this is misleading because it conflates "expected" and "unexpected" fiscal changes;*
- *Case studies on subsequent pages show how unexpected fiscal shocks have caused a sharp sell-off in bond yields*
- *US 10Y has a statistically significant impact on Indian Bond Yields; US rates going up could pressure on Indian yields*

Source: Bloomberg, J.P. Morgan calculations, RBI, CSO.

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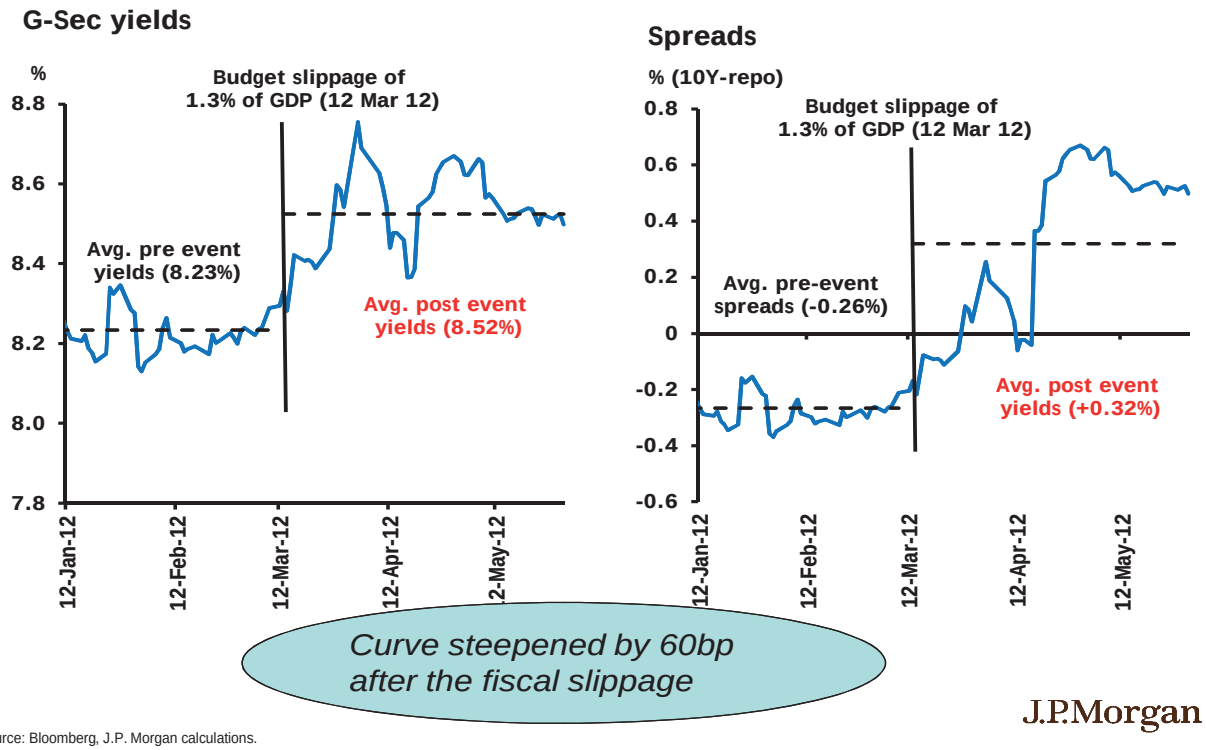
Event Study 1: Fiscal Slippage 1.3% in March 2012



Curve steepened by 60bp after the fiscal slippage

Source: Bloomberg, J.P. Morgan calculations.

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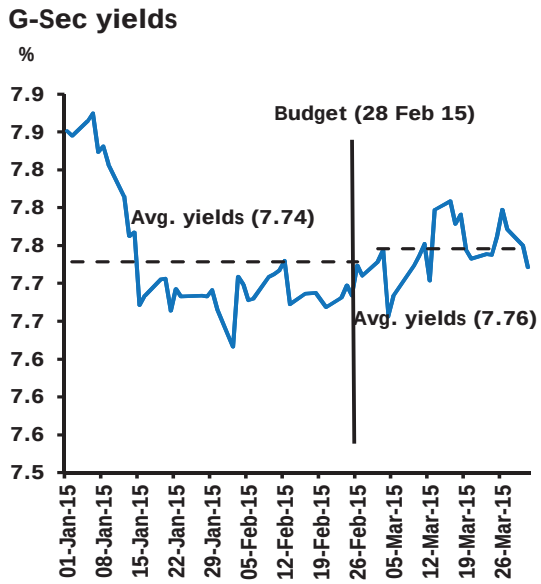
Event Study 2: Hitting a mini-pause in February 2015 (slowing consolidation by 0.3% of GDP)



Minimal impact on markets;

Seen as a

- *Temporary pause*
- *For a good cause (capex)*
- *With a credible return to the path*
- *Invoked for the first time*

Source: Bloomberg, J.P. Morgan calculations.

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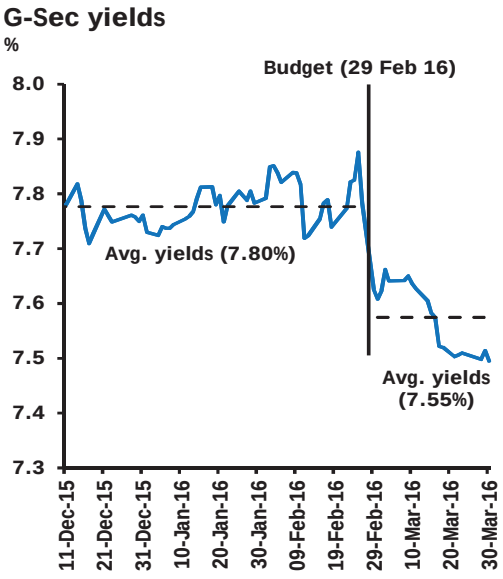
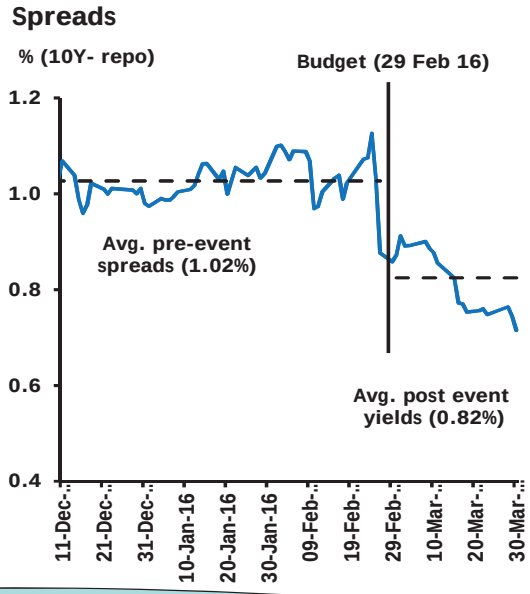
Event Study 3: Fears of another pause in 2016





Curve flattened by 20bp after 0.2% of GDP fiscal relaxation did not materialize; bigger impact was felt by states

Source: Bloomberg, J.P. Morgan calculations.

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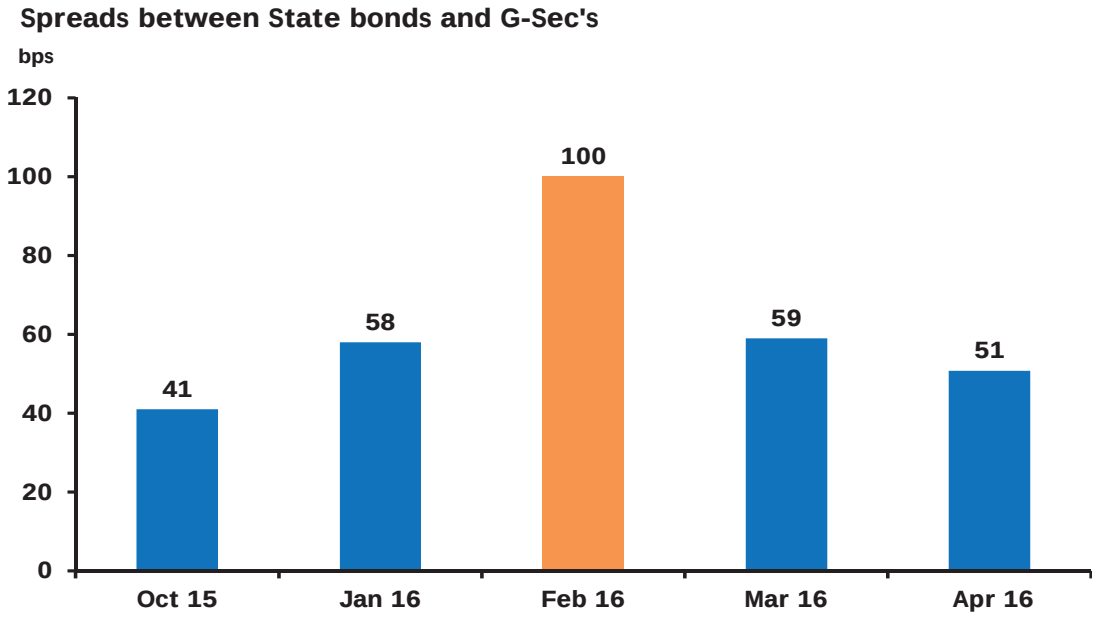
Event Study 3: the states took it on the chin



Source: Bloomberg, J.P. Morgan calculations.

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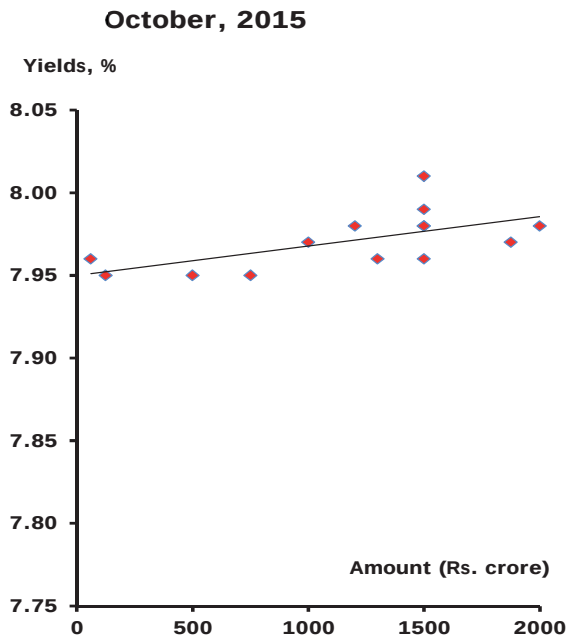
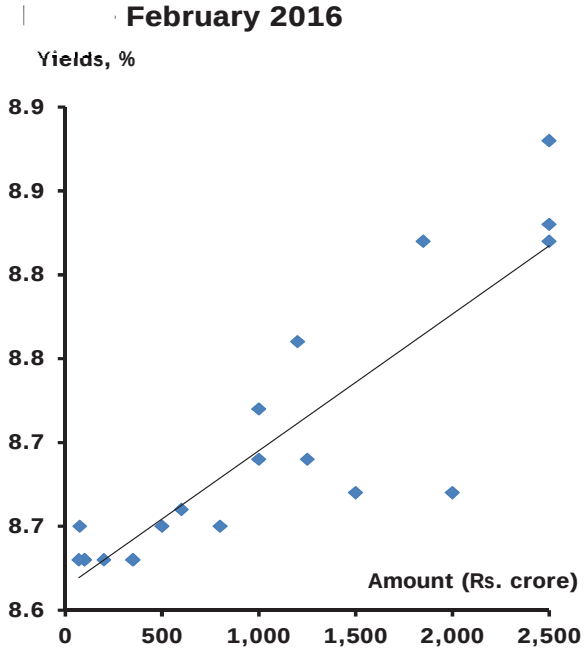
State Bond yields: in times of stress (February 2016) larger states were disproportionately punished





Source: Bloomberg, J.P. Morgan calculations.

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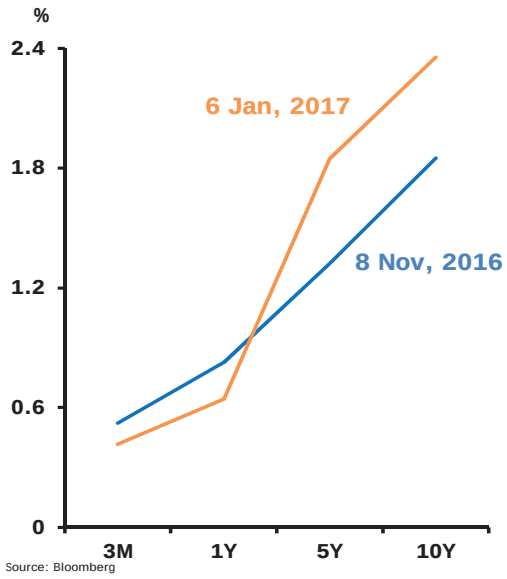
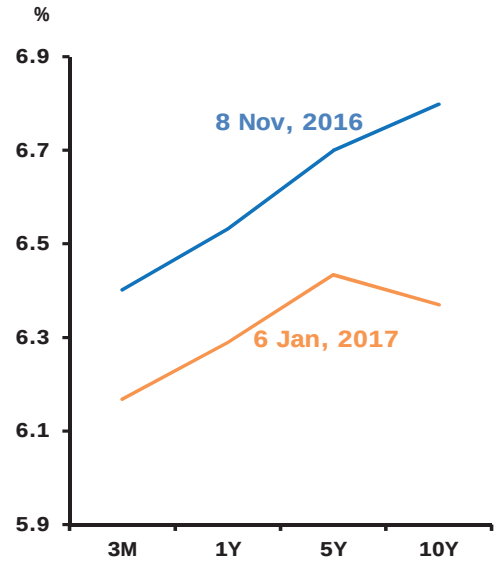
Since demonetization, influx of deposits has flattened the yield curve sharply, even as global curves have steepened

US Bond Yield Curve



Source: Bloomberg

Indian Bond Yield Curve



Source: Bloomberg

Source: Bloomberg, J.P. Morgan calculations.

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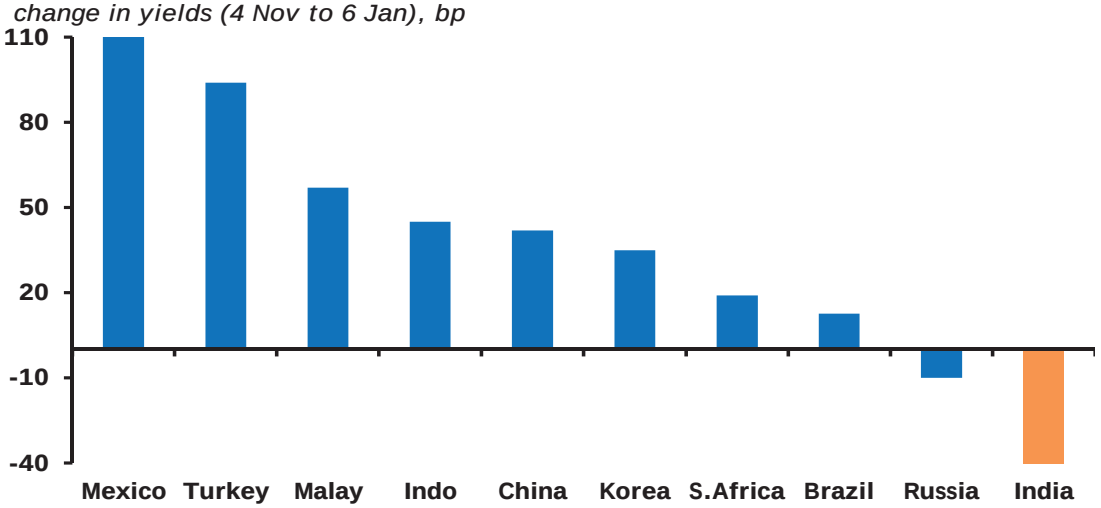
Indian Bonds have rallied even as every other EM has sold off since the U.S. election on November 8

Local Currency Bond Yields (10 Year)

change in yields (4 Nov to 6 Jan), bp



Source: Bloomberg

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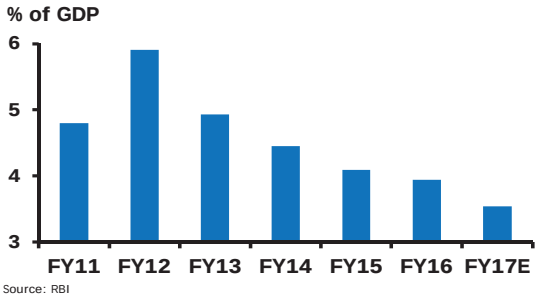
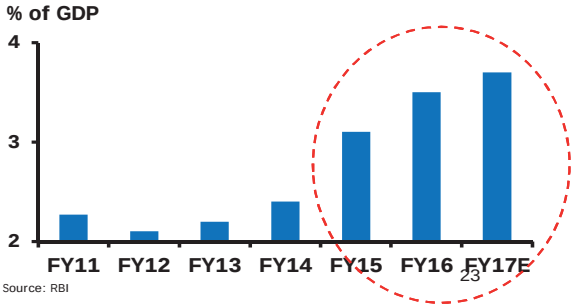
The key risk remains deteriorating state finances, which has offset central consolidation

Central Fiscal deficit



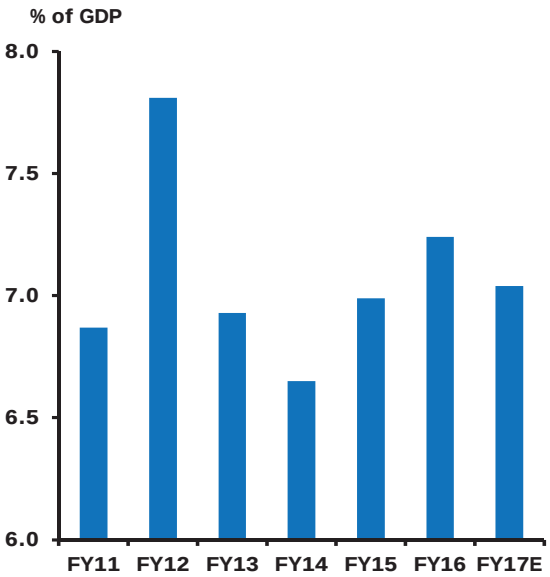
Source: RBI

State Fiscal deficit



Source: RBI

Combined Fiscal deficit



Source: RBI

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The bottom line (1)

- *Much of the improvement in debt dynamics over the last decade was underpinned by high inflation and negative real interest rates*
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- ***Since demonetization, the influx of deposits into banks – and the fact that a significant fraction is expected to remain permanent – has contributed to a sharp bond rally***
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Trends in private debt in India

September 2016

Draft Report submitted to the FRBM Review Committee

Authors

Ashish Gupta

Kush Shah

Executive Summary

Loan growth has slowed

We estimate total private sector borrowing in India at ~Rs113tn. Banks are the major provider, funding ~70% of loans and NBFC's funding ~11%. Domestic and Foreign currency bonds (ECB's) account for another ~11% of the private sector debt. Credit growth in India has slowed over the past couple of years and is down to 11%yoy in FY16 from 23% in FY12. Banking system loans that have grown at 18% Cagr since FY91 have slowed to 10% in FY16 – the lowest level in past 20 years. Non-banks have witnessed an acceleration and in FY16 their loans grew at > 15% yoy.

Despite the recent slowdown , bank credit growth has consistently outpaced nominal GDP growth as a result of which bank credit to GDP has increased from ~20% in FY00 to 55% in FY16. There have been only 4 instances over the past 25 years, where nominal GDP growth has outpaced bank loan growth.

Debt penetration remains low

As per BIS, credit penetration in India is only ~60% of GDP. However, this appears to only account for banking system credit, aggregating non-bank loans and bonds the total credit outstanding in the system is at Rs113tn and works out to ~83% of GDP. Either way, debt penetration in India is low relative to both other emerging (avg. debt-GDP at 140%) as well as developed (avg. 160%) economies. This is partly explained by India's relatively low per capita GDP levels.

Household debt penetration in India is also relatively low at 23% of total debt (17% as per BIS data). Even as lending to the consumer segment from the banking system has grown to Rs14tn, share of household debt to GDP has remained largely flat over the past 5-6 years at 10% of GDP. However, as NBFC's are also active lenders to the consumer sector, including these the household debt penetration is just 19% of GDP. Household debt per capita is also significantly lower for India at US$300 vs US$ 20,000-40,000 for most other countries. Debt to assets is low at 3-4%, with only 29% of households having any form of debt. Moreover, bulk (50%) of consumer loans in India are in the mortgage segment.

Corporate debt penetration on the other hand at 64% is slightly better, vs 104% for emerging economies and 86% for advanced economies. Banks account for ~70% of total corporate credit. Corporate loan growth has slowed to 10% in FY16 from 25% levels in FY12.

High concentration key risk

Over the past 2 decades, despite the relatively low penetration and credit growth not significantly outpacing nominal GDP growth, banks in India have periodically witnessed significant NPL cycles. Impaired (NPA + restructured) loans at the banks are today over 12% of loans. As per CS estimates, the true level of stress assets in the banking system today is even higher at 16% of loans. The increase in NPAs over the past 4 years have been largely driven by the corporate segment and for some banks 20-25% of corporate loans are now impaired.

Aggregate net debt to equity for corporate India has increased from the lows of 0.6x in FY08 to 1x. Similarly, the aggregate interest cover is down from a peak of 6.2x to 2.7x.However, even as the aggregate leverage ratios have deteriorated, they do not appear to be commensurate with the magnitude of stress witnessed in the bank loans.

High concentration of debt appears to be the primary reason for this. Within the corporate sector loans, metals and infra alone account for ~50% of total outstanding industry loans and 33% of corporate loans. The debt servicing ratios for these sectors are visibly weaker than for the overall corporate sector. These sectors have been among the largest contributors to recent asset quality stress, for instance 35% of metal sector loans are now impaired (25% as NPA and 9% as restructured).

The corporate stress is therefore better captured when we look at dispersion. 39% of debt resides with companies with interest cover <1. Over half of the debt with IC<1 companies is contributed by companies from the Infrastructure, utilities and metal sectors. Performance of the stressed companies is weaker than the broader corporate sector. While, overall Ebitda grew 5%yoy in FY16, companies having IC<1 witnessed an 18% yoy drop in 1Q17.

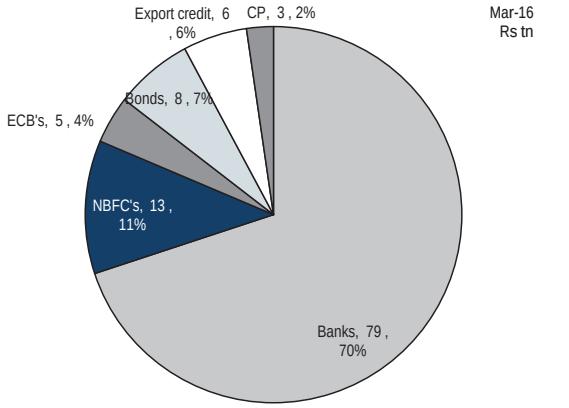
The problem has also been exacerbated due to concentration of debt within a small number of entities. Ten large corporate groups that are primarily focussed on commodity and infrastructure sectors alone account for ~18% of banking sector corporate loans. Debt levels for these groups continues to rise, and is now up 8x over the past 9 years. Debt servicing ratios for these companies is significantly higher than overall system, with Net Debt to Ebitda at 7x and Interest cover ~1x.

Loan growth has slowed

Banks provide 70% of domestic credit

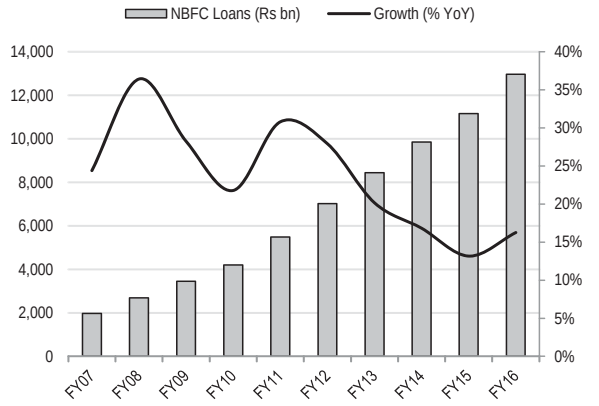
We estimate total private sector borrowing in India at ~Rs113tn. Banks are the major provider, funding ~70% of loans and NBFC's funding ~11%. Domestic and Foreign currency bonds (ECB's) account for another ~11% of the private sector debt. In recent months, pace of growth of lending at non-banks has been witnessing an acceleration and in FY16 their loans grew at > 15% yoy.

Figure 1: Banks account for > 2/3rd of total borrowings



Source: RBI, SEBI, Company data, Credit Suisse estimates

Figure 2: NBFC loans have seen strong growth



Source: RBI, Company data, Credit Suisse estimates

Total loans from the banking system are Rs75tn. However, we estimate the total credit outstanding to be ~Rs113tn. This includes loans from NBFCs (Rs13tn), corporate bonds outstanding (Rs20tn), external commercial borrowings (ECB's of Rs12tn) and commercial paper and export credit of ~Rs9tn. We adjust for the bank loans to NBFC's Rs3.5tn and bonds issued by banks and NBFC's of Rs 12.5tn.

Figure 3: Total debt is at Rs113 trillion

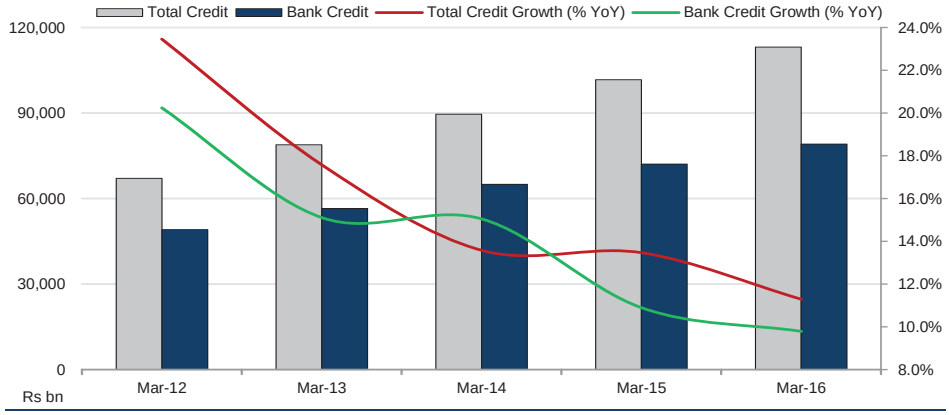
FY16	Rs bn	Share (%)
Domestic Bank Credit	75,300	67%
- Of which loans to NBFC's	3,527	3%
Domestic Bank Credit (ex-NBFC) (a)	**71,772**	**63%**
Bank's foreign loan book (b)	**7,392**	**7%**
NBFC Loans (c)	**12,974**	**11%**
Corporate Bonds O/s	20,193	18%
- Of which bonds Issued by Banks / NBFC's	12,580	11%
Non-Bank / NBFC Bonds o/s (d)	**7,613**	**7%**
ECB's	12,011	11%
- Of which bank's foreign loan book	7,392	7%
ECB's o/s excluding bank foreign book (e)	**4,619**	**4%**
Commercial Paper and other credit (f)	**8,837**	**8%**
Total Credit (a+b+c+d+e+f)	**113,207**	

Source: RBI, SEBI, Company data, Credit Suisse estimates

Bank credit growth now slowest in 20 years

Over the last few years, nominal credit growth in India has been slowing. It has moderated to ~11% in FY16 vs > 20% in FY12. The slowdown has been sharper in bank credit that is now at ~10%, largely driven by slowdown in corporate credit growth. Retail loan demand, has remained strong, growing at ~16% over the past 2 years.

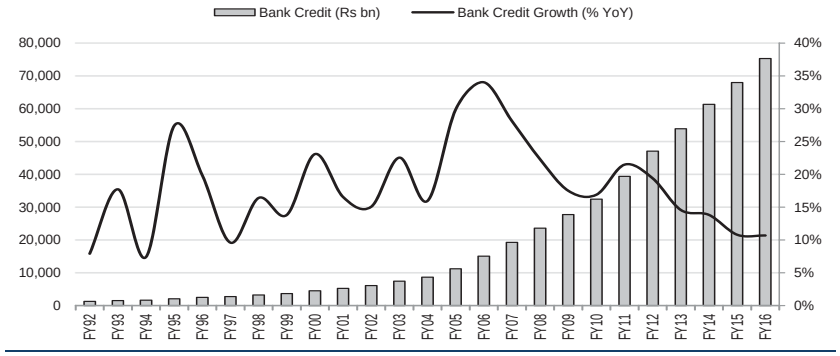
Figure 4: Credit growth has slowed over the past few years



Source: RBI, SEBI, Credit Suisse estimates

Banking system credit has grown to Rs75tn in FY16 having grown at an 18% Cagr since FY91. The period FY05-08 had witnessed the strong growth during which bank loan books had expanded at an 28% CAGR. This has now slowed to 12% (FY13-16) and the 10% yoy rate in FY16 was lowest level in the past 20 years.

Figure 5: Domestic bank credit growth has slowed to 10%

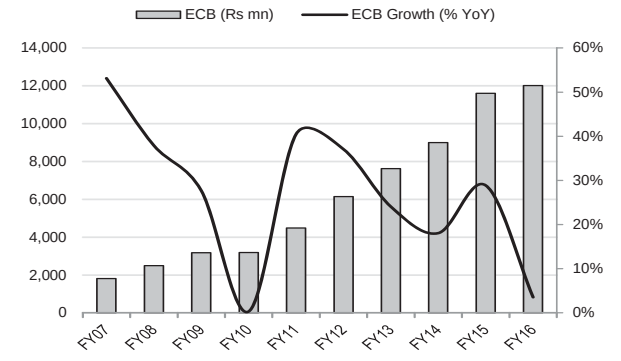


Source: RBI, Bloomberg, Credit Suisse

Non-bank growth trending better

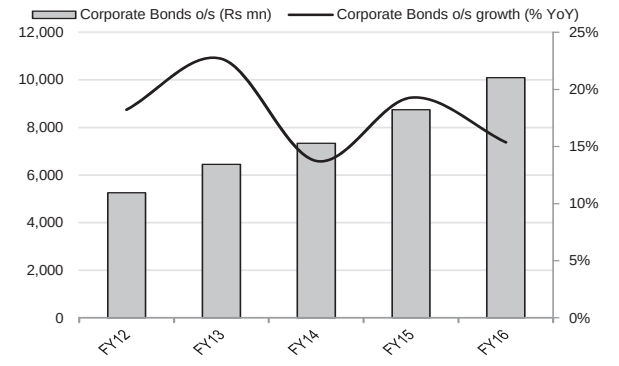
While, bank loan growth has slowed, ECB's outstanding have grown from US$ 27bn in FY06 to US$ 186bn in FY15 and seen a slight decline in FY16 to US$ 182bn. Corporate bond growth has also been strong over the past few years, with outstanding corporate bonds growing at 18% Cagr since FY11 to Rs10tn in FY16. Commercial Paper growth has been strong at 35% in FY16, though the total outstanding is low at Rs2.6tn and accounts for only 2% of total credit outstanding.

Figure 6: ECB growth has also slowed in FY16 ...



Source: RBI, Credit Suisse

Figure 7: ... while corporate bond growth remains strong

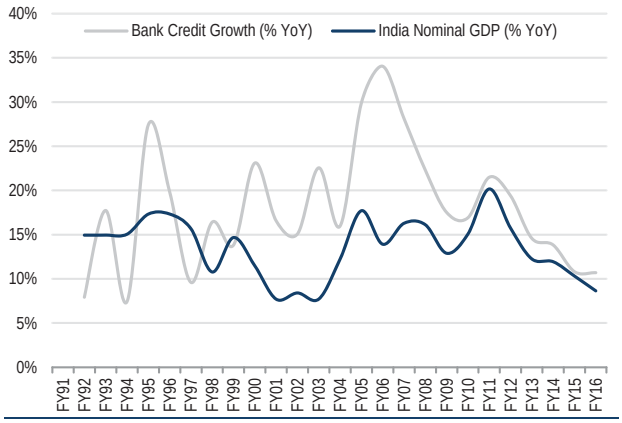


Source: SEBI, Credit Suisse

Real credit growth still in positive territory

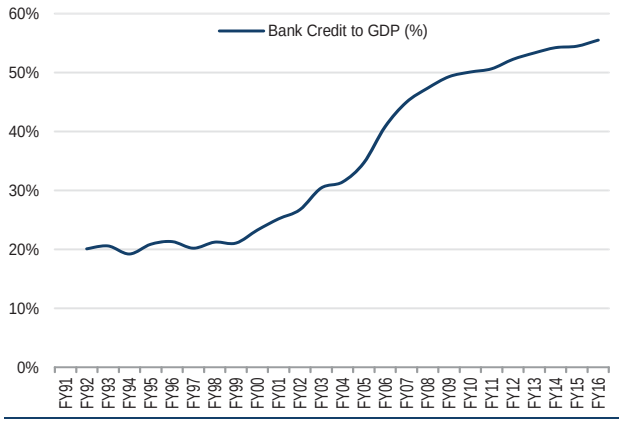
Over the past 25 years, bank credit growth has consistently outpaced growth in nominal GDP, as a result of which, bank credit to GDP has increased to 55% vs 20% in FY91, with a jump between FY04-09, when credit to GDP increased from 31% to 49%.

Figure 8: Domestic bank credit growth continues to outpace nominal GDP growth



Source: RBI, CSO, Credit Suisse estimates

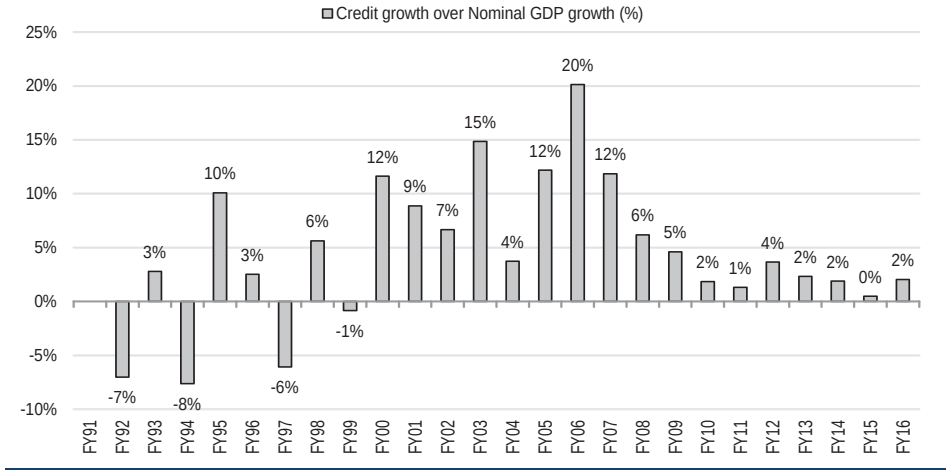
Figure 9: As a result of which, Domestic bank credit to GDP has increased to 55% vs 20% over the past 15 years



Source: RBI, CSO, Credit Suisse estimates

Even as domestic bank loan growth has slowed over the past few years, it continues to outpace nominal GDP growth. Except for the period from FY00-FY08, bank credit growth has not significantly outpaced the nominal GDP growth.

Figure 10: Domestic bank loan growth continues to outpace Nominal GDP growth



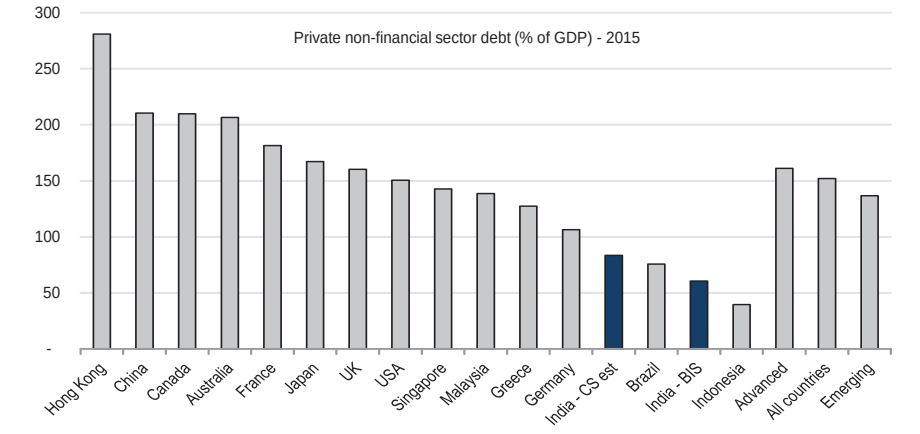
Source: RBI, CSO, Credit Suisse estimates

Debt levels and credit penetration remains low

By most global standards, India's debt penetration levels are modest.

As per BIS, credit penetration in India is only ~60% of GDP. However, this appears to only account for banking system credit. If we aggregate bank credit (Rs 75tn), NBFC Loans (Rs 13tn) and Bonds (Rs 20tn), as explained in Figure 3, the total credit outstanding in the system is at Rs113tn and works out to ~83% of GDP. Either way, debt penetration remains low, with average credit to GDP at 140% of GDP for emerging and 160% for developed economics.

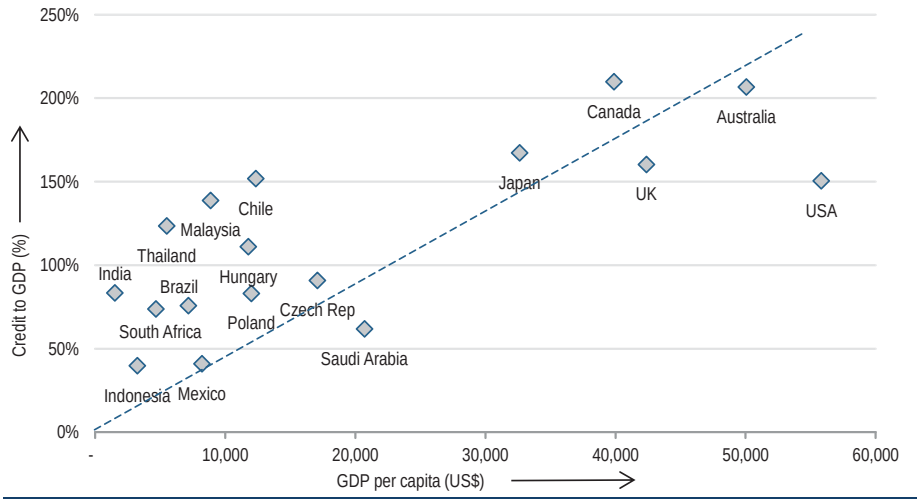
Figure 11: Well below other countries as a % of GDP



Source: BIS, Credit Suisse estimates

India's relatively low GDP per capita partly explains the low debt penetration even relatively to most other emerging economies.

Figure 12: India GDP per capita is low, with Credit to GDP also lower than most other emerging economies



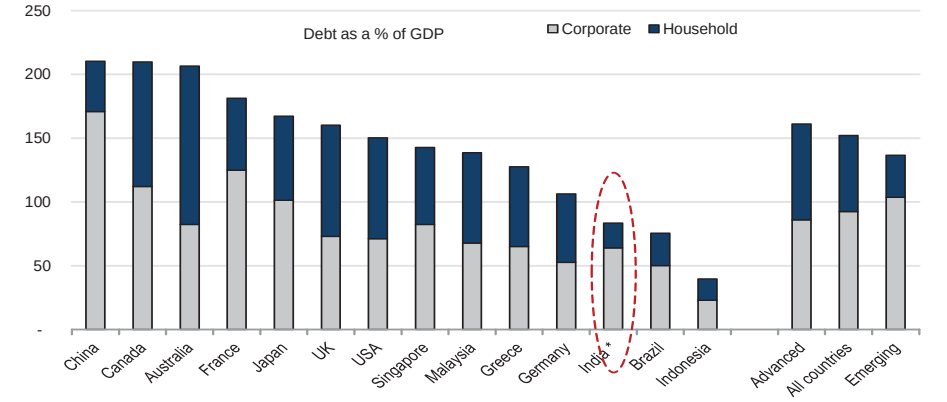
Source: BIS, World Bank, Credit Suisse

Share of household debt is low

The distribution of debt in India is more skewed towards the corporate sector. Household (consumer) debt accounts for ~17% of total credit as per BIS data (~23% based on CS estimates including NBFC's and retail share of agriculture loans).

Share of household debt in other countries (as per BIS) is higher, 24% for emerging countries and 47% for advanced countries. Banks and NBFC's account for the majority of loans to the household sector.

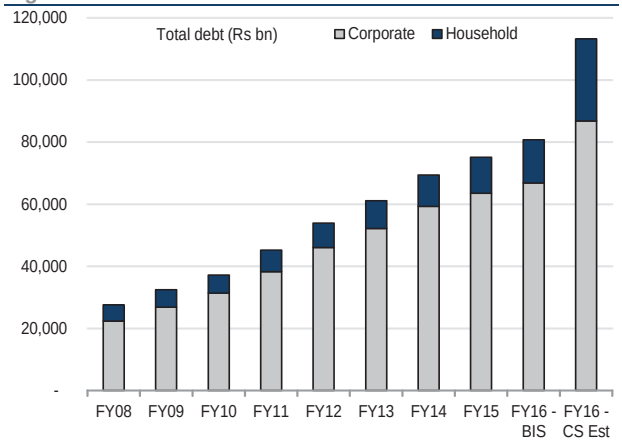
Figure 13: Share of household debt significantly lower for India



*Source: BIS, Credit Suisse * India numbers are as per CS Estimates*

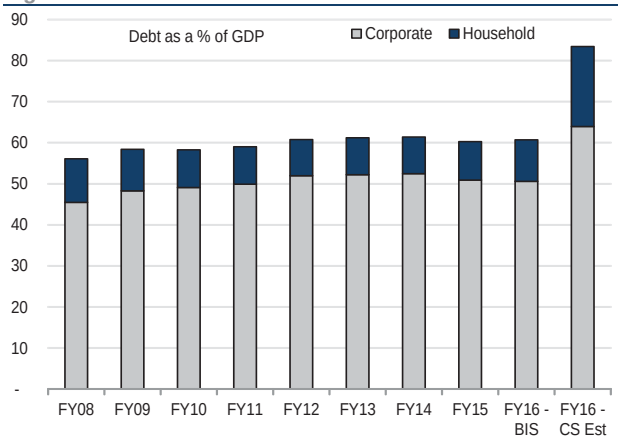
As per BIS (based on banking system loans) consumer debt to GDP is at 10% though as per our estimates (including NBFC loans and bonds), it works out higher at ~19%.

Figure 14: Share of household debt remains low …



Source: BIS, Credit Suisse estimates

Figure 15: … at ~20% of GDP

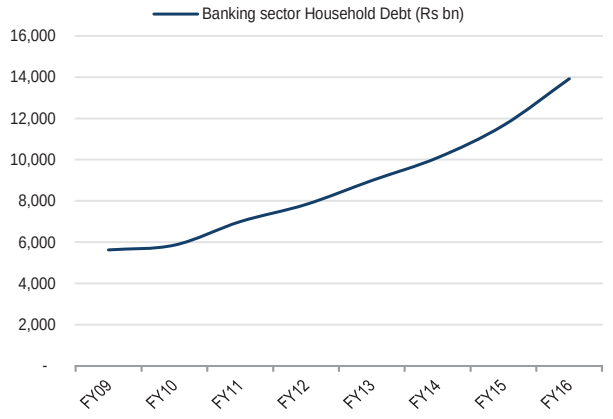


Source: BIS, Credit Suisse estimates

Household Debt

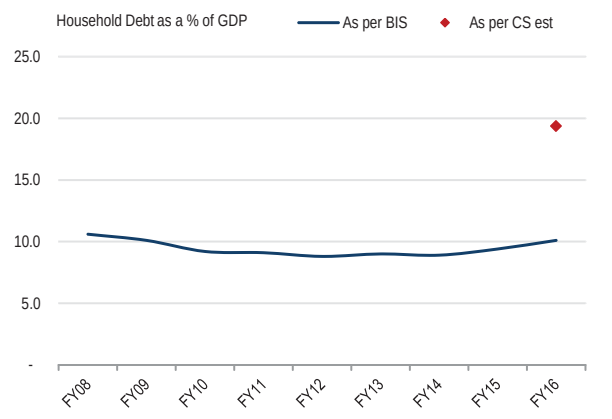
While household debt from the banking sector has increased, to Rs14tn, share of household debt to GDP has remained largely flat over the past 5-6 years at 10% of GDP. However, given NBFC's have been active lenders to the consumer sector, if we were to include NBFC lending to the consumers (51% of NBFC loans are retail based on CS bottom up estimates) and retail share of agriculture loans (2/3rd of agri loans are assumed to be retail given the share of direct agri lending) it would be higher at ~19% of GDP.

Figure 16: Household debt has increased to Rs 14tn …



Source: BIS, Credit Suisse

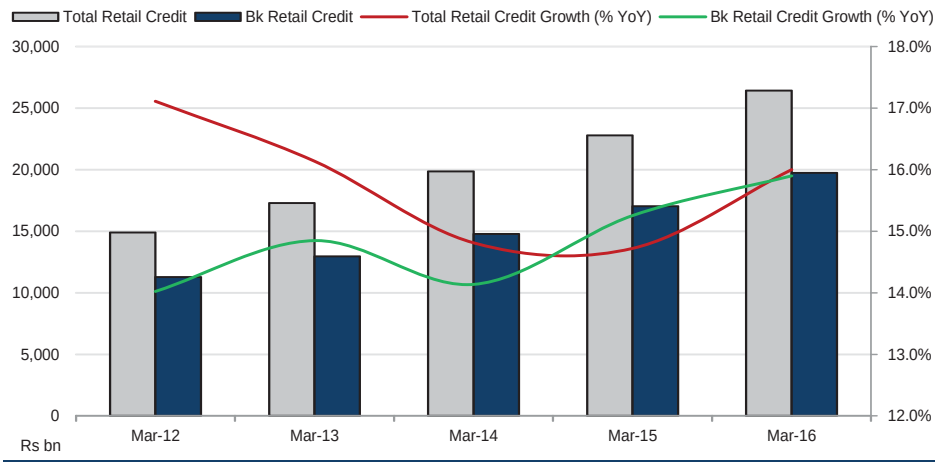
Figure 17: however, as a % of GDP, it remained flat at 10%



*Source: BIS, Credit Suisse *CS est incl NBFC and retail agri loans*

Retail loan growth has been relatively strong over the past few years, growing at > 15% yoy. With push towards financial inclusion and increased digitisation, we could continue to see strong growth in household debt over the next 5-10 years.

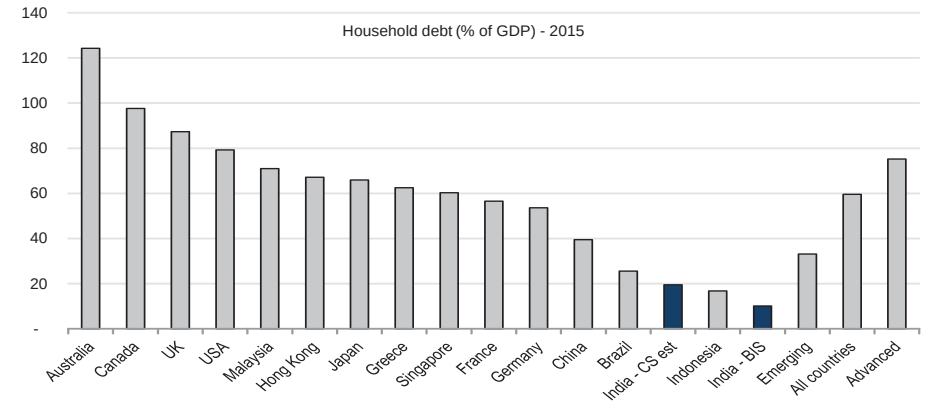
Figure 18: Retail loan growth has been strong at ~15% for the past few years



Source: RBI, SEBI, Credit Suisse estimates

Household debt to GDP based on banking sector loans is at 10%, while if we were to include NBFC's and agriculture loans as explained above, it works out to ~19% of GDP. However, even including the above, penetration is significantly lower compared to other countries, with consumer debt to GDP at ~35% for emerging countries and ~75% for advances economies.

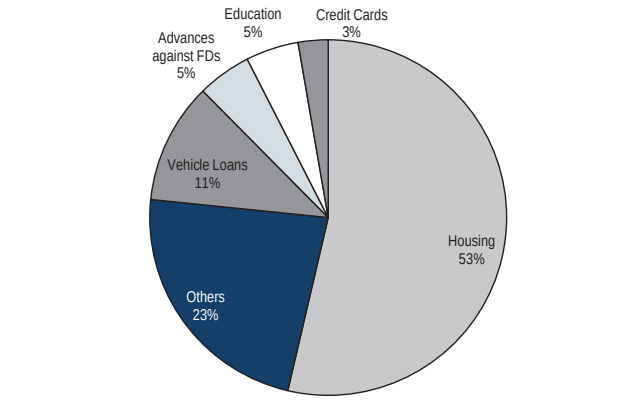
Figure 19: Household debt as a % of GDP amongst the lowest at 10% or even 19%



*Source: BIS, Credit Suisse * as per CS estimates*

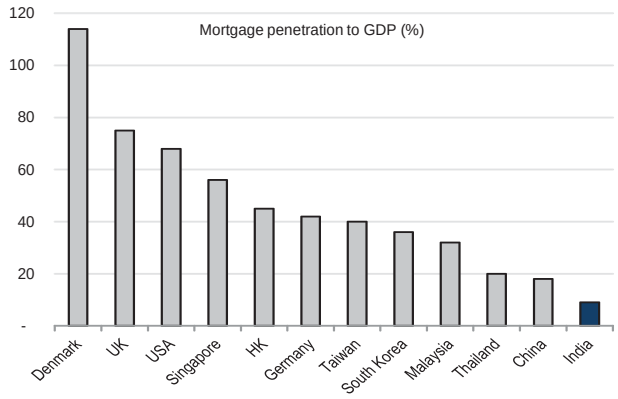
Moreover, a large share (~53%) of banking sector consumer loans are mortgages. However, as overall consumer loan penetration is low, mortgage penetration is still low at 9% and significantly lower than other developed and developing countries.

Figure 20: Home loans account for >50% of banking sector household debt



Source: RBI, Credit Suisse

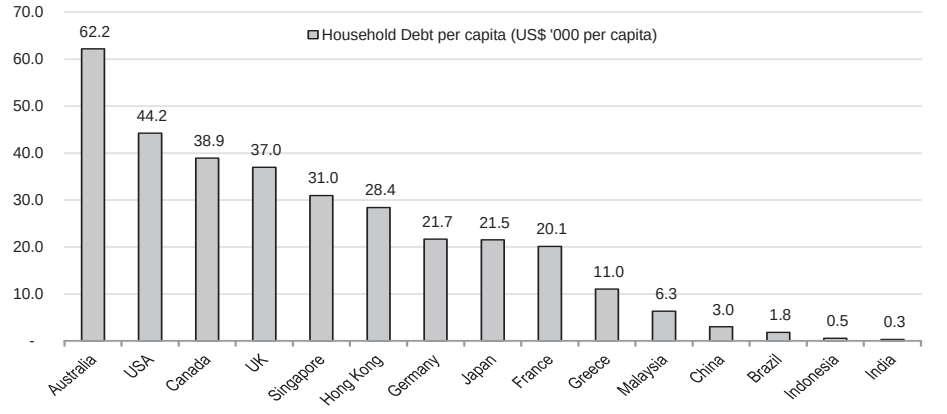
Figure 21: However, mortgage penetration is also low 9%



Source: HDFC

Household debt per capita is low, at US$ 300 per capita for India vs US$20,000-40,000 for developed countries.

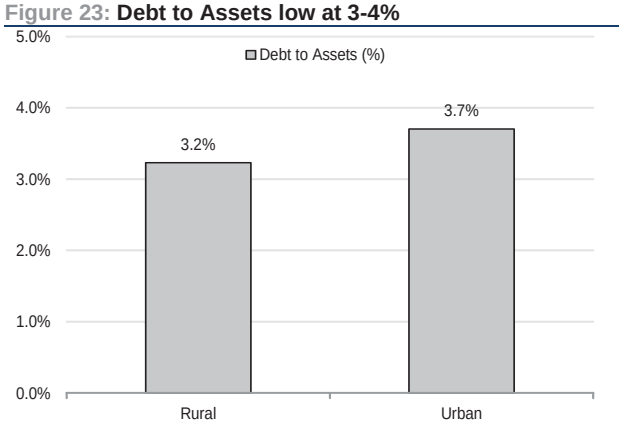
Figure 22: Household debt per capita is significantly low compared to other countries



Source: BIS, World Bank, Credit Suisse estimates

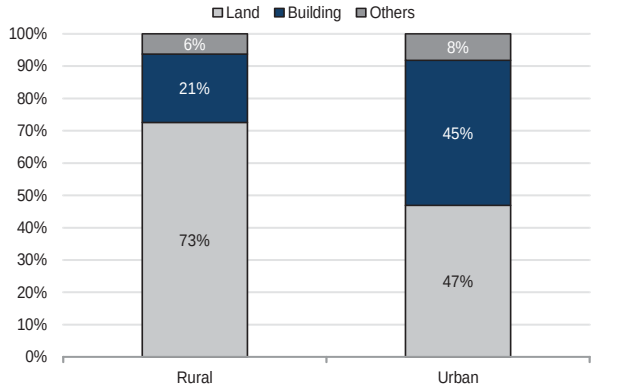
Overall debt levels remain low in India, with Debt to assets at ~3-4% of asset in rural and urban India.

Figure 23: Debt to Assets low at 3-4%



Source: NSSO

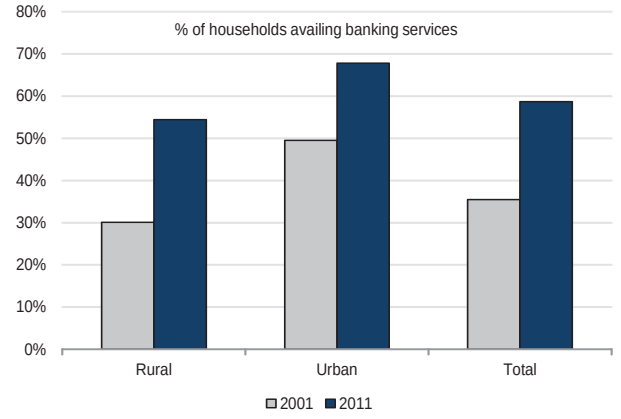
Figure 24: Land and Building account for >90% of assets



Source: NSSO

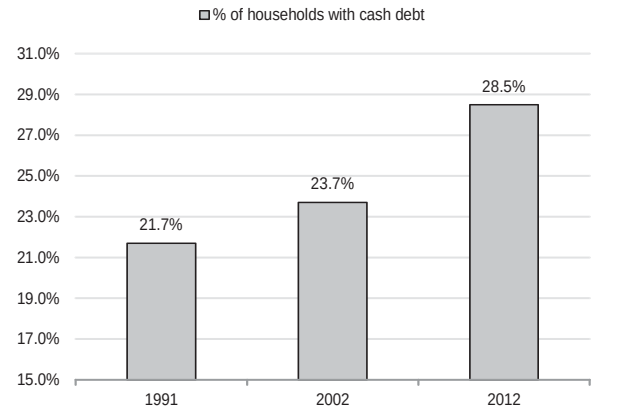
While share of households with access to banking services has increased from <40% in FY01 to ~60% in FY11, share of households with any form of debt are < 30%. With increasing availability of data, we believe penetration should increase of the next decade.

Figure 25: % of households availing banking services is also low at ~60%.



Source: NSSO, Credit Suisse

Figure 26: Less than 29% of Indian households have debt of any form

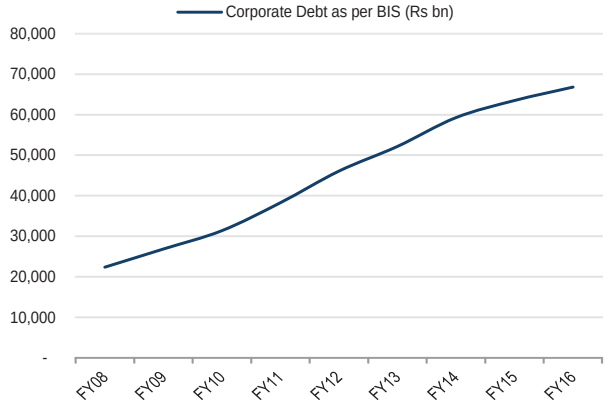


Source: NSSO, Credit Suisse

Corporate Debt to GDP at 65%

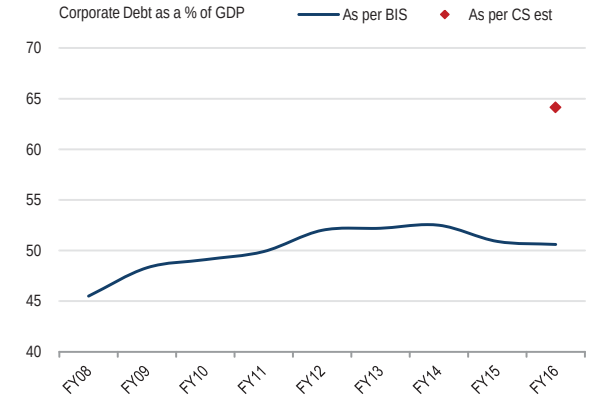
As the corporate loan growth has slowed in the last couple of years, as a % of GDP it is back to 2011 levels at 50% as per BIS data. If we were to include NBFC loans and bonds, corporate credit to GDP penetration rises to ~65%.

Figure 27: Corporate debt growth has slowed, growing at 7% yoy in FY15 and FY16



Source: BIS, Credit Suisse

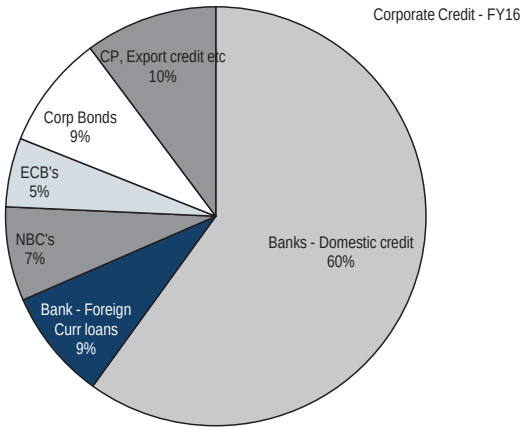
Figure 28: … as debt to GDP has declined slightly and is back to ~50% of GDP



*Source: BIS, Credit Suisse *CS est incl NBFC's, bonds & CP's*

Total corporate credit as per BIS is ~Rs 67tn. This increases to Rs~87tn on aggregating corporate loans from NBFCs, and other forms of corporate borrowings (Bonds, ECB's and CP's). We have excluded the Rs12.5tn of bonds issued by banks and NBFC's as of Mar-16 for the purpose of our calculations. Banks (including foreign currency loan books of Indian banks) account for ~70% of total corporate credit. However, as the banks are also a large buyers of corporate bonds/CPs, their true share of corporate funding is higher.

Figure 29: Banks account for ~70% of corporate credit

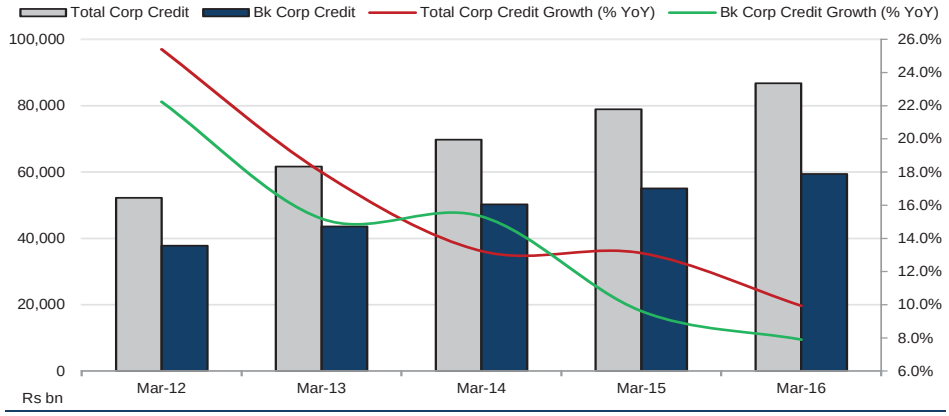


Source: Company data, Credit Suisse estimates

Disintermediation of banks rising in corporate lending

Overall corporate loan growth has slowed to ~10% in FY16 vs 25% in FY12. Corporate loan growth for the banks is even lower at ~8% yoy as direct access of corporates to money markets has increased. As lending rate cuts from banks lag the fall in rates and bond yields (on account of asset quality stress, capital constraints and rising cost income ratios for PSU's) and recent RBI regulation on dis-intermediation, we expect this divergence widen..

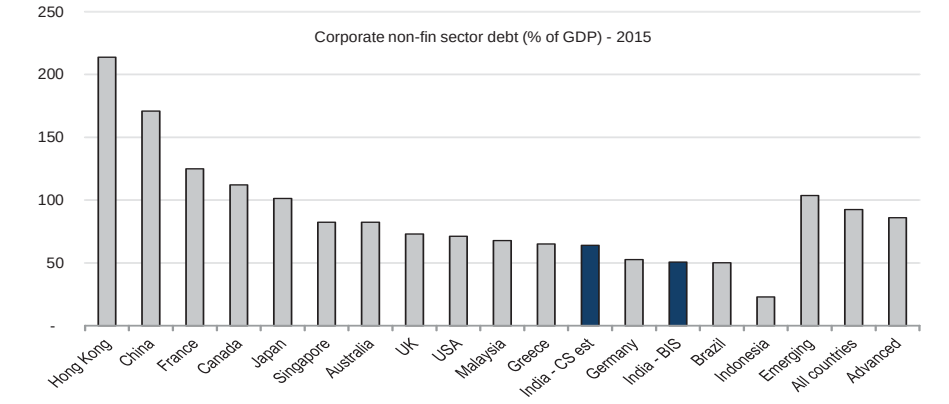
Figure 30: Corporate credit growth has been slowing over the past few years



Source: RBI, SEBI, Credit Suisse estimates

Though, corporate segment accounts for a larger share of credit in the domestic economy, corporate debt penetration in India is still relatively low compared to most other economies. As per BIS data, corporate debt to GDP is ~50%, while if we include NBFC's and other forms of corporate credit it would be ~65%, both of which are lower than others.

Figure 31: Corporate debt / GDP at 65% vs 90-100% for other countries



Source: BIS, Credit Suisse

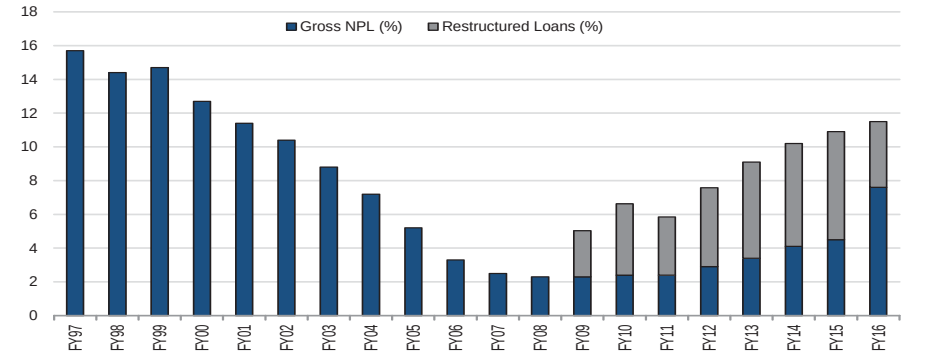
High concentration key risk

Over the past 2 decades, despite the relatively low penetration and credit growth not significantly outpacing nominal GDP growth, banks in India have periodically witnessed significant NPL cycles. Impaired (NPA + restructured) loans at the banks are today over 12% of total loans. As per CS estimates, the true level of stress assets in the banking system today is even higher at 16% of loans

Despite low penetration, NPA's are high

Over the past 2 decades, despite the relatively low penetration and credit growth not significantly outpacing nominal GDP growth, banks in India have periodically witnessed significant NPL cycles. Impaired (NPA + restructured) loans at the banks are today over 12% of total loans.

Figure 32: **Significant NPA cycles witnessed**

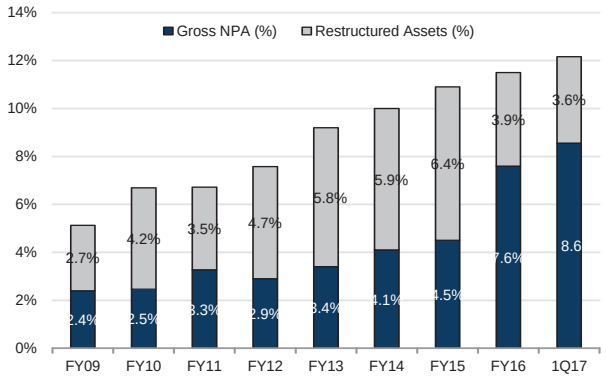


Source: RBI, Credit Suisse

Recognition of stress loans still to peak

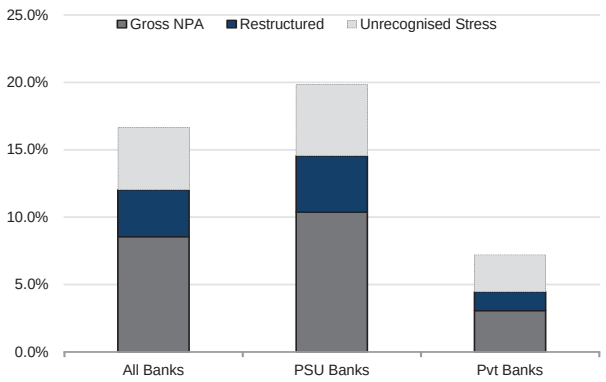
Even as the banking system NPA's have increased sharply in FY16 to 7.6%, (8.6% in Jun-16) from 4.5% in FY15, as per CS estimates, the true level of stress assets in the banking system today is even higher at 16% of loans. The stress is higher in the public sector banks and estimated to be close to 20% of their loans.

Figure 33: **NPA's have risen sharply over the past year**



Source: RBI, Credit Suisse estimates

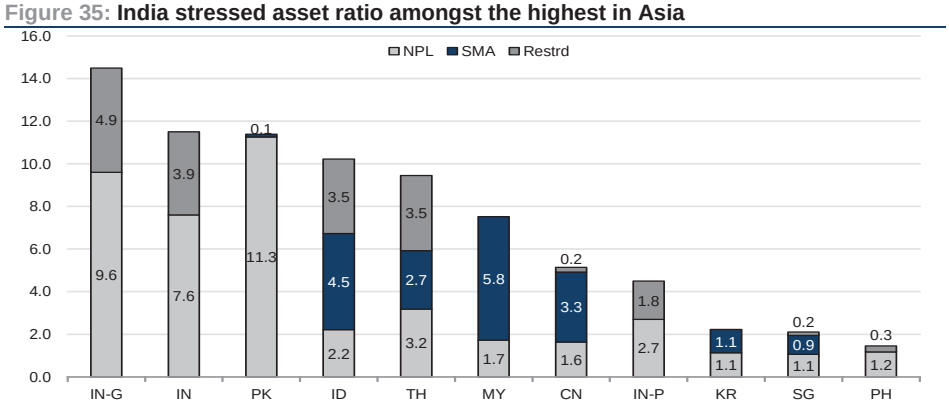
Figure 34: **Led by Public sector banks**



Source: RBI, Credit Suisse estimates

India's stressed asset (Gross NPA + Restructured) ratio at 11.5% as of Mar-16, (increased to 12.1% as of Jun-16) is amongst the highest across countries, not even taking into account the Special Mention Accounts (SMA) which could be another 5-7% of loans.

Figure 35: India stressed asset ratio amongst the highest in Asia

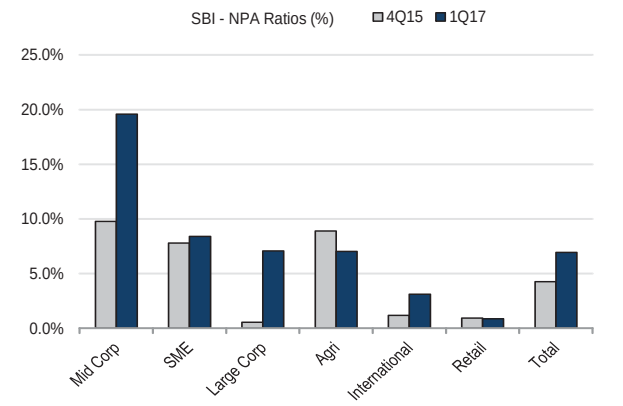


Source: Company data, Credit Suisse estimates

NPA rise has been driven primarily by corporate segment

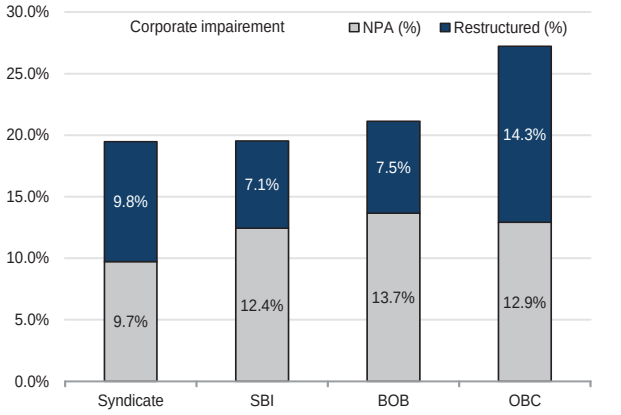
Over the last 4 years, the sharp increase in NPA levels have been driven largely by the corporate segment. For instance, SBI over the past 2 years has witnessed large corporate NPA's increase from 0.5% to 7% and mid corporate NPA's increase from 10% to 20%. Similarly, for most PSU banks, 20-25% of corporate loans are now impaired.

Figure 36: NPA increase primarily from corporate loans



Source: Company data, Credit Suisse estimates

Figure 37: 20-25% of bank corporate book is impaired

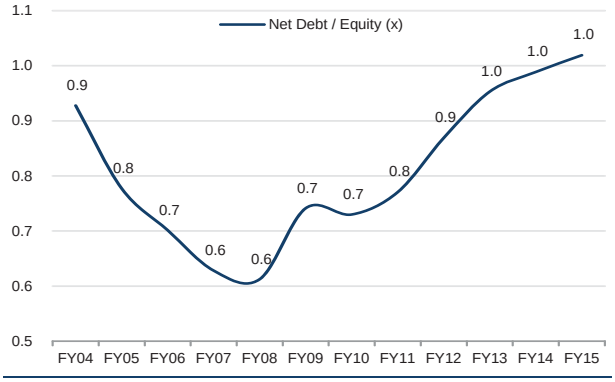


Source: Company data, Credit Suisse estimates

Aggregate corporate leverage ratios do not appear as stressed

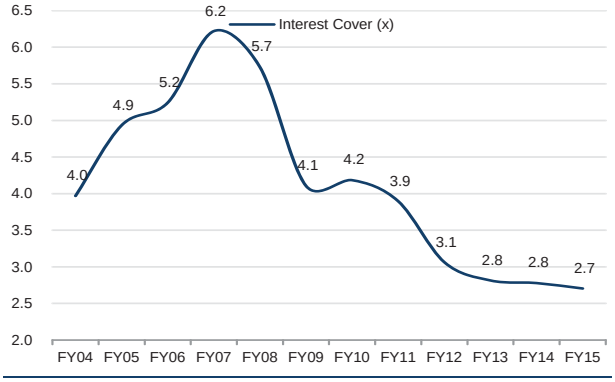
Aggregate net debt to equity for corporate India has increased from the lows of 0.6x in FY08 to 1x. Similarly, the aggregate interest cover is down from a peak of 6.2x to 2.7x.

Figure 38: Net Debt / Equity has increased



Source: CMIE, Credit Suisse

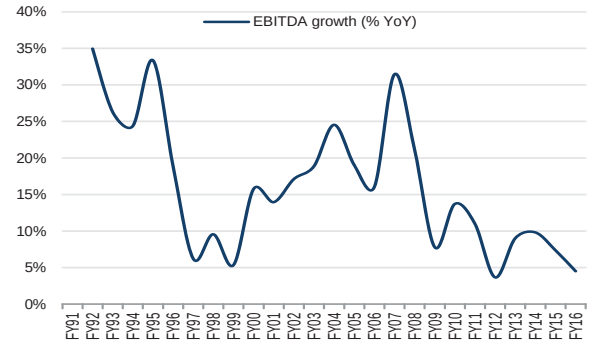
Figure 39: ...and interest cover is down to 2.7x



Source: CMIE, Credit Suisse

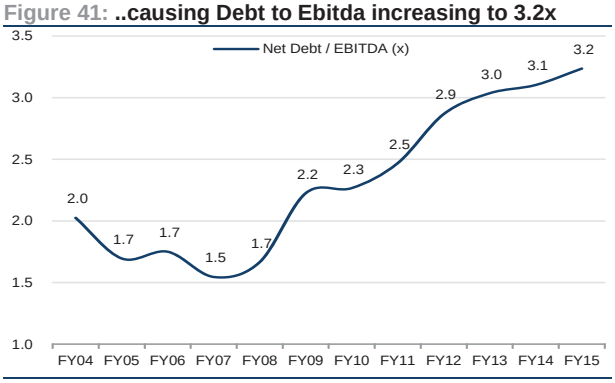
A rapid growth in corporate loans over FY05-11 and the slowdown in corporate profitability (EBITDA growth at the lowest levels seen over the past 25 years at 5%) has resulted in net debt to ebitda increasing to 3.2x in FY15 vs 2.5x in FY11.

Figure 40: EBITDA growth has dropped to multi year lows



Source: CMIE, Prowess, Credit Suisse estimates

Figure 41: ..causing Debt to Ebitda increasing to 3.2x

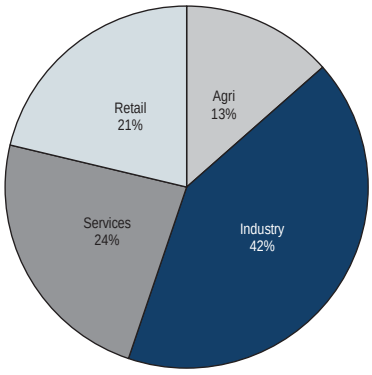


Source: CMIE, Credit Suisse estimates

Debt concentration - The key risk

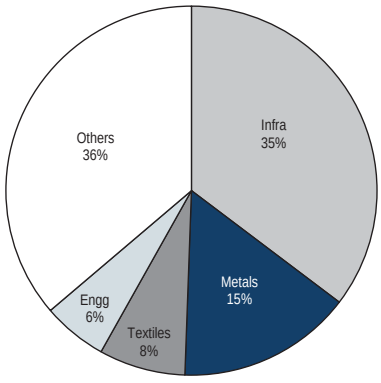
However, even as the aggregate leverage ratios have deteriorated, they do not appear to be commensurate with the magnitude of stress being witnessed in the bank loans. Corporate sector debt account for 66% of total banking sector debt, with high level of concentration within the corporate sector as well. Within the corporate sector loans, metals and infra alone account for ~50% of total outstanding industry loans and 33% of corporate loans.

Figure 42: Industry & Services account for 2/3rd total loan



Source: RBI, Credit Suisse estimates

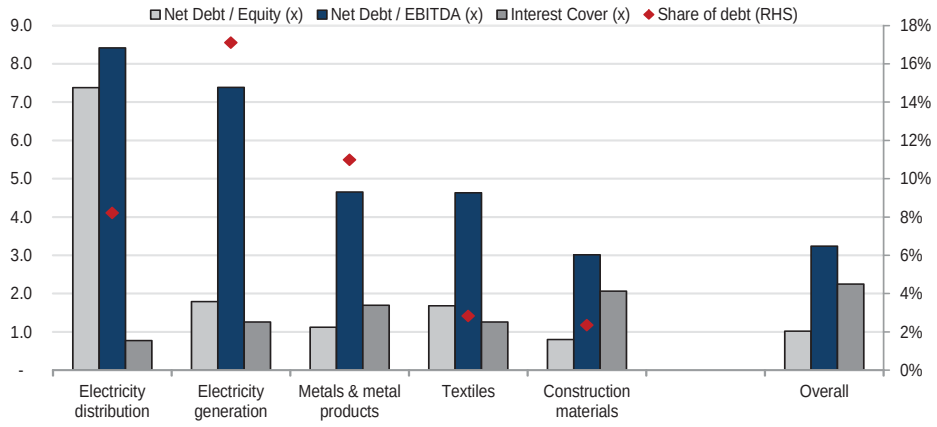
Figure 43: 4 sectors account for ~65% of industry loans



Source: RBI, Credit Suisse estimates

As seen below, debt servicing ratios for the sectors with higher share of overall debt is weaker, as interest cover is lower, while net debt to ebitda and net debt to equity is higher compared to ratios for corporate sector overall.

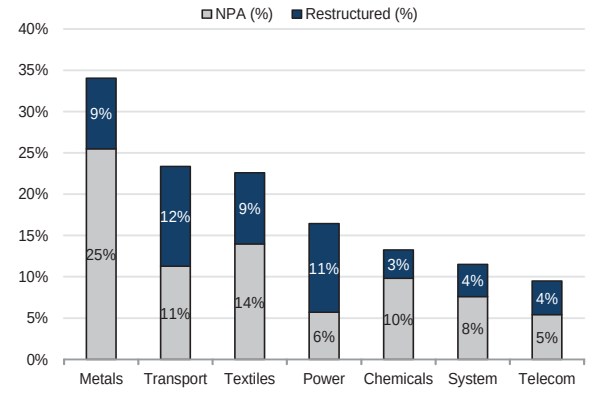
Figure 44: Debt servicing ratios for the stressed sectors are significantly worse



Source: CMIE, Credit Suisse

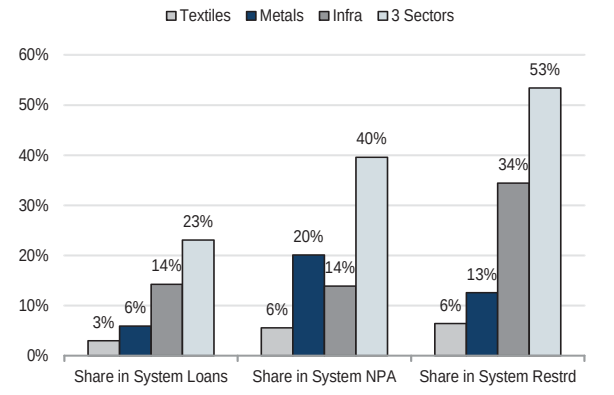
The metal sector has been one of the largest contributors to recent asset quality stress, with impaired loans for the sector now ~35% (25% as NPA and 9% as restructured). However, some of the other sectors like infra and textiles have also seen significant stress and total impaired loans for these three sectors account for ~45% of total stress in the system.

Figure 45: Stressed asset ratio for some sectors is significantly higher



Source: RBI, Credit Suisse estimates

Figure 46: While these 3 sectors account for 23% of loans, they have 40% of the NPA's and 53% of restrd.

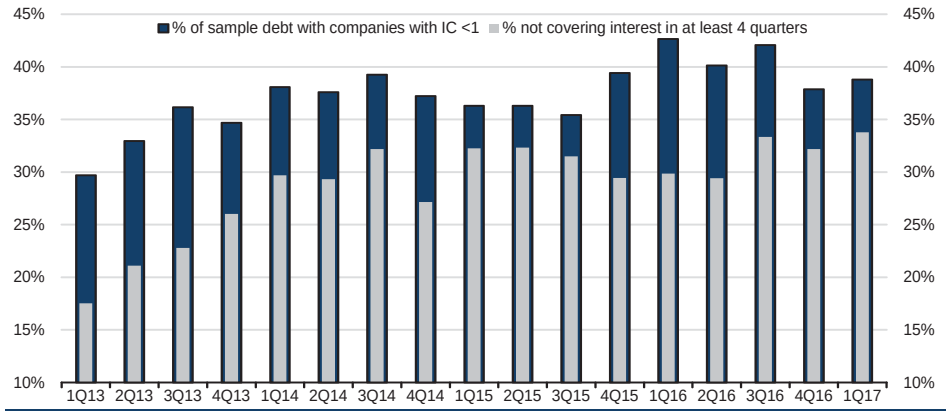


Source: RBI, Credit Suisse estimates

39% of debt with cos. with IC<1

The corporate stress is therefore better captured when we look at dispersion based measures, rather than aggregates. Based on our sample of ~3,700 listed companies having aggregate debt of Rs34tn, we find that 39% of debt resides with companies with interest cover <1. Over the past two quarters, while there has been some moderation from the peak of 42% on account of improved performance of metal companies (post implementation of MIP), as this has been partly offset by increased stress at power utilities in 1Q17, the overall stress levels continues to remain high. Share of debt with chronically stressed companies (having IC<1 for 4 or more of the past 8 quarters) has also increased further and is now ~34% of total debt.

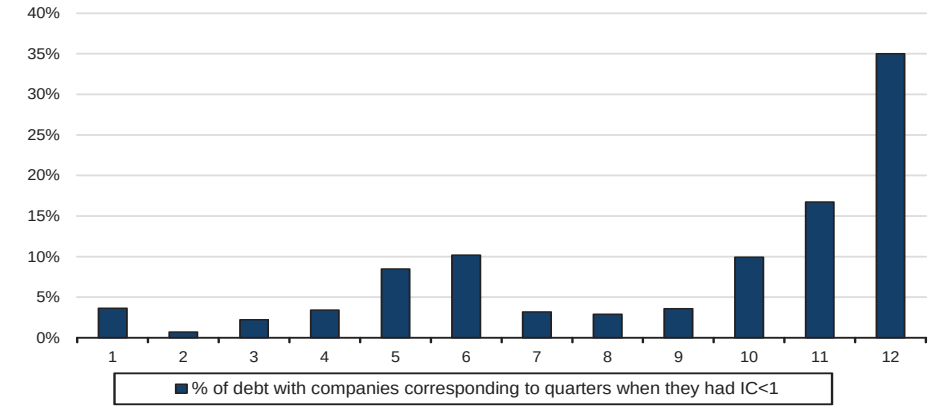
Figure 47: ~39% of debt is with companies having Interest cover < 1



Source: Prowess, Credit Suisse estimates

Among the companies having IC<1, 35% of the companies (with aggregate debt of Rs4.5tn) have been unable to cover interest for the past 12 consecutive quarters.

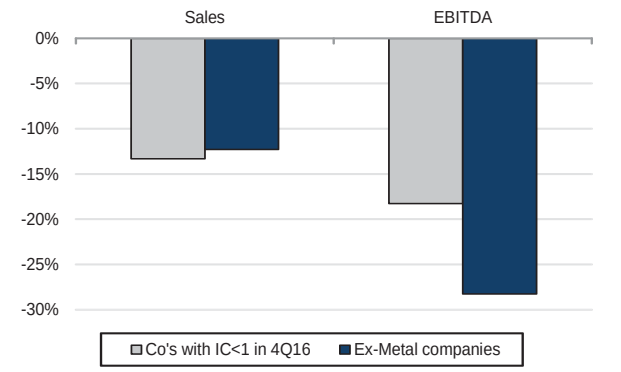
Figure 48: With 35% not covering interest for 12 consecutive quarters



Source: Prowess, Credit Suisse estimates

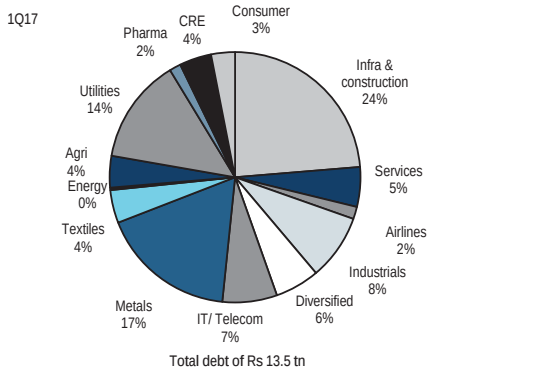
Over half of the debt with IC<1 companies is contributed by companies from the Infrastructure, utilities and metal sectors. Moreover, performance of the stressed companies is even weaker than the broader corporate sector. While, overall Ebitda grew 5%yoy in FY16, companies having IC<1 witnessed an 18% yoy drop in 1Q17 Ebitda. If we exclude the metal companies, ebitda drop was sharper at 28% yoy.

Figure 49: Performance of stressed co's even weaker



Source: Prowess, Company data, Credit Suisse estimates

Figure 50: Utilities, infra & metals have 55% of IC<1 debt

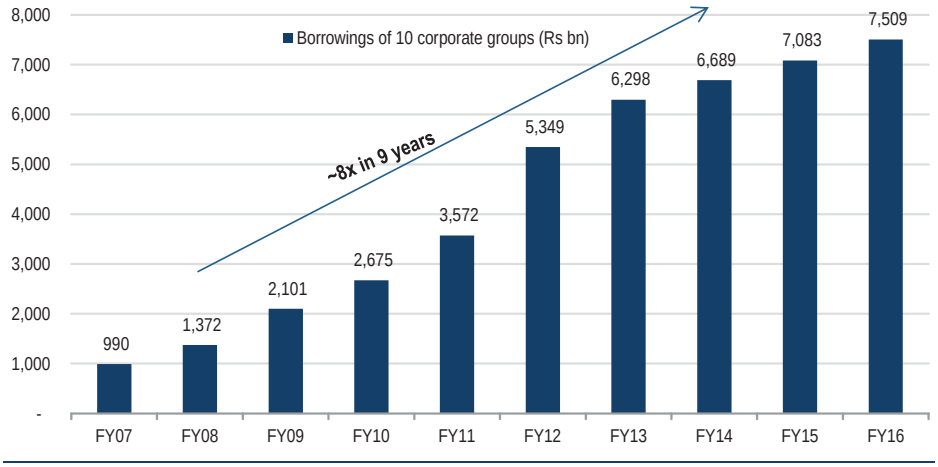


Source: Prowess, Credit Suisse estimates

House of Debt – High concentration with large groups

In addition, to the concentration of debt in a few industries the problem has been exacerbated due to concentration within a small number of entities. Ten large corporate groups that are primarily focussed on commodity and infrastructure sectors alone account for ~18% of banking sector corporate loans. Debt levels for these groups continues to rise, and is now up 8x over the past 9 years. Their debt levels have further increased over the past 2 years despite attempts to deleverage balance sheet through asset sales, as their cash flows and debt servicing ratios remain weak.

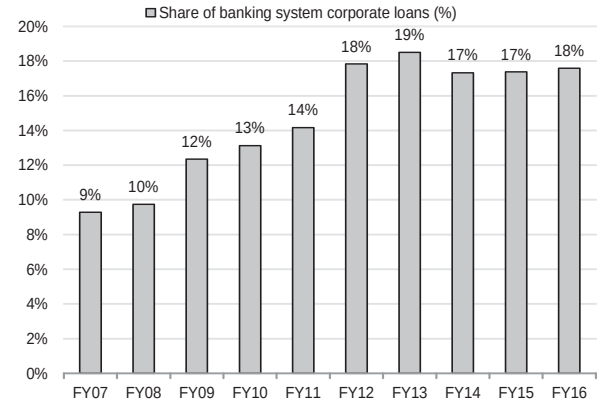
Figure 51: Debt levels up 8x over the past 9 years, ~10% of banking system loans



Source: Company data, Credit Suisse estimates

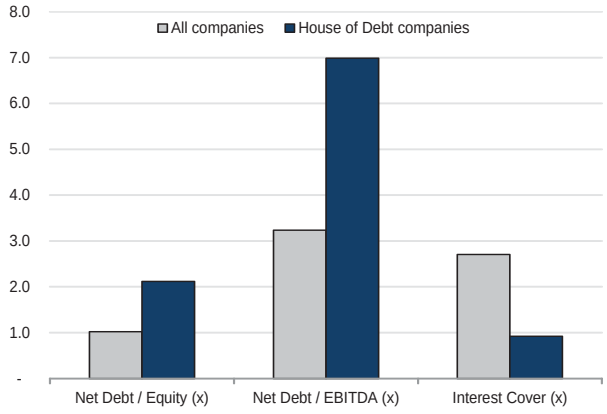
Debt servicing ratios for these companies is significantly higher than overall system, with Net Debt to Ebitda at 7x and Interest cover ~1x. As per IDFC Bank research, the Top 300 corporates account for >45% of banking credit.

Figure 52: 10 groups are 18% of bank corporate loans



*Source: Company data, RBI, Credit Suisse estimates *Corporate loans = Industry and Services as per RBI data*

Figure 53: Their debt ratios worse than aggregate

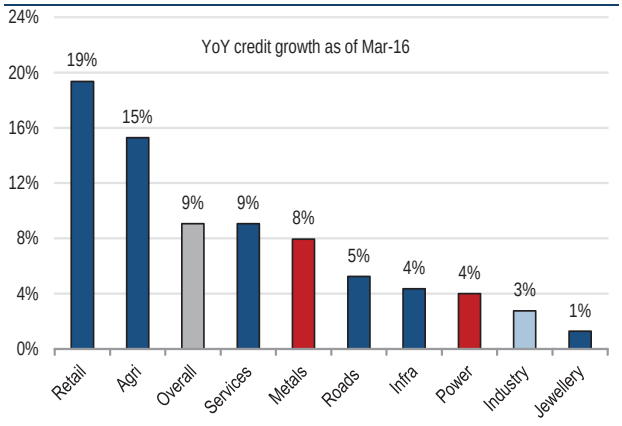


Source: Company data, CMIE, Credit Suisse estimates

Loan growth to these sectors needs to moderate

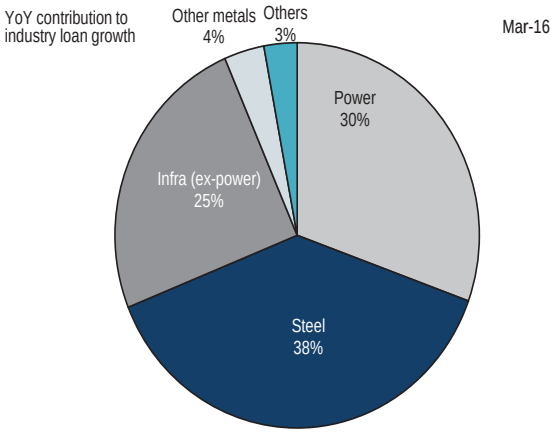
In FY16, while retail loan growth was strong, loans to industry from banks slowed to 3%. Growth in loans to metals (+8% yoy) and infra (4-5% yoy) was relatively higher and contributed ~97% of incremental loans to the industry segment.

Figure 54: Stress sector outpaces overall loan growth



Source: RBI, Credit Suisse

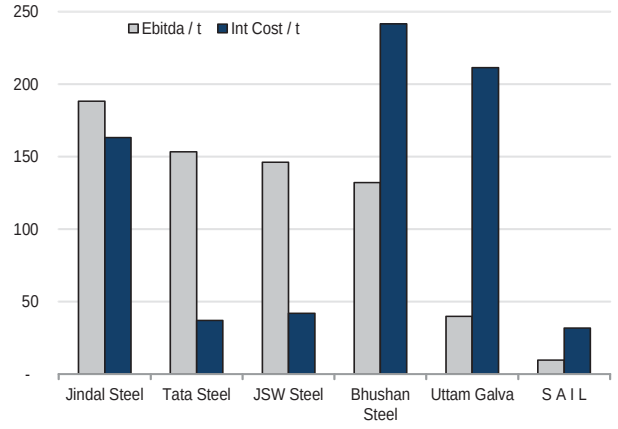
Figure 55: Infra & metals account for 97% of incremental loans to the industry segment



Source: RBI, Credit Suisse

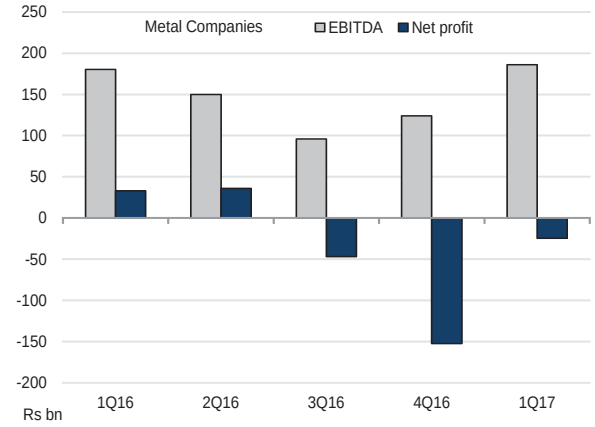
Given continued lending to stressed corporates, banks would now need to take sizeable haircuts in order to make the debt levels sustainable. As seen below, interest cost per tonne of stressed steel companies is higher than the interest cost per tonne and despite the doubling of Ebitda for the our sample of metal companies since 3Q16, they continue to report losses in 1Q17 and in order to turn profitable would require "right-sizing" of debt.

Figure 56: Interest cost/tonne higher than Ebitda/tonne even post implementation of MIP



Source: Company Data, Credit Suisse

Figure 57: Despite ebitda doubling over the past 2 qtrs, metal companies continue to report losses



Source: Prowess, Company Data, Credit Suisse

SECTION 4:

THOUGHTS AND RECOMMENDATIONS FOR THE FRBM REVIEW COMMITTEE

Suggestions on FRBM Act

E.A.S.Sarma
Former Secretary (DEA), Govt of India

Preliminary comments:

- The FRBM Act, as enacted during the nineties, was a diluted version of the Bill proposed by the Committee. The Committee suggested that an independent body of experts should comment on the budget estimates and figures so that the Parliament may have an opportunity to discuss the budget meaningfully. The Act omitted this provision.
- The primary objective of the FRBM Act was more to impart transparency to the budget figures and to facilitate a constructive discussion on the budget in the Parrliament than to impose a ceiling on the Fiscal Deficit (FD) per se. As a part of this, instead of presenting the budget as a one-year snap shot of the finances of the government, the FRBM required a three-year projection based on clearly stated assumptions. It was envisaged to be a rolling projection updated every year with the reasons spelt out for the variations, if any. The idea underlying this was to stimulate a discussion in the Parrliament not only on the annual budget estimates but also the future trends.
- The earlier Committee on FRBM considered the need to introduce accrual accounting concepts in the budget which was primarily based on the cash accounting approach. However, in view of the practical difficulties, the Committee decided not to adopt the same.
- Contrary to our expectation, there was no qualitative change in the tenor of discussion on the budget in the Parliament, even after the enactment of the Act.
- Post-FRBM, the successive governments seemed to have looked upon FRBM more as an irritant than as a possible facilitator of fiscal consolidation and public accountability. Repeated adjustments to the provisions of the Act through amendments corroborate this.
- The positive fall out of FRBM is that several States have adopted similar laws. At least, there is a mention of the FRBM target of FD in most States, which has acted as a mild constraint to indiscriminate borrowing.
- The States' finances are symbiotically linked to the Central budgets. Excessive debt of the States indirectly constitute a liability to the Centre. As a result of fiscal imprudence in most States, guarantees given by them to private investors are backed up by counter guarantees given by the Centre. When the Centre revises the pay of its own employees, it automatically creates a corresponding liability to the States. In a way, therefore, the Central FRBM scheme cannot ignore this dimension, as it is the case with the existing law.
- Under Article 12 of the Constitution, PSUs are extensions to the government. Their finances impinge on the Central and the State budgets. Their liabilities and guarantees are backed up by the Central and State budgets. The existing Central and State FRBMs do not provide for this.

- One telling example of the above is the worsening NPA situation in the public sector banks which has forced the Central government to infuse funds through "recapitalisation". This exerts pressure on FD.

Some suggestions for the N K Singh Committee:

➔ The earlier FRBM Committee had thought of an independent Committee of Experts to submit a critical evaluation of the annual budget before it came up for a discussion in the Parliament. This proposal was not acceptable to the Ministry of Finance as the latter felt that it would dilute its authority and role. Considering the desirability of setting up a "watchdog" institution to evaluate and report on the budget estimates, the new Committee may propose a special Parliamentary Committee on Fiscal Responsibility to perform the same role. That Committee could invite experts to evaluate the budget estimates independently. Based on such expert advice, the Parliamentary Committee can finalise its report which will form the basis for a full fledged discussion in the Parliament.

➔ Before the special Parliamentary Committee looks at the budget, it is necessary that the Ministry of Finance is mandated to come up with a deeper analysis of the fiscal trends to enable that Committee to take up the same for a discussion.

➔ The medium-term (3-year) projections mandated by the FRBM Act need to be enlarged in scope to provide alternate projections based on different sets of assumptions regarding the world oil prices, the exchange rates, foreign remittances, import of coal, oil and so on. This will provide some leverage for a meaningful debate in the Parliament.

➔ It will also help the Parliament to appreciate the overall state of the economy and the trends, if the new FRBM Act mandates two appendices to the budget, one that summarises the trends in so far as the States are concerned and the second in relation to the Central PSUs including the PSU banks. These appendices should red-flag the likely impact on the Central budget on account of the contingent liabilities from the Central PSUs and the States.

➔ It will be helpful if the new Committee can undertake a quick review of the future debt repayment obligations of the Centre and the States by projecting the same for the next ten years, working out the likely interest liabilities and generating alternate scenarios of the implications of fresh borrowings to clarify the kind of FD that the future budgets can accommodate in a sustainable manner. Such projections could be institutionalised by making them a part of the new FRBM reporting to the Parliament.

➔ The Committee can also look at the Central and State PSUs and their liabilities (including contingent liabilities) and factor the same into the new FRBM architecture.

➔ There is a link between monetary and fiscal policies of the government. FRBM should be viewed as a part and parcel of this. Laxity in fiscal consolidation will generate inflationary trends that put pressure on the bank interest rates and erode economic growth. Instead of looking upon FRBM in isolation, therefore, the Committee should recommend a more holistic approach. The Parliament should know that a higher FD may appear attractive in the

short-term but its adverse impact will be felt in the long-term. A critical analysis of this should be a part of FRBM reporting to the Parliament.

- ➔ In the existing FRBM scheme, the concept of accrual accounting in the budget has not been included. For example, external debt obligations are reflected in the budget at their face value, not on their present currency-indexed value. This gives a misleading picture of the debt repayment obligations.

- ➔ Similarly, the liabilities of the PSUs (e.g. Food Corporation of India liabilities) are not reflected fully in the budget.

- ➔ The FRBM Committee may consider introducing a few essential accrual accounting ideas to deal with the “stock” as dstinct from the “flow”. This will help highlight the erosion or otherwise in the value of the assets and the need to make a provision in the budget to maintain the assets in good shape.

- ➔ Most Budgets provide allocations for subsidies on electricity, fertiliser, food etc. Subsidies to the poor are looked upon as something undesirable. However, some of these subsidies are mirror images of the subsidies given to the corporate houses and this does not get explicitly mentioned either in the budget or in FRBM reporting. For example, a portion of the fertliser subsidy would not have existed had the government insisted on the fetiliser companies to manufacture and supply fertilisers at competitive prices. The same is the case with electricity generated from coal and natural gas. Since FRBM aims at transparency in budgeting, this aspect should find place in the FRBM statements.

- ➔ Finally, FRBM should provide a trigger to fiscal reform. Otherwise, it will become a meaningless law. In FRBM reports, the government should commit to the Parliament the kind of expenditure reforms it would undertake in the coming three years and explain why it has not been able to fulfill that commitment in the previous year. Similarly, the government should state its objectives explicitly on moving away from tax exemptions to corporates, tax reform measures, tax collection efficiency and so on.

Government of India

"Committee to comprehensively review and give recommendations on the FRBM roadmap for the future."

Answers to the queries posed by the Committee.

Francesco Giavazzi, Bocconi University, Milan (Italy)

August 8, 2016

I shall start from the first three questions posed by the Committee, which are related.

1. What should be the conceptual framework to determine medium term fiscal targets?

2. Should fiscal targets be based on the idea of public "debt sustainability analysis" (DSA)?

3. Should the DSA follow the IMF framework? Or should the IMF framework be modified? If so, how? In particular, should contingent liabilities be included? If so, how?

The IMF DSA framework has been revised in 2011. (IMF, 2001). The revised framework improves the DSA in several dimensions. In particular:

- in the discussion of the realism of economic growth and interest rate assumptions;
- in the discussion of the realism of long spells of large primary surpluses;
- in the emphasis on the coverage of fiscal balance and public debt which – the document suggests – should be as broad as possible, with particular attention to public entities that present significant fiscal risks, including state owned enterprises, public-private partnerships, and pension and health care programs. Related to this point — which addresses one issue raised in Question 3 — I find particularly important the analysis of *"Long term pressures on the budget"* stemming, among other, from age-related and health care spending

This being said, I think the 2011 IMF document does not go far enough in two dimensions:

- the role of public investment and
- the role of the composition of fiscal adjustments.

On the first point, the document does raise the issue of how best to capture the impact of public investment on growth and debt sustainability, but I find this discussion inadequate. In particular the document could do more to explain how the DSA could be adapted to explicitly include public investment. I try to do this in an Appendix 1 to my answers.

The second point concerns the composition of the shift in fiscal policy required to achieve and sustain a given primary balance. This is an important issue you rightly raise in Question 7: I discuss it in Appendix 2 to my answers.

Questions 4., 5. and 6. are also related.

4. Ideally there should be consolidated or general government fiscal targets. How easy it to include state finances?

5. How do other countries decide on fiscal targets? Advanced economies? Emerging economies?

6. Do other emerging markets, in particular, include states' fiscal situation in establishing the targets? How good is the state level data for other countries?

As mentioned above, the DSA points to the risks associated with state finances — among other entities that lie outside the central government perimeter. This is a crucial point. In the experience of Italy, for instance, a significant fraction of the debt the country accumulated in the past 20 years (raising the debt-GDP ratio from around 100 per cent to above 130 per cent) stems from local governments: the country's 19 independent regions. It has proven very difficult, if not impossible to impose fiscal constraints on these entities. On this point, however, I have little to add to the analyses contained in the 2011 IMF document.

I address Question 7

7. Should there be separate targets for taxes and expenditures?

in Appendix 2 to my answers

8. How would the timeline on achieving the targets be decided?

This is a crucial and difficult question. A way around this difficulty is to address the question from a special angle. I would ask the following: *If a country attempts to achieve long run fiscal sustainability — rather than just a temporary reduction in the debt-GDP ratio — what is the needed time frame*? Asking the question in this way it becomes obvious that the answer depends on the type of fiscal consolidation needed to achieve long run sustainability. As this typically requires reforms of spending items related to the provision of social services (including healthcare and schools) and of social security, it is obvious that the time horizon needs to be sufficiently long. In other words: if helthcare reform requires a few years, it is better to delay achieving fiscal targets by those years, then to replace helthcare reform with easier, but less long lasting items, such as a VAT increase. This approach raises obvious tradeoffs that should not be overlooked. In particular, the longer you delay, the larger the stock of debt, delays are sometimes strategic, that is manouvered so as to prevent the elimination of political rents, and so on. But I remain of the view that taking time to implement a social reform is a superior strategy to achieving temporary sustainability through easier fiscal actions.

Finally, questions 9 and 10 are also related.

9. Should the targets be based on cyclically adjusted fiscal positions?

10. How are cyclically adjusted fiscal positions calculated in other countries? How is output gap estimated?

It might be useful to explain how the issue is addressed in the European Union.

In the EU the statistics used to define and control the Union's *Fiscal Stance* is the Structural budget balance defined as the *"Cyclically-adjusted budget balance net of one-off and other temporary measures"* as estimated by the European Commission. The most recent data for the euro area as a whole and for individual member states are available, for example, in Figure I.53 and Table 1.6 of the Spring 2016 "European Economic Forecast" produced by the EU Directorate General for Economic and Financial Affairs (DGEcfin).

This methodology, however, is far from straightforward and, in the European context, is at the centre of heated political discussions. The most recent methodology used for constructing the Cyclically-adjusted budget balance net of one-off and other temporary measures is detailed in "Cyclical Adjustment of Budget Balances" (DGEcfin, Spring 2016). There is an ongoing discussion concerning the way the EU Commission staff estimates cyclically-adjusted budget balances. Given its relevance in determining structural budget balances under the framework of the European Stability and Growth Pact, the agreed production function methodology shared at the EU level to gauge potential output and output gaps has come increasingly under scrutiny in recent years.

Both the European Commission and the Output Gap Working Group (OGWG), in charge of monitoring the agreed methodology, have recognized the existence of theoretical and econometric drawbacks and have discussed possible adjustments to the model. However, in the case of some member states, such as Italy, problems still remain (see for instance MEF, 2016). According to the mandate of the OGWG the commonly agreed methodology should respect the following principles:

- It has to be relatively simple, fully transparent and stable. The trend extraction methods should be based on economic as well as statistical principles with the key inputs and outputs clearly defined;

  It should strive for equal treatment for all EU Member States, whilst in exceptional circumstances recognizing country-specific characteristics;

- It should provide an unbiased assessment of the past and future potential growth in the EU Member States, while aiming to include the effects of all adopted structural reforms; d) It should aim at limiting the pro-cyclicality of potential growth estimates.(EU, OSWG, 2016)

Appendix 1[1]

Is the Golden Rule a good idea ? The debate and the experience of U.S. states.

A correct treatment of government investment requires separating capital spending from the current budget. This, however, runs up against three common objections.

- What matters is overall capital accumulation, not its distribution between private and public capital. Lower public capital will be compensated by a higher stock of private capital. What matters is the general equilibrium effect: there is no ground for giving privileged status to a specific spending item. The simple answer here is that all public investment projects with a sufficiently high social rate of return should be implemented. This is what the modified rule allows, since it eliminates cash constraints. So should all private investment, with a sufficiently high private rate of return.

- Capital budgets distort expenditure in favor of physical assets and away, for instance, from investment in human capital. Capital budgets are not a way to avoid difficult decisions concerning the choice among alternative forms of current expenditure: the choice whether to invest in school teachers or in office clerks is there whether or not the government runs a capital budget. Capital budgets cannot protect investment in school teachers, but they make it a bit less likely that useful infrastructure investment is sacrificed in order to raise wages in the public sector.

- Capital budgets remove the pressure to lower the stock of public debt. The answer to this objection is that a rule that forces the stock of public debt to zero and introduces a financing constraint on investment expenditure appears to be irrational. The modified rule too puts downward pressure on the stock of debt, but it doesn't drive it to zero: eventually the debt ratio approaches the stock of public capital-typically a smaller number than the current debt ratios in most countries.

Rules that allow net public investment to be financed by borrowing need to be complemented by rules that define what can be counted as public investment–something like ISA accounting rules. But this difficulty should not be an argument for justifying rules that may result in worthwhile projects not being undertaken because of cash constraints.

The idea of separating investment expenditure from the current budget, while considering capital depreciation as current government expenditure, has a long tradition in economics, dating back at least to Musgrave (1939). Proponents of capital budgets contend that unified budgets are biased against capital expenditure. Opponents argue

[1] This Appendix is ased on "Beyond the 13th Finance Commission: Challenges for Fiscal Policy in India", F. Giavazzi, April 2011, available at: http://didattica.unibocconi.it/mypage/upload/48751_20110418_085242_BEYONDTHE13FINANCECOMMISSION.PDF

that separate budgets raise the incentive to lobby for capital spending and result in inefficiently high expenditure on physical assets, at the expense of intangibles such as health or education. There is also an extreme view which states that accounting rules by themselves do not affect the level or composition of spending. What is the evidence?

U.S. states provide a good testing ground, since budgetary procedures differ from one state to the other. Poterba (1995) has studied this experience asking whether the level and composition of government spending is affected by the use of separate budgets for capital and current expenditures, and by the use of pay-as-you-go (PAYG) constraints in financing capital projects. The study has the drawback of using rather old data: the information on state budgets is for 1962, a year for which a detailed survey exists of budgetary procedures in individual states. The data allows to distinguish among states that make no budgetary distinction between capital and operating expenditures (at the time of the study there were 20 such states out of 50), and those that have separate budgets. Among the states that use separate budgets, the data also identify those using multi-year capital budgets, that is physical and financial plans for capital expenditures extending beyond the operating budget cycle. Twelve states in this group had delegated the administration of capital projects to specialized agencies.

The results suggest that state capital budgets are associated with higher levels of capital spending: about one third higher. The data refer to capital expenditures excluding highways, that is, primarily, institutions of higher education, health and hospital facilities, natural resource projects, such as parks, and state prisons. PAYG constraints on the financing of public projects are associated with lower levels of capital spending, some 20 per cent lower. There is no evidence that capital budgets affect the level of non capital spending—a finding which suggests that (i) the states with capital budgets are not those which spend more on all public goods, not only on investment, nor (ii) are these states simply re-defining non-capital spending as capital outlays.

Poterba's results run against the view that public accounting practices are simply a veil, with no impact on budget outcomes. They support a number of recent studies[2] which suggest that fiscal institutions exert real effects on public policy outcomes.

The Golden Rule and the arithmetic of public investment [3]l.

The way the Golden Rule is sometimes defined (see for instance chapter 9 of the Indian Thirteenth Finance Commission 2010–2015 Report, hereafter FC) states that a long term target for the Central government should be to maintain zero revenue deficit. This means that the government should only borrow to finance public investment, i.e. follow what is called the "Golden Rule". In this Section I first show what a golden rule implies for the long run debt target. Then I show how it should be implemented, noting that the FC plan differs from a "correct" golden rule in an important way. In the light of this discussion I shall then review the fiscal path proposed by the FC for the next five years.

Let r be the cost of debt service, n the growth rate of GDP, δ the rate of capital depreciation, e the expenditure on capital maintenance (per unit of capital) and ϑ the

[2] See e.g. Poterba and von Hagen (1999)

[3] This point is developed in Blanchard and Giavazzi (2007).

gross financial rate of return on public capital.(For simplicity let's assume inflation is zero, otherwise fiscal variables should be adjusted for inflation). In general $\vartheta < r + \delta$: public investment is worthwhile from a social point of view although its net financial rate of return, $\vartheta - \delta$, may be lower than the financing cost, which in turn we expect to be smaller than the social rate of return on government projects. Let k be the stock of public capital, i gross public investment, so $i = \dot{k} + (n + \delta)k$, and b the stock of public debt, each as a fraction of GDP. Also assume that there is no inflation.

The government's budget constraint is

$$\dot{b} = g - t + i - \vartheta k + ek + (r - n)b$$

where t and $(g + i)$ denote, respectively, taxes and government spending including gross investment but net of interest.

The rate at which public capital depreciates, δ, is not exogenous: it depends on the level of maintenance, $\delta = \delta(m)$, with $\delta' < 0$, $\delta'' > 0$. By spending more on maintenance the government can lengthen the average life of public infrastructure, thus reducing δ. Expenditure on maintenance is an increasing function of the level of m that the government aims to reach, that is $e = e(m)$, $e'' > 0$.

If the country runs an overall budget balance

$$g - t + i - \vartheta k + mk + rb = 0$$

so that

$$\dot{b} = -nb$$

the debt ratio will eventually drop to zero.

Suppose now, as is usual for firms, that only capital depreciation and maintenance expenditures are included in current spending (net investment is excluded), and impose the rule that only current spending be balanced. This implies:

$$g - t + [\delta(m) + e(m) - \vartheta]\, k + rb = 0 \tag{1}$$

so that

$$\dot{b} - \dot{k} = -n(b - k) \tag{2}$$

over time $b - k \Longrightarrow 0$, no matter what the initial level of b is. Eventually the entire stock of public debt is backed by public capital. If the stock of public capital, as a fraction of GDP, is constant, the government will eventually run a deficit equal to nk. Note that (1) differs from the way the Golden Rule is normally implemented: to achieve (2) current spending must include capital depreciation and maintenance costs.

If a country follows the correct golden rule (1), in the transition to the steady state

$$t - g - rb = [\delta(m) + e(m) - \vartheta]\, k \tag{3}$$

tax revenues, net of current spending, must be large enough to finance the excess of depreciation and maintenance expenditure over the financial return ϑ.

What is the optimal level of m? Assume for simplicity that both $\delta(m)$ and $e(m)$ quadratic and let m_0 be the level of maintenance such that the expected lifetime of a piece of public capital would tend to be infinite: $\delta(m) = (m - m_0)^2$, $e(m) = m^2$. In this case the $m^* = 1/2\ m_0$. In order to minimize the tax burden, expenditure on maintenance should be one half of what would be necessary to bring physical depreciation down to zero. Of course this is just an exercise, but it highlights an important channel: the effect that maintenance has on the average life of public capital

The Golden Rule as implemented by the Indian Thirteenth Finance Commission 2010–2015 Report, and the "correct" Golden Rull.

The FC defines the Golden Rule as a rule "requiring the government not to use national savings to finance consumption." (p. 128). However, when it implements the GR, it does not recognize that capital depreciation is part of government consumption (see equation (1) above.). In doing this the FC has taken as a given India's public accounting rules that do not—as far as I understand–account for capital depreciation. Future Finance Commissions should be more ambitious and explicit recommend a change in accounting rules so that capital consumption is correctly included among current expenditures.

Table 4 shows the Golden Rule as envisaged by the FC. The Commission's plan achieves its definition of the golden rule sometime between 2013 and 2015. In the last year of the plan capital expenditure exceeds the fiscal deficit by 1,5% of GDP, that is the government issues an amount of new debt smaller than the increase in the gross stock of public capital.

How far is the FC plan for the "correct GR"? The answer to this question depends on the assumption about capital depreciation. In 2010-11 gross public investment amounted to 5% of GDP. With low maintenance expenditures, and thus a high depreciation rate (assume 10%, the middle column of the table) this translates this into an increase in net public capital of 2% of GDP — in other words an amount of capital expenditure equivalent to 3% of GDP went to replace existing projects. As a result, the maximum deficit admissible under the "correct" golden rule was 2% of GDP. The actual 2010-11 deficit (8,3%) was four times larger, thus violating the golden rule. Assume instead $\delta = .05$ (the third column in the Table 3). In this case the increase in the net capital stock, and thus the maximum admissible deficit would be 4,5%, still very far from the actual deficit.

In the last year of the FC's plan (2014-15) the GR would be satisfied for a 5% depreciation rate: in this case the admissible deficit would be 6% of GDP, equal to the actual planned deficit. Thus, for the Commission's plan to be consistent with the golden rule, maintenance expenditures need to be such as to guarantee that the life of public projects is on average 20 years. With lower maintenance expenditures the FC plan is no longer consistent with the golden rule.

Assuming that this was the case—namely that capital depreciation was too rapid—India might need to reallocate current spending: increase expenditure on maintenance while cutting other items of the current budget. This might require a change in public accounting rules But there is also a political economy aspect to this. The fact that

investment projects are often sponsored by the central government, while maintenance is the responsibility of individual states, suggests why maintenance expenditure might be too low. Those who benefit from inaugurating a new bridge are not the same politicians who then are responsible for maintaining the bridge: maintenance involves no inaugurations. A simple board posted near each piece of public capital indicating the name of the politician eventually responsible for its maintenance might help.

Once the right incentives are in place, additional resources might still be needed for maintenance expenditure to increase. An obvious suggestion is to find them through a reduction of subsidies, cancelling them entirely by 2015. The lack of knowledge of capital depreciation and maintenance, and the little attention dedicated to this important aspect of fiscal policy, suggest that the next FC might be given a special mandate to investigate it.

Appendix 2

The composition of a fiscal adjustment makes a difference: How much of a difference ?

This Appendix discusses the effect of the composition of a primary surplus or, more precisely, the effect of a different composition of the shift in fiscal policy designed to achieve a given primary surplus.

Empirical analysis of the effects of tax-based and expenditure-based fiscal adjustments indicate that the difference between the two is very large. Over an estimation period extending from 1980 to 2014 covering 16 countries (Austria, Belgium, Denmark, Spain, France, Germany, United Kingdom, Ireland, Italy, Portugal, United States, Sweden, Finland, the US, Australia and Canada) the output effect of average TAX BASED adjustments with an initial size of one per cent of GDP is a cumulative contraction in GDP of two to three per cent in the following three years (See Figure 1). On the contrary, spending-based adjustments generate very small recessions, with an impact on output growth not significantly different from zero (See the figure below). Notice how the effect on output growth of EXPENDITURE BASED plans is indistinguishable from zero for about two years and then become significantly positive. TAX BASED adjustments instead lead to deep recessions. The component of aggregate demand which seems to explain these differences (in all countries) is investment. The behavior of the latter is correlated with investors' confidence.

This research also shows that out of sample simulations, that project output growth conditionally upon exogenous fiscal adjustments only, do reasonably well in predicting the total output fluctuations of European countries over the years 2010-13, particularly, and not surprisingly, for those countries in which the main shock in that period was indeed a fiscal policy one. For example, the tax-based adjustment implemented in Italy in 2010-13 is sufficient by itself to explain the recession experienced by the country over the period 2011-2012 (with negative GDP growth of around 2 per cent in each year). Instead, the expenditure based adjustments implemented in countries like the UK and Ireland are associated with much milder recession, with GDP growth fluctuating around zero.

This research has also explored the potential heterogeneity associated with different components of revenues and expenditures, disaggregating fiscal shocks into four components: government consumption and investments, transfers, direct taxes and indirect taxes.

From a theoretical point of view each one of these components should affect GDP growth through different channels. For instance, in the short run cuts in government consumption and investments might impact GDP growth through demand side effects; in the medium and long run their effect on growth might depend on the government's efficiency in providing public goods and services. Transfer cuts reduce the resources available to households, which in turn may be forced to cut their consumption level, especially if liquidity constrained. These measures may also have supply side effects by increasing labor supply. In addition, a reduction in both expenditure components may generate expectations of lower taxes in the future, with potentially positive wealth effects, and the anticipation of lower economic distortions.

Alesina et al 2016 classify fiscal adjustments into four categories: Direct Tax-Based (DB), Indirect Tax-Based (IB), Consumption Based (CB), Transfers Based (TRB). The labeling is organized "hierarchically": first we define whether a plan is Tax-Based or Spending-Based according to the method presented above. Then, TAX BASED plans are split among DB and IB ones according to their prevalent component. Likewise, EXPENDITURE BASED plans are allocated between CB and TRB.

The main finding (See Figure 2) is that adjustments based on different spending and revenues components, indeed, have heterogeneous effects on GDP growth, as Figure 2 shows for the case of France. Results for the other countries are similar. While the heterogeneity in revenue components is less pronounced, on the expenditure side transfers seem to be clearly different from consumption and investment. The effect of a cut in transfers is more similar to that of an increase in taxation than to that of a cut in expenditure. Looking at the other macroeconomic variables, the similarity between tax hikes and transfers cuts is particularly evident in the case of consumption and consumer confidence. The impact of a cut in transfers on investment is more similar to that of a cut in government consumption, which overall leads to an effect on output growth more recessionary than government consumption but less than taxes.

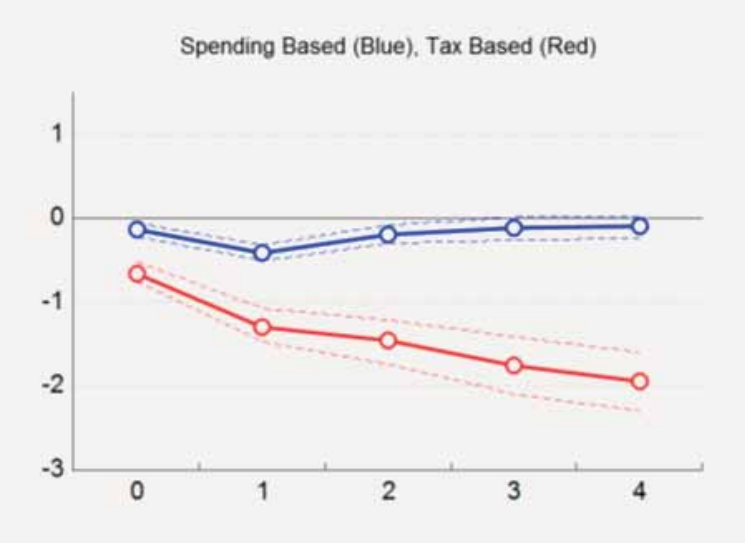
In order to better understand the channel of transmission, this research has also estimated the effect of our four types of plans on asset prices. Stock market returns is the variable for which we observe the highest level of heterogeneity, with DB adjustments entailing the biggest decrease in output growth and CB a slight increase.

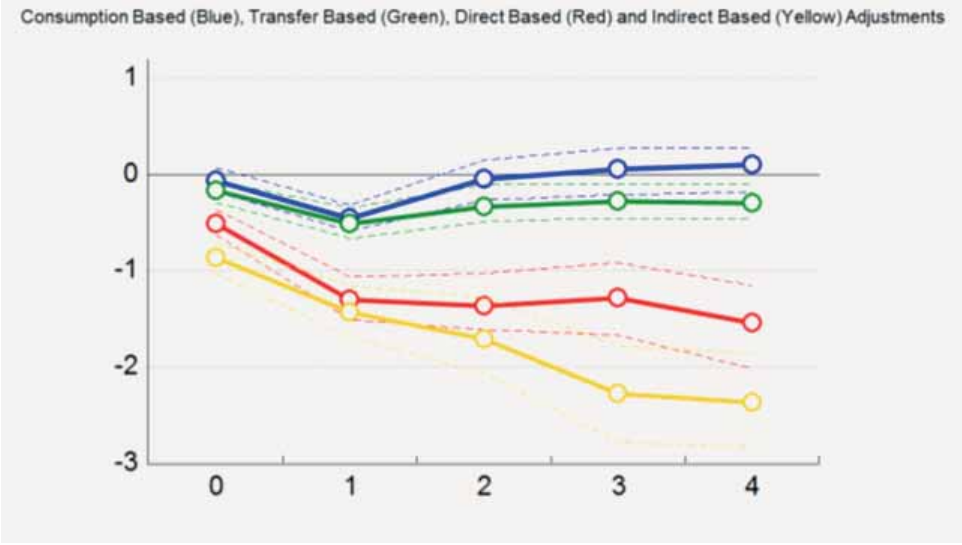
Figure 1: Response over four years of the level of output to a fiscal contraction worth 1 percent of year zero GDP

Source: Alesina and Giavazzi 2015

Figure 2: Response over four years of the level of output to a fiscal contraction worth 1 percent of year zero GDP

Source: Alesina and Giavazzi 2016





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Morgan Stanley

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International Commerce Centre
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21st July 2016

N.K Singh
Chairman – FRBM
Fiscal Responsibility and Budget Management Review Committee

Proposed Recommendations for the FRBM Review

Dear Mr. Singh,

I would like to thank you and the committee for the opportunity to assess and recommend an appropriate fiscal policy framework for India. After analyzing India's past fiscal policy stance, our experience with the fiscal policy rule (FRBM act), other country experiences and taking into account India's structural drivers to macro outlook, I have documented the details of my recommendations in the pages that follow.

I hope that these recommendations will be of use to you and the committee in your deliberations. Should there be anything further that I can of help with, please do not hesitate to reach out to me.

Thank you.

Best Regards,

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Fiscal policy framework

Before turning to our specific response to the committee's questions, we would like to raise three broad issues which are related to fiscal policy management.

First, the objective of fiscal policy should be clearly defined in the context of the economy's stage of development and the conduct of fiscal policy should be guided by the overarching principle of improving society's welfare. In India's context, the aim should therefore be to create jobs to utilise India's positive demographic trends and fulfil its full potential growth.

Second, the current state of poor data quality related to fiscal accounts is impeding the assessment of the overall fiscal stance. We think that efforts by both centre and state governments to improve the delivery of fiscal accounts related data will be imperative so as to improve the understanding of the economic implications of fiscal policy stance.

Third, fiscal and monetary policies should work in tandem to ensure macro-economic stability to create a foundation for sustained improvement in growth trajectory without aggravating macro stability risks.

Our detailed recommendations pertaining to these issues are listed below:

1) Objective of fiscal policy: Considering India's stage of development and immense demographic opportunity, the overarching objective of fiscal policy should be to maintain macro stability and encourage investment. Such an objective would create an environment that will be conducive for job creation, in turn ensuring that India will be on a virtuous cycle of higher investment, saving and income growth and fulfilling its full potential.

In this context, the experience from other regional economies suggests that fiscal authorities should operate in a prudent manner, keeping fiscal deficits and public debt low. Moreover, it would be imperative for fiscal authorities to build up significant buffers at a time when India's demographic trends are still favourable, in preparation for an eventual higher fiscal burden as and when India ages.

However, fiscal policy in India has been traditionally run with a short-term focus on pump-priming and less effective redistribution. The inefficient spending has resulted in weak productivity trends, continued high fiscal deficits and elevated levels of public debt, crowding out private investment and also leading to macro stability risks, usually in the form of high inflation. While there has been efforts to consolidate the fiscal deficit in recent years, India's fiscal deficit and public debt ratios still stand out as being one of the highest both in the region and also amongst emerging markets.

In this context, the government's efforts in appointing an FRBM and its push to consolidate fiscal deficits and lower public debt will help improve the macro-economic environment. While the issue of setting the fiscal policy objective might not be within the committee's remit, we believe that it is nonetheless an important issue to raise for debate as it will help crystallise the aims and objectives of fiscal policy and its implications for India's economic development. This will, in turn, help serve as guiding principles for fiscal policy management.

2) Data quality issues affecting the accuracy and timeliness of assessment of fiscal policy stance: Currently, the lack of complete information and high frequency data relating to overall fiscal spending (both centre and states) makes it very difficult to accurately assess the fiscal stance on a timely basis. We think that there needs to be concerted efforts by central government, state government and quasi-public institutions towards proper maintenance of databases and disclosures in a transparent manner.

We highlight the below points which should be looked into which we think will help in better fiscal policy management:

a) Assessment of fiscal stance should be based on adjustments made for one-off revenues
In our view, the government should make adjustments for one-off revenue sources such as divestment proceeds, spectrum auctions revenues to assess the underlying stance of fiscal policy. Our view is that the new fiscal deficit target should be assessed on a basis that adjusts for one-off revenue items. Apart from one-off revenue items in the central government budget (such as telecom spectrum auctions), policy makers should also adjust for one-off revenue receipts in state budgets such as the case of proceeds from auction of mines in mineral rich states.

b) State government data
State government data on fiscal accounts should be disclosed in a timely and transparent manner. The government should strive to disclose the consolidated revenue / expenditure / deficit trend on a monthly basis.

Given that the states now enjoy a greater share of central government's gross tax revenue (42% of Centre's divisible pool post 14th Finance Commission recommendations from 32% earlier) and also account for a sizeable portion of total expenditure (greater autonomy in spending post 14th Finance Commission recommendations), fiscal rules need to explicitly take into account state expenditure, revenues and deficit targets.

c) Full disclosure of off budget liabilities borne by centre / state government
For greater transparency, the central and state government agencies should disclose any off-budget liabilities that need to be borne by state / centre or indicate any such potential liabilities that could come on state / centre's balance sheet.

d) Accounting for public sector enterprises
To understand the broader national fiscal stance, it is imperative that the government also includes the debt taken by the public sector enterprises (PSE). The government could classify the PSE's into two categories - enterprises which are operating with a market orientation (like NALCO, BHEL) or enterprises with a social objective (like NHAI). PSEs which are operating more on a social objective should be categorized into a separate group but should be included as part of augmented fiscal deficit calculations. The argument for inclusion is that such entities are more like special purpose vehicles (SPV) and have been created as separate entities so that they can be better managed. However, in effect these entities are fulfilling the government's social objectives.

Hence, not accounting for the debt taken by such PSEs will effectively understate the total public debt. Indeed, as a case in point, in China the formation of infrastructure SPV's (or local government financing vehicles) in recent years has created an issue of rapid buildup of leverage as banks have been lending to these vehicles assuming that these entities would ultimately be backed by the sovereign. Indeed, policy makers have embarked on a debt swap program for local governments recently.

The same disclosure standards should be followed at the state level, such as in case of the debt taken by state electricity boards which have de-facto become state government liabilities. We note that the initiation of the UDAY program has meant that the accounting of SEB debt is now being addressed.

3) Monetary and fiscal policy: A number of economies (approx. 17) have now adopted both fiscal rules and inflation targets. Typically, the presence of both inflation targets and fiscal rules has led to better outcomes – i.e. lower inflation and lower fiscal deficit.

The increase in rules based approach for both monetary and fiscal policy underscores the broader objective of the need to ensure macro-economic stability which creates the foundation for sustained uptrend in growth trajectory. For instance, in Indonesia, presence of both fiscal and inflation rule have led to better outcomes – with greater central bank independence and credible fiscal policy leading to better macro outcomes.

In India's case, the adoption of an inflation target is a step in the right direction from an objective of achieving low and stable inflation. Maintaining independence of central bank will be key, to ensure that the central banks assess' fiscal policy stance and takes monetary policy decisions in context of its assessment of inflation trajectory. A credible fiscal policy rule will help the central bank as it will create more predictability in the government's fiscal policy stance.

1.What should be the conceptual framework to determine medium term fiscal targets?

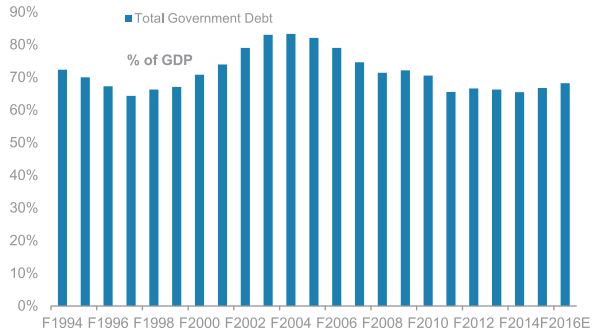
The medium term fiscal target should be linked to a path of gradual reduction in public debt levels. We think that a realistic target for India would be to reduce its public debt (consolidated) as percentage of GDP from the current level of 68% to approx. 50% of GDP in the next 10 years, with further longer run target to reduce it to 40% of GDP.

To achieve this target, the government should aim to run a primary balance of around 0.5% of GDP over the medium term. The fiscal rule should be applicable on a consolidated fiscal balance level, which will ensure a stable reduction in overall government debt to GDP. Specific rules and targets should also be set for Central government and state governments' fiscal balances.

Fiscal rule should target a reduction in public debt to GDP ratio to 50%: Currently, India's public debt to GDP stands at 68%. If we were to include off-budget items and PSEs debt, this ratio would be even higher. Moreover, this ratio also excludes potential liabilities such as SOE banks capitalization, UDAY bonds. India's public debt level is one of the highest in the Asia ex Japan region and also among top EM economies.

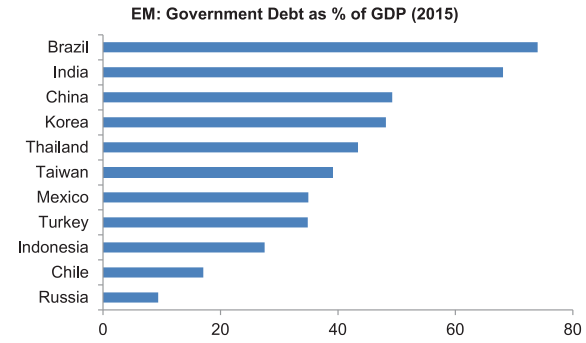
A medium term target for fiscal deficit should involve a reduction in public debt to 50% of GDP over the next 10 years. We would recommend a further reduction to 40% of GDP from the 50% mark, spread over the next five years, to create an adequate buffer once demographic factors are no longer supportive. According to our simple simulation results, this would require policy makers to run a primary balance of around 0.5% of GDP over the medium term (see our response to question 8 for simple simulations of what this entails for primary budget balances).

Exhibit 1
India Government Debt (% of GDP)



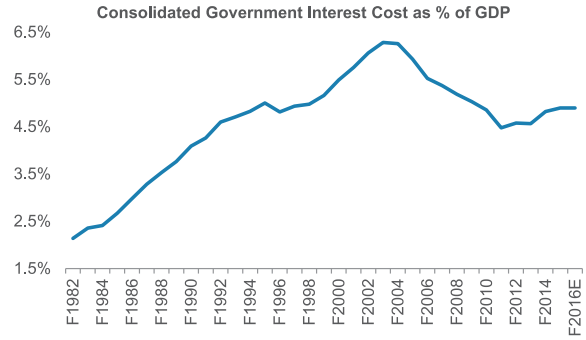
Source: RBI, Morgan Stanley Research

Exhibit 2
EM Countries Government Debt (% of GDP)



Source: RBI, CEIC, Haver, Morgan Stanley Research

Exhibit 3
High Government Interest Costs



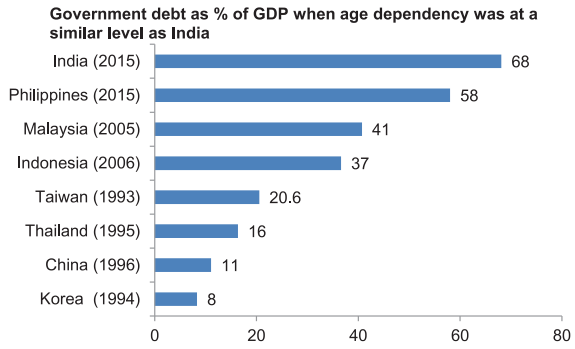
Source: RBI, Morgan Stanley Research

From a cyclical standpoint, staying on a path of fiscal consolidation and reducing public debt will help in improving India's macro stability. Investors have always viewed India's lax fiscal policies as one of key bugbears regarding India's macro outlook. Hence, demonstrating a credible commitment and providing a clear framework that paves the way towards achieving fiscal deficit targets and public debt ratios will help reinforce investors' confidence in India, brings about improvement in investment activity and hence growth and could lead to a virtuous cycle in which growth accelerates in a quicker fashion, helping to bring about reduction in public debt to GDP ratios.

In addition, the reduction in public debt levels will help to bring down the risk-free interest rate in India, and will help incentivize investment. In the current environment, India's high levels of public debt and SLR requirements have meant that interest costs are relatively high. Lowering public debt ratios will therefore help in reducing the impact of crowding out private investment. Moreover, it will also bring down India's high interest costs which are currently at 4.9% of GDP (Centre plus State governments), pushing up the consolidated fiscal deficit as well as structural fiscal deficit. The public debt target of 50% will also provide adequate buffers to absorb negative shocks without the debt level crossing a level beyond which it starts to negatively impact growth.

A lower fiscal deficit and public debt ratio would be consistent with benign demographic trends: The experience of AXJ economies suggest that most of the economies have historically maintained a moderate level of public debt to GDP or have been on a gradual deleveraging path. Indeed, the philosophy of many governments in the region is to run a prudent fiscal policy and build up significant levels of buffers for the eventual ageing of the population.

Exhibit 4
India Has High Level of Government Debt vs. Other AXJ Countries at Similar Age Dependency



Source: RBI, Haver, CEIC, Morgan Stanley Research

As is well known, India's demographic story remains one of the most compelling among large economies in the world. India's age dependency will continue to decline until 2040. In this context of a supportive demographic trend (and less worry about liabilities arising from an ageing population), the ideal course should be for the government to increase savings thus creating a buffer for when demographic trends turn adverse.

India's public debt ratio for its current level of age dependency is higher than other AXJ countries when they were at similar levels of age dependency. Given India's relatively higher level of government debt in the region, the *ideal* target would have been to reduce the debt to 40% of GDP. However given the high starting point and maintaining the feasibility of implementation in mind, we suggest that the initial target should be to reduce government debt to 50% of GDP in the next 10 years, with the option of pursuing further deleveraging to 40% over a longer term horizon.

Targeting the structurally adjusted fiscal balance: The fiscal deficit target should be structurally adjusted, which adjusts headline fiscal deficit for both cyclical factors and also for one-off factors such as a onetime increase in revenues, terms of trade shock, disinvestment

proceeds and license auctions. A structurally adjusted fiscal balance target allows for a more accurate assessment of the underlying fiscal stance and also provides policy makers with the flexibility to react to shocks, ensuring that fiscal policy is conducted in a prudent fashion but yet retains its ability to react in a counter-cyclical manner.

Balanced budget rules should be employed in conjunction with expenditure rule: In addition to a rule on the fiscal deficit target, we would also suggest an expenditure rule with the aim of improving the quality of expenditure even while the fiscal deficit is being consolidated. The expenditure rule helps to limit the size of the government. In India's context, the rule should also explicitly promote more capital creating expenditure rather than redistributive expenditure and ensure that revenue expenditure is allocated efficiently and effectively to key social sectors such as health and education.

Exceptional circumstance clauses should be put in place: Exceptional circumstance clauses allows for temporary deviation from the rule in the case of a shock. However, these clauses need to be well-defined and should require a well-formulated approval process and adequate oversight to prevent the misuse of the clause. The factors or economic conditions which can trigger the clause should also be limited and well defined.

Moreover, to maintain the credibility of the fiscal consolidation process, authorities should also have to lay out a plan with specific timelines and revised targets to get back to the path of fiscal consolidation at the outset. We would propose that the Finance Ministry would have to seek parliamentary approval if they were to deviate from the target by 1% of GDP or higher. Moreover, a concurrent approval would also need to be sought for the plan and timeline for getting back to the path of fiscal consolidation.

The following lists a few examples where exceptional circumstance clauses are in use in other countries:

a) **Switzerland**: Exceptional circumstances are defined in the budget law as natural disaster, severe recession or changes in accounting methods. The deviation from target needs to be approved by parliament by a supermajority.

b) **Germany**: Defines an exceptional circumstance as natural disasters or unusual emergency situations which are outside government control and have major impact on the financial position of the government. Absolute majority of parliament is needed to trigger the escape clause. Parliament must approve an amortization plan with a specified timeframe for reducing the accumulated deviation.

c) **Euro Area countries:** The Treaty on Stability, Coordination and Governance (TSCG) defines exceptional circumstances as an unusual event outside the control of the Contracting Party concerned which has a major impact on the financial position of the general government or to periods of severe economic downturn as set out in the revised Stability and Growth Pact, provided that the temporary deviation of the Contracting Party concerned does not endanger fiscal sustainability in the medium-term. The treaty also states that a correction mechanism will be automatically implemented to correct the deviation over a defined period of time.

d) **Brazil:** Defines an exceptional circumstance as real GDP growth below 1% over four quarters and natural disaster. The rule can only be invoked with parliamentary approval.

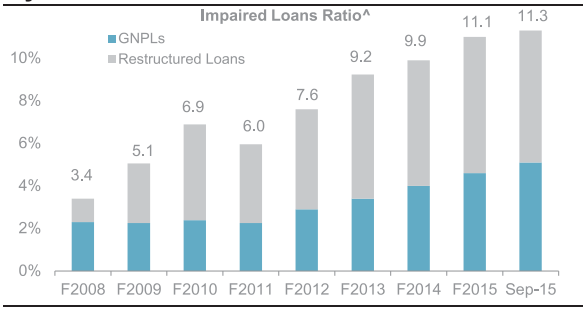
2.Should fiscal targets be based on the idea of public "debt sustainability analysis" (DSA)?
3.Should the DSA follow the IMF framework? Or should the IMF framework be modified? If so, how? In particular, should contingent liabilities be included? If so, how?

Fiscal deficit targets need to be set within the debt sustainability framework as the ultimate goal should be for fiscal policy to support a sustainable reduction in debt to GDP. In this regard, the IMF's DSA framework is a useful guide.

Under the DSA framework, public debt is regarded as sustainable when the primary balance needed to stabilize the debt under base case and in a stressed scenario is economically feasible. The framework is much more broader and detailed than a simple fiscal rule, as it stress tests public debt to GDP for different shocks, looks at the maturity profile of the debt, composition of the debt (how much is foreign owned and in foreign currency), takes into account changes in demographics and also recommends including contingent liabilities (i.e. bank recapitalizations, obligations made in PPP contracts, natural disasters, minimum returns from private pension funds etc). For emerging markets, the DSA framework recommends public debt to be kept at 50% of GDP and gross public financing needs to not cross 10% of GDP (primary deficit, interest payments and amortization payments).

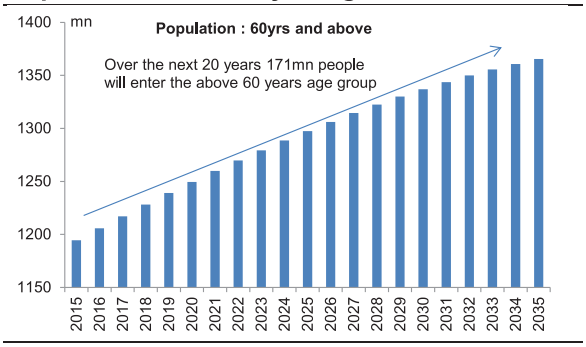
As of F2015, outstanding contingent liabilities are at 2.4% of GDP. These are explicit contingent liabilities in form of government guarantees. Apart from this there are also implicit contingent liabilities which are recognized after the event has occurred such as defaults of public entities, bank recaps, natural disaster etc. These need to be taken into account in stress tests on the stability of debt to GDP trend. In addition to contingent liabilities, there are direct liabilities which are obligations whose outcome is predictable should also be taken into account while trying to assess long-term stability of debt to GDP trend. A key long-term direct liability will be pension payments which will rise once demographic factors are no longer favourable. One way to take into account

Exhibit 5
Risk of Financial Sector Contingent Liabilities From Rising level of Banking System NPAs



Source: RBI Morgan Stanley Research

Exhibit 6
Risk of Direct Liabilities From Ageing Population in the Very Long-run



Source: Haver, Morgan Stanley Research

explicit contingent liabilities (such as guarantees in PPP contracts) is to include the net present value of future payments to public debt. If contingent liabilities are not included while trying to assess debt sustainability, then the exercise will be incomplete.

A modification to the IMF DSA rule would be to add an expenditure rule which ensures the quality of fiscal expenditure, as mentioned in our framework in response to question 1.

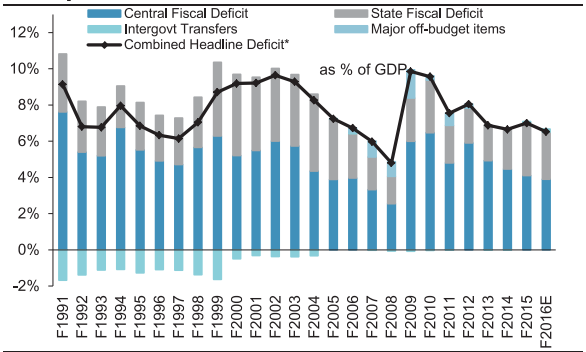
4.Ideally there should be consolidated or general government fiscal targets. How easy it to include state finances?

The fiscal targets should be set on the basis of consolidated government finance. Indeed, we see no clear reason why state finances should be excluded from the fiscal consolidation targets. With greater fiscal federalism, states' fiscal balance and public debt levels should be included under the purview of the overall fiscal targets. That said, there is a great degree of variation in fiscal situation across state governments, which will necessitate tailored fiscal rules (for instance, resource rich states tend to have a higher revenue base), rather than a one size fits all approach.

To facilitate the inclusion of state finances, states should be encouraged to disclose fiscal data on a monthly basis as the central government does – which will ensure greater transparency. While the CAG website does provide the data currently, the data is not released on a consistent basis (i.e. some states have more updated data as compared to others) and the date of data release differs from state to state. Consolidated data is available but only provided by the RBI with a time lag of a year. These issues have meant that it is not possible to have a timely assessment of the overall fiscal stance (For more details, please refer the introductory part on data quality issues).

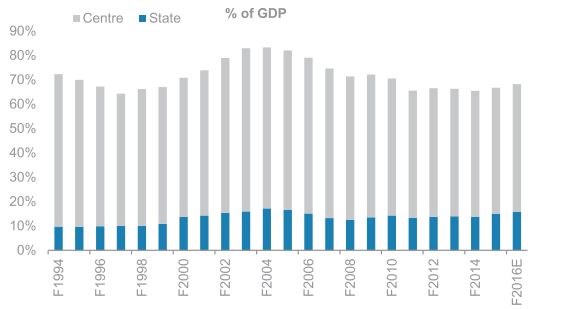
In this regard, we think that states should aim to disclose data in a consistent manner with a pre-defined timeline (e.g. data for a particular month to be made available on in 45-60 days after the month end). As a positive example, states are already reporting expenditure data for the MNREGA scheme in a timely and consistent manner (NREGA), which allows for a comprehensive assessment of the economic implications of the scheme.

Exhibit 7
Composition of Consolidated Fiscal Deficit



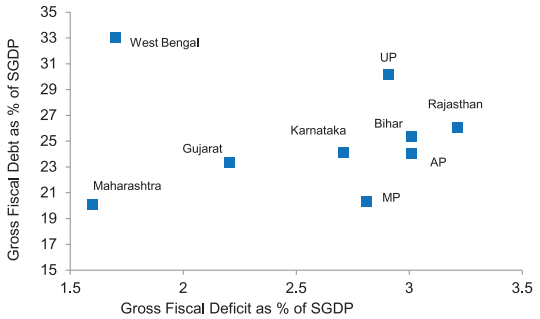
Source: RBI, Morgan Stanley Research. E- Morgan Stanley Estimate

Exhibit 8
Centre and State Government Debt as % of GDP



Source: RBI, Morgan Stanley Research. E- Morgan Stanley Estimate

Exhibit 9
Fiscal Deficit Variation Across States



Source: RBI, Morgan Stanley Research

5. How do other countries decide on fiscal targets? Advanced economies? Emerging economies?

For India, we would recommend a combination of a budget balance rule within a debt sustainability framework, along with an expenditure rule to ensure quality of fiscal expenditure. For details please refer to our framework in question 1.

In general, there are four basic types of fiscal rules being employed:

1) **Expenditure rules** set permanent limits on total, primary, or current spending in absolute terms, growth rates, or in percent of GDP.

2) **Revenue rules** set ceilings or floors on revenues and are aimed at boosting revenue collection and/or preventing an excessive tax burden

3) **Budget balance rules** which can be specified as overall balance, structural or cyclically adjusted balance

4) **Debt rules** set an explicit limit or target for public debt in percent of GDP.

According to the IMF, there has been a rise in the number of countries implementing fiscal rules. As of 2014, 85 economies have explicit fiscal rules (29 advanced, 31 emerging, 22 low income countries). Majority of these countries use either a budget balance rule and / or debt rules. The majority of countries have a minimum of two combined rules, with the most popular combination being a budget balance rule with debt rule.

Differences between advanced economies and emerging economies' fiscal rules:

1) **Advanced economies tend to focus more on cyclically adjusted fiscal balances:** Advanced economies tend to focus more on cyclically / structurally adjusted balances (48% of advance economies). This gives them flexibility to respond to shocks by making fiscal policy more counter cyclical. In contrast, only 27% of emerging economies follow cyclically / structurally adjusted fiscal balances.

2) **Fiscal rules in EMs tend to have a wider coverage:** Emerging economies' fiscal rules have greater coverage (i.e. covering wider set of government entities). The majority of EMs have fiscal rules which cover the general government.

3) **Fiscal responsibility laws:** 45% of emerging economies have fiscal responsibility laws accompanying fiscal rules vs. 14% of advanced economies

6. Do other emerging markets, in particular, include states' fiscal situation in establishing the targets? How good is the state level data for other countries?

Country	Data available on state and centre government finances	Frequency of availability for the same	Fiscal targets are on consolidated basis (centre and states included)?
China	Yes	Monthly	Yes, fiscal targets for the whole nation in calendar year are approved at annual National People's Congress in March
Hong Kong	Only central government in Hong Kong.	Monthly	There is only central government in Hong Kong.
Indonesia	No, only central government data is available	Monthly	The 3% fiscal deficit ceiling encompasses both central government and local govt. They also have a 60% public debt ceiling for central and local government. The lack of availability of local government data doesn't pose a risk to fiscal consolidation as local government deficit is very low between 0% to 0.5% of GDP and local government debt is also very low.
Korea	Yes	Monthly for central government ; and annual only for local government	No specific targets but the 5-year budget plan is for general government which include both central government and local govt. There are softer fiscal rules like how a new tax exemption needs to be offset by altering an existing tax exemption or reducing spending elsewhere.
Malaysia	Yes, data is available for federal government , state government and local govt.	Monthly for federal government ; and annual only for state/local government	The medium term balanced budget goal and 55% public debt ceiling only apply to the federal government

[table continued on next page]

Country	Data available on state and centre government finances	Frequency of availability for the same	Fiscal targets are on consolidated basis (centre and states included)?
Philippines	Yes, data is available for national government and local government units (LGU)	Monthly for national government ; annual only for LGU	The self-imposed 2% fiscal deficit ceiling (Aquino's administration) only applies to national govt. The new administration is now talking about taking fiscal deficit to 3% of GDP.
Singapore	No, there is only central government in Singapore.	Monthly	There is only central government in Singapore.
Taiwan	Yes	Monthly for central government ; annual for local government	Yes, they have a public debt ceiling for central and local government which is upwardly revised a few years ago from 48% of average GNP for the past 3 years to 50% of average GDP for the past 3 years, of which 40.6% for central govt.
Thailand	Yes, central government and local government data are available	Monthly	Yes, the 60% public debt guideline for fiscal sustainability applies to the public debt numbers which includes central/local/soe guaranteed and non-guaranteed debt. They also have a annual borrowing limit for central government fiscal balance which cannot be more than 20% of annual expenditure and 80% annual principal debt repayment.

Source: Morgan Stanley Research

7. Should there be separate targets for taxes and expenditures?

We believe for India, the budget balance fiscal rule (based on structurally adjusted budget balance) with expenditure rules would be effective. Indeed studies have shown that the combination of these two rules have been found to be more effective (Fiscal Rules—Anchoring Expectations for Sustainable Public Finances).

Expenditure rules have the benefit of containing government size and prevent pro-cyclicality in fiscal policy. Expenditure rule should also ensure that the quality of fiscal expenditure is maintained to achieve the objectives of promoting capital creating expenditure and expenditure on social sector (health and education).

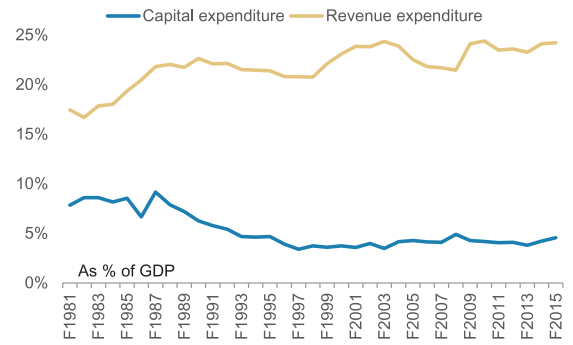
In this regard, rules should be put in place to reduce redistributive expenditure (which tend to result in inflation) and promote capital creating expenditure (which will boost productivity).

We recognize that the government has an important social mandate but we think there is scope for revenue expenditure to be better targeted towards sectors such as healthcare and education.

When formulating expenditure rules, the government can come up with realistic estimates of long term expenditure patterns based on overall growth projections and demographic trends. The expenditure rule should be employed in conjunction with a budget balance rule as the latter will ensure stability of government debt to GDP ratio.

Historically revenue rules have not been found to be effective as the marginal benefit of adding a revenue rule is likely outweighed by its costs in terms of complexity and reduction in fiscal flexibility. Setting targets on taxation side will only help to prevent excessive tax burden but it will not help stabilise the government debt to GDP ratio.

Exhibit 10
Consolidated Govt. Revenue vs. Capital Expenditure Trend



Source: RBI, Morgan Stanley Research

8. How would the timeline on achieving the targets be decided?

The timeline should be decided on the basis of realistic reduction in public debt to GDP levels and with an optionality of suspending the targets in case of adverse shocks.

We would note that India has not achieved fiscal consolidation via deliberate policy efforts. In the past, the reduction in government debt to GDP ratio was more due to a rise in inflation supporting a pick-up in nominal GDP growth. Indeed, the reduction in government debt from 72.2% of GDP in F2009 to 66.6% in F2012 was enabled with an average nominal GDP growth of 15% as fiscal deficit levels remained elevated at around 9% of GDP.

Debt simulation analysis: We ran a simple simulation exercise to calculate the primary balance needed to reduce consolidated Government debt to 40% of GDP by the next 15 years in a two stage exercise.

In the *first* stage the target for debt to GDP is set at 50% in the next 10 years from the current level of 68%. *Subsequently* the debt to GDP is reduced to 40% in the next 5 years. **We assume nominal GDP growth of 11% and interest cost to total debt at 7.5%.** In the first 4 years of the simulation, we assume a gradual moderation in primary balance and then assume a constant primary balance from F2021 to F2031 to achieve the debt to GDP targets. The simulations suggest primary deficit would need to be reduced from 1.6% of GDP in F2016 to a surplus of 0.4% of GDP in F2031.

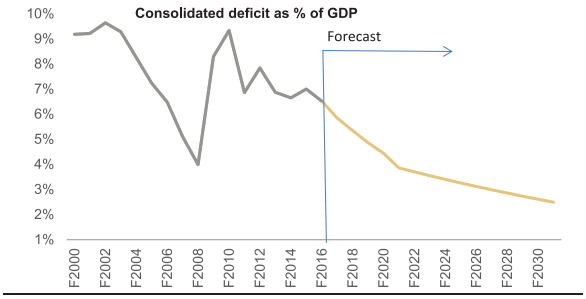
In the scenario we present, we have assumed a rate of 7% real GDP growth and 4% GDP deflator growth, the latter which is consistent with the RBI's 4% inflation target. However, the current global environment of weak growth and persistent disinflationary pressures does suggest that the risks towards achieving these rates of nominal GDP growth would be skewed towards the downside. The low nominal growth environment makes the need for a fiscal rule which aims at reducing the debt level to certain target even more important. In addition, we think that in consideration of the macro backdrop, policy makers should in fact aim for more conservative targets of fiscal balances so as to ensure no slippage of the fiscal consolidation and debt reduction targets. Indeed, if nominal GDP growth were to come in 1ppt lower, primary deficit would need to be reduced by 0.6% of GDP.

Exhibit 11
Debt Simulation Analysis: Required Primary Balance to Reach Debt Target

	Primary Balance as % of GDP	Government Debt to GDP
F2016	-1.6%	68%
F2017	-1.2%	67%
F2018	-0.8%	66%
F2019	-0.4%	64%
F2020	-0.1%	62%
F2026	**0.4%**	**50%**
F2031	**0.4%**	**40%**

Source: Morgan Stanley Research
Primary balance needed to achieve Public debt to GDP ratio at 50% by F2026 and 40% by F2031
Nominal GDP Growth: Assumed at 11%
Interest rate cost to debt assumed at 7.5%

Exhibit 12
Consolidated Fiscal Deficit Trajectory to Reduce Debt to 50% of GDP by F2026 and 40% by F2031



Source: Morgan Stanley Research

9. Should the targets be based on cyclically adjusted fiscal positions?

Targets should be based on cyclically adjusted fiscal positions to prevent a pro-cyclical fiscal policy. For instance, during boom periods tax revenues tend to pick-up. If expenditure is proportionately increased it will reinforce the boom cycle, resulting in build-up of imbalances.

We would however go one step further and recommend the usage of structurally adjusted fiscal deficit which is the cyclically adjusted fiscal deficit, further adjusted for one off factors such as terms of trade shocks, large one time rise in revenue, write-offs related to bank recapitalization etc. We believe that the concept of the structurally adjusted fiscal deficit will give a true picture of underlying fiscal stance while also keeping the target flexible so that policy makers can respond to shocks.

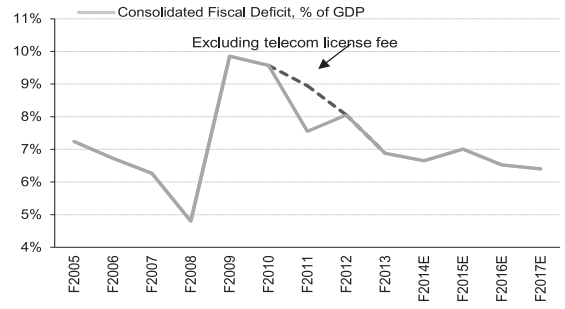
An example which supports the use of structurally adjusted budget balance in India is the telecom spectrum auctions in F2011. The auction resulted in revenues worth Rs1062bn or 1.4% of GDP. As a result, gross fiscal deficit reduced significantly to 7.5% of GDP in F2011 from 9.6% in F2010, giving an overestimation of the fiscal consolidation. If we exclude the proceeds from telecom auction, fiscal deficit had only marginally reduced to 8.9% of GDP. Indeed, we think that the government overstayed the path of fiscal easing, resulting in rising macro stability risks of high inflation and widening current account deficits. Assessing the fiscal stance on a structurally adjusted budget balance would have excluded the one off revenue from telecom auction and given the true picture of the underlying fiscal stance.

In India's context, the fiscal deficit target should also take into account impact of future pay commissions. Pay commissions tend to push the deficit upwards for 2-3 years at a per-determined time frame but without consideration of the business cycle. To better prepare for the future one-off increases in wage expenditure, we recommend the creation of a reserve fund.

A number of advanced economies have incorporated structurally adjusted / cyclically balances in their fiscal rules. The EU countries have specified targets for structurally adjusted deficit in the fiscal compact in 2012. Under the rules, a structural deficit target of 0.5% of GDP is set for countries with government debt above 60% of GDP and a 1% target for countries with debt to GDP lower than 60%. For details on this is calculated, see our response to question 10.

Among EM countries, the concept of cyclically adjusted balances is relatively less explored with the exception of Latam economies like Chile, Columbia and Panama which have fiscal rules based on structurally / cyclically adjusted fiscal balances.

Exhibit 13
Impact of Telecom Auction on Fiscal Deficit



Source: RBI, Morgan Stanley Research

Exhibit 14
Historical Trend in Consolidated Govt. Debt to GDP

Source: RBI, Morgan Stanley Research

10. How are cyclically adjusted fiscal positions calculated in other countries? How is output gap estimated?

The IMF manual on calculation of cyclically adjusted fiscal deficit states that there are three approaches. For India, we would suggest to use the aggregate approach as the data requirements are less stringent under this method. The elasticity of major fiscal aggregates to output gap can be calculated using regression techniques and / or from literature survey.

Details of the approach are as follows:

1) **Aggregate approach:** Under this both revenue and expenditure is adjusted for cyclical factors at an aggregate level. The cyclical part of revenues is estimates using elasticity of revenue which shows the impact on revenues of deviation of output from potential output. Similarly for expenditure. As per IMF elasticity of expenditure can be assumed to be zero indicating no impact of cyclical factors on expenditure. Hence the elasticity for revenue becomes one. The benefits of this approach is that it requires less data, however the downside is that this approach only works if the major fiscal aggregates have similar elasticity i.e. behave in a similar manner when output deviates from potential output.

2) **Disaggregated approach:** Under this approach for the various revenue components different elasticity is assumed with respect to revenue base and deviation of the output from potential output. While this method is more accurate, it requires more data in form of various elasticities.

3) **Adjusting for output compositional effects:** The above two methods assumes the individual fiscal components follow the output cycle which may not be true. For instance the cycle for wages which determines income tax could differ from the consumption cycle which determines indirect tax revenues. This method adjusts each fiscal component for the output cycle as well as the individual component's cycle (eg. wage cycle, consumption cycle etc).

Methodology of EU countries

The EU countries have a standardized methodology to calculate cyclically adjusted budget balance across member states and also have a fiscal rule which specifies structurally adjusted balance target. The EU countries calculate cyclically adjusted fiscal balances using the disaggregated approach where each budgetary item is adjusted for cyclical component using elasticities to its specific macroeconomic base and is also adjusted to the overall output gap.

The impact of the output gap on the budget balances is calculated through a single semi elasticity. The semi elasticity is the difference between the revenue elasticity to output gap multiplied by the share of revenues in GDP and expenditure elasticity to output gap multiplied by share of expenditure in GDP. The revenue elasticity is the weighted sum of the individual revenue components elasticity (personal income tax, corporate income tax, indirect taxes and social contributions) with respective to the respective macroeconomic bases (wages, profits and private consumption). The weights are the share of the individual tax component in total revenue. On expenditure side, the elasticity of unemployment related transfers is multiplied with the share of unemployment related expenditure in total government revenue. The elasticities are estimated using regression work and from literature survey

Irrespective of the method used, output gaps would have to be calculated. The difficulty is in calculating potential output as it needs to be estimated and is impacted by revisions to data and also will differ depending on method used to calculate it. The two popular methods are: 1) using a filter such as Christiano-Fitzgerald (CF) band pass method and HP filter which get impacted by revisions to data but is simple to estimate and 2) using production function which will require more data and assumptions

regarding production function but is based on economic theory and is less mechanical than using a filter.

India's GDP has recently undergone a base year revision, which complicates the calculation of output gap due to a lack of historical data for the new GDP series. The old and new base GDP can be spliced together in case of nominal GDP to create a longer history, as the revisions in base have impacted real GDP more than nominal GDP.

THOUGHTS ON BUDGET RULES

FROM THE UNITED STATES EXPERIENCE:
Prepared For
The Fiscal Responsibility and Budget Management Review Committee,
The Hon. N.K. Singh, Chair

Professor Michael J. Boskin, Stanford University

There are two classes of budget rules that have been used in the United States in recent decades: federal and state/local. Let me briefly describe each and then conclude with what I believe are the potentially valuable lessons.

I. Evidence from the States.

A. Balanced budget rules are used by 49 of the 50 states. Governors must submit a balanced budget in 44 states. Legislatures must enact a balanced budget in 37 states. Because outcomes are often different from projections, there are incentives to game the projections, e.g. if you wind up with a deficit, just borrow and carry the debt forward. This has been common in my own state of California, where, for example, Governor Gray Davis ran (and covered up) a large deficit, borrowed (he was recalled from office partly for doing so), and the debt was carried forward to Governor Schwarzenegger, to refinance and spread out the debt.

B. Of the legislatures which must enact a balanced budget, 24 prohibit deficit carry-forwards – these are mostly small states.

C. Studies of the effects of balanced budget rules suggest that a $1 rise in the state's deficit triggers about an 80-cent response in tax increases or spending cuts when deficit carry-overs are limited, but only 30-40 cents in states which do not restrict carry-overs.

D. States with separate capital budgets spend more on public capital projects than comparable states with unified budgets. There is no evidence that lack of a capital budget affects non-capital spending. Pay-as-you-go financing rules are associated with lower capital and non-capital spending.

II. Federal

A. In response to large budget deficits at various times, there have been several federal budget rules imposed. Prior to the mid-1970s, the Congress dealt with spending and revenues separately. The Budget Reform Act of 1974 created new budget committees which were supposed to tie spending and taxes more closely together. The Budget Committee's remit was to develop and get passed a budget resolution which instructed each of the separate appropriations committees how much they could appropriate and the House Ways and Means and Senate Finance Committees how much revenue they were expected to raise. Because the federal government, far more so than the state government, relies on very progressive income taxes, which are very sensitive to economic conditions (as are corporate

profits taxes), Congress often found itself with projections that did not materialize.

B. The first attempt to deal systematically was the Gramm-Rudman-Hollings law which required the President to submit a balanced budget meeting specific dollar-deficit targets gradually shrinking to zero over six years. Unfortunately, as the accompanying table demonstrates, the targets were not met and indeed were revised, enlarged and updated. And the revised deficit target was not met, either.

C. This tendency to stretch out budget targets when unmet is also true of the European Growth and Stability Pact. The problem partly resulted from the length of time between the President's budget submission, generally in February preceding the fiscal year starting in October and running through the following September. So there were nineteen months for economic conditions to change.

Worse yet, because the law required only projected targets, which became more stringent year after year, there was a tendency for a large number of assumptions to be tilted toward favorable outcomes.

So, on its face, Gramm-Rudman-Hollings did not come close to meeting its intent. Having been an advisor to the White House and Congress during this period, however, I do believe it had some, albeit small, restraining impact on spending, i.e., the actual deficits would have been still worse without it. It gave the legislators an additional excuse to say no to their constituents, or, more precisely, someone else or something else to blame for saying no.

D. Gramm-Rudman-Hollings was succeeded by the Budget Act of 1990. This had three main features: First, it literally set maximum amounts of outlays that could not be exceeded for the part of the budget which is annually appropriated, sometimes called "discretionary outlays" (as opposed to those items which run automatically unless the law is changed, e.g. Social Security). The result of that exercise seemed to work pretty well, as demonstrated in the attached figure. It worked so well, in fact, that when President George H.W. Bush left office, the law was still in force and was renewed beyond its original ending date by President Clinton and a Republican Congress. It continued to work very well through 1998. But then, a combination of the spending restraint and a booming economy/Internet bubble produced that rare sighting in Washington, a budget surplus, and all restraint vanished.

E Second, the 1990 Budget Act created a pay-go rule for mandatory outlays and taxes. Any change – spending increase or tax reduction – had to be paid for by corresponding offsets. In short, we instituted a marginal balanced budget rule. This also seemed to work pretty well until the budget surpluses created an unanticipated constraint on tax reductions which was not foreseen back in 1990.

F. The 1990 law had enforcement mechanisms, e.g. sequesters, which literally enforced the spending constraint and would stop spending, to be a bit hyperbolic, in its tracks if it violated the rules.

G. Various forms of pay-go rules, with various exceptions, and of sequesters, have been

episodically used in the years since. In fact, a sequester was the agreed way for the Republican Congress and President Obama to move forward on a spending plan and, more recently, to adjust it.

What lessons do I believe are worth taking from the United States experience of fiscal rules? There are several, of varying degrees of generality.

1. It is important to be as comprehensive as possible in coverage and definition of spending and revenues. "Emergency" appropriations which seem quite sensible tend to grow into permanent exceptions outside the budget and outside its rules.

2. Build in some flexibility to deal with unanticipated events, e.g. recession or temporary increases in national security spending. You don't want to force a fiscal contraction into a downturn. The 1990 law included a provision to temporarily suspend the restrictions if the Council of Economic Advisers forecast, or we actually had, a recession.

3. Incorporate self-policing mechanisms, e.g., sequesters, look-backs, automatic offsets, etc., to the extent possible.

4. Make sure the budget rule is synchronized with the RBI's monetary policy, to the extent possible without threatening the credibility of the RBI in fighting inflation. If both the RBI and the fiscal rule are conditioned on economic conditions, then they must be consistent with one another or risk potential problems.

5. Legislators can be ingenious in finding the weak links in fiscal rules and you should expect them to figure any out, if not immediately, then fairly quickly. In particular, be mindful of the incentives you create for the Legislature to use instruments other than taxes and spending to achieve the same ends, less efficiently or even dangerously. The serial social engineering of the American housing market, with growing remits for Fanny and Freddy, requirements that banks invest in securities related to, not just loaned to, low-income housing and the like, were partly a response to tightening budget conditions limiting direct outlays. And it was a prime contributor to the financial crisis and Great Recession. President Obama has used regulation and executive orders to try to accomplish many things he could not get Congress to support.

6. So if you are going to impose deficit or debt limits, e.g. on marketable debt, be mindful of what is, or may in future be, excluded.

7. Perhaps most important, sensible fiscal rules have, on balance, seemed to produce better, if imperfect, outcomes. They are important instruments of public policy and constraints on fiscal misbehavior. But they can only work with the continued support of the elected officials, who have to explain them to their constituents. So, however, much technical detail needs to be included because of India's specific fiscal institutions and budget practices, there needs to be a simple, transparent, easy to understand, and easy to support explanation for why the fisc is being so constrained.

Figure 1

The Deficit Compared with the Gramm-Rudman-Hollings Targets

(In billions of dollars)

	1986	1987	1988	1989	1990	1991	1992	1993
Original Deficit Target	172	144	108	72	36	0	n.a.	n.a.
Revised Deficit Target	n.a.	n.a.	144	136	100	64	28	0
Actual Deficit	221	150	155	152	221	269	290	255
Amount Above the Original Target	49	6	47	80	185	269	n.a.	n.a.
Amount Above the Revised Target	n.a.	n.a.	11	16	121	205	262	255

Source: Congressional Budget Office.

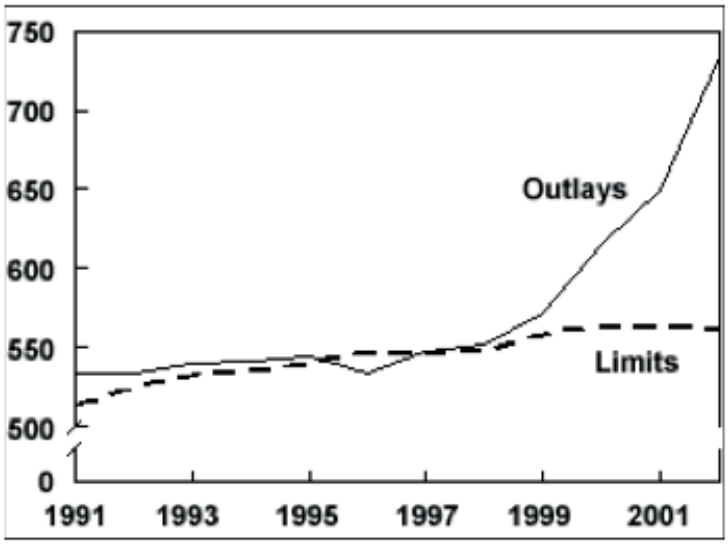
Notes: n.a. = not applicable.

The Balanced Budget and Emergency Deficit Control Act of 1985 (the Gramm-Rudman-Hollings Act) contained the original deficit targets; the Balanced Budget and Emergency Deficit Control Reaffirmation Act of 1987 contained the revised targets.

Figure 2

Actual Discretionary Outlays Compared with the Spending Limits as Originally Enacted

(In billions of dollars)



Source: Congressional Budget.

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