Should States Target a 3% Fiscal Deficit?

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India’s current fiscal rules target a 3% fiscal deficit for the central and state governments. Though states have largely adhered to their borrowing ceilings, subnational debt is proliferating. A significant reduction in subnational borrowing is required to stabilise the states’ debt around the desired level of 20% of gross domestic product. Symmetry should not be forced on central and state borrowing flows, given their widely divergent levels of debt stocks.

Active thinking regarding statutory controls on government borrowing in India began in 2000 when the then finance secretary, E A S Sarma, chaired a 10-member committee to study various aspects of the centre’s fiscal architecture. They prepared a draft fiscal responsibility legislation (FRL) for the central government called the Fiscal Responsibility and Budget Management (FRBM) Bill, a diluted version of which was passed by Parliament in 2003. A similar exercise followed at the level of the states with technical assistance and direction from a Reserve Bank of India (RBI) working group that drafted a model FRL for the states (RBI 2005) and the Twelfth Finance Commission (TFC).

Both these bodies recommended a state FRL similar to the centre’s FRBM Act. States were quick to adopt fiscal rules after the TFC stipulated that the enactment of FRL was a precondition for availing its debt restructuring scheme, the Debt Consolidation and Restructuring Facility (DCRF). By 2006–07, FRL were in force in as many as 20 states, bringing a rule-based framework to the centre of national and subnational fiscal policy in India.

There is extensive literature that assesses the success of state FRL in India in the past 15 years. However, in both descriptive and regression-based analyses, it is difficult to isolate the contribution of FRL adoption on improved fiscal outcomes due to the confounding effect of a number of macro events that were concurrent but exogenous to FRL adoption. These macro-fiscal winds included the TFC’s DCRF, supernormal economic growth, the implementation of the state value added tax (VAT), and growing central transfers. We do not claim to have a statistically robust answer to this question. It is clear that the fleeting macroeconomic bonanza of the 2000s allowed the states to significantly overshoot their FRL ceilings on borrowing flows with incommensurate effort. However, we do believe that the FRL has played an important role in anchoring the states’ fiscal attitudes and behaviour over the past 15 years.

For instance, state governments have not responded in good times by fully utilising their higher revenues to increase populist spending. Though revenues were buoyant during the boom years following FRL adoption, we show that expenditure compression by state governments also contributed meaningfully to subnational fiscal consolidation. A viable contributor to declining expenditure was the reduced interest bill following the TFC’s DCRF. However, during the same period, there were several instances of a year-on-year decline in non-interest revenue expenditure also. Furthermore, the procedural rules in FRL have improved the budget management process. Though inaccurate revenue and expenditure forecasts and off-budget borrowing remain a matter of concern, there is no doubt that the budget process is more transparent due to FRL provisions mandating the submission of Medium-term Fiscal Policy and Strategy documents in the budget sessions of state assemblies. The quality of these reports varies across states but along with hard numerical targets, such procedural requirements have helped transform the idea of fiscal prudence from a qualitative aspiration to a quantitative, tangible goal.

For us, quantifying the impact of FRL on past fiscal outcomes is a second-order question. The focus of this article is forward-looking. How robust are the theoretical underpinnings of state FRL in a dynamic macroeconomic setting? Are they sufficient to stabilise debt around the desirable level of 20% of gross domestic product (GDP)? This critical question was largely overlooked while setting the level of the fiscal deficit target in subnational FRL. Indeed, during the boom of the 2000s, the states’ medium-term debt outlook looked benign, particularly after the TFC’s DCRF. Furthermore, the states on average were operating at fiscal and revenue deficits that were far
below their FRL targets. Today, however, without the macro-fiscal windfalls of the previous decade and with subnational borrowing flows at much higher levels and rising, subnational debt is vulnerable [see for instance, Chinoy (2017a, 2017b) and Kotia (2017)]. The 3% fiscal deficit limit is more binding than ever, as more and rising, subnational borrowing flows at much higher levels and with subnational debt is vulnerable. Thus, by design, India’s fiscal framework creates a tension between the equal targets for annual flows of borrowing (that is, fiscal deficit) on the one hand, and the unequal levels of the desired stock of accumulated borrowing (that is, debt) on the other. We discuss this anomaly in detail and propose alternative policy rules that are internally consistent.

**Fiscal Consolidation post FRL**

The post-FRL period saw one of the sharpest ever subnational fiscal consolidations in India. Figure 1 and Figure 2 (p 50) reveal the anatomy of this consolidation. Figure 1 plots the cross-section means (and a three-year moving average of these means) of key fiscal indicators of the states as a percentage of their respective gross state domestic product (GSDP) over time. For instance, in the first panel of Figure 1, the dots denote the sample means of the fiscal deficit to GSDP ratio of all the states in a particular year t, that is, $\sum_{i=1}^{N} \frac{FD_{it}}{GSDP_{it}}$. The sample consists of 29 states.

First, both the fiscal and the revenue deficit of the states fell dramatically in the 2000s, and by 2007–08 almost all states had achieved their respective FRL limits. Strikingly, fiscal deficit in many states fell far below these limits. The median fiscal deficit decreased from 5.68% in financial year 2000 to a low of 1.86% in FY2008, considerably overshooting the 3% fiscal deficit targets laid out in their FRL. Since 2000, 14 of the 17 large states reported fiscal deficit of lower than 2% of GSDP in at least one year, and five states—Assam, Odisha, Haryana, Maharashtra, and Chhattisgarh—reported a fiscal surplus in at least one year during this period. The decline in revenue deficit was even more dramatic. From a high of 2.75% in FY2016, the median revenue deficit of the states fell sharply to a surplus of 2% of GSDP in FY2007.

This improvement in state finances was aided by macro-fiscal factors that...
were concurrent to the implementation of the FRL (see GOI 2010, 2015, 2017a for detailed surveys). 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 VAT by most states in 2005–06; (iii) an increase in the devolution of central taxes to the states by the TFC; (iv) a liberal interest rate regime; and (v) the TFC’s DCRF which led to a sharp reduction in the debt stock, and consequently the interest bill of the states—a major expenditure item, that accounted for over a fifth of all revenue expenditure in FY2005 (see Figures 1c and 1d, p 49).

Given the positive economic scenario in pre-crisis years following the implementation of state-FRL, it is difficult to quantify the extent to which the fiscal correction that followed can be attributed to an FRL-induced discipline in the fiscal conduct of the states. However, there is some qualitative evidence to support that FRL was successful in nudging the states towards greater fiscal prudence. 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 took steps towards the imposition of ceilings on guarantees, while others created sinking funds and guarantee redemption funds. These efforts reflect the gradual fall in non-interest revenue expenditure during the 2000s (see Figure 1e, p 49). Figure 1 also shows that even as revenue expenditure was compressed, capital expenditure rose at a healthy pace during this period, though it has fallen somewhat after the financial crisis.

To further understand the causes behind subnational fiscal consolidation in the post-FRL period, we analyse the sources of the year-on-year changes in the fiscal and revenue deficit of the state governments. We decompose the year-on-year changes in the deficit to GDP ratio into revenue and expenditure components as follows:

\[ \Delta \left( \frac{\text{Deficit}}{\text{GDP}} \right) = \Delta \left( \frac{\text{Exp}}{\text{GDP}} \right) - \Delta \left( \frac{\text{Rev}}{\text{GDP}} \right) \]

where \( \Delta \) denotes the change from one year to the next.

Figure 2 plots the proportional impact of these components on the total change in the deficit in a given fiscal year. Factors that cause the deficit to fall: an increase in revenue or a decrease in expenditure are recorded below the axis. Similarly, factors that cause the deficit to rise—a decrease in revenue or an increase in expenditure—are recorded above the axis. For instance, out of the total change in the fiscal deficit to GDP ratio in 2001, rising revenue–GDP ratio contributed 74% (causing the fiscal deficit to fall), and higher expenditure–GDP ratio contributed the residual 26% (partly countervailing the downward impact of rising revenues on the fiscal deficit in that year). Thus, the reduction in the fiscal deficit in FY2001 was entirely revenue-led. In FY2005 however, expenditure curtailment by the government contributed to two-thirds of the total reduction in the fiscal deficit to GDP ratio that year. In this way, Figures 2A and 2B can help us measure the proportional impact of revenue and expenditure components that lead to a change in the fiscal deficit from one year to the next.

The figure shows that in the boom years, the sharp correction in subnational fiscal deficit was due to 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 percentage of GDP fell in each of the four pre-crisis years (FY2005–FY2008), even as capital expenditure was protected (see Figure 2A(ii)). Following the crisis, the fiscal deficit increased sharply. In FY2009, the centre had raised the market borrowing limit of states by ₹30,000 crore as a countercyclical measure. Additionally, states were allowed to exceed their fiscal deficit target by 0.50 percentage points, to 3.5% of GDP in FY2009. This limit was further revised to 4% of GDP in FY2010.

A finer decomposition of revenue expenditure in Figure 2B(ii) confirms that falling interest payments due to the debt relief facility was an important component of declining revenue expenditure mentioned before. However, non-interest revenue expenditure also fell in several years, contributing significantly to subnational fiscal consolidation.

**Stability of Subnational Debt**

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.

—Tolstoy (1935)

Whatever the cause, the extent and pace of subnational fiscal consolidation in the 2000s is striking. Adhering to legal borrowing limits such as those imposed by FRL, though prudent economics, makes for difficult politics as public expenditure is curtailed. It is, therefore, a significant achievement that Indian states have largely operated within their 3% fiscal deficit limits in the past decade. However, the combined stock of debt owed by the Indian states, which was about 21% of GDP as of FY2017 (including Ujjwala DISCOM Assurance Yojana or UDAY bonds), is proliferating.
This raises a paradox: why is the states’ debt unsustainable today despite their commendable adherence to hard borrowing limits? Relatively high subnational primary deficit is only partially to blame. Subnational borrowing flows, though rising, remain largely within FRL limits. Our assessment of the theoretical underpinnings behind the numerical targets of the central and state FRL reveals that the fault lies not in the inadequate implementation of fiscal rules by the states but in the design of these rules themselves. We show that the present cap on the fiscal deficit of 3% of GDP is too high to stabilise the states’ debt around the desired level of 20%.

Why then was the states’ fiscal deficit target set at this level? Though an insubstantial, post facto justification, based on simplistic fiscal arithmetic, the level of the states’ fiscal deficit target was probably kept at 3% to make it politically palatable by maintaining equality with the centre’s deficit target. But the symmetry in the deficit targets for the states and the centre was, and remains, inconsistent with the widely divergent debt levels of the two tiers of the government. While the annual fiscal deficit targets of 3% of GDP are equal for both the centre and the states, experts within the government and outside have argued for an unequal division of general government (states plus the central government) debt: with 40% apportioned to the centre and the residual 20% to the states. Thus, by design, India’s fiscal framework creates a tension between the equal targets for annual flows of borrowing (that is, fiscal deficit) on the one hand, and the unequal levels of the desired stock of accumulated borrowing (that is, debt) on the other. We use standard equations of debt dynamics to illustrate this anomaly.

**Dynamics of Public Debt in India**

We begin by discussing the mechanism through which FRL targets feed into medium-term debt trajectories under different macro scenarios for the states, the centre, and the general government. Using data from the union and 29 state government budgets up until 2016–17 (budget estimates), our simulations reveal the inconsistencies between FRL targets for borrowing flows and the unequal division of general government debt stock in India. What matters for macro-economic stability is not the value of debt in rupees but the magnitude of debt relative to the magnitude of GDP, that is, the debt–GDP ratio. In a country with high nominal GDP growth like India, this has key implications on how fiscal data are interpreted. As GDP grows rapidly or if interest rates fall, the debt–GDP ratio is partially eroded each year: even if debt rises in magnitude due to fresh borrowing, it may shrink in proportion to GDP.

Consider the standard equation of debt dynamics.  

$$d_t = (1 + \alpha) d_{t-1} - p_t$$  

where $p_t$ is the primary balance to GDP ratio in year $t$ (thus, $p_t < \sigma$ denotes a deficit and $p_t > \sigma$ denotes a surplus), $d_t$ denotes the debt to GDP ratio in year $t$. We assume constant nominal GDP growth rate and interest rates. If nominal GDP growth ($g$) exceeds the nominal interest rate ($r$), then  

$$\alpha = \frac{r - g}{1 + g}$$

measures the rate of erosion of past debt due to a “favourable $r$-$g$.”

Equation (1) says that the debt–GDP ratio in period $t$ is the sum of debt–GDP ratio in period $t-1$ that is not eroded by nominal GDP growth $[(1+\omega) d_{t-1}]$ and fresh non-interest borrowing, that is, the primary deficit to GDP ratio in period $t$ ($p_t$). If we measure both central government and combined subnational debt relative to GDP and assume that the same interest rates apply to their respective stocks of debt, then $\alpha$, the rate of erosion is the same for the two tiers of government.  

However, the base, that is, the debt–GDP ratio, to which this common rate is applied is much larger for the centre. This difference in the initial levels of debt between the two tiers of the government has important implications for the level of fiscal deficit that they should target.

For example, at present levels of nominal GDP growth of 11%–12%, about 11% of the debt–GDP ratio is eroded each year merely on account of GDP growth. In the previous fiscal year (FY 2017), this was over 5 percentage points of the central government’s debt ratio of 49.4% of GDP. Therefore, despite fresh borrowing of 3.5% of GDP in FY 2017 (BE), which added to the magnitude of debt, the centre’s debt–GDP ratio decreased from 49.4% in FY 2017 to 47.4% of GDP in FY 2018. This is because between FY 2017 and FY 2018, GDP growth eroded as much as 5.5 percentage points from the central government’s debt–GDP ratio.

The states, however, are not so lucky. GDP growth erodes their debt–GDP ratio by only 2.1 percentage points, less than half as compared to the centre. Like in the case of the central government, this is about 11% of their present debt–GDP ratio of just over 20% of GDP. The rate of erosion is roughly the same for both tiers of the government. However, in the case of the states, this erosion rate works on a much lower debt–GDP ratio of 20% of GDP, yielding a smaller annual growth erosion as compared to that of the central government.

Though counter-intuitive, it follows therefore, that the centre can afford larger deficits because of its larger stock of debt alone. We illustrate this result using a stylised numerical example of debt simulations of different tiers of the government for a wide range of macro assumptions regarding nominal GDP growth and interest rates. Subsequently,
we illustrate the theoretical underpinnings of this result.

**Keeping Debt Constant**

First, we show that to keep their respective debt ratios constant at present levels; the centre can afford a larger primary deficit than the states. In equation 1, let $d_\ast = d_\ast -$ $d^\ast$ to get

$$p^\ast = \alpha d^\ast$$

...(2)

where $p^\ast$ is the primary surplus which will ensure that the debt ratio neither falls nor rises over time, that is, it stays constant at $d^\ast$.

Table 1 shows such levels of primary balances for the general, central, and state governments and different combinations of nominal interest rate ($r$) and nominal growth rate ($g$). These levels of primary balances, denoted $p^\ast$, will ensure that the debt to GDP ratios of the general, central and state governments stay constant at their present, FY2017 levels of 49.4%, 19%, and 68% of GDP respectively. For the states, we also consider the scenario of a higher debt stock of 21% due to the UDAY scheme.

Note that, $p^\ast_{state} > p^\ast_{state(U)} > p^\ast_{union} > p^\ast_{GG}$ for all values of $r$ and $g$. In fact, $p^\ast_{state}$ is less than half in magnitude as compared to $p^\ast_{union}$. 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 central government.

**Reducing Debt**

Another way to understand why the centre can afford higher deficits than the states is through the relationship between the initial level of debt and the constant primary deficit required for any planned reduction in debt. Equation (i) can be generalised for several periods as follows:

$$d_N - d_0 = \alpha \sum_{t=0}^{N-1} d_t - \sum_{t=1}^{N} p_t$$

...(3)

and has the following solution:

$$d_N = d_0(1 + \alpha)^N - \sum_{t=0}^{N-1} (1 + \alpha)^{N-t}p_t$$

...(4)

From this, we can derive an expression for the minimum primary surplus that is required for any proposed reduction in the debt stock over $N$ years, $p^\ast_N$:

$$p^\ast_N = \frac{\alpha}{(1 + \alpha)^N - 1} \sum_{t=0}^{N-1} d_t - d_0$$

...(5)

That is, given an initial debt ratio ($d_0$), and a target debt ratio ($d_N$) to be achieved in $N$ years, the constant primary balance ($p^\ast_N$) that reaches the target debt ratio, if maintained constant during periods $t=1,...,N$, is given by the expression in equation (5).

Figure 3(a) plots equation (5) in the three-dimensional space of time, the initial debt to GDP ratio, and primary balance calibrated to Indian data. In particular, it plots the constant primary balance which is required to engineer a 20% reduction ($d_\ast = 0.8d_0$) in the debt to GDP ratio in $N$ years. We assume $r = 8\%$ and $g = 11.5\%$ (i.e., $\alpha = -0.0269$). Figure 3(b) plots the contours in the space of time and debt/GDP. Each curve represents a constant level of primary balance.

For any given level of constant primary balance, the figures reveal a non-linear, negative relationship between the initial level of debt and the time it takes to reduce debt by 20\%. 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% reduction from the initial level of debt/GDP), the government with a higher initial level of debt ratio will achieve the target faster. By corollary, if two governments want to engineer the same proportional reduction in the debt to GDP ratio in a given period, the government with the larger initial debt ratio can do so...
with higher primary deficits (or smaller primary surpluses).

Thus, the central government, which has a large debt stock of almost 50% 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, the advantage that accrues to them on account of a favourable \( r - g \) is lower. This implies that to bring the level of their debt down by 1%, the states will have to run smaller (larger) primary deficits (surpluses) than the central government.

The widely divergent levels of debt of the central and state governments hold key implications for borrowing limits and fiscal rules. Symmetry cannot be forced on the targets for fiscal deficits of the two tiers without simultaneously inducing their debt–GDP ratios to converge. Currently, at around 3% of GDP, the states are borrowing more than their annual erosion of debt due to nominal GDP growth. If this trend continues, their debt–GDP ratio will continue to rise, eventually stabilising at around 30%, far above the desired level.

To the extent that debt is taken as an anchor around which fiscal policy is planned, it may provide for a rare infusion of analytical rigour in the otherwise dismal science of setting the levels of fiscal targets. We can easily derive an upper bound for fiscal deficit from the desired level of debt. At 11%–12% economic growth, converging to the desired debt–GDP ratio of 40% and 20% for the central and state governments respectively requires that the states run deficits of no more than 2% of GDP, significantly lower than their present deficit targets. The centre, on the other hand, can afford deficits of up to 4% of GDP. Figure 4 (p 52) plots benchmark debt projections for the centre and the states if they keep their fiscal deficit constant. The figure presents two scenarios: first, the symmetric FRBM case, and second, the alternative scenario of 2% and 4% deficit ceiling for the states and the centre respectively (which are consistent with their respective desired levels of debt).

If both the centre and the states were to operate at their FRBM limits of 3% (as is the situation today), both the central and the subnational debt to GDP ratios would stabilise at 30%. For the states, this implies a sharp, sizeable jump in their debt, even if they adhere to their FRBM deficit limits. If the desired level of state debt is about 20%, then the states should be subjected to a lower deficit ceiling. A deficit ceiling of 2% will suffice to stabilise the states’ debt at this level. On the other hand, if the central deficit remains at 3%, its debt ratio will continue to decline until it stabilises at 30%, far lower than desired.

NOTES

1 See Roy and Kotia (2016a) for details on the institutional journey of the FRBM Bill, in particular the amendments recommended by the Standing Committee on Finance, 2002.
3 See Gol (2017a) and Roy and Kotia (2016a, 2016b) for details.
4 See Escolano (2010) for a detailed discussion and extensions.
5 This is a reasonable assumption. Gol (2017b) estimates the interest rate for the states to be 8.5% based on data from the RBI on weighted average coupon yields on the outstanding stock of market borrowings and projects it to decline by roughly 10 basis points every year. For the union government, they estimate the interest rate on government debt to be between 7.3% and 8.3%.
6 The data for liabilities of the central 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 has been taken from Gol (2017b). It includes the debt of state power utilities taken over by the state governments under the UDAY scheme, but excludes the states’ share of National Small Savings Fund (NSSF) liabilities to avoid double counting and in many cases also included in the centre’s debt figure.
7 The relationship is reversed for primary surplus (that is, \( p_N > 0 \)).
8 We assume nominal GDP growth of 11.1% (equal to the compound annual growth rate of the past five years, that is, from 2012–13 (99,44,013 crore) to 2016–17 BE (1,68,47,455 crore). The projections are based only on equation (1). The starting values (FY2018) of the debt to GDP ratios are 47.4% for the centre and 21% for the states.

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Obituaries

The EPW has started a section, “Obituaries”, which will note the passing of teachers and researchers in the social sciences and humanities, and social activists who have contributed to a just society.

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